

WILTON PUBLIC WORKS  
DEPARTMENT

(203) 563-0152



TOWN HALL ANNEX  
238 Danbury Road  
Wilton, Connecticut 06897

## MEMORANDUM

**TO:** Wilton WPCA Commission  
**FROM:** Frank Smeriglio, PE, - Director of Public Works/Town Engineer *FS*  
**DATE:** September 9, 2022  
**RE:** 19 Cannon Rd

This memo is written in regards to the submission of an application from Baywing LLC requesting a sewer extension, sewer capacity allocation and approval to connect to the sewer for proposed development on 19 Cannon Road.

Please refer to the submission dated September 1, 2022 by Timothy S. Hollister entitled, "General Statutes 7-246a Application of Baywing L.L.C for Sewer Extension, Allocation of Sewer Capacity, and Approval to Connect a Multi-Family Development at 19 Cannon Road, Wilton".

The Public Works Department began an initial review of this latest application and will continue to review the submission. Please note on page 3, paragraph F, "Capacity Review", reference is made by Timothy Hollister that Robert Andrews, principal of Baywing L.L.C. met with myself and that I "Confirmed that the existing system has capacity for the proposed discharge. There are no engineering or environmental issues with this application."

That statement is not accurate. I did meet with Robert Andrews after his initial submission was withdrawn. He requested information about overall existing flows entering the City of Norwalk sewer system from Wilton as it relates to the maximum allowed flow described in the Agreement between Norwalk and Wilton. But in no means did I "Confirm that the existing system has capacity for the proposed discharge. There are no engineering or environmental issues with this application" as to imply that I approved the project. Any comments made to Mr. Andrews were limited to capacity only as it relates to the Norwalk/Wilton Interlocal Agreement.

The Public Works Department (and The Department's consultant) will continue to review the application to determine if we concur with the applicant's conclusions in the report.

**GENERAL STATUTES § 7-246a APPLICATION OF  
BAYWING L.L.C. FOR SEWER EXTENSION,  
ALLOCATION OF  
SEWER CAPACITY, AND APPROVAL TO CONNECT A  
MULTI-FAMILY DEVELOPMENT  
AT 19 CANNON ROAD, WILTON**

**Wilton Water Pollution Control Authority**

**September 1, 2022**

**Contract Purchase/Applicant:**

Baywing L.L.C.  
18 Crooked Trail  
Rowayton, Connecticut 06853

**Consultant:**

Brian Carey  
Michael Bartos, P.E.  
LANDTECH  
518 Riverside Avenue  
Westport, CT 06880  
(203) 454-2110

**Agent/Counsel:**

Timothy S. Hollister  
thollister@hinckleyallen.com  
Hinckley Allen & Snyder, LLP  
20 Church Street  
Hartford, CT 06103  
(860) 331-2823  
Attorney for Baywing L.L.C.

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4. Wilton Wastewater Collection System Plan, 2015
5. Schematic Sewer Plan, prepared by LANDTECH, August 2022
6. Sanitary Capacity Analysis, prepared by LANDTECH, with attached Flow Report, August 29, 2022
7. From February 2022 application: Memo from LANDTECH to Frank Smeriglio, February 8, 2022; F. Smeriglio response; LANDTECH response February 23, 2022
8. Materials from 2011 sewer application materials; Minutes of June 2011 approval
9. *Dauti v. Newtown Water and Sewer Authority*, 125 Conn. App. 652 (2010) (pp. 662-663 highlighted)
10. Copy of General Statutes § 7-246a

### **Submitted Separately:**

1. Electronic Version/PDF of above application

Tab 1



20 Church Street  
Hartford, CT 06103-1221  
p: 860-725-6200 f: 860-278-3802  
hinckleyallen.com

**Timothy S. Hollister**  
**(860) 331-2823 (Direct)**  
**(860) 558-1512 (Cell)**  
thollister@hinckleyallen.com

September 1, 2022

**TEN COPIES VIA HAND DELIVERY AND E-FILE TO F. SMERIGLIO**

Lynne Vanderslice, Chair and Members  
Town of Wilton  
Water Pollution Control Authority  
238 Danbury Road  
Wilton, CT 06897

Frank Smeriglio  
Town of Wilton  
Department of Public Works  
238 Danbury Road  
Wilton, CT 06897

**Re: Application of Baywing L.L.C. for Approval to Sewer Extension, Capacity Allocation, and Sewer Connection, 19 Cannon Road, Wilton**

Dear Chair Vanderslice, Water Pollution Control Authority members, and Mr. Smeriglio:

On behalf of our client Baywing L.L.C. we are filing this application pursuant to Connecticut General Statutes § 7-246a(a) with the Wilton Water Pollution Control Authority, requesting a sewer extension, sewer capacity allocation, and approval to connect to the sewer system, to facilitate a proposed multi-family residential development, consisting of 70 units, on the parcel at 19 Cannon Road in Wilton.

As required by General Statutes § 7-246a, this application should be processed in accordance with the procedures and timeframes referred to in that statute.

This package contains the following:

**Tab #    Document Description**

1. Transmittal and overview letter, September 1, 2022
2. Assessor's Card, Deed to 19 Cannon Road, and Applicant Authorization Letter
3. Aerial photo of subject property
4. Wilton Wastewater Collection System Plan, 2015
5. Schematic Sewer Plan, prepared by LANDTECH, August 2022
6. Sanitary Capacity Analysis, prepared by LANDTECH, with attached Flow Report, August 29, 2022

7. From February 2022 application: memo from LANDTECH to Frank Smeriglio, February 8, 2022; F. Smeriglio response; LANDTECH response February 23, 2022
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10. Copy of General Statutes § 7-246a

We have submitted an electronic version/PDF of this application. Our understanding is that no fee is due at this time.

A. Subject Property And Proposed Multi-Family Development

The parcel at 19 Cannon Road is approximately 2.16 acres and is currently improved with a single-family home, presently vacant. The parcel is not within any aquifer protection areas or watersheds of any water companies. The parcel contains no wetlands and is not located in a historic district. The parcel is owned by Trygve Hansen. Baywing L.L.C., the development plan applicant here, has an agreement to purchase the property.

B. Designation For Sewer Service

19 Cannon Road is zoned R-2. It is designated by the Town of Wilton Plan of Conservation and Development (POCD) (which apparently serves as the Town's sewer service area map) as located in the so-called "Cannondale Node" (p. 95), and therefore in a "Sewer Growth Area" (p. 101), where sewer extensions "should be considered on the fringes of existing sewer service areas in order to support the development goals of the [POCD]." These Growth Areas "align with" several Future Land Use Plan Areas, one of which is Cannondale Node.

C. Proposed Sewer Extension, Capacity Allocation and Connection

Baywing is proposing a multi-family residential development that will consist of 38 one-bedroom units and 32 two-bedroom units, in one building. Based on the attached Sewer Capacity Analysis prepared by LANDTECH (Tab 6), the proposed units will discharge 15,300 gallons per day. These calculations, however, are based on full occupancy with two people in each bedroom; this is a conservative calculation and the actual total discharge will be less than calculated.

D. Subject to § 8-24 Referral

The proposed sewer connection is an extension of the Town's sewer system that requires a referral to the Planning and Zoning Commission under General Statutes § 8-24. However, the

capacity allocation and actual connection parts of this application are not covered by § 8-24 and are not to be referred.

#### E. Norwalk Review

Under the Interlocal Agreement For Wastewater Treatment Services By and Between The City of Norwalk Water Pollution Control Authority And The Town of Wilton Water Pollution Control Authority, executed in 2010, § 2.19, this application should be made available to Norwalk for review.

#### F. Capacity Review

Based on the minimal proposed discharge (calculated to be 15,300 gpd, but likely to be much less), the capacity of the transmission lines from the Cannon Road/Route 7 intersection, to the City of Norwalk treatment plant; the available, contractual capacity of the Town of Wilton's discharge to Norwalk; and the capacity of the Norwalk treatment plant itself, the applicant has confirmed that the public sewer system has sufficient capacity for this proposed discharge. See the Sewer Capacity Analysis, Tab 6. In a conversation with Robert Andrews, principal of Baywing L.L.C. in May 2022, Public Works Director Smeriglio confirmed that the existing system has capacity for the proposed discharge. There are no engineering or environmental issues with this application.

#### G. 2011 Approval

In 2011, this WPCA approved a sewer extension from Cannondale Village to Route 7, which extension would have been adjacent to 19 Cannon Road; a total discharge of more than 20,000 gpd (see Tab 8); and a sewer connection. Though this approval was never utilized, and the applicant here does not claim that the approval remains in force, it is a relevant fact that an extension and additional discharge were previously approved, with no engineering or environmental concerns. See Tab 8.

#### H. Prior Application

Baywing applied to this WPCA in February 2022 for the same sewer extension, gallonage discharge, and sewer connection as applied for here. That application began with a detailed exchange of engineering comments and understandings with Mr. Smeriglio, see Tab 7. The applicant's responses and answers remain unchanged.

The February 2022 application was referred to the Wilton Planning and Zoning Commission, which reviewed and discussed it on March 14, 2022. Most of the discussion was about the proposed residential units, not the merits of the sewer extension or the discharge *per se*. In response to the discussion, Baywing withdrew the WPCA application before the PZC voted on the § 8-24 referral, and thus before a WPCA vote.

In May 2022, Baywing was informed by Town Planning Director Michael Wrinn (apparently conveying direction from the Town Attorney), that Baywing should secure approval of its sewer approval and discharge before the Town of Wilton would entertain any further review of architectural plans or site development plans, even as a pre-application filing.

I. Baywing's Rights

Baywing has now regrouped and reassessed its rights, leading to this application. At this time, the applicant would advise the WPCA and other Town agencies of these legal parameters:

1. The Town and this WPCA may not use sewer connections and discharge capacity allocations to control land use. Zoning decisions are the exclusive purview of the Planning and Zoning Commission. WPCA's are directed and limited to managing the sewer system.
2. A property owner in general and an applicant for an affordable housing development in particular may obtain permits in whatever order makes the most sense, and a town does not have the authority to prohibit collateral permit applications from proceeding unless and until a sewer approval has been obtained.
3. A town and its WPCA may not impose a *de facto* moratorium on sewer applications simply because a town agency is conducting a study or preparing a revised plan or infiltration study that involves the subject property.
4. While a sewer extension is characterized in court cases as discretionary, such discretion must be exercised fairly, and for reasons strictly related to management of the sewer system.

J. Reasons For Approval

Baywing, LLC requests approval of this application because (1) the proposed discharge is minimal and will have no adverse impact on the public sewer system; (2) in connecting the proposed development to the public sewer system, the applicant will comply with all engineering, technical, environmental, and operational requirements of the Town's Sewer Rules and Regulations; (3) the connection can be accomplished within the right-of-way of Cannon Road; and (4) based on historical and recent data, the Town's sewer system has ample capacity to accept the proposed flow of 15,300 gallons per day.

K. Procedural Matters

Baywing requests that the Water Pollution Control Authority commence the consideration of this application at the Authority's next scheduled meeting on September 14,



Lynne Vanderslice, Chair and Members  
Frank Smeriglio  
September 1, 2022  
Page 5

2022. Under General Statutes § 7-246a, action by the Water Pollution Control Authority is required within 65 days.

Thank you for your consideration.

Very truly yours,

A handwritten signature in black ink, appearing to read "Tim Hollister", written in a cursive style.

Timothy S. Hollister

cc: Baywing LLC  
LANDTECH

# Tab 2

123

BOOK 402 PAGE 298

**To all People to Whom these Presents shall Come, Greeting:**

**Know Ye, That** I, ESTHER M. ALLEN, of 15 Cannon Road, in the Town of Wilton, County of Fairfield and State of Connecticut,

for the consideration of TWO HUNDRED FIFTY THOUSAND (\$250,000.00) DOLLARS

received to my full satisfaction of TRYGVE HANSEN and MURIEL HANSEN, of 426 Danbury Road, in the Town of Wilton, County of Fairfield and State of Connecticut,

•275.00 Conveyance Tax Collected

*Mary Wilton*  
Town Clerk of Wilton

Do give, grant, bargain, sell and confirm, unto the said

TRYGVE HANSEN and MURIEL HANSEN

All that certain piece, parcel or tract of land, with any buildings and improvements thereon, situated in the Town of Wilton, County of Fairfield and State of Connecticut, shown and delineated as Parcel No. "1 4.380 AC #15 Cannon Road" on a certain map entitled "Subdivision Prepared for Esther M. Allen Wilton, Conn.", which map is on file in the office of the Town Clerk of the said Town of Wilton as the map numbered 3621, reference thereto being had.

Together with any and all rights and rights of way appurtenant to said Premises.

Conveyance is made subject to taxes of the Town of Wilton which become due and payable after the date of this deed, public improvement assessments, and/or any unpaid installments thereof, which assessments and/or installments become due and payable after the date of this deed, which taxes and assessments, or unpaid installments thereof, the Grantees assume and agree to pay as part of the consideration for this deed, and any restrictions or limitations imposed or to be imposed by governmental authority, including the zoning and planning rules and regulations of the Town of Wilton.

Said premises are conveyed subject also to the following:

1. Certain rights, easements, obligations and agreements set forth or referred to in a deed from Esther M. Allen to Douglas M. Cott and John D. Paul, dated October 12, 1979, and recorded in the Wilton Land Records in Book 336 at Page 24.
2. Certain rights, easements, obligations and agreements set forth or referred to in a deed from Esther M. Allen to Trygve Hansen and Muriel Hansen, dated June 5, 1980, and recorded in said Land Records in Book 347 at Page 23.
3. Certain rights, easements, obligations and agreements set forth or referred to in a deed from Esther M. Allen to Main Street South Corporation, dated September 14, 1980, and recorded in said Land Records in Book 353 at Page 282.
4. Any effect of the rights and easements granted by Esther A. Miller to The Southern New England Telephone Company by instrument dated Nov. 17, 1900, and recorded in said Land Records in Book 23 at Page 520.
5. Any effect of the rights and easements granted by Esther A. Miller to The American Telephone & Telegraph Co. by instrument dated May 25, 1904, and recorded in said Land Records in Book 25 at Page 230, assigned to The Southern New England Telephone Company by instrument dated Aug. 25, 1938, and recorded in said Land Records in Book 48 at Page 179.
6. The effect of the notes and/or notations appearing on the map numbered 3621 referred to above.

BOOK 402 PAGE 299

To have and to hold the above granted and bargained premises, with the privileges and appurtenances thereof, unto them, the said Grantees, their heirs and assigns forever, to ~~use~~ their own proper use and behoof.

And also, I, the said Grantor, do, for myself, my heirs, executors and administrators, covenant with the said Grantee, their heirs and assigns, that, at and until the ensueing of these presents, I am well seized of the premises as a good indefeasible estate in fee simple, and have good right to bargain and sell the same in the manner and form as is above written, and that the same is free from all encumbrances whatsoever, except as aforesaid.

BOOK 402 PAGE 300

And furthermore, I, \_\_\_\_\_, the said Grantor, do, by these presents, bind myself and my \_\_\_\_\_ heirs forever to Warrant and Defend the above granted and bargained premises to them, the said Grantees, their heirs and assigns, against all claims and Demands whatsoever, except as aforesaid.

In Witness Whereof, I have hereunto set my hand and seal on December 14, 1982.

Signed, Sealed and Delivered in the Presence of:

*Thomas Ps Kidd, Jr*  
THOMAS PSKIDD, JR

*Esther M. Allen* (L.S.)  
Esther M. Allen

*Raymond T. Benedict*  
RAYMOND T. BENEDICT

..... (L.S.)

State of FAIRFIELD } ss Wilton December 14, 1982  
County of CONNECTICUT }

Personally appeared, ESTHER M. ALLEN,

signer and sealer of the foregoing instrument, and acknowledged the same to be her free act and deed,

before me.

*Thomas Ps Kidd, Jr*  
Notary Public  
Commissioner of the Superior Court  
THOMAS PSKIDD, JR.

Received for Record December 14, 1982 at 1:25 P. M. Attest *Mary H. Duffy* Town Clerk



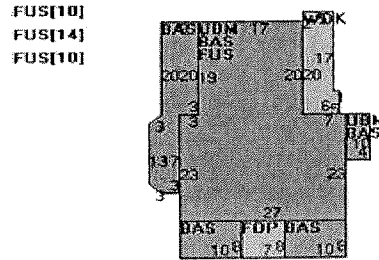
Property Information

Property Location	19 CANNON RD
Owner	HANSEN TRYGVE
Co-Owner	
Mailing Address	321 THAYER POND RD WILTON CT 06897
Land Use	2-1 Commercial
Land Class	C
Zoning Code	R-2
Census Tract	
Sub Lot	
Neighborhood	2500
Acreage	2.16
Utilities	Well,Septic
Lot Setting/Desc	Rolling
Survey Map	
Foundation	1

Photo



Sketch



Primary Construction Details

Year Built	1860
Stories	2
Building Style	Res Style Comm
Building Use	Commercial
Building Condition	Average +20
Floors	Hardwood
Total Rooms	1

Bedrooms	
Full Bathrooms	
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	Gable/Hip
Roof Cover	Asphalt Shngl.

Exterior Walls	Clapboard
Interior Walls	Plastered
Heating Type	Hot Water
Heating Fuel	Oil
AC Type	Central
Gross Bldg Area	3529
Total Living Area	2357



Town of Wilton, CT

Property Listing Report

Map Block Lot 47-1

Account

002256

Valuation Summary (Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	329600	230720
Extras	0	0
Outbuildings	0	0
Land	548900	384230
<b>Total</b>	<b>878500</b>	<b>614950</b>

Outbuilding and Extra Items

Type	Description

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Wood Deck	115	0
Upper Story, Finished	995	995
First Floor	1362	1362
Basement, Unfinished	1001	0
Open Porch	56	0
<b>Total Area</b>	<b>3529</b>	<b>2357</b>

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
HANSEN TRYGVE	2421/0068	4/22/2015	0
HANSEN TRYGVE &	2421/0066	4/22/2015	0
HANSEN TRYGVE &	2391/0268	8/22/2014	0
HANSEN TRYGVE & MURIEL	0402/0298	12/14/1982	250000

August 18, 2022

Wilton Planning & Zoning Commission  
Wilton ARB  
Wilton Inland Wetlands Commission  
Wilton Health Department  
Wilton Department of Public Works  
Wilton Water Pollution Control Authority

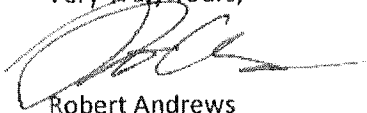
Town Hall Annex  
238 Danbury Road, Wilton, CT 06897

Re: 19 Cannon Road, Wilton, Connecticut

To whom it may concern,

I hereby authorize Timothy Hollister of Hinkley Allen to act as my agent in all matters pertaining to the submission of applications and the securing permits for the construction of proposed residential apartment building at 19 Cannon Road in Wilton, Connecticut.

Very Truly Yours,



Robert Andrews  
Baywing, LLC  
randrews@baywingcapital.com



# Tab 3



**PROJECT  
AREA**

**DANBURY  
ROAD**

**CANNON  
ROAD**

**CANNONDALE TRAIN  
STATION**

**PIMPEWAUG  
ROAD**

**CANNON  
ROAD**

Tab 4

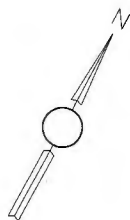
TOWN OF WILTON  
CONNECTICUT  
COMPREHENSIVE WASTEWATER  
COLLECTION SYSTEM PLAN

FIGURE 3-2

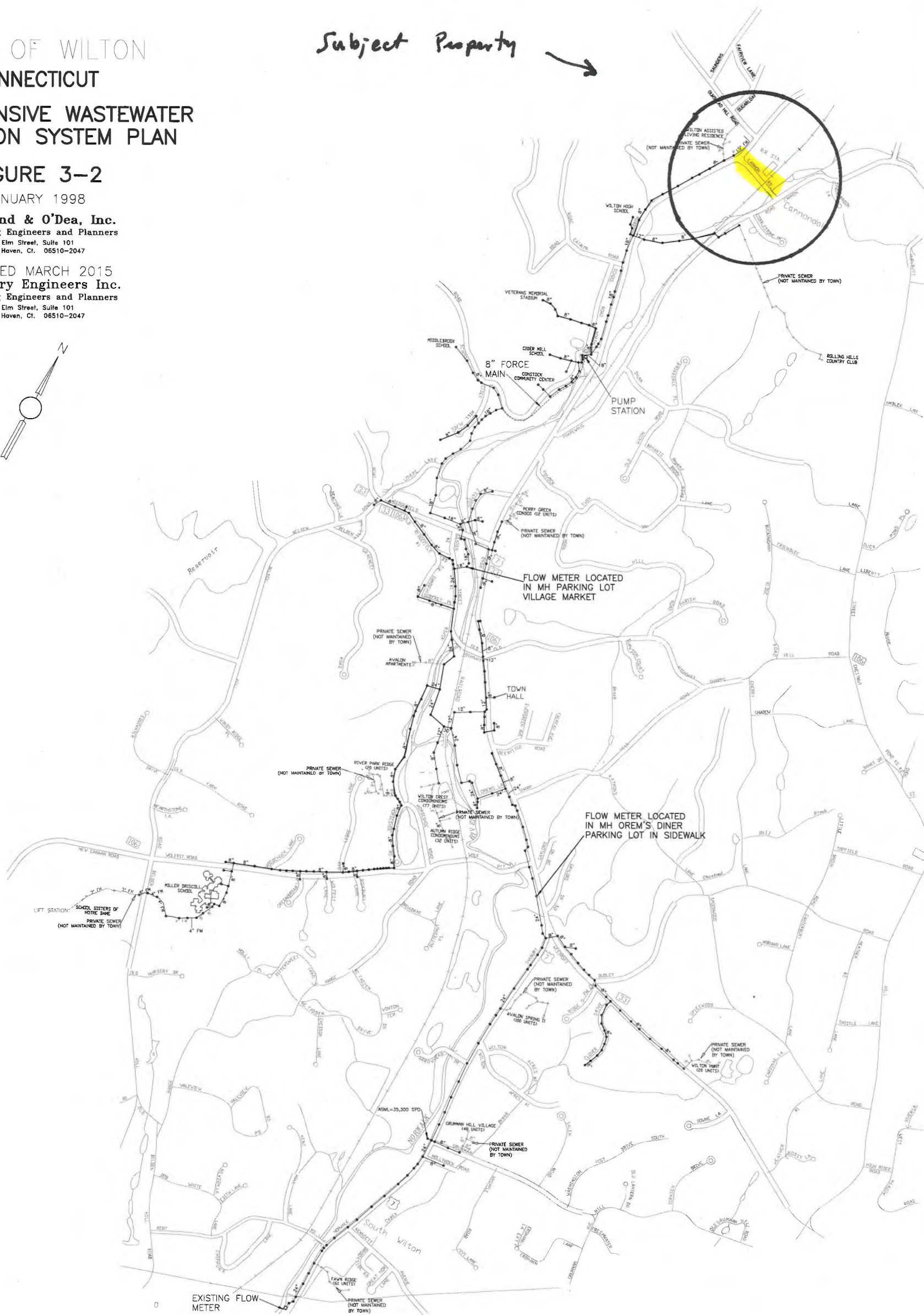
JANUARY 1998

Goodkind & O'Dea, Inc.  
Consulting Engineers and Planners  
59 Elm Street, Suite 101  
New Haven, Ct. 06510-2047

UPDATED MARCH 2015  
Dewberry Engineers Inc.  
Consulting Engineers and Planners  
59 Elm Street, Suite 101  
New Haven, Ct. 06510-2047



Subject Property →



PIPE SCHEDULE

PIPE SIZE, inches	LENGTH, feet	DESCRIPTION
4"	1,467	Force Main
6"	19,500	Gravity
8"	34,170	Force Main/Gravity
12"	2,314	Gravity
18"	6,019	Gravity
24"	15,172	Gravity
30"	123	Gravity

REV 3-6-15 WILTON DPW  
REV 9-2-14 WILTON DPW  
REV 3-26-14 WILTON DPW  
REV 2-10-09 WILTON DPW



# Tab 5



# Tab 6

# MEMORANDUM

To: R. Andrews, B. Carey, T. Hollister, Esq.  
From: M. Bartos  
Date: August 29, 2022  
Subject: 19 Cannon Road Sanitary Sewer Pipe Capacity

The proposal is to construct a multi-family development of 38 one-bedroom and 32-two-bedroom dwelling units and connect to the existing sanitary sewer in Danbury Road Route 7 using a duplex pump station and a 4" DIP force main approximately 300 ft. long.

The project is expected to generate approximately 15,000 gpd of wastewater. In addition, this evaluation assumes that an additional 15,000 gpd will be generated from the future Cannondale Village project. The total daily discharge from the two projects is therefore 30,000 gpd. The peak instantaneous discharge, assuming both projects pump stations are operating at the same time would be 80 gpm each or 160 gpm total. Calculations for determining the daily average and peak discharge rates are on the next page.

The evaluation of the effect of the additional wastewater generated by the project on the municipal sanitary sewer system began with determining whether the 8" pipe from Cannon Road to Route 33 can accept the proposed new flows.

Sanitary flows were measured 10/28/21 to 12/1/21 at a sanitary sewer manhole (SSMH) located approximately 1250 ft south (downstream) from Cannon Road in the Allen's Meadows area. This location is approximately a quarter mile north of where Catalpa Road intersects with Danbury Road. The maximum measured sanitary flow through the existing SSMH was 115.3 gpm. Rainfall during the monitoring was negligible.

The proposed new flow of 80 gpm added to the existing 115.3 gpm results in a peak flow to the 8" pipe of 275.3 gpm or 0.61 cfs. The capacity of an 8" pipe at minimum slope is 0.75 cfs or 337 gpm.

There are no known major wastewater generators between the test manhole and Catalpa Road. The YMCA and High School connect at Catalpa Road, where the sewer increases to 18" diameter. We conclude, therefore, that the 8" pipe has adequate capacity for its entire length from the site at 19 Cannon Road to Catalpa Road to accept the proposed additional flows.

To evaluate the effect of the additional wastewater on the remainder of the system from Catalpa Road to the Norwalk town line, we used the sewer capacity analysis prepared for the Wilton Heights project in 2019. The analysis included the measured flows determined to exist in 2019, the added flows of Wilton heights, a three percent annual rate of wastewater increase from 2019 to 2023, and the new flows from 19 Cannon Road and Cannondale Village.

Table 1 (attached) is a summary of the existing flows determined for Wilton Heights plus 19 Cannon Drive plus Cannondale Village and compared to the pipe capacities from Route 33 to the Norwalk town line. This analysis shows that the pipe system from the intersection of Danbury Road and Route 33 is more than adequate to accommodate the projects at 19 Cannon Road and Cannondale Village.

The 8" sewer from Cannon Drive to Catalpa Road plus the analysis of the 18" and 24" pipes to the Norwalk town line show adequate capacity for the entire length. In my professional opinion, the existing public sewer system can safely accommodate the proposed connection and added flow.



## New Flows:

38 1-Bedroom units x 150/gpd /br = 5,700/gpd

32 2-Bedroom units x 150/gpd/Br = 9,600/gpd

Sum = 15,300 /gpd

For force main  $V = 2$  fps, 4" dia,  $Q = AV = \pi(2/12)^2 (2) = 0.175$  cfs

$Q = 0.175$  cfs x 448.8 gpm/cfs = 78.6 gpm, say 80 gpm.

## Proposed Flow:

Maximum measured flow = 115.3 gpm

Proposed peak new sanitary flow = 80 gpm

Cannondale Village (not yet built) pump station design flow = 80 gpm

Total design flow = 115.3 + 80 + 80 = 275.3 gpm

$Q = 275.3/448.8 = 0.61$  cfs

## Pipe Capacity Calculation:

$$Q = \frac{1.49}{n} AR^{2/3} S^{1/2}$$

Typical range for Manning "n"  $\leq 0.015$  for DIP, ACP, RCP, ABS, PVC, VCP

For 8" pipe, using  $n=0.015$

$$A = \pi(4/12)^2 = 0.35 \text{ ft}^2$$

$$WP = \pi(8/12) = 2.09 \text{ ft}$$

$$R^{2/3} = (A/WP)^{2/3} = (0.35/2.09)^{2/3} = 0.303$$

$$S = 0.50\% \text{ assumed min. } S^{1/2} = 0.0707$$

$$Q = 1.49/0.015 (0.35) (0.303) (0.0707) = 0.75 \text{ cfs}$$

$$Q = 0.75 \text{ cfs} > 0.61 \text{ cfs}$$

## TABLE 1

PIPE # (Note 1)	PIPE SIZE (Note 1)	PIPE CAPACITY CFS (Note 2)	PROPOSED TOTAL FLOW 2019 CFS (Note 3)	PROJECTED EXISTING FLOW 2023 CFS (Note 4)	PROPOSED TOTAL FLOW 2023 CFS (Note 5)	REMAINING PIPE CAPACITY CFS	REMAINING PIPE CAPACITY PERCENT
6	18"	6.39	1.07	1.20	1.56	4.83	76%
7	18"	6.56	1.07	1.20	1.56	5.00	76%
8	18"	5.94	1.07	1.20	1.56	4.38	74%
9	30"	18.34	1.20	1.35	1.71	16.63	91%
10	24"	7.50	1.20	1.35	1.71	5.79	77%
11	24"	7.15	1.20	1.35	1.71	5.44	76%
12	24"	9.33	1.20	1.35	1.71	7.62	82%
13	24"	9.86	2.45	2.76	3.12	6.74	68%
14	24"	9.33	2.45	2.76	3.12	6.21	67%
15	24"	9.60	2.45	2.76	3.12	6.48	68%
16	24"	5.99	2.45	2.76	3.12	2.87	48%

**NOTES:**

1. Pipe # and size refer to pipe # and size used in Wilton Heights calculations dated 7/15/19.
2. Pipe Capacity refers to capacity used in Wilton Heights calculations dated 7/15/19.
3. Flow refers to total flow in system calculated for Wilton Heights.
4. Projected existing flow based on total flow in system calculated for Wilton Heights plus 3% annual increase in flow from 2019 to 2023.
5. Projected total flow is projected existing flow (2023) plus 15,300 gpd from 19 Cannon Road plus 15,000 gpd from Cannon Village (combined peak new flow=160 gpm or 0.36 cfs).
6. Pipe #16 is located at Wilton/Norwalk town line.
7. Pipe #6 is located at intersection of Route 33 and Danbury Road.



# Flow Monitoring Report

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Fall 2021

Prepared For:

**Landtech**

Services Performed In:

**Wilton, CT**

Prepared by:

**EST Associates Inc.**

124 Crescent Road, Needham, MA 02494

Tel: (781) 455-0003

ESTAssociates.com

**Allens Meadow - Wilton, CT**



**Outside View**



**Down Hole View**



**Downstream View**



**US1 View**

124 Crescent Road, Needham, MA 02494  
tel: 781-455-0003 fax: 781-455-8336

**SITE INVESTIGATION FORM**

Client: Landtech Meter ID: Allens Meadow  
 Location: Wilton, CT Address: 415 Danbury Rd

**INSTALL DATA**

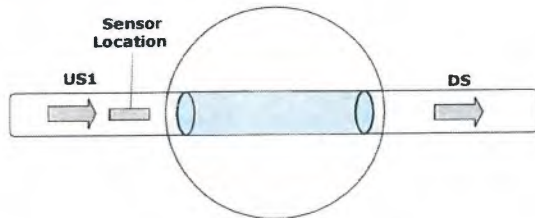
Date: 10/28/2021  
 Time: 9:51AM  
 GPS Coordinates: 41.21386, -73.43168  
 Sensor Location: US1  
 Installed By: SP BK



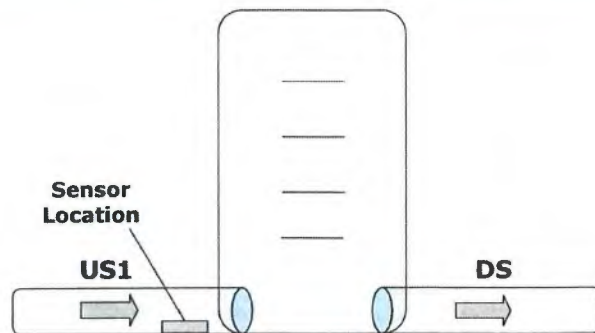
**LINE DESCRIPTIONS**

	Size (in)	Pipe Material	Debris (in)	Shape	Depth (ft, in)
DS	<u>8</u>	<u>Cast</u>	<u>0</u>	<u>Circle</u>	<u>11'5"</u>
US1	<u>8</u>	<u>Cast</u>	<u>0</u>	<u>Circle</u>	<u>11'4"</u>

**PLAN VIEW**



**PROFILE VIEW**



# Allens Meadow Wilton CT

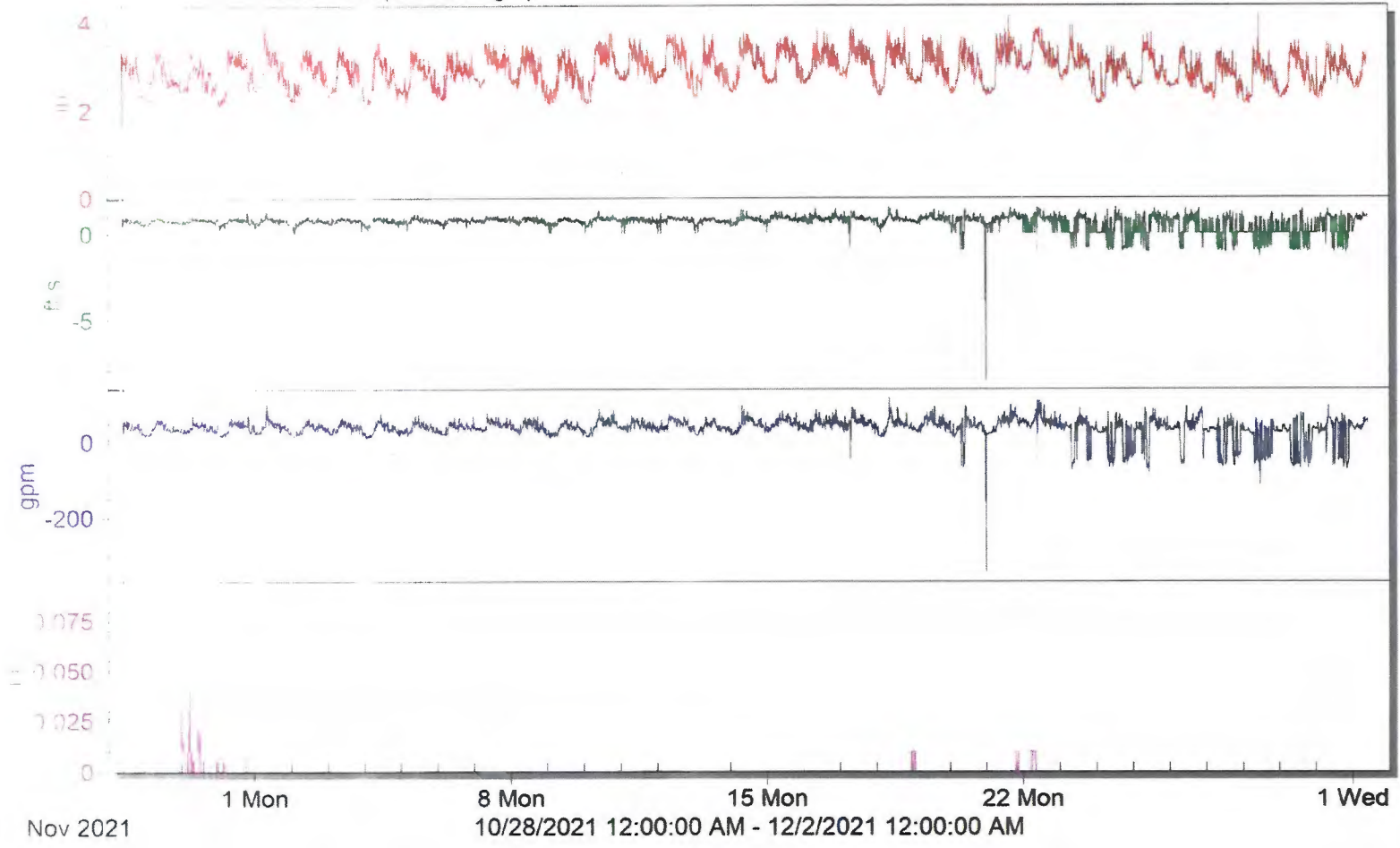
Wilton, CT

Level:0.00

Velocity:0.00

Flow Rate (1706280 gal):0.00

Rainfall (0.84 in):0.00





**Allens Meadow, Wilton, CT**  
Daily Flow Rate Table

Date/Time (m/d/yyyy)	Average Flow Rate (gpm)	Minimum Flow Rate (gpm)	Time of Minimum Flow Rate (m/d/yyyy h:mm)	Maximum Flow Rate (gpm)	Time of Maximum Flow Rate (m/d/yyyy h:mm)	Total Flow (gal)
10/28/2021	38.4	0.0	10:00 AM	58.6	12:15 PM	55,332.3
10/29/2021	34.7	9.4	1:30 AM	64.5	11:00 AM	49,945.5
10/30/2021	37.0	18.1	3:15 AM	77.9	7:30 AM	53,213.0
10/31/2021	38.2	12.4	2:30 AM	70.4	8:00 PM	54,973.0
11/1/2021	40.6	18.5	12:30 AM	104.9	7:45 AM	58,388.9
11/2/2021	34.7	12.7	2:45 AM	66.1	11:45 AM	49,903.4
11/3/2021	36.5	11.3	10:45 PM	68.0	9:00 AM	52,602.7
11/4/2021	33.5	8.9	4:30 AM	77.4	11:00 AM	48,282.9
11/5/2021	36.9	15.2	4:30 AM	79.6	11:45 AM	53,083.3
11/6/2021	37.2	15.9	6:00 AM	71.1	11:45 PM	53,491.6
11/7/2021	44.1	24.2	5:45 AM	75.8	8:45 AM	63,445.8
11/8/2021	39.0	14.1	5:45 AM	69.1	5:30 PM	56,214.7
11/9/2021	33.5	8.7	1:30 AM	60.1	12:45 PM	48,234.9
11/10/2021	43.0	12.3	3:15 AM	87.0	10:00 AM	61,916.1
11/11/2021	42.5	22.6	9:00 PM	70.0	7:30 AM	61,177.1
11/12/2021	45.6	23.3	12:45 AM	74.4	8:00 AM	65,616.8
11/13/2021	36.6	15.2	2:45 AM	65.0	8:00 AM	52,719.5
11/14/2021	43.3	13.4	12:30 AM	94.5	7:30 AM	62,367.1
11/15/2021	47.9	23.1	1:15 AM	81.6	10:15 AM	69,035.6
11/16/2021	47.5	20.7	3:30 AM	84.7	8:00 AM	68,383.3
11/17/2021	47.5	0.0	7:00 AM	89.7	7:45 AM	68,424.4
11/18/2021	42.2	10.8	2:45 AM	115.3	8:30 AM	60,720.2
11/19/2021	45.9	19.6	5:00 AM	91.2	2:00 PM	66,143.7
11/20/2021	30.4	0.0	11:45 PM	92.9	10:15 AM	43,730.8
11/21/2021	47.9	15.7	12:45 AM	96.3	4:00 PM	68,959.5
11/22/2021	52.5	0.0	9:30 AM	108.8	9:45 AM	75,595.2
11/23/2021	25.3	0.0	8:00 AM	88.4	1:30 PM	36,461.4
11/24/2021	6.6	0.0	11:00 AM	75.4	8:00 AM	9,442.9
11/25/2021	28.2	0.0	10:45 AM	87.4	8:00 AM	40,571.0
11/26/2021	31.6	0.0	9:30 AM	93.1	11:00 AM	45,530.9
11/27/2021	7.9	0.0	10:30 AM	71.4	4:00 PM	11,418.5
11/28/2021	6.7	0.0	11:15 AM	61.1	8:30 AM	9,599.4
11/29/2021	-0.2	0.0	2:00 PM	74.1	2:15 PM	-325.1
11/30/2021	20.8	0.0	8:30 PM	94.6	8:15 AM	30,006.8
12/1/2021	40.2	26.5	6:00 AM	62.5	8:00 AM	57,902.5
<b>Flow Total (gal)</b>	<b>Average Flow Rate Total (gpm)</b>	<b>Minimum Flow Rate (gpm)</b>	<b>Time of Minimum Flow Rate (m/d/yyyy h:mm)</b>	<b>Maximum Flow Rate (gpm)</b>	<b>Time of Maximum Flow Rate (m/d/yyyy h:mm)</b>	<b>Average Total Flow (gal)</b>
1,762,510	35.0	0.0	11/20/2021 23:45	115.3	11/18/2021 8:30	50,357.4

## CALIBRATION & DATA COLLECTION

Client: Land Tech Meter ID: allens meadow

Address: 413 Danbury

### SERVICES PERFORMED

Date: 10/28/21 Technicians: SP/BH

Time: 10:10 Meter Serial Number: EST 253

- |  |   |
|--|---|
| <input type="checkbox"/> Sensor Cleaning | <input type="checkbox"/> Calibration Check                      |
| <input type="checkbox"/> Data Download   | <input checked="" type="checkbox"/> Other: <u>Install meter</u> |

Data Downloaded:  Yes  No  
By Modem on: \_\_\_\_\_  
 To Laptop Serial Number: #2

Battery Replacement:  Yes  No  
Existing voltage: 11.5 New voltage: \_\_\_\_\_

Dessicant Status: Good  
Replaced:  Yes  No

### METER READINGS

Levels: Meter: 3.5 (in.) Actual: 3.5 (in.)

Recalibrated:  Yes  No

Sensor Type:  Area Velocity  Ultrasonic  Laser

Velocity: Meter: 1.0 (ft/s) Actual: 1.0 (ft/s)

### NOTES

Notes: \_\_\_\_\_



## CALIBRATION & DATA COLLECTION

Client: LandTech Meter ID: ALLENS MEADOW W. NEW CT  
Address: 415 Danbury

### SERVICES PERFORMED

Date: 11/3/21 Technicians: JR/BR  
Time: 09:19 Meter Serial Number: EST-235

Sensor Cleaning       Calibration Check  
 Data Download       Other: \_\_\_\_\_

Data Downloaded:  Yes       No  
 By Modem on: \_\_\_\_\_  
 To Laptop      Serial Number: JR

Battery Replacement:  Yes       No  
Existing voltage: 11.40      New voltage: \_\_\_\_\_

Dessicant Status: Bad  
Replaced:  Yes       No

### METER READINGS

Levels: Meter: 3.29 (in.)      Actual: 3.25 (in.)  
Recalibrated:  Yes       No  
Sensor Type:  Area Velocity       Ultrasonic       Laser  
Velocity: Meter: .80 (ft/s)      Actual: .80 (ft/s)

### NOTES

Notes: \_\_\_\_\_  
\_\_\_\_\_

## CALIBRATION & DATA COLLECTION

Client: Land tech Meter ID: Allens meadow wiltonct  
Address: 415 Danbury rd

### SERVICES PERFORMED

Date: 11/10 Technicians: SP/BK  
Time: 10:02 Meter Serial Number: EST-253

- |   |   |
|---|---|
| <input type="checkbox"/> Sensor Cleaning          | <input checked="" type="checkbox"/> Calibration Check |
| <input checked="" type="checkbox"/> Data Download | <input type="checkbox"/> Other: _____                 |

Data Downloaded:  Yes  No  
 By Modem on: \_\_\_\_\_  
 To Laptop Serial Number: FF2

Battery Replacement:  Yes  No  
Existing voltage: 11. New voltage: \_\_\_\_\_

Dessicant Status: Good  
Replaced:  Yes  No

### METER READINGS

Levels: Meter: 3.5 (in.) Actual: 3.5 (in.)  
Recalibrated:  Yes  No  
Sensor Type:  Area Velocity  Ultrasonic  Laser  
Velocity: Meter: .8 (ft/s) Actual: .8 (ft/s)

### NOTES

Notes: \_\_\_\_\_

## CALIBRATION & DATA COLLECTION

Client: Leadtech Meter ID: Allens Meadow

Address: 415 Danbury, W. Han. CT

### SERVICES PERFORMED

Date: 11-18-21 Technicians: MK/BK

Time: 1005 Meter Serial Number: EST 253

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Sensor Cleaning | <input checked="" type="checkbox"/> Calibration Check |
| <input checked="" type="checkbox"/> Data Download   | <input type="checkbox"/> Other: _____                 |

Data Downloaded:  Yes  No  
 By Modem on: \_\_\_\_\_  
 To Laptop Serial Number: #MK

Battery Replacement:  Yes  No  
Existing voltage: 11.2 New voltage: \_\_\_\_\_

Dessicant Status: Good  
Replaced:  Yes  No

### METER READINGS

Levels: Meter: 3.168 (in.) Actual: 3.0 (in.)

Recalibrated:  Yes  No

Sensor Type:  Area Velocity  Ultrasonic  Laser

Velocity: Meter: 1.064 (ft/s) Actual: 1.0 (ft/s)

### NOTES

Notes: \_\_\_\_\_  
\_\_\_\_\_

### CALIBRATION & DATA COLLECTION

Client: Land Tech Meter ID: Allens meadow Wilton CT  
Address: 420 Danbury Rd

#### SERVICES PERFORMED

Date: 11/23/2021 Technicians: JC/BK  
Time: 0953 Meter Serial Number: \_\_\_\_\_

- Sensor Cleaning
- Data Download
- Calibration Check
- Other: JA

Data Downloaded:  Yes  No  
 By Modem on: \_\_\_\_\_  
 To Laptop Serial Number: JA

Battery Replacement:  Yes  No  
Existing voltage: 10.21 New voltage: 12.31

Dessicant Status: Good  
Replaced:  Yes  No

#### METER READINGS

Levels: Meter: 3.92 (in) Actual: 3.25 (in)

Recalibrated:  Yes  No

Sensor Type:  Area Velocity  Ultrasonic  Laser

Velocity: Meter: \_\_\_\_\_ (ft/s) Actual: \_\_\_\_\_ (ft/s)

#### NOTES

Notes: \_\_\_\_\_

## CALIBRATION & DATA COLLECTION

Client: Land Tech Meter ID: AKENS MEADOW WILLIAMS CT  
Address: \_\_\_\_\_

### SERVICES PERFORMED

Date: 12/1/21 Technicians: \_\_\_\_\_

Time: 10:04 Meter Serial Number: BST-253

- Sensor Cleaning  Calibration Check  
 Data Download  Other: REMOVE METER

Data Downloaded:  Yes  No  
 By Modem on: \_\_\_\_\_  
 To Laptop Serial Number: JR

Battery Replacement:  Yes  No  
Existing voltage: 11.9 New voltage: \_\_\_\_\_

Dessicant Status: Good  
Replaced:  Yes  No

### METER READINGS

Levels: Meter: 3.04 (in.) Actual: 3.00 (in.)

Recalibrated:  Yes  No

Sensor Type:  Area Velocity  Ultrasonic  Laser

Velocity: Meter: .85 (ft/s) Actual: .85 (ft/s)

### NOTES

Notes: \_\_\_\_\_  
\_\_\_\_\_



Associates, Inc

## Rain Gauge - Wilton, CT

### Daily Rainfall Table

Date	Average Rainfall (in)	Minimum Rainfall (in)	Time of Minimum Rainfall hh:mm	Maximum Rainfall (in)	Time of Maximum Rainfall hh:mm	Total Rainfall (in)
10/28/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
10/29/2021	0.002	0.000	12:00 AM	0.090	11:30 PM	0.160
10/30/2021	0.005	0.000	2:00 AM	0.050	5:30 AM	0.450
10/31/2021	0.000	0.000	12:00 AM	0.020	6:30 PM	0.040
11/1/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
11/2/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
11/3/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
11/4/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
11/5/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
11/6/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
11/7/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
11/8/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
11/9/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
11/10/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
11/11/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
11/12/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
11/13/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
11/14/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
11/15/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
11/16/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
11/17/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
11/18/2021	0.000	0.000	10:15 AM	0.010	10:30 PM	0.020
11/19/2021	0.001	0.000	1:00 AM	0.010	12:00 AM	0.050
11/20/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
11/21/2021	0.000	0.000	12:00 AM	0.010	7:30 PM	0.020
11/22/2021	0.001	0.000	12:00 AM	0.010	5:00 AM	0.100
11/23/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
<b>Rainfall Total (in)</b>	<b>Average Rainfall (in)</b>	<b>Minimum Rainfall (in)</b>	<b>Time of Minimum Rainfall (m/d/yyyy h:mm)</b>	<b>Maximum Rainfall (in)</b>	<b>Time of Maximum Rainfall (m/d/yyyy h:mm)</b>	<b>Average Total Rainfall (in)</b>
0.840	0.000	0.000	10/28/21 0:00	0.090	10/29/21 23:30	0.031

Tab 7

# LANDTECH

Civil Engineering · Site Planning  
Environmental Science & Engineering  
Landscape Architecture · Land Surveying  
Permit Coordination & Management  
Construction Management & Financing

February 23, 2022

Mr. Frank Semriglio  
Director of Public Works/Town Engineer  
Town of Wilton  
238 Danbury Road  
Wilton, CT 06897

RE: Wilton WPCA Review – 19 Cannon Road

Dear Mr. Smeriglio,

LANDTECH is submitting this letter in response to your memorandum addressed to Peter Romano of LANDTECH dated February 8<sup>th</sup>, 2022 in regards to the proposed sewer connection for a proposed residential apartment building located at 19 Cannon Road. LANDTECH has supplied the attached updated calculations regarding the proposed sewer connection for 19 Cannon Road into the Wilton sewer main located on Route 7. Conservative assumptions were used in the calculations for determining the projected flows relative to the existing capacity of the sewer main located on Route 7.

Baywing, LLC, is proposing the construction of a residential apartment building consisting of thirty-eight (38) one (1) bedroom and thirty-two (32) two (2) bedroom dwelling units which will require a connection to the existing Wilton sanitary sewer that is located on the western side of Danbury Road (Route 7) and is approximately 300 linear feet from the property. Connection from the site will be by duplex pump station utilizing a 4" ductile iron pipe (DIP) force main. The existing on site residential structure which is serviced by septic system and supply well will be demolished as part of the project.

LANDTECH evaluated the expected rates of sewage effluent from the proposed project as it compares to the existing sewage effluent flow and the capacity of existing sanitary sewers within Danbury Road. As part of the flow and design analysis, flow monitoring was performed by EST Associates, Inc. for a period of 35-days between October 28<sup>th</sup>, 2021 and December 1, 2021. The flow monitoring was performed by placing an open channel flow meter which was capable of collecting continuous flow at intervals of 15 minutes. A part of the flow monitoring process, rainfall data were also collected during the same time period to determine the level of Inflow and Infiltration (I/I) that could potentially impact capacity of the existing sewer system.

Based on the proposed usage, the total daily flow from the proposed residential building is calculated to be 15,300± gallons per day. The proposed peak flow rate from the project to the sewer main is 80 gpm, which is based on a pumping rate to produce a flow velocity of 2 ft/sec.



**Projected Average and Peak Daily Sanitary Sewer Flows**

<b>Wastewater Requirements</b>					
<b>Development</b>		<b>Design Criteria</b>		<b>Average Daily Flow (GPD)</b>	<b>Peak Flow (GPM)</b>
<b>Use</b>	<b>Units / Bedrooms</b>	<b>GPD</b>	<b>Unit</b>		
Residential	70 / 102	150	Per Bedroom	15,300	80

The following is a response to comments and questions that were provided to LANDTECH by the Town of Wilton Engineering Department in the memorandum to LANDTECH dated February 8<sup>th</sup>, 2022. The comments have been acknowledged and responses have been provided.

1. The project is subject to obtaining approvals from Wilton's WPCA Commission to extend the sewer main.

**Agreed to and understood.**

2. The project is subject to obtaining approvals from Wilton's WPCA Commission to connect the development into the sanitary sewer system.

**Agreed to and understood.**

3. The project is subject to Norwalk WPCA’s review and comment

**Agreed to and understood.**

4. The project will be subject to Sewer Capital Assessment as required by the WPCA. This assessment would be levied after the project is completed.

**Agreed to and understood.**

5. Provide site development plans and plans depicting connection from the site to existing sewer line on Route 7 for our review.

**A preliminary sewer layout plan is attached for review.**

6. Design Engineer shall obtain actual slopes of the existing 8" pipes on Route 7 to determine actual pipe capacity.

**To avoid the need for multiple confined space entries and traffic disruption in Route 7 as required to survey existing pipes, LANDTECH utilized a worst-case scenario as described in the accompanying capacity analysis.**

7. Verify the existing types of 8" pipe from Cannon Rd to existing 18" RCP pipe. Various sections are also ACP and RCP. This may effect Mannings "N"

**As part of the project design, LANDTECH utilized a worst-case scenario for the Manning Coefficient assuming that “n” = 0.015 for all pipes. See capacity calculations.**

8. Provide flow data from the flow meter as part of the sanitary report.

**The flow data collected as part of the analysis from ETS between October 28<sup>th</sup>, 2021 and December 1<sup>st</sup>, 2021 has been attached as requested.**

9. Design Engineer shall incorporate the flows from the proposed development (Cannondale Village) into the calculations to determine if the existing 8-inch pipe has capacity.

A sewer extension project was previously approved in 2011 proposed a connection Cannondale Village via a force main down Cannon Road to the existing sewer main on Danbury Road (Rte 7). This approved sewer main extension was never constructed and the approval has since lapsed. The flow calculations included the proposed flows associated with the previously approved Cannondale Village project as requested by the Town Engineer. LANDTECH incorporated the design methodology that was provided in the Tighe and Bond report dated February 28<sup>th</sup>, 2011 for the Cannondale Village Project. The pumping rate of 80 gpm cited in the approved Cannondale Village calculations for Cannondale Village was used in the calculations.

10. Please note, any potential clogs in the lateral, force main and/or sewer main connection points shall be the responsibility of the property owner to unclog.

**Agreed to and understood**

11. Upon review of the development plans, property owner shall be responsible for maintenance of the force main from the property to gravity sewer line. Including all force main mark outs for other contractor's working on Cannon Road

**Agreed to and understood**

12. All proposed sewer lines shall be air tested prior to sign off of certificate of occupancy.

**Agreed to and understood**

13. The project will be subject to the final technical review by the WPCA.

**Agreed to and understood**

14. The above sewer related comments shall be considered preliminary.

**Agreed to and understood**

If you have any questions or require any additional information, please contact me on 203-454-2110, ext. 15 or at [promano@landtechconsult.com](mailto:promano@landtechconsult.com).

Very truly yours  
LANDTECH



Pete Romano, Principal

Enclosures

19 Cannon Road Sanitary Sewer Pipe Capacity dated 2/22/2022

EST – Flow Monitoring Report dated Fall 2022

Proposed Sewer Line Location and Design Map

## MEMORANDUM

To: P. Romano, B. Carey  
 From: M. Bartos  
 Date: February 22, 2022  
 Subject: 19 Cannon Road Sanitary Sewer Pipe Capacity

Site Location: 19 Cannon Road; Wilton, CT  
 Existing conditions: the site contains 1 single family dwelling  
 Zoning: RA-2 Site Area: 2.1 acres

### Proposal:

The Proposal is to construct a multi-family development. thirty-eight (38) one-(1) bedroom and thirty-two (32) two (2) bedroom dwelling units and connect to the existing sanitary sewer in Danbury Road Route 7. Connection from the site by duplex pump station, 4"DIP force main approximately 300 l.f.

### New Flows:

38 1-Bedroom units x 150/gpd /br = 5,700/gpd  
 32 2-Bedroom units x 150/gpd/br = 9,600/gpd  
 Sum = 15,300 /gpd

For force main  $V = 2$  fps, 4"dia,  $Q = AV = \pi(2/12)^2 (2) = 0.175$  cfs  
 $Q = 0.175$  cfs x 448.8 gpm/cfs = 78.6 gpm, say 80 gpm.

### Existing Flow:

Flows were measured 10/28/21 to 12/1/21 at SSMH located approximately 1,250 lf south (downstream) from Cannon Road at Allen's Meadows.

Maximum measured Q at existing SSMH (8"DIP) is 115.3 gpm. Rainfall during monitoring was negligible.

### Proposed Flow:

Maximum measured flow = 115.3 gpm  
 Assumed peak new sanitary flow = 80 gpm  
 Cannondale Village pump station design = 80 gpm  
 Total design flow = 115.3 + 80 + 80 = 275.3 gpm  
 $Q = 275.3/448.8 = 0.61$  cfs

### Pipe Capacity:

$$Q = \frac{1.49}{n} AR^{2/3} S^{1/2}$$

Typical range for Manning "n"  $\leq 0.015$  for DIP, ACP, RCP, ABS, PVC, VCP

For 8" pipe, using  $n=0.015$

$$A = \pi(4/12)^2 = 0.35 \text{ ft}^2$$

$$WP = \pi(8/12) = 2.09 \text{ ft}$$

$$R^{2/3} = (A/WP)^{2/3} = (0.35/2.09)^{2/3} = 0.303$$

$$S = 0.50\% \text{ assumed min. } S^{1/2} = 0.0707$$

$$Q = 1.49/0.015 (0.35) (0.303) (0.0707) = 0.75 \text{ cfs}$$

$$Q = 0.75 \text{ cfs} > 0.61 \text{ cfs}$$

Existing 8" pipe can accommodate the flow without surcharge, even if both pump stations discharge at the same time.

WILTON PUBLIC WORKS  
DEPARTMENT


(203) 563-0152



TOWN HALL ANNEX  
238 Danbury Road  
Wilton, Connecticut 06897

## MEMORANDUM

TO: Peter Romano, Landtech

FROM: Frank Smeriglio, PE,   
Assistant Director of Public Works/Town Engineer

DATE: February 8, 2022

RE: 19 Cannon Rd

---

This memo is written in regards to the review of Sanitary calculations provided on January 11, 2022 for a potential development on 19 Cannon Rd. Based on the review of the submitted calculations at this time, the items listed below shall be addressed.

### Sanitary Sewer Related items

1. The project is subject to obtaining approvals from Wilton's WPCA Commission to extend the sewer main.
2. The project is subject to obtaining approvals from Wilton's WPCA Commission to connect the development into the sanitary sewer system.
3. Project is subject to Norwalk WPCA's review and comment.
4. The project will be subject to Sewer Capital Assessment as required by the WPCA. The Assessment would be levied after the project is completed.
5. Provide site development plans and plans depicting connection from the site to existing sewer line on Route 7 for our review.
6. Design Engineer shall obtain actual slopes of the existing 8" pipes on Route 7 to determine actual pipe capacity.
7. Verify the existing types of 8" pipe from Cannon Rd to existing 18" RCP pipe. Various sections are also ACP and RCP. This may effect Mannings "N".

8. Provide flow data from the flow meter as part of the sanitary report.
9. Design Engineer shall incorporate the flows from the proposed development (Cannondale Village) into the calculations to determine if the existing 8 inch pipe has capacity.
10. Please note, any potential clogs in the lateral, forcemain and/or sewer main connection points shall be the responsibility of the property owner to unclog.
11. Upon review of the development plans, property owner shall be responsible for maintainance of the force main from the property to gravity sewer line. Including all forcemain mark outs for other contractor's working on Cannon Road.
12. All proposed sewer lines shall be air tested prior to sign off of certificate of occupancy.
13. The project will be subject to the final technical review by the WPCA.
14. The above sewer related comments shall be considered preliminary.

Based on the list of items above, additional items may be required depending on responses to the above.

If you have any questions, please do not hesitate to call.

q:\site plan reviews\reviews after 1-30-19\danbury road - 141 - sanitary\cannon rd - 19 - wpc - lantech.doc

Tab 8

12-0721-2-02  
February 28, 2011

**Tighe&Bond**

www.tighebond.com

Tom Thurkettle  
Director of Public Works  
Town of Wilton  
238 Danbury Road  
Wilton, CT 06897

Re: **Cannondale Village  
Application to the WPCA**

Dear Mr. Thurkettle:

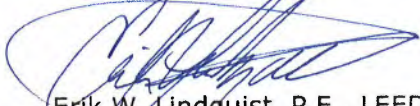
I am pleased to provide you with 3 copies of plans, profiles and calculations for the design of the sanitary sewer pump station and force main at Cannondale Village. The pump station will be centrally located on the project site and will discharge thru a 3-inch force main out to Cannon Road and beneath the railroad tracks prior to discharging to the existing sewer in Route 7 via a gravity line.

In addition, per your conversation with John Block we have provided a 2-inch service lateral for 25 and 27 Cannon Road. The service lateral will be capped at the property line for future use by both properties. We analyzed the current sewer demand for the properties as well as the maximum sewer demand potential for the site based on current zoning requirements. Based on these calculations the proposed 3-inch sanitary sewer force main in Cannon Road will be adequate to accommodate the flows from Cannondale Village and those generated by 25 and 27 Cannon Road.

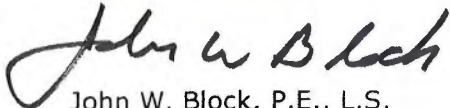
We look forward to a March approval from the WPCA. If you have any questions with the plans or calculations, please feel free to contact me at your convenience.

Very truly yours,

**TIGHE & BOND, INC.**



Erik W. Lindquist, P.E., LEED AP  
Senior Engineer



John W. Block, P.E., L.S.  
Senior Vice President

Copy: Marc Gueron  
J. Casey Healy, Esq.

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1911-2011

1000 Bridgeport Avenue, Suite 320 • Shelton, CT 06484 • Tel 203.712.1100 • Fax 203.925.8942





## Sanitary Sewer Calculations

## Rehabilitation and Redevelopment of Cannondale Village

### WPCA Submission

Wilton, Connecticut

RECEIVED  
MAR 01 2011  
WILTON DEPT. OF PUBLIC WORKS

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MAR 01 2011

Prepared for: WILTON DEPT. OF PUBLIC WORKS

**Cannondale Properties, LLC**

March 1, 2011



# Rehabilitation and Redevelopment of Cannondale Village

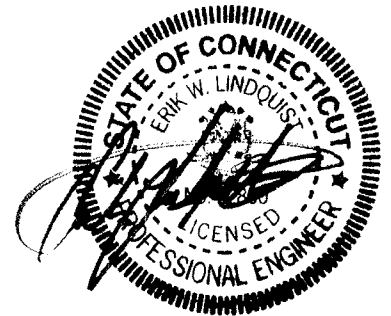
Wilton, Connecticut

## Sanitary Sewer Calculations

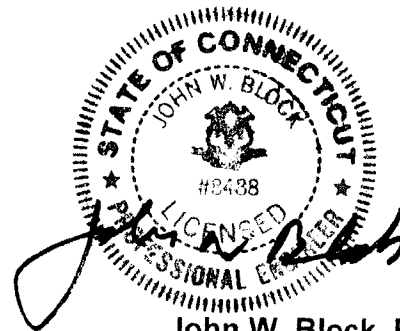
Prepared For:

Cannondale Development, LLC

March 1, 2011



Erik W. Lindquist, P.E., LEED AP  
Senior Engineer



John W. Block, P.E., L.S.  
Senior Vice President

# **Sanitary Sewer Sizing And Pump Chamber Calculations**

ESTIMATE OF PROPOSED SANITARY SEWER LOAD:

USE - RESIDENTIAL

TOWN HOMES (25)

↳ 3BDR/TOWN HOME = 75 BEDROOMS

BUILDING # 2

↳ 1BDR (GENERAL STORE ANNEX) = 1 Bedroom

BUILDING # 5

↳ 1BDR (YELLOW BARN) = 1 Bedroom

BUILDING # 6

↳ 2BDR (RED BARN) = 2 Bedroom

BUILDING # 7 (MILL HOUSE)

↳ 3BDR (POSSIBLE EXPANSION TO 5) = 5 BEDROOMS

TOTAL = 84 BEDROOMS

USE - RETAIL

BUILDING # 1 (GENERAL STORE) = 3,684 S.F.

BUILDING # 2 (GENERAL STORE ANNEX) = 556 S.F.

BUILDING # 3 (ICE HOUSE) = 145 S.F.

BUILDING # 5 (YELLOW BARN) = 1,193 S.F.

BUILDING # 6 (RED BARN) = 2,308 S.F.

TOTAL = 7,886 S.F.

## USE - OTHER

### STORAGE:

↳ BUILDING # 1 (GENERAL STORE) = 876 S.F.

↳ BUILDING # 5 (YELLOW BARN) = 339 S.F.

1,215 S.F.

### RESTAURANT:

↳ BUILDING #4 (SCHOOL HOUSE) = 995 S.F.

60 SEATS

(30 inside / 30 outside)

### POOL HOUSE:

↳ (BASED PER BATHER) = 920 S.F.

## ASSUME:

RESIDENTIAL: 100 gal/day / BDR = 100  $\frac{\text{GAL}}{\text{DAY}}$  x 84 BDR

$$\text{RESIDENTIAL} = \boxed{8,400 \text{ GAL/DAY}}$$

RETAIL: 0.1 gal/day / SF = 0.1  $\frac{\text{GAL}}{\text{DAY}}$  x 7,886 S.F.

$$\text{RETAIL} = \boxed{789 \text{ GAL/DAY}}$$

STORAGE: NO GENERATION

RESTAURANT: 10 gal/meal (assume 60 seats w/ 3 lunches)

$$10 \text{ gal/meal} \times 180 \text{ meals} = \boxed{1,800 \text{ GAL/DAY}}$$

POOL HOUSE: 10 gal/BATHER (assume 84 BATHERS (BDR))

$$10 \text{ gal/BATHER/DAY} \times 84 \text{ BATHERS} = \boxed{840 \frac{\text{GAL}}{\text{DAY}}}$$

$$\text{TOTAL FLOW} = 8,400 \text{ gpd} + 787 \text{ gpd} + 1,800 \text{ gpd} + 840 \text{ gpd}$$

$$\text{TOTAL FLOW} = 11,827 \text{ gpd}$$

$$\therefore \text{PEAK HOURLY FLOW} = \frac{11,827 \text{ gpd}}{\left(\frac{24 \text{ hrs}}{\text{d}}\right) \left(\frac{60 \text{ min}}{\text{hr}}\right)} \times 5 = \boxed{41.1 \text{ gpm}}$$

(ASSUME PEAK FACTOR OF 5)

LENGTH OF SANITARY FORCE MAIN: 1,060 LF

ELEVATION HEAD:

+ INVERT AT PUMPSTATION (DOWN): 213 +/-

+ INVERT AT SAN MH IN CANNON ROAD: 221.5 +/-

$$\text{ELEV HEAD} = 221.5 - 213 = 8.5\text{-FT}$$

ASSUME 3" DIP FORCE MAIN @ 1,060 LF

$$45\text{ gpm } 3" = 0.24\text{ FL}/100\text{ FT Friction loss}$$

90° BENDS - 3

GATE VALVE - 1

CHECK VALVE - 1

EQUIVALENT LENGTH PIPE	90°	3 x 10
	G.V.	1 x 2.3
	C.V.	1 x 26
	Force MAIN	1,060

$$1,098.3\text{ FT} \Rightarrow \text{SAY } 2,000\text{ LF}$$

$$\text{FRICTION LOSS: } \frac{2000\text{ FT}}{100\text{ FT}} \times 0.24 \frac{\text{FT}}{100\text{ FT}} = 4.8\text{ FT}$$

$$\text{TOTAL DYNAMIC HEAD (TDH)} = 8.5\text{ FT} + 4.8\text{ FT} = 13.3\text{ FT}$$

$$\text{TDH} = 13.3\text{ FT @ } 45\text{ gpm}$$

SAY 15 FT @ 45 gpm

\* USE 3HP GRINDER PUMP w/  
4.5" Impeller DIA.

25 CANNON ROAD - 2,378 s.f. (meeting hall) [1 person/20 s.f.]

27 CANNON ROAD - 6,035 s.f. (office)

$$\text{Meeting Hall: } 5 \text{ gal/person/day} = 5 \frac{\text{gal}}{\text{p}} \times 120 \text{ people} = \boxed{600 \frac{\text{gal}}{\text{d}}}$$

$$\text{OFFICE: } 0.1 \text{ gal/day/s.f.} = 0.1 \frac{\text{gal}}{\text{day}} \times 6,035 \text{ s.f.} = \boxed{603.5 \frac{\text{gal}}{\text{d}}}$$

$$\begin{aligned} \text{TOTAL FLOW} &= 600 \frac{\text{gal}}{\text{d}} + 603.5 \frac{\text{gal}}{\text{d}} \\ &= 1,203.5 \frac{\text{gal}}{\text{d}} \end{aligned}$$

$$\therefore \text{PEAK HOURLY FLOW} = \frac{1,203.5 \frac{\text{gal}}{\text{d}}}{(24 \frac{\text{hrs}}{\text{d}}) (\frac{60 \text{ min}}{\text{hr}})} \times 5 = \boxed{4.2 \text{ gpm}} \text{ existing}$$

MAXIMUM SITE YIELD:

3.29 combined Acres w/ a 0.25 max F.A.R. for DRD  
 ↳ 35,825 s.f. of floor area

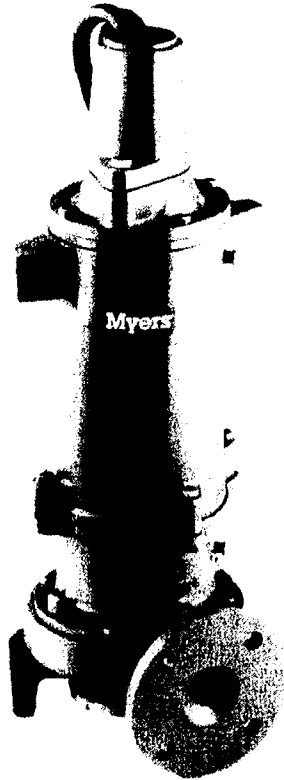
ASSume medical office as worst case = 0.2 gal/day/s.f.

$$\text{Med OFFICE} = 0.2 \frac{\text{gal}}{\text{d}} \times 35,825 \text{ s.f.} = 7,165 \frac{\text{gal}}{\text{d}}$$

$$\therefore \text{Peak Hourly Flow} = \frac{7,165 \frac{\text{gal}}{\text{d}}}{(24 \frac{\text{hrs}}{\text{d}}) (\frac{60 \text{ min}}{\text{hr}})} \times 5 = \boxed{24.9 \text{ gpm}} \text{ build out}$$

# WG30H-75H and WGX30H-75H

Standard (WG30H-75H) and Explosion-proof (WGX30H-75H)  
3-7½ HP, High Head Submersible Grinder Pumps



30H-75H only)

**M**YERS WG30H-75H ARE RUGGED 3-7½ HORSEPOWER SUBMERSIBLE CENTRIFUGAL GRINDER PUMPS DESIGNED FOR RESIDENTIAL, COMMERCIAL OR INDUSTRIAL APPLICATIONS. They are especially suited for use in pressure sewer applications or in systems with long discharge runs or high static heads. The WG30H-75H feature a heavy duty cutter mechanism and recessed impeller design to efficiently grind typical sewage solids into a fine slurry.

The WG30H-75H grinder pumps are available in standard and U.L. Listed explosion-proof (WGX30H-75H), construction for use in Class 1, Group D hazardous locations.

WG30H-75H grinder pumps can be installed in a variety of packaged systems. Factory-assembled simplex or duplex packages with guide rail systems are available. Individual rail components are also available for installation in onsite concrete systems. F.E. Myers offers a complete line of submersible sump, sewage, effluent, grinder, non-clog wastewater pumps, controls, basins and accessories. For additional information, please contact your local Myers representative or the Myers Ohio sales office at 419-281-1144.

## ADVANTAGES BY DESIGN

### IDEAL FOR USE IN PRESSURE SEWER SYSTEMS

- Recessed impeller provides steep non-overloading operating curve.

### DURABLE MOTOR WILL DELIVER MANY YEARS OF RELIABLE SERVICE.

- Oil-filled motor for maximum heat dissipation and constant bearing lubrication.
- Recessed impeller reduces radial bearing loads, increases bearing life.
- High torque capacitor start/run single phase or three phase motors for assured starting under heavy load.
- Seal leak probes and on-winding heat sensors warn of seal leak condition, and stop motor if motor overheats. Helps prevent costly motor damage.

### THE WG30H-75H SERIES IS DESIGNED FOR EASY MAINTENANCE.

- Shredding ring and grinder impeller are replaceable without dismantling pump or motor.

## PRODUCT CAPABILITIES

Capacities To	98 gpm	367 lpm
Heads To	170 ft.	52.0 m
Liquids Handling	domestic raw sewage	
Intermittent Liquid Temp.	up to 140° F	up to 60° C
Winding Insulation Temp. (Class F)	311°F	155°C
Motor Electrical Data (Single phase motors are capacitor start type. Myers control panels or capacitor kits are recommended for proper operation and warranty.)	3450 rpm, 60 Hz 3-5 hp, 230V, 1Ø 3-7½ hp, 200, 230, 460V, 3Ø	
Third Party Approvals	CSA	
Optional Approvals	UL Class 1, Group D (WGX30H-75H)	
Acceptable pH Range	6 - 9	
Specific Gravity	.9 - 1.1	
Viscosity	28 - 35 SSU	
Discharge, NPT	2½ in.	63.5 mm
Min. Sump Diameter		
Simplex	36 in.	91.4 cm
Duplex	48 in.	121.9 cm

Note: Consult factory for applications outside of these recommendations.

## Construction Materials

Motor Housing, Seal Housing, Cord Cap, Volute Case	cast iron, Class 30, ASTM A48
Impeller	recessed, bronze
Power and Control Cords	25 ft. SOOW
Mechanical Seals - Std. Opt.	dbl. tandem carbon & ceramic lower tungsten carbide
Pump, Motor Shaft	416 SST
Fasteners	300 Series SST
Shredding Ring and Grinder Impeller	440 SST, 58-60 Rockwell

WHERE INNOVATION MEETS TRADITION

**Myers®**

Pentair Water



**STATOR**

3450 RPM, 1 and 3 phase. Press fit for perfect alignment and best heat transfer. Oil-filled motor conducts heat and lubricates bearings.

**CABLE ENTRY SYSTEM**

Provides double seal protection. Cable jacket sealed by compression grommet. Individual wires sealed by epoxy potting.

**HEAT SENSOR**

Protects motor from burn-out due to excessive heat from any overload condition. Automatically resets when motor has cooled.

**BALL BEARINGS**

Upper and lower ball bearings support shaft and rotor and take axial and radial loads.

**HEAVY 416 SST SHAFT**

Corrosion resistant. Reduces shaft deflection due to grinding loads.

**SHAFT SEALS**

Double tandem mechanical shaft seals protect motor. Oil-filled seal chamber provides continuous lubrication.

**SLEEVE BEARING**

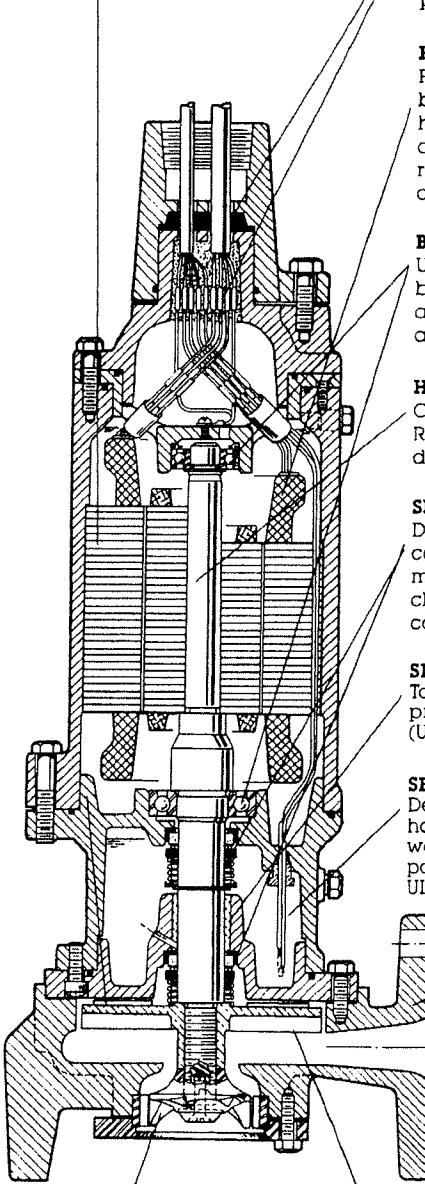
Takes radial load; provides flame path. (UL Listed pumps only.)

**SEAL LEAK PROBE**

Detects water in seal housing, activates warning light in control panel. (Test resistor on UL Listed models.)

**VOLUTE CASE**

Cast iron, horizontal discharge. (Drilled for 2 1/2" pipe flange.)



**GRINDER ASSEMBLY**

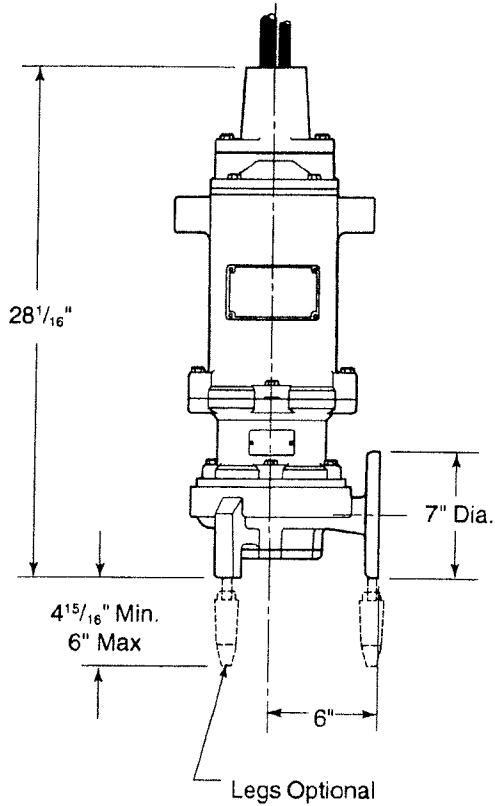
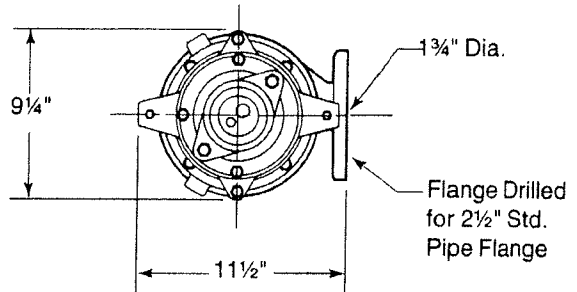
Grinder impeller and shredding ring are replaceable without dismantling pump. Constructed of 440 SST hardened to 56-60 Rockwell.

**IMPELLER**

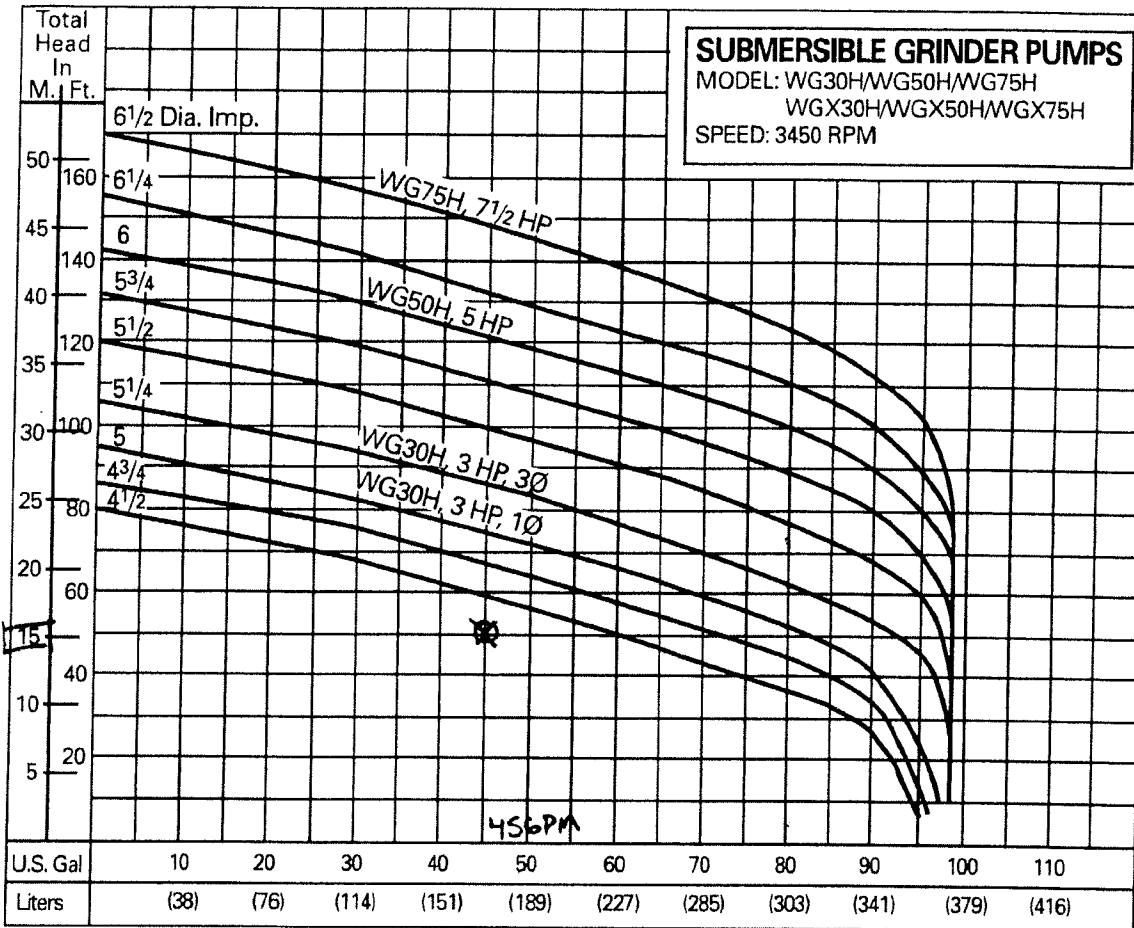
Bronze recessed impeller handles ground slurry without clogging or binding. Provides unobstructed flow passage. Reduces radial loads. Pump-out vanes help keep trash from seal, reduces pressure at seal faces.

**DIMENSIONS**

(Dimensions in MM)



# PUMP PERFORMANCE



Available Models		Motor Electrical Data										
Standard	Explosion Proof	HP	Volts	Phase	Hertz	Start Amps	Run Amps	Run KW	Start KVA	Run KVA	NEC Code Letter	Service Factor
WG30H-21-25	WGX30H-21-25	3	230	1	60	82	21.0	4.3	41.9	4.8	G	1.4
WG30H-03-25	WGX30H-03-25	3	200	3	60	69	15.0	4.3	23.9	5.2	J	1.4
WG30H-23-25	WGX30H-23-25	3	230	3	60	53	13.0	4.3	21.1	5.2	H	1.4
WG30H-43-25	WGX30H-43-25	3	460	3	60	26	6.5	4.3	20.7	5.2	H	1.4
WG30H-53-25	WGX30H-53-25	3	575	3	60	21	5.2	4.3	21.0	5.2	H	1.4
WG50H-21-25	WGX50H-21-25	5	230	1	60	122	32	6.3	28.1	7.4	G	1.7
WG50H-03-25	WGX50H-03-25	5	200	3	60	90	21.6	6.3	31.1	7.5	G	1.7
WG50H-23-25	WGX50H-23-25	5	230	3	60	78	18.8	6.3	27.0	7.5	G	1.7
WG50H-43-25	WGX50H-43-25	5	460	3	60	39	9.4	6.3	31.0	7.5	G	1.7
WG50H-53-25	WGX50H-53-25	5	575	3	60	31	7.5	6.3	31.0	7.5	G	1.7
WG75H-03-25	WGX75H-03-25	7.5	200	3	60	90	25.8	7.9	31.1	8.9	D	1.15
WG75H-23-25	WGX75H-23-25	7.5	230	3	60	78	22.4	7.9	27.0	8.9	D	1.15
WG75H-43-25	WGX75H-43-25	7.5	460	3	60	39	11.2	7.9	31.0	8.9	D	1.15
WG75H-53-25	WGX75H-53-25	7.5	575	3	60	31	9.0	7.9	31.0	8.9	D	1.15

# WG30H-75H and WGX30H-75H

## SPECIFICATIONS

**PUMP MODEL** - Pump shall be of the centrifugal type Myers model \_\_\_\_\_ or equal with an integrally built in grinder unit and submersible type motor. The grinder unit shall be capable of macerating all material in normal domestic and commercial sewage including reasonable amounts of foreign objects such as small wood, sticks, plastic, thin rubber, sanitary napkins, disposable diapers and the like to a fine slurry that will pass freely through the pump and 2" discharge pipe. Discharge shall be standard 2½" flange. Pump and motor assembly shall be UL listed for Class 1, Group D explosion-proof service (WG30H - 75H only).

**OPERATING CONDITIONS** - Pump shall have a capacity of \_\_\_\_\_ GPM at a total head of \_\_\_\_\_ feet and shall use a \_\_\_\_\_ HP motor operating at 3450 RPM.

**MOTOR** - Pump motor shall be of the totally enclosed, submersible, squirrel cage induction type rated \_\_\_\_\_ horsepower at 3450 RPM, 60 Hz.

Motor shall be for single phase 230 volts \_\_\_\_\_ or three phase 200 volts \_\_\_\_\_, 230 volts \_\_\_\_\_, 460 volts \_\_\_\_\_, or 575 volts \_\_\_\_\_. Single phase motors shall be of capacitor start, capacitor run, NEMA L type. Three phase motors shall be NEMA B type.

Stator winding shall be of the open type with Class F insulation good for 155°C (311°F) maximum operating temperature. Winding housing shall be filled with a clean high dielectric oil that lubricates bearings and seals and transfers heat from windings and rotor to outer shell. Air-filled motors which do not have the superior heat dissipating capabilities of oil-filled motors shall not be considered equal.

Motor shall have two heavy duty ball bearings to support pump shaft and take radial and thrust loads and a sleeve guide bushing directly above the lower seal to take radial load and act as flame path for seal chamber. Ball bearings shall be designed for 50,000 hours B-10 life. Stator shall be heat shrunk into motor housing.

A heat sensor thermostat shall be attached to top end of motor winding and shall be connected in series with the magnetic contactor coil in control box to stop motor if motor winding temperature reaches 221°F. Thermostat to reset automatically when motor cools. Three heat sensors shall be used on 3 phase motors.

The common motor pump and grinder shaft shall be of #416 stainless steel threaded to take pump impeller and grinder impeller.

**SEALS** - Motor shall be protected by two mechanical seals mounted in tandem with a seal chamber between the seals. Seal chamber shall be oil filled to lubricate seal face and to transmit heat from shaft to outer shell.

Seal face shall be carbon and ceramic and lapped to a flatness of one light band. Lower seal faces shall be \_\_\_\_\_ carbide (optional).

A double electrode shall be mounted in the seal chamber to detect any water entering the chamber through the lower seal. Water in the chamber shall cause a red light to turn on at the control box. This signal shall not stop motor but shall act as a warning only, indicating service is required.

**PUMP IMPELLER** - The pump impeller shall be of the recessed Myers type to provide an open unobstructed passage through the volute for the ground solids. Impeller shall be of 85-5-5-5 bronze and shall be threaded onto stainless steel shaft. Enclosed or semi-open pump impellers which might become obstructed during grinding or add excessive radial loads shall not be considered as equal.

**GRINDER CONSTRUCTION** - Grinder assembly shall consist of a single rotating grinder impeller and a single stationary shredding ring mounted directly below pump volute inlet. Grinder impeller shall thread onto shaft and shall be locked with a screw and washer. Shredding ring shall be held in place by a steel retaining clamp. Both shredding ring and grinder impeller shall be removable without dismantling pump. No adjustment of grinder assembly shall be necessary for proper grinder operation. Multiple grinder impeller assemblies requiring initial or periodic axial adjustment for proper operation shall not be considered equal. Grinder impeller and shredding ring shall be made of 440C stainless steel hardened to 58-60 Rockwell.

**CORROSION PROTECTION** - All iron castings shall be pretreated with phosphate and chromic rinse and to be painted before machining and all machined surfaces exposed to the sewage water to be repainted. All fasteners to be 302 stainless steel.

**BEARING END CAP** - Upper motor bearing cap shall be a separate casting for easy mounting and replacement.

**POWER CABLES** - Power cord and control cord shall be double sealed. The power and control conductor shall be single strand sealed with epoxy potting compound and then clamped in place with rubber seal bushing to seal outer jacket against leakage and to provide for strain pull. Cords shall withstand a pull of 300 pounds to meet U.L. requirements.

Insulation of power and control cords shall be type SOOW. Both control and power cords shall have a green carrier ground conductor that attaches to motor frame.

12-0721-2-02  
April 12, 2011

**Tighe&Bond**

www.tighebond.com

Wilton Public Works Department  
Town of Wilton  
238 Danbury Road  
Wilton, CT 06897  
Attn: Mr. Mike Ahern, P.E.

Re: **Cannondale Village  
Sanitary Sewer and Force Main Comments**

Dear Mr. Ahern:

Tighe & Bond has reviewed your comments dated April 6, 2011 and provided responses below. Review comments and questions are shown in italics, while our responses appear as bold text. Revised plan sheets and calculations reflecting these comments have also been provided with these responses for your review.

1. *All main sewer lines should be 8" DIP Class 52, and laterals should be 6" DIP Class 52.*

**RESPONSE: We have revised our plan sheets to incorporate these comments.**

2. *Increase force main to 4" diameter (DIP), and revise pump design accordingly. This also applies to future connection to the Grange.*

**RESPONSE: The plan sheets have been revised to show a 4" DIP force main from the proposed pump chamber, as well as a 4" DIP service lateral to the Grange. Additionally, we have provided a revised cut sheet for a Barnes® submersible non-clog pump due to the increase in force main size from a 3" DIP to a 4" DIP. Additional calculations have been provided for review.**

3. *Revise Plans to show watertight manhole covers and hatches.*

**RESPONSE: We have revised the detail sheet to incorporate this comment.**

4. *Revise plans to show waterproof wet well structures and connections.*

**RESPONSE: We have revised the detail sheet to incorporate this comment.**

5. *Confirm that the wet well and manholes resist buoyancy force.*

**RESPONSE: A note has been added to the detail sheets stating that all manholes and the wet well will be designed under the assumption the structures are totally submerged and the final construction documents will incorporate buoyancy force for these structures.**

6. *All couplings should be shielded high pressure type. Identify discharge pipe material on wet well and valve chamber details.*



**RESPONSE:** Solid sleeve mechanical joint couplings will be utilized for the pump chamber and wet well connections. We have also revised the detail sheet to show 4-inch ductile iron pipe leaving the valve pit.

7. Provide pump cycle times and overall storage volume. Show elevations for float settings in wet well, with corresponding volume at each level. Also indicate elevation of wet well base (interior).

**RESPONSE:** We have provided the following table to identify the requested elevations and subsequent cumulative and incremental storage volumes:

Location	Elevation	Cumulative Volume (gal)	Level Volume (gal)
Bottom of Wet Well	211.0	0	0
Pump Off	211.75	159	159
Lead Pump On	212.9	404	243
Lag Pump On	213.4	508	106
High Level Alarm	213.7	574	64

8. Verify the 10-State filling requirement is met (Section 42.62) for the wet well.

**RESPONSE:** The 10-State standards require that the filling time not exceed 30 minutes, based on average daily flow. Utilizing our calculated average daily flow rate of 8.2 GPM, we cannot have more than 246 gallons (8.2 GPM x 30 Minutes) in the level between lead pump OFF and ON. The lead pump ON is set at 243 gallons, hence it will take 29.6 minutes to fill, which is within the 10-State Standards filling requirement.

9. Static head calculations should be from the pump discharge elevation, not the alarm level. Revise.

**RESPONSE:** The static head elevation has been calculated using the bottom of wet well elevation of 211.0. This has been revised from the 213.0 used previously. The revised static head is now  $221.5 - 211.0 = 10.5$  feet. This can be observed in the revised calculations provided for your review.

10. Advise adding "See Notes 17, 18, and 19" at 345 KV line at MH-11.

**RESPONSE:** This note has been added to the plan at MH-11.

11. Need valves added at connections just east of RR, with MHs for access. Confirm that terminal cleanout structure will be large enough to fit assembly.

**RESPONSE:** A junction cleanout structure has been added just east of the railroad to accommodate the 4-inch valve for the Grange and the 4-inch valve for the proposed site. The terminal cleanout structure has been eliminated in favor of the junction cleanout structure and it will be adequate to accommodate the required fittings and appurtenances proposed.

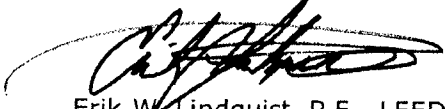
12. Add air release valve(s).

**RESPONSE:** We have added two air release valves to the plan sheets. The first valve is located in the valve vault, and the second is located approximately at station 4+30.

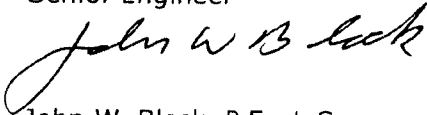
We look forward to an April 13<sup>th</sup> approval from the WPCA. If you have any questions with the plans or calculations, please feel free to contact me at your convenience.

Very truly yours,

**TIGHE & BOND, INC.**



Erik W. Lindquist, P.E., LEED AP  
Senior Engineer



John W. Block, P.E., L.S.  
Senior Vice President

Copy: Marc Gueron  
Casey Healey

C0721 Sewer Comments.doc

COMMENT 7: TOTAL FLOW: 11,827 GPD  
 PEAK HOURLY: 41.1 GPM

- 
$$\text{Avg DAILY FLOW} \cdot \frac{6 \text{ PD}}{24 \times 60} = \frac{11,827}{24 \times 60} = \boxed{8.2 \text{ GPM}}$$

- Wet WELL DIA: 6-FT ∴ EACH FOOT 211.5 gallons

- Force Main Velocity: 3" φ AND 45 GPM = 2.02 FT/S  
 4" φ AND 45 GPM = 1.15 FT/S

10-STATE Requires A minimum 2 FT/S  
 → NEED 80 GPM Pump.

ASSUME 80 GPM pump with 4" φ FM

3-90° BENDS = 15'

1- Flow Thru Tee = 2.3'

1- CV VALVE = 3.1'

1- Plug VALVE = 2.4'

FM STA 0+45 → 12+20 = 1175'

= 1197.8 SAY 1200-FT

FRICTION LOSS IN 4" φ D.I. = 0.46'/100'

$$V^2/2g = 0.065$$

$$\text{F.M. Friction Loss} \left( \frac{1200}{100} \right) (0.46) + 0.065 = 5.585$$

SAY 5.6'

## STATIC LIFT

INVERT TO SEWER: 221.5

$$\Delta = 221.5 - 211.0$$

BOTTOM OF WET WELL: 211.0

$$\Delta = 10.5 \text{ ft}$$

$$\text{TDH} = \text{STATIC} + \text{DYNAMIC} = 10.5' + 5.6' = 16.1'$$

\* PUMP: NEED 80 GPM @ 16.1' TDH → MEYER PUMP WILL NOT WORK

## COMPARE PUMP W/ WET WELL @ 10 STATE STG'S

AVG DAILY FLOW: 8.2 GPM

6'-0"  $\phi$  WET WELL: 211.5 GAL/FT

MAX VOLUME FOR 30 MIN FILL @ 8.2 GPM = 246 Gallons

$$\therefore \text{MAX ELEVATION FOR LEAD PUMP IS: } \frac{246}{211.5} = 1.16 \text{ FT}$$

IF BOTTOM OF WET WELL IS EL 211.0

ASSUME MINIMUM OF 9" OF LIQUID IN WET WELL (PUMP OFF)

Pump OFF: 211.75 FT

ADD 1.15' FOR LEAD PUMP SW = 212.9 FT

ADD 0.5' FOR LAG PUMP SW = 213.4 FT

ADD 0.3' FOR HIGH LVL ALARM = 213.7 FT



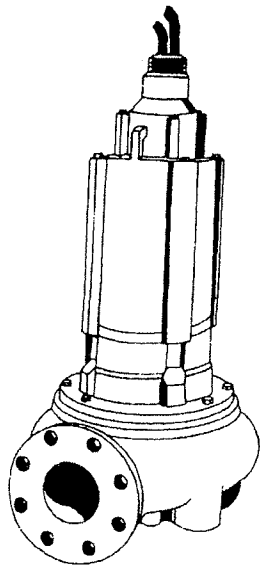
# BARNES® SUBMERSIBLE NON-CLOG PUMPS

Series: 4XSE


3" Spherical Solids Handling


Class I, Groups C & D, Division 1

SECTION	1E
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DATE	1/96
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Series: 4XSE 1.5-3 HP  
1750 RPM

 Underwriters Laboratories Inc. ®  
File No. E73842

 Canadian Standards Association  
File No. LR16567-25

## Description:

SUBMERSIBLE NON-CLOG SEWAGE PUMP DESIGNED FOR HAZARDOUS RAW SEWAGE APPLICATIONS.

Sample Specifications. Section 1 Page 19

## Specifications:

**DISCHARGE:** 4" (102mm) 125 lb, Horizontal.  
**LIQUID TEMPERATURE:** 104°F (40°C) Continuous.  
**VOLUTE:** Cast Iron, ASTM A-48, Class 30.  
**MOTOR HOUSING:** Cast Iron ASTM A-48, Class 30.  
**SEAL PLATE:** Cast Iron ASTM A-48, Class 30.  
**IMPELLER:** *Design:* 2 Vane, Open, With Pump Out Vanes On Back Side. Dynamically Balanced, ISO G6.3.  
*Material:* Cast Iron ASTM A-48 Class 30.

**SHAFT:** 416 Stainless Steel  
**SQUARE RINGS:** Buna-N  
**HARDWARE:** 300 Series Stainless Steel  
**LIFTING CHAIN:** Yoke, Galvanized  
**PAINT:** Air Dry Enamel.  
**SEAL:** *Design:* Tandem Mechanical, Oil Filled Reservoir.  
*Material:* Rotating Faces - Carbon  
Stationary Faces - Ceramic  
Elastomer - Buna-N  
Hardware - 300 Series Stainless

**CABLE ENTRY:** 25 ft. (7.6M) Cord. Epoxy Sealed Housing with Secondary Pressure Grommet for Sealing and Strain Relief  
1750 RPM (Nominal).

**SPEED:**  
**UPPER BEARING:** *Design:* Single Row, Ball  
*Lubrication:* Grease  
*Load:* Radial

**LOWER BEARING:** *Design:* Double Row, Ball  
*Lubrication:* Grease  
*Load:* Radial & Thrust

**MOTOR:** *Design:* NEMA L-Single Phase, NEMA B-Three Phase Torque Curve. Air-Filled, Squirrel Cage Induction  
Class I, Group C & D, Division 1, Explosion Proof.  
*Insulation:* Class F.

**SINGLE PHASE:** Capacitor Start/Induction Run Start Capacitors Included with Pump Assembly. Controls Require External Overload Protection.

**THREE PHASE:** Dual Voltage 230/460; Requires Overload Protection to be Included in Control Panel.

**MOISTURE SENSOR:** N/C, Requires Relay in Control Panel  
**TEMPERATURE SENSOR:** N/C, Requires Relay in Control Panel.  
**OPTIONAL EQUIPMENT:** Seal Material, Impeller Trims, Additional Cable.

**CRANE**

**PUMPS & SYSTEMS**

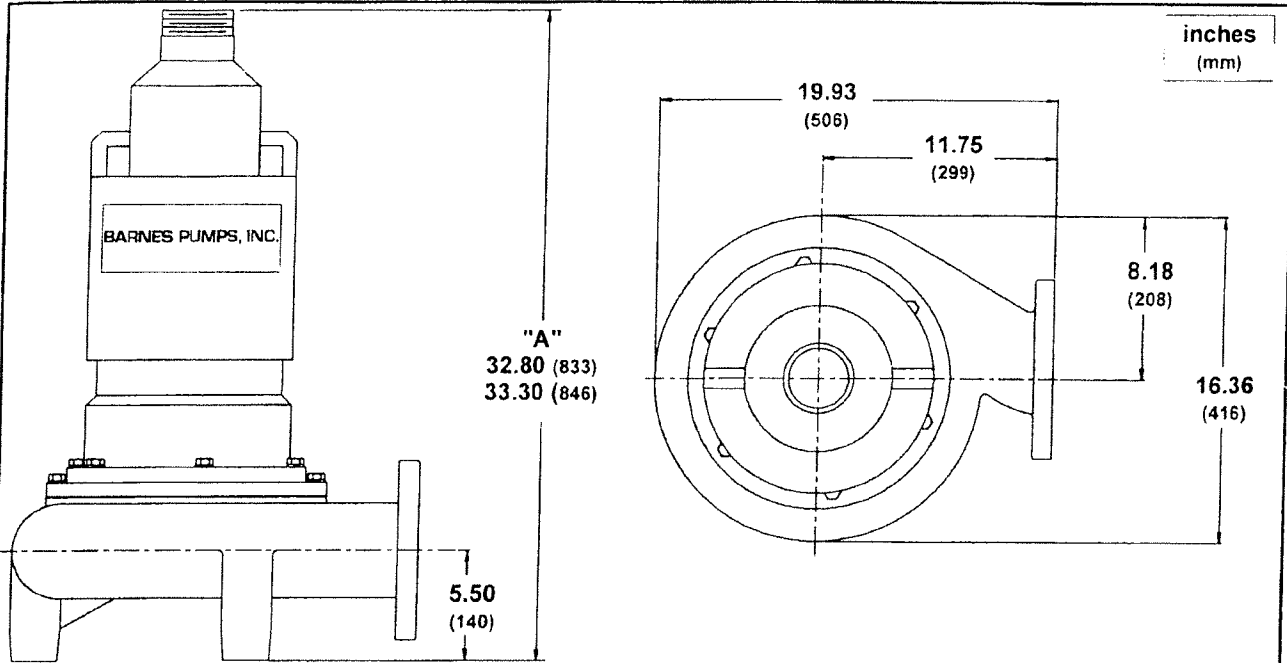
Barnes Pumps, Inc  
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Ph: (513) 773-2442  
Fax: (513) 773-2238

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Barnes Pumps Canada, Inc.  
83 West Drive  
Bramalea, Ontario  
Canada L6T 2J6  
Ph: (905) 457-6223  
Fax: (905) 457-2650

Submersible Wastewater  
Pump Association  
  
**MEMBER**

SECTION	1E
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MODEL NO.	PART NO.	"A" DIM	HP	VOLT	PH	RPM (Nom)	NEMA START CODE	FULL LOAD AMPS	LOCKED ROTOR AMPS	CORD SIZE	CORD TYPE	CORD OD
4XSE1524A	084705	32.80	1.5	230	1	1750	K	11.5	58.0	14/4	SOW-A	0.590
4XSE1534A	084706	32.80	1.5	230	3	1750	K	6.0	30.4	14/4	SOW-A	0.590
4XSE1544A	084707	32.80	1.5	460	3	1750	K	3.0	15.2	14/4	SOW-A	0.590
4XSE1554A	089310	32.80	1.5	575	3	1750	K	2.4	12.1	14/4	SOW-A	0.590
4XSE2024A	084708	33.30	2.0	230	1	1750	K	14.0	69.0	12/4	SOW-A	0.675
4XSE2034A	084709	32.80	2.0	230	3	1750	K	7.2	43.8	14/4	SOW-A	0.590
4XSE2044A	084710	32.80	2.0	460	3	1750	K	3.6	21.9	14/4	SOW-A	0.590
4XSE2054A	089311	32.80	2.0	575	3	1750	K	2.8	17.5	14/4	SOW-A	0.590
4XSE3024A	084711	33.30	3.0	230	1	1750	J	20.0	97.0	10/4	SOW-A	0.735
4XSE3034A	084712	32.80	3.0	230	3	1750	H	10.4	51.3	14/4	SOW-A	0.590
4XSE3044A	084713	32.80	3.0	460	3	1750	H	5.2	25.6	14/4	SOW-A	0.590
4XSE3054A	089312	32.80	3.0	575	3	1750	H	4.1	20.4	14/4	SOW-A	0.590

Moisture/temperature sensor cable for all models is 18/5 SOW. 0 485 OD.

**IMPORTANT !**

- 1) MOISTURE AND TEMPERATURE SENSORS MUST BE CONNECTED TO VALIDATE THE UL LISTING
- 2) A **NON-SPARKING** BREAK AWAY FITTING MUST BE USED TO VALIDATE THE UL LISTING
- 3) A SPECIAL MOISTURE SENSOR RELAY IS REQUIRED IN THE CONTROL PANEL FOR PROPER OPERATION OF THE MOISTURE SENSORS. CONTACT BARNES PUMPS FOR INFORMATION CONCERNING MOISTURE SENSING RELAYS FOR CUSTOMER SUPPLIED CONTROL PANELS
- 4) THESE PUMPS ARE UL LISTED FOR PUMPING WATER AND WASTEWATER. **DO NOT USE TO PUMP FLAMMABLE LIQUIDS**
- 5) INSTALLATIONS SUCH AS DECORATIVE FOUNTAINS OR WATER FEATURES PROVIDED FOR VISUAL ENJOYMENT MUST BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE ANSI/NFPA 70 AND/OR THE AUTHORITY HAVING JURISDICTION. THIS PUMP IS NOT INTENDED FOR USE IN SWIMMING POOLS, RECREATIONAL WATER PARKS, OR INSTALLATIONS IN WHICH HUMAN CONTACT WITH PUMPED MEDIA IS A COMMON OCCURRENCE.

**CRANE**

**PUMPS & SYSTEMS**

Barnes Pumps, Inc.  
 Distributor Sales & Service Dept.  
 420 Third Street/P.O. Box 603  
 Piqua, Ohio 45356-0603  
 Ph: (513) 773-2442  
 Fax: (513) 773-2238

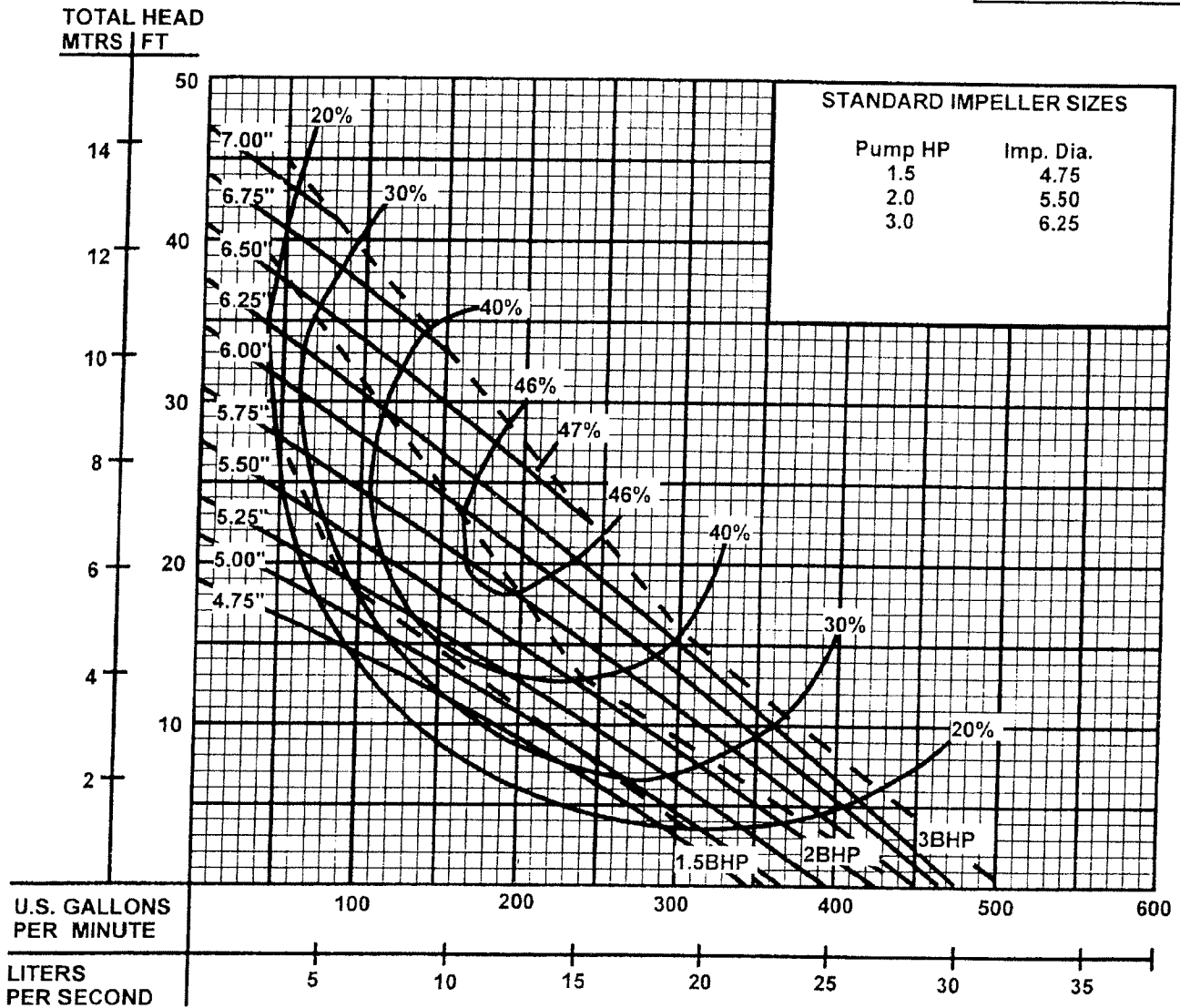
Barnes Pumps, Inc.  
 Bid-To-Spec & Project Sales  
 1485 Lexington Ave.  
 Mansfield, Ohio 44907-2674  
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Barnes Pumps Canada, Inc.  
 83 West Drive  
 Bramalea, Ontario  
 Canada L6T 2J6  
 Ph: (905) 457-6223  
 Fax: (905) 457-2650



**PERFORMANCE CURVE**  
**Series: 4XSE ,1.5, 2, 3HP, 1750RPM**  
**Class I, Groups C & D, Division 1**

SECTION	1E
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Testing is performed with water, specific gravity of 1.0 @ 69° F, other fluids may vary performance.

**CRANE**

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"QUALITY PUMPS SINCE 1939"



SECTION: 2.40.060

FM2203

0810

Supersedes

0207

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.

Patent No. 6,364,620 applies to X600 series.

MAIL TO: P.O. BOX 16347 • Louisville, KY 40256-0347  
SHIP TO: 3649 Cane Run Road • Louisville, KY 40211-1961  
(502) 778-2731 • 1 (800) 928-PUMP • FAX (502) 774-3624

visit our web site:  
[www.zoeller.com](http://www.zoeller.com)

### COMPARE THESE FEATURES

- FM and cCSAus rated Class 1, Division 1, Group C & D
- ⚠ **WARNING** ⚠ Not for use in acidic atmospheres
- Non-Clogging semi-open ductile iron impeller
- Class 30 cast iron construction
- All units are double seal for extra motor protection
- Corrosion resistant powder coated epoxy finish
- Stainless steel screws, washers, tags and seal assembly
- 25 foot UL Listed power and sensor cord. Cord length also available in 50 foot
- Single phase - 230V capacitor start, capacitor run
- Three Phase - 200-230-460-575 Volt
- Explosion proof motor - 60 Hz, 1750 RPM, oil-filled, hermetically sealed with heavy duty finned motor housing for added heat dissipation
- Thermal sensor
- Continuous duty operation in submerged conditions
- Maximum temperature for sewage or dewatering 104°F (40°C) with 1.2 service factor (1.0 service factor on Model 661)
- 416 stainless steel motor shaft
- Tandem shaft seals - stainless steel fitted, carbon/ceramic seal faces
- Seal leak probes
- Oversized upper & lower ball bearings running in an oil bath
- Buna-N square rings and seals used throughout
- All models pass 2½" spherical solids
- Specify 3" NPT vertical, 3" horizontal flanged or 4" horizontal flanged discharge
- 100% computerized tested
- Major width 17 9/16". Height 33 ¼"
- Non-sparking rail systems available for all models
- Intrinsically safe control panels available



Manufacturers of ...

"QUALITY PUMPS SINCE 1939"

## X600 SERIES HAZARDOUS ENVIRONMENT SERIES

CLASS 1, DIVISION 1, GROUP C & D, 1 - 7½ HP / 1750 RPM

**X611 X621 X631 X641 X651 X661**

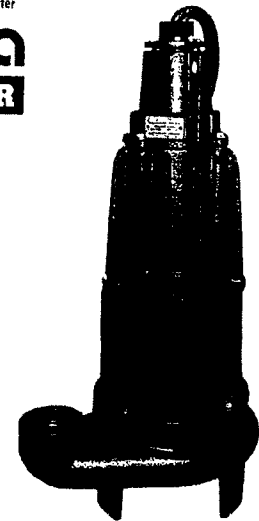
**1.0 HP 1.5 HP 2.0 HP 3.0 HP 5.0 HP 7.5 HP**

(For Pump Prefix Identification see News & Views 0052)

# "SEWAGE-WASTE"

SUBMERSIBLE

## SEWAGE OR DEWATERING NON-CLOG PUMP



3" Vertical Discharge

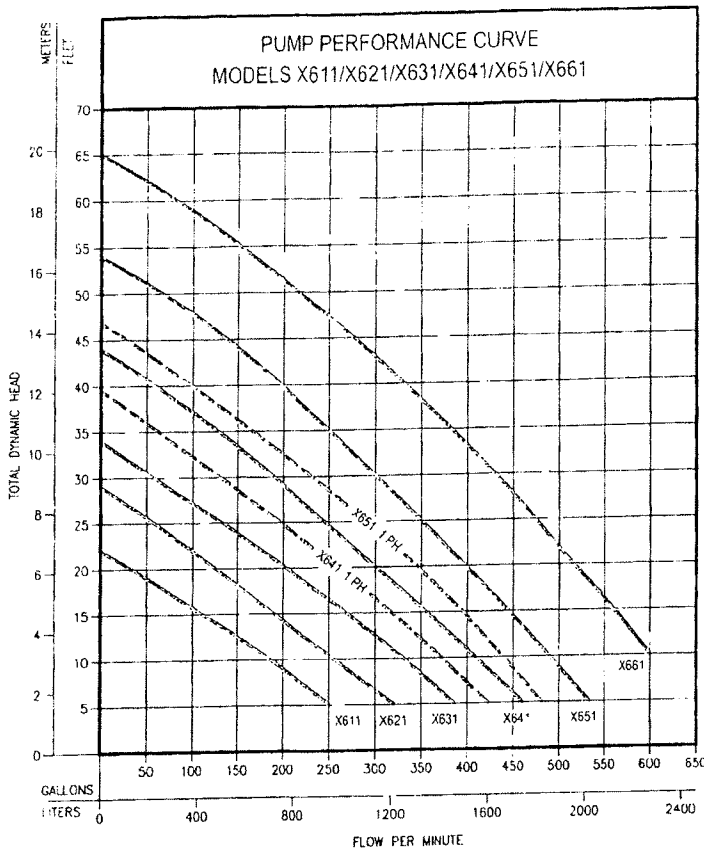


3" & 4" Horizontal Discharge



### MODELS AVAILABLE

- Nonautomatic (for intrinsically safe variable level control systems)
- Double seal only
- 3" Vertical, 3" Horizontal or 4" Horizontal flanged discharge.
- 230V/1 Phase or 200/230/460/575V/3 Phase.



**TOTAL DYNAMIC HEAD/FLOW  
PER MINUTE  
SEWAGE AND WASTEWATER**

MODEL	X611		X621		X631		X641 (1 PH)		
	Feet	Meters	Gal.	Liters	Gal.	Liters	Gal.	Liters	
5	1.5	250	946	320	1211	390	1476	420	1590
10	3.0	185	700	255	955	335	1268	370	1401
15	4.6	110	415	190	719	272	1030	319	1208
20	6.1	35	132	125	473	200	757	260	984
25	7.6	---	---	60	227	130	492	198	750
30	9.1	---	---	---	---	55	208	150	492
35	10.7	---	---	---	---	---	---	62	235
40	12.2	---	---	---	---	---	---	---	---
45	13.7	---	---	---	---	---	---	---	---
50	15.2	---	---	---	---	---	---	---	---
55	16.7	---	---	---	---	---	---	---	---
60	18.2	---	---	---	---	---	---	---	---
Shut-off Head:		22 ft.(6.7m)		29 ft.(8.8m)		34 ft.(10.4m)		39.5 ft.(12.0m)	

MODEL	X641		X651 (1 PH)		X651		X661		
	Feet	Meters	Gal.	Liters	Gal.	Liters	Gal.	Liters	
5	1.5	460	1741	475	1798	533	2018	---	---
10	3.0	410	1552	440	1666	490	1855	600	2271
15	4.6	355	1344	395	1495	445	1685	560	2119
20	6.1	300	1136	345	1306	398	1507	515	1949
25	7.6	245	927	290	1098	350	1325	475	1798
30	9.1	190	719	232	878	300	1136	430	1627
35	10.7	130	492	165	625	250	946	380	1438
40	12.2	80	227	95	360	198	738	330	1249
45	13.7	---	---	25	95	140	530	275	1041
50	15.2	---	---	---	---	70	265	215	814
55	16.7	---	---	---	---	---	---	150	568
60	18.2	---	---	---	---	---	---	85	303
Shut-off Head:		44 ft.(13.4m)		46.5 ft.(14.2m)		54 ft.(16.5m)		65 ft.(19.8m)	

013859X

Standard all models - 25 ft. cord - 1.0 HP

X611 Models	Volts	Phase	Mode	Amps
*EX611	230	1	Nonauto	6.9
JX611	200	3	Nonauto	4.3
FX611	230	3	Nonauto	3.7
GX611	460	3	Nonauto	1.9
BAX611	575	3	Nonauto	1.6

Standard all models - 25 ft. cord - 3.0 HP

X641 Models	Volts	Phase	Mode	Amps
*EX641	230	1	Nonauto	17.0
JX641	200	3	Nonauto	11.0
FX641	230	3	Nonauto	9.6
GX641	460	3	Nonauto	4.8
BAX641	575	3	Nonauto	3.9

Standard all models - 25 ft. cord - 1.5 HP

X621 Models	Volts	Phase	Mode	Amps
*EX621	230	1	Nonauto	8.9
JX621	200	3	Nonauto	5.9
FX621	230	3	Nonauto	5.1
GX621	460	3	Nonauto	2.6
BAX621	575	3	Nonauto	2.0

Standard all models - 25 ft. cord - 5.0 HP

X651 Models	Volts	Phase	Mode	Amps
*EX651	230	1	Nonauto	28.0
JX651	200	3	Nonauto	17.5
FX651	230	3	Nonauto	15.2
GX651	460	3	Nonauto	7.6
BAX651	575	3	Nonauto	6.1

Standard all models - 25 ft. cord - 2.0 HP

X631 Models	Volts	Phase	Mode	Amps
*EX631	230	1	Nonauto	14.5
JX631	200	3	Nonauto	7.8
FX631	230	3	Nonauto	6.8
GX631	460	3	Nonauto	3.4
BAX631	575	3	Nonauto	2.7

Standard all models - 25 ft. cord - 7.5 HP

X661 Models	Volts	Phase	Mode	Amps
JX661	200	3	Nonauto	25.3
FX661	230	3	Nonauto	22.0
GX661	460	3	Nonauto	11.0
BAX661	575	3	Nonauto	9.0

\*All single phase units require external starting capacity and relay circuits

**CAUTION**

For information on additional Zoeller products refer to catalog on variable Current Switches, FM0526; Control Panels, FM1705; Sump/Sewage Basins, FM0487; Rain Systems, FM0787

All installation of controls, protection devices and wiring should be done by a qualified electrician. All equipment should be grounded and safety devices should be installed in accordance with the most recent National Electrical Code (NEC) and any applicable local codes.

**RESERVE POWERED DESIGN**

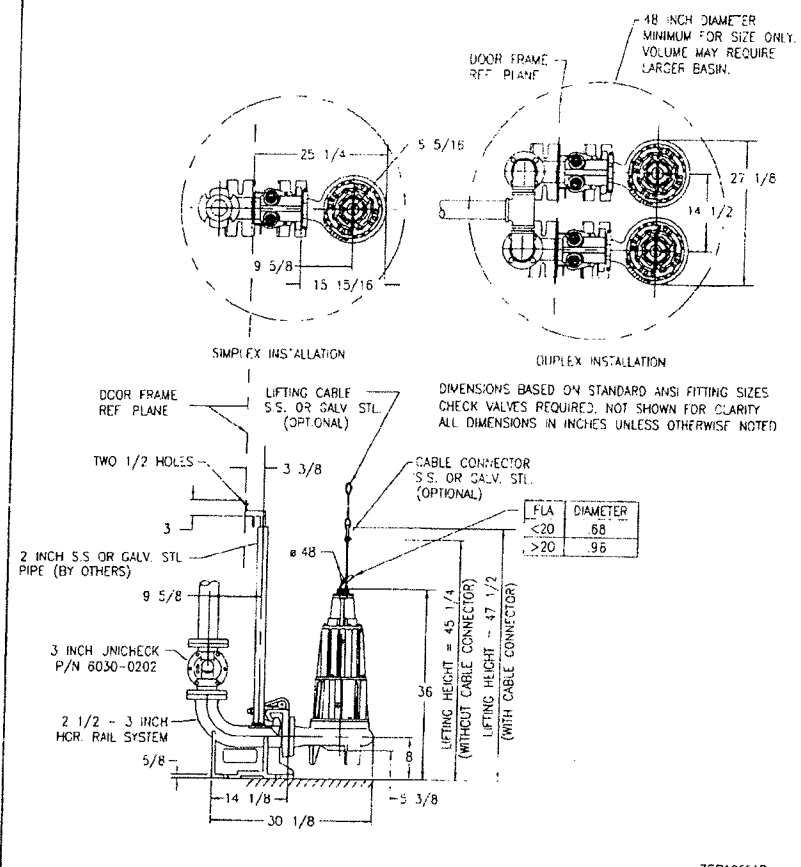
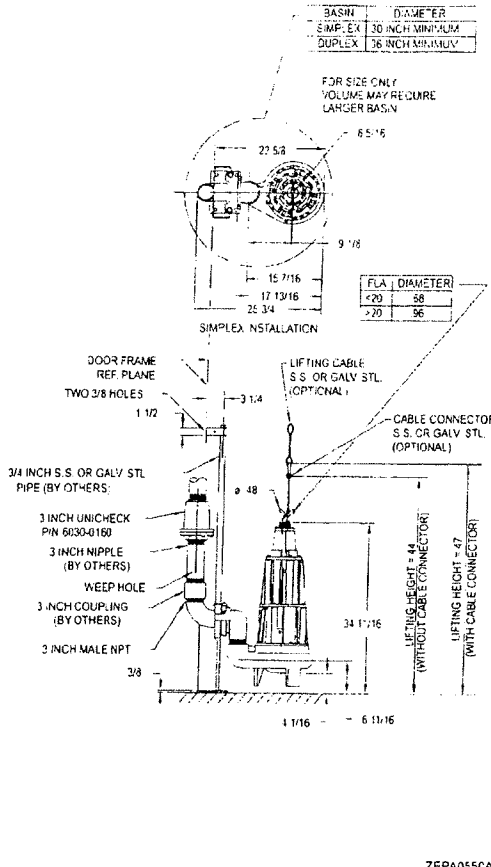
For unusual conditions a reserve safety factor is engineered into the design of every Zoeller pump.

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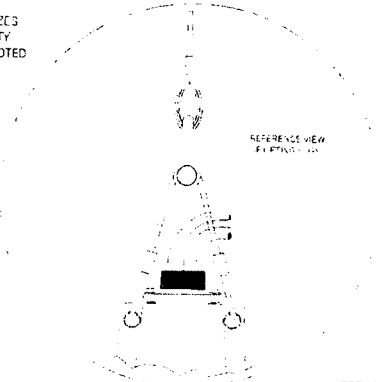
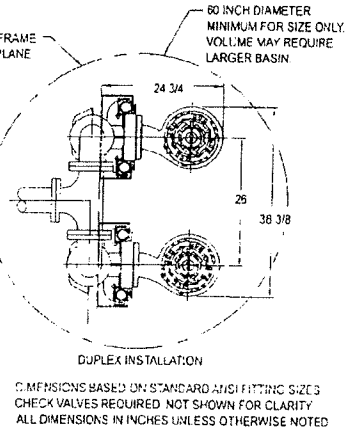
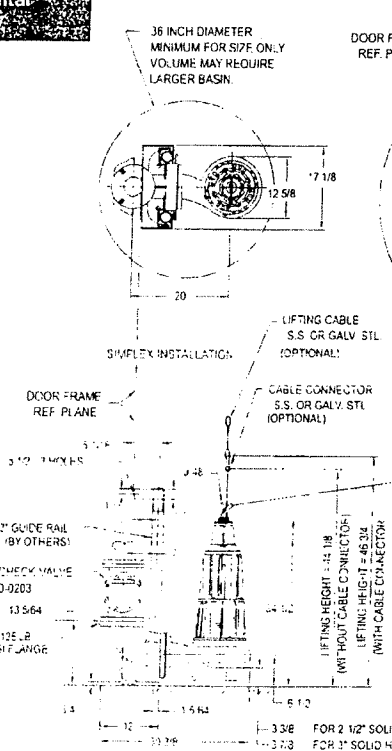
# NON-SPARKING RAIL SYSTEM DIMENSIONAL DATA

**3 Vertical**  
39-007

**3 Horizontal**  
39-007



**4 Horizontal**  
39-007



MATCH LINE C1.3

MATCH LINE C1.1

MATCH LINE C1.2

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 (860) 678-0669



NORTH

Graphic Scale: 1" = 30'

**Rehabilitation and  
 Redevelopment of  
 Cannondale Village**

Wilton, Connecticut  
 February 25, 2011  
 WPCA Submission

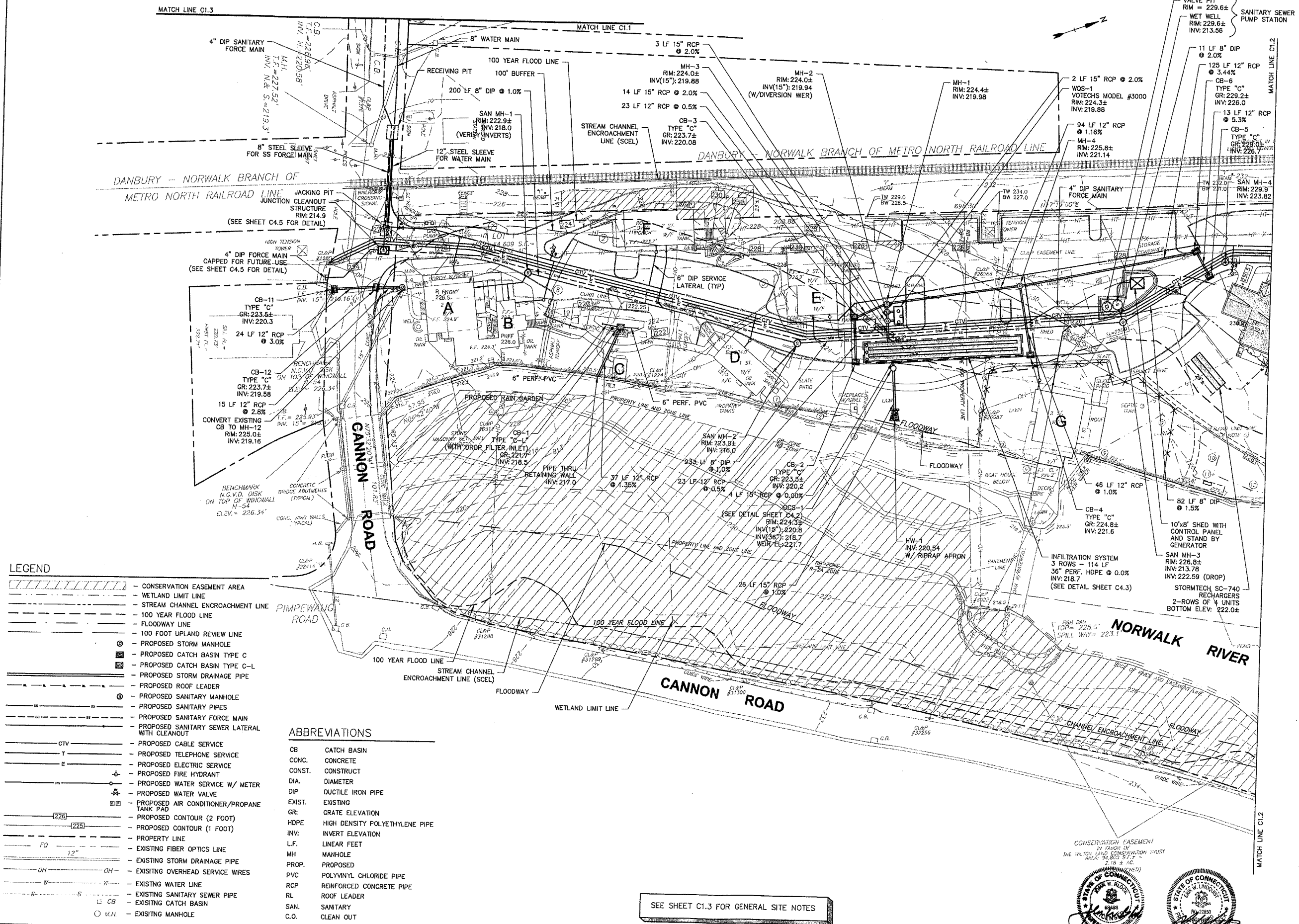
NOT FOR  
 CONSTRUCTION

2	5/3/2011	ENGINEERING COMMENTS
1	4/12/2011	ENGINEERING COMMENTS
MARK	DATE	DESCRIPTION
PROJECT NO:	C-0721	
DRAWN BY:	EWL	
CHECKED BY:	EWL	
APPROVED BY:	JWB	

**Drainage and  
 Utility Plan**

SCALE: 1" = 30'

C11



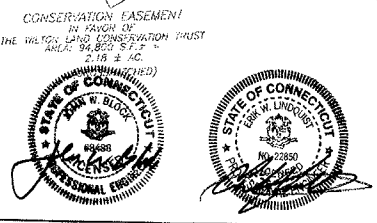
**LEGEND**

	CONSERVATION EASEMENT AREA
	WETLAND LIMIT LINE
	STREAM CHANNEL ENCROACHMENT LINE
	100 YEAR FLOOD LINE
	FLOODWAY LINE
	100 FOOT UPLAND REVIEW LINE
	PROPOSED STORM MANHOLE
	PROPOSED CATCH BASIN TYPE C
	PROPOSED CATCH BASIN TYPE C-L
	PROPOSED STORM DRAINAGE PIPE
	PROPOSED ROOF LEADER
	PROPOSED SANITARY MANHOLE
	PROPOSED SANITARY PIPES
	PROPOSED SANITARY FORCE MAIN
	PROPOSED SANITARY SEWER LATERAL WITH CLEANOUT
	PROPOSED CABLE SERVICE
	PROPOSED TELEPHONE SERVICE
	PROPOSED ELECTRIC SERVICE
	PROPOSED FIRE HYDRANT
	PROPOSED WATER SERVICE W/ METER
	PROPOSED WATER VALVE
	PROPOSED AIR CONDITIONER/PROPANE TANK PAD
	PROPOSED CONTOUR (2 FOOT)
	PROPOSED CONTOUR (1 FOOT)
	PROPERTY LINE
	EXISTING FIBER OPTICS LINE
	EXISTING STORM DRAINAGE PIPE
	EXISTING OVERHEAD SERVICE WIRES
	EXISTING WATER LINE
	EXISTING SANITARY SEWER PIPE
	EXISTING CATCH BASIN
	EXISTING MANHOLE

**ABBREVIATIONS**

CB	CATCH BASIN
CONC.	CONCRETE
CONST.	CONSTRUCT
DIA.	DIAMETER
DIP	DUCTILE IRON PIPE
EXIST.	EXISTING
GR.	GRATE ELEVATION
HDPE	HIGH DENSITY POLYETHYLENE PIPE
INV.	INVERT ELEVATION
L.F.	LINEAR FEET
MH	MANHOLE
PROP.	PROPOSED
PVC	POLYVINYL CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE
RL	ROOF LEADER
SAN.	SANITARY
C.O.	CLEAN OUT

SEE SHEET C1.3 FOR GENERAL SITE NOTES



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**Rehabilitaion and  
 Redevelopment of  
 Cannondale Village**

Wilton, Connecticut

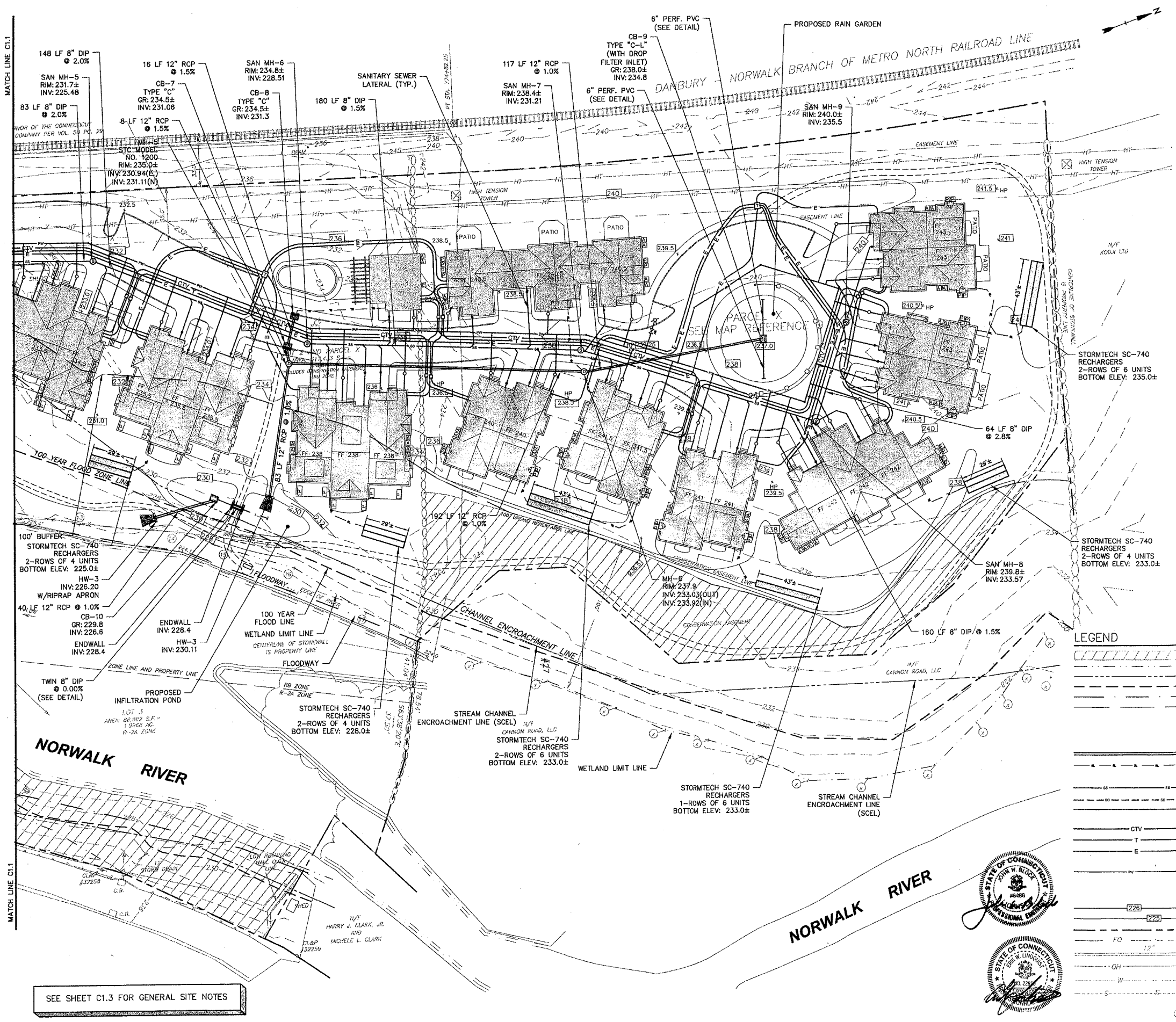
February 25, 2011  
 WPCA Submission

**NOT FOR  
 CONSTRUCTION**

MARK	DATE	DESCRIPTION
2	5/3/2011	ENGINEERING COMMENTS
1	4/12/2011	ENGINEERING COMMENTS

PROJECT NO: C-0721  
 DU-WPCA-C721-01.dwg  
 DRAWN BY: EWL  
 CHECKED: EWL  
 APPROVED BY: JWB

**Drainage and  
 Utility Plan**  
 SCALE: 1" = 30'  
**C1.2**



- ABBREVIATIONS**
- CB CATCH BASIN
  - CONC. CONCRETE
  - CONST. CONSTRUCT
  - DIA. DIAMETER
  - DIP DUCTILE IRON PIPE
  - EXIST. EXISTING
  - GR. GRATE ELEVATION
  - HDPE HIGH DENSITY POLYETHYLENE PIPE
  - INV. INVERT ELEVATION
  - L.F. LINEAR FEET
  - MH MANHOLE
  - PROP. PROPOSED
  - PVC POLYVINYL CHLORIDE PIPE
  - RCP REINFORCED CONCRETE PIPE
  - RL ROOF LEADER
  - SAN. SANITARY
  - C.O. CLEAN OUT

- LEGEND**
- [Hatched Area] CONSERVATION EASEMENT AREA
  - [Dashed Line] WETLAND LIMIT LINE
  - [Dashed Line] STREAM CHANNEL ENCROACHMENT LINE
  - [Dashed Line] 100 YEAR FLOOD LINE
  - [Dashed Line] FLOODWAY LINE
  - [Dashed Line] 100 FOOT UPLAND REVIEW LINE
  - [Circle with 'C'] PROPOSED STORM MANHOLE
  - [Circle with 'C-L'] PROPOSED CATCH BASIN TYPE C
  - [Circle with 'C-L'] PROPOSED CATCH BASIN TYPE C-L
  - [Circle with 'S'] PROPOSED STORM DRAINAGE PIPE
  - [Circle with 'R'] PROPOSED ROOF LEADER
  - [Circle with 'S-M'] PROPOSED SANITARY MANHOLE
  - [Circle with 'S-P'] PROPOSED SANITARY PIPES
  - [Circle with 'S-FM'] PROPOSED SANITARY FORCE MAIN
  - [Circle with 'S-SL'] PROPOSED SANITARY SEWER LATERAL WITH CLEANOUT
  - [Circle with 'CTV'] PROPOSED CABLE SERVICE
  - [Circle with 'T'] PROPOSED TELEPHONE SERVICE
  - [Circle with 'E'] PROPOSED ELECTRIC SERVICE
  - [Circle with 'F'] PROPOSED FIRE HYDRANT
  - [Circle with 'W-M'] PROPOSED WATER SERVICE W/ METER
  - [Circle with 'W-V'] PROPOSED WATER VALVE
  - [Circle with 'W-PAD'] PROPOSED AIR CONDITIONER/PROPANE TANK PAD
  - [Circle with '228'] PROPOSED CONTOUR (2 FOOT)
  - [Circle with '229'] PROPOSED CONTOUR (1 FOOT)
  - [Circle with 'FO'] PROPERTY LINE
  - [Circle with '12'] EXISTING FIBER OPTICS LINE
  - [Circle with 'OH'] EXISTING STORM DRAINAGE PIPE
  - [Circle with 'OW'] EXISTING OVERHEAD SERVICE WRES
  - [Circle with 'W'] EXISTING WATER LINE
  - [Circle with 'S'] EXISTING SANITARY SEWER PIPE
  - [Circle with 'CB'] EXISTING CATCH BASIN
  - [Circle with 'MH'] EXISTING MANHOLE

SEE SHEET C1.3 FOR GENERAL SITE NOTES

May 04, 2011-10:55am Plotted By: Indiguite  
 Tighe & Bond, Inc. at C:\CD721\Drawings\0\_Corner\WPCA\Sheets\DU-WPCA-C721-01.dwg



**GENERAL SITE NOTES:**

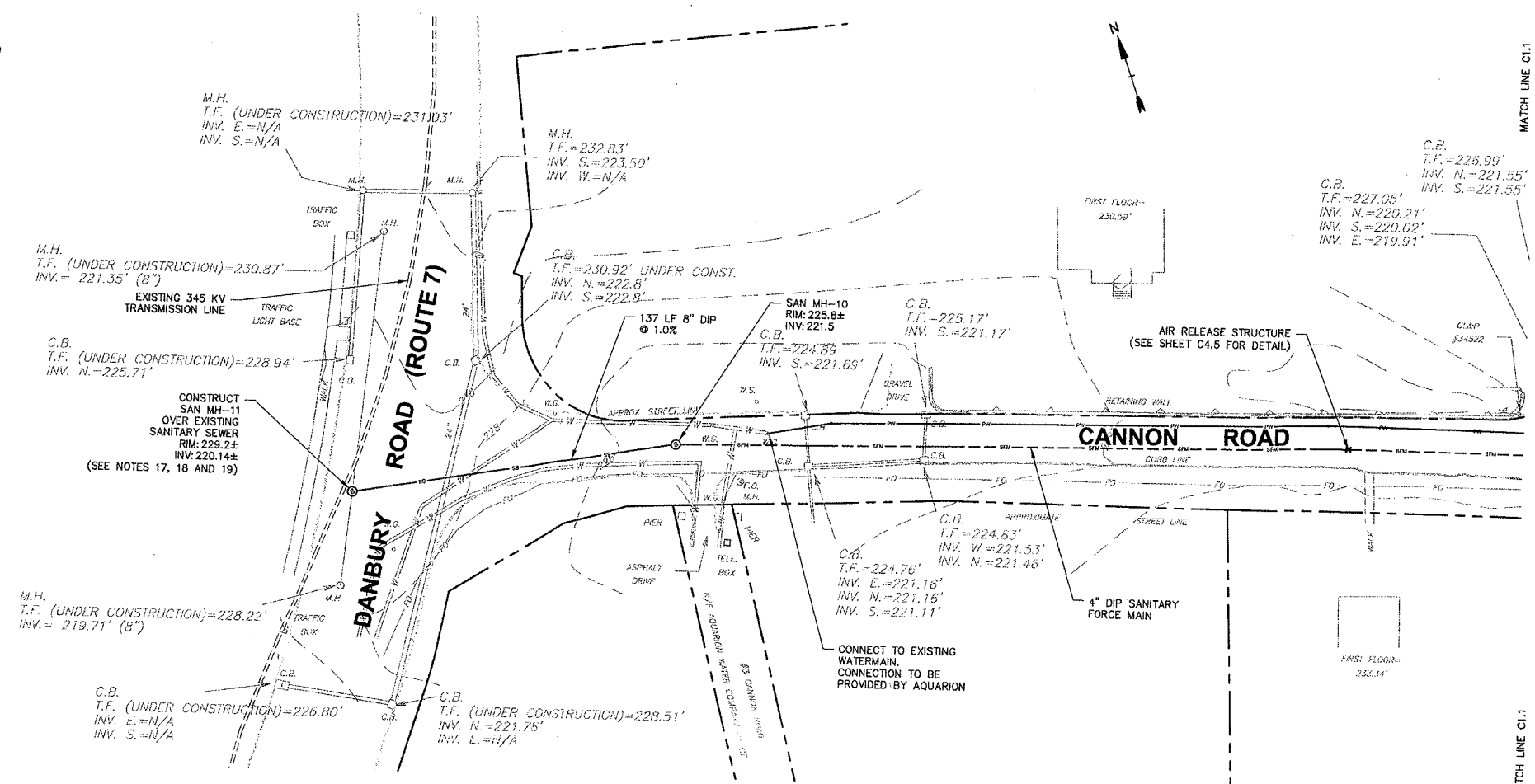
- REFERENCE IS MADE TO A MAP ENTITLED "TOPOGRAPHIC SURVEY, CANNONDALE VILLAGE, PROPERTY LOCATED ON CANNON ROAD, WILTON, CONNECTICUT, PREPARED BY MARC GUERON" SCALE 1" = 30'. PREPARED BY LEWIS ASSOCIATES, MONROE, CONNECTICUT, DATED 5-3-2009, REVISED TO 2-20-09.
- ELEVATIONS ARE REFERENCED TO NATION GEODETIC DATUM OF 1929.
- THE LOCATION OF EXISTING UTILITIES AS SHOWN ARE FROM MAPS OF UTILITY COMPANIES, FIELD SURVEYS, AND THE BEST AVAILABLE INFORMATION. THEY MUST BE CONSIDERED AS ONLY APPROXIMATE BOTH AS TO SIZE AND LOCATION, AND ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. THE SITE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL FIELD LOCATIONS. LOCATIONS OF CRITICAL UTILITIES SHALL BE VERIFIED BY THE SITE CONTRACTOR IN THE FIELD BY TEST PITS.
- ALL DIMENSIONS AND ELEVATIONS MUST BE FIELD VERIFIED BY THE SITE CONTRACTOR.
- ALL EXISTING UTILITY SERVICES SHALL BE PROTECTED AND MAINTAINED IN SERVICE. THE SITE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL UTILITY RELOCATIONS WITH THE RESPECTIVE SERVICE PROVIDER.
- THE SITE CONTRACTOR MUST CALL "CALL BEFORE YOU DIG" AT LEAST 72 HOURS PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES. (1-800-922-4455).
- SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL CONFORM TO THE STATE OF CONNECTICUT DEP. "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL", AND AS AMENDED TO DATE.
- ALL EXISTING FEATURES ARE DRAWN AS SCREENED LINES, AND PROPOSED FEATURES ARE SHOWN AS DARK LINES.
- IT SHALL BE THE RESPONSIBILITY OF THE SITE CONTRACTOR TO ENSURE PROPER IMPLEMENTATION OF THE SEDIMENT AND EROSION CONTROLS AS SHOWN ON THE PLANS AND SHALL INCLUDE BUT NOT BE LIMITED TO INSTALLATION AND MAINTENANCE OF CONTROL MEASURES, INFORMING ALL PARTIES OF SUCH REQUIREMENTS AND NOTIFICATION OF ANY TRANSFER OF RESPONSIBILITY.
- ACTUAL LOCATIONS AND APPLICATIONS OF EROSION CONTROL DEVICES SHALL BE DETERMINED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION BASED ON THE EROSION AND SEDIMENT CONTROL STRATEGY. THE STRATEGY WILL REQUIRE THE CONTRACTOR TO FOLLOW THE GENERAL SEQUENCE OF CONSTRUCTION, PROVIDE APPROPRIATE CONTROLS SUCH AS STRUCTURAL PRACTICES, MAINTENANCE, AND STABILIZATION PRACTICES ALONG WITH THE PROPER DISCHARGE OF DEWATERING WASTEWATERS. THE CONTRACTOR MUST FOLLOW THE GENERAL PERMIT FOR THE DISCHARGE OF STORMWATER AND DEWATERING WASTEWATERS ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
- DEWATERING PROCEDURES SHALL BE CONDUCTED IN A MANNER THAT INSURES NO DEWATERING WASTEWATER IS DIRECTLY DISCHARGED INTO ANY WETLAND OR WATERBODY. DEWATERING WASTEWATERS MUST BE DISCHARGED IN A MANNER WHICH WILL NOT CAUSE EROSION AND SCOURING OR CONTAIN SUSPENDED SOLIDS IN AMOUNTS WHICH COULD REASONABLY BE EXPECTED TO CAUSE POLLUTION OF THE WATERS OF THE STATE. THE MEASURES SHALL BE CONDUCTED IN ACCORDANCE WITH THE DEWATERING PLAN SUBMITTED BY THE CONTRACTOR AS PART OF THE CONTRACT DOCUMENTS. DEWATERING WASTEWATERS SHALL BE DISCHARGED IN A MANNER TO MINIMIZE THE DISCOLORATION OF THE RECEIVING WATERS. UNLESS OTHERWISE SPECIFICALLY APPROVED BY THE CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF THE COMMISSIONER, ALL DEWATERING WASTEWATERS SHALL BE INFILTRATED INTO THE GROUND.
- SUBSURFACE INFORMATION SHOWN IS A COMPILATION OF FIELD MEASUREMENTS, AVAILABLE PUBLIC UTILITY RECORDS AND MUNICIPAL RECORDS. THE ACCURACY AND COMPLETENESS OF SUBSURFACE INFORMATION SHOWN ON THESE DRAWINGS IS NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE FOR HIMSELF, PRIOR TO BIDDING, THE LOCATIONS AND ELEVATIONS OF ALL UTILITIES WHICH MAY AFFECT HIS CONSTRUCTION OPERATIONS. THE CONTRACTOR MUST ADEQUATELY SUPPORT ALL UTILITIES AND SHALL BE RESPONSIBLE FOR ALL DAMAGE TO THESE LINES.
- UNLESS OTHERWISE NOTED, ALL STORM PIPES SHALL BE REINFORCED CONCRETE CLASS IV.
- ALL PVC PIPING TO BE CLASS SDR-35.
- PROVIDE A MINIMUM 18 INCH VERTICAL CLEARANCE BETWEEN WATER AND SANITARY SEWER WHEN WATER IS OVER SANITARY SEWER OR ENCASE SANITARY SEWER FOR 10 FEET EACH SIDE OF CROSSING. IF WATER PIPE IS UNDER SANITARY, BOTH SANITARY AND WATER SHALL BE ENCASED FOR 10 FEET EACH SIDE OF CROSSING. PROVIDE A MINIMUM 12 INCH VERTICAL CLEARANCE BETWEEN SANITARY AND ALL OTHER PIPE.
- ALL CATCH BASINS SHALL BE EQUIPPED WITH BELL TRAPS.
- THE CONTRACTOR SHALL NOTIFY CONNECTICUT LIGHT & POWER (ERIKS SURMONIS (860) 665-5849, SURMAE@CNL.COM), SEVEN DAYS PRIOR TO THE COMMENCEMENT OF EACH PHASE OF CONSTRUCTION. CONNECTICUT LIGHT & POWER WILL LIKELY REQUIRE THERE BE A COMPANY REPRESENTATIVE PRESENT AT THE SITE DURING THE CONSTRUCTION.
- THE CONTRACTOR SHALL AVOID DISTURBING THE THERMAL SAND (OR FLUIDIZED THERMAL BACKFILL (FTB)) WHICH SURROUND THE 345-KV STEEL PIPES. SHOULD THE THERMAL BACKFILL BE DISTURBED DURING THE INSTALLATION OF THE SANITARY MANHOLE AND FORCEMAIN, IT IS TO BE REPLACED IN KIND.
- CONTRACTOR TO DIG USING NONDESTRUCTIVE TEST PIT AND VERIFY DEPTH, SIZE, AND LOCATION OF 345-KV UNDERGROUND ELECTRIC TRANSMISSION LINES.
- ALL SANITARY SEWER LATERALS TO BE 6" DIP CLASS 52. AND SEWER MAINS TO BE 8" DIP CLASS 52.

**LEGEND**

	CONSERVATION EASEMENT AREA
	WETLAND LIMIT LINE
	STREAM CHANNEL ENCROACHMENT LINE
	100 YEAR FLOOD LINE
	FLOODWAY LINE
	100 FOOT UPLAND REVIEW LINE
	PROPOSED STORM MANHOLE
	PROPOSED CATCH BASIN TYPE C
	PROPOSED CATCH BASIN TYPE C-L
	PROPOSED STORM DRAINAGE PIPE
	PROPOSED ROOF LEADER
	PROPOSED SANITARY MANHOLE
	PROPOSED SANITARY PIPES
	PROPOSED SANITARY FORCE MAIN
	PROPOSED SANITARY SEWER LATERAL WITH CLEANOUT
	PROPOSED CABLE SERVICE
	PROPOSED TELEPHONE SERVICE
	PROPOSED ELECTRIC SERVICE
	PROPOSED FIRE HYDRANT
	PROPOSED WATER SERVICE W/ METER
	PROPOSED WATER VALVE
	PROPOSED AIR CONDITIONER/PROPANE TANK PAD
	PROPOSED CONTOUR (2 FOOT)
	PROPOSED CONTOUR (1 FOOT)
	PROPERTY LINE
	EXISTING FIBER OPTICS LINE
	EXISTING STORM DRAINAGE PIPE
	EXISTING OVERHEAD SERVICE WIRES
	EXISTING WATER MAIN SEWER PIPE
	EXISTING CATCH BASIN
	EXISTING MANHOLE

**ABBREVIATIONS**

CB	CATCH BASIN
CONC.	CONCRETE
CONST.	CONSTRUCT
DIA.	DIAMETER
DIP	DUCTILE IRON PIPE
EXIST.	EXISTING
GR.	GRATE ELEVATION
HDPE	HIGH DENSITY POLYETHYLENE PIPE
INV.	INVERT ELEVATION
L.F.	LINEAR FEET
MH	MANHOLE
PROP.	PROPOSED
PVC	POLYVINYL CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE
RL	ROOF LEADER
SAN.	SANITARY
C.O.	CLEAN OUT



**Tighe & Bond**  
 Consulting Engineers  
 1000 Bridgeport Avenue  
 Suite 320  
 Shelton, CT 06484  
 (203) 712-1100  
 www.tighebond.com

**ENVIRONMENTAL LAND SOLUTIONS, LLC**  
 LANDSCAPE ARCHITECTURE  
 ENVIRONMENTAL PLANNERS  
 2 Knight Street, Suite 209  
 Norwalk, Connecticut 06851  
 Tel: (203) 655-1274  
 Fax: (203) 655-1286  
 email: landscape@esl.net

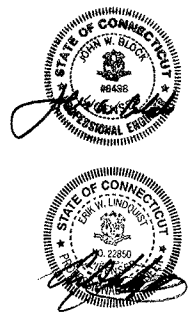
**FAESY SMITH ARCHITECTS PC**  
 523 DANBURY ROAD WILTON, CT 06897  
 phone 203.834.2724 fax 203.762.9694

**R&C**  
 Richer & Cegan, Inc.  
 Landscape Architects  
 Urban Designers  
 Land Planners  
 Avon Park North P.O. Box 567  
 Avon, Connecticut 06001  
 (860) 678-0669

**Rehabilitation and Redevelopment of Cannondale Village**  
 Wilton, Connecticut  
 February 25, 2011  
 WPCA Submission

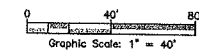
**NOT FOR CONSTRUCTION**

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1	4/12/2011	ENGINEERING COMMENTS
MARK	DATE	DESCRIPTION
PROJECT NO:	C-0721	
DRAWN BY:	DU-WPCA-0721-01.dwg	
CHECKED BY:	EWL	
APPROVED BY:	JWB	
<b>Drainage and Utility Plan</b>		
SCALE:	1" = 30'	
<b>C13</b>		





NORTH



**Rehabilitation and  
Redevelopment of  
Cannondale Village**

Wilton, Connecticut

February 25, 2011  
WPCA Submission

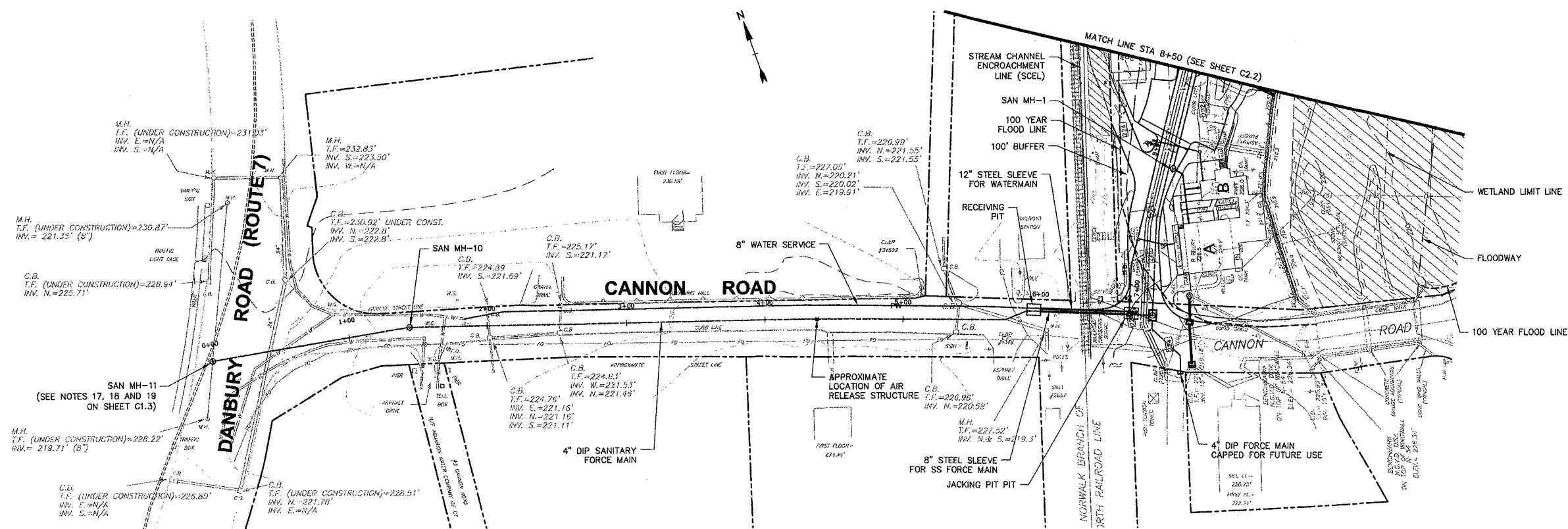
NOT FOR  
CONSTRUCTION

2	5/3/2011	ENGINEERING COMMENTS
1	4/12/2011	ENGINEERING COMMENTS
MARK	DATE	DESCRIPTION
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PP-WPCS-C0721-01.dwg		
DRAWN BY: EWL		
CHECKED BY: EWL		
APPROVED BY: JWB		

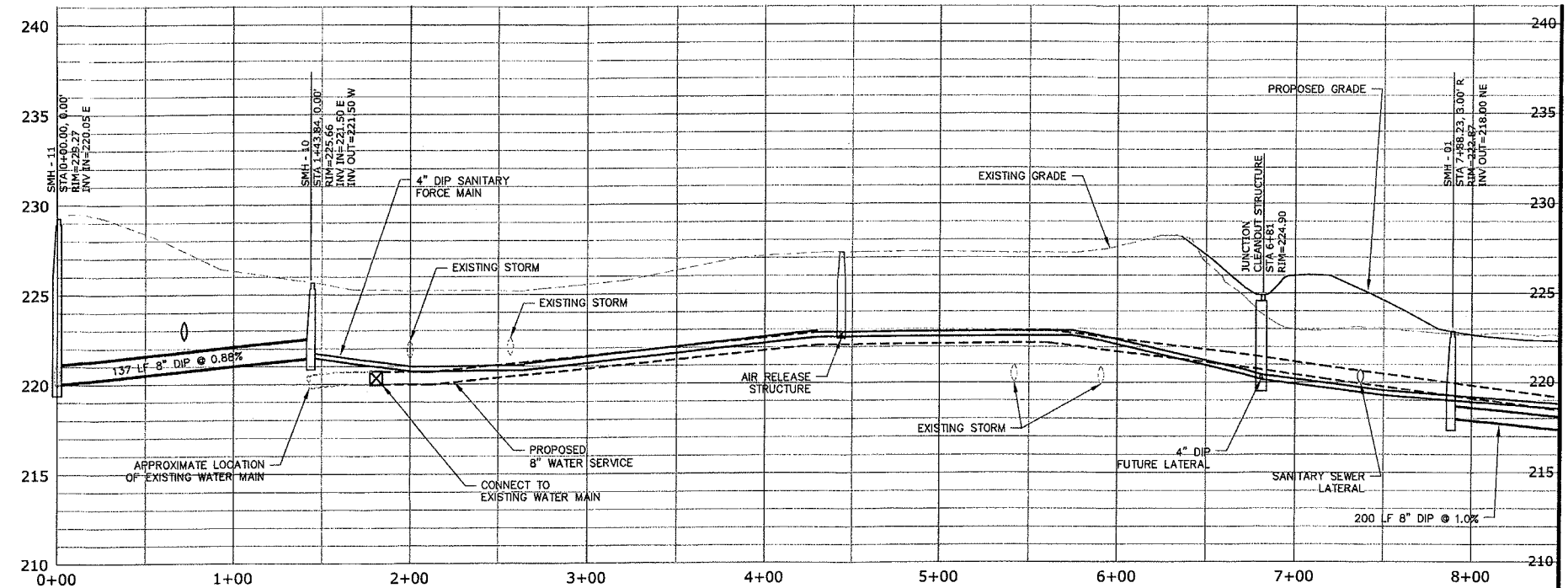
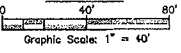
**Sanitary Sewer  
Plan and Profile**

SCALE: 1" = 40'

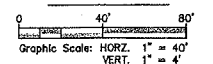
C21



**PLAN**

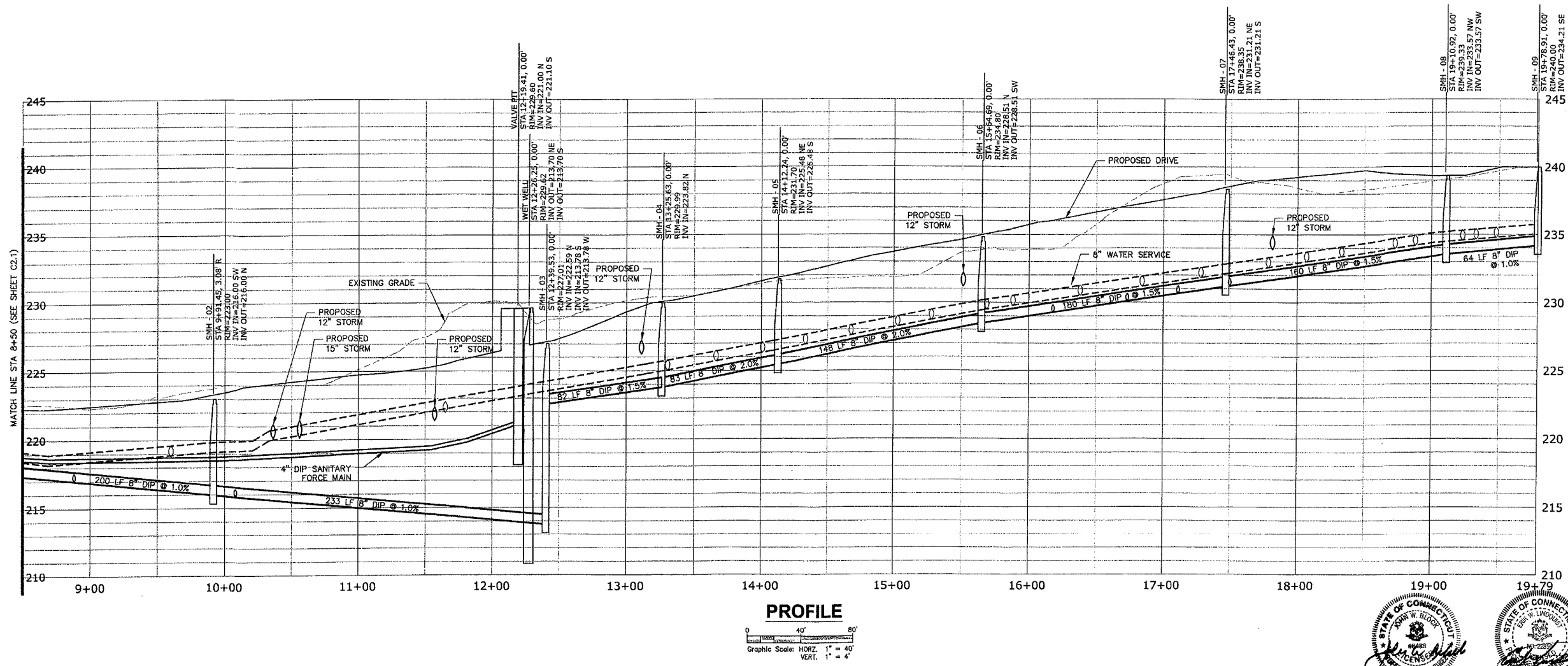
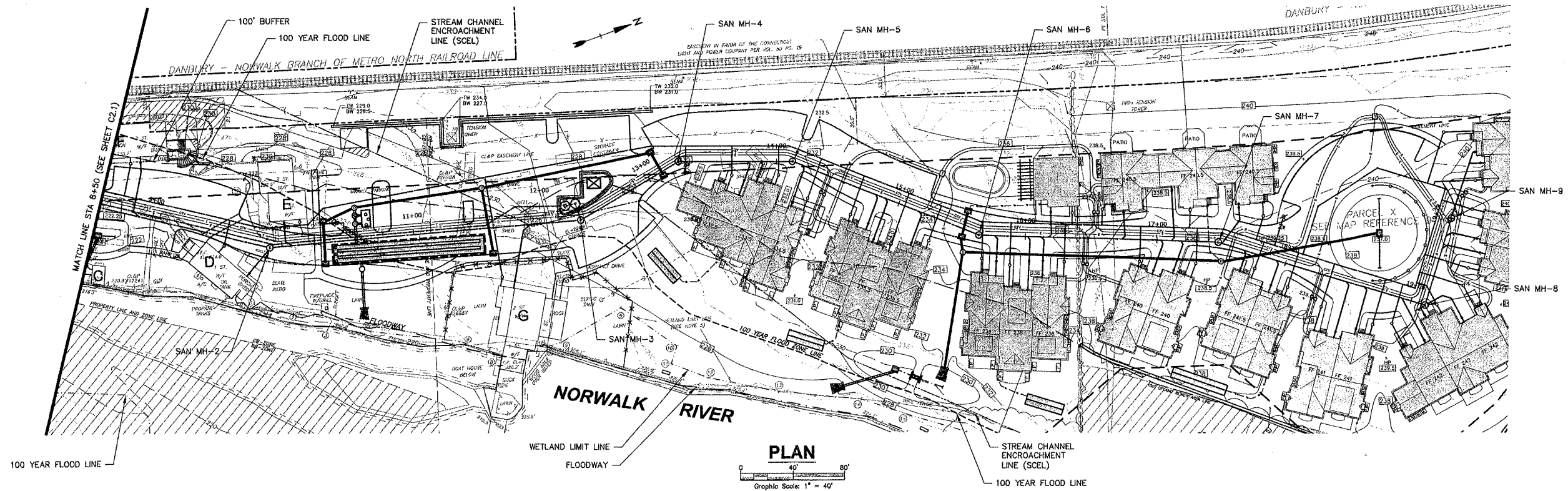


**PROFILE**



May 04, 2011-11:01am Plotted By: Indigulate  
Tighe & Bond, Inc. s:\C\00721\varnairng\0\_Verifac\Sheets\PP-WPCS-C0721-01.dwg



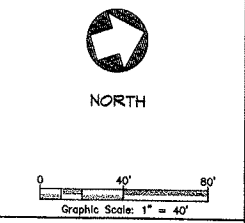


**Tighe & Bond**  
Consulting Engineers  
1000 Bridgeport Avenue  
Suite 320  
Shelton, CT 06484  
(203) 712-1100  
www.tighebond.com

**ENVIRONMENTAL LAND SOLUTIONS, LLC**  
LANDSCAPE ARCHITECTURE  
ENVIRONMENTAL PLANNERS  
8 Knight Street, Suite 203  
Norwalk, Connecticut 06851  
Tel: (203) 855-1878  
Fax: (203) 855-1836  
email: landscape@els.net

**FAESY SMITH ARCHITECTS PC**  
523 DANBURY ROAD WILTON, CT 06897  
phone 203.834.2724 fax 203.762.9694

**R&C**  
**Richter & Cegan, Inc.**  
Landscape Architects  
Urban Designers  
Land Planners  
Avon Park North P.O. Box 567  
Avon, Connecticut 06001  
(860) 678-0669



**Rehabilitation and  
Redevelopment of  
Cannondale Village**

Wilton, Connecticut  
February 25, 2011  
WPCA Submission

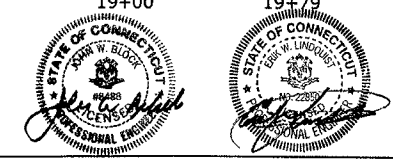
**NOT FOR  
CONSTRUCTION**

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1	4/12/2011	ENGINEERING COMMENTS
MARK	DATE	DESCRIPTION
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DRAWN BY:	EWL	
CHECKED:	EWL	
APPROVED BY:	JWB	

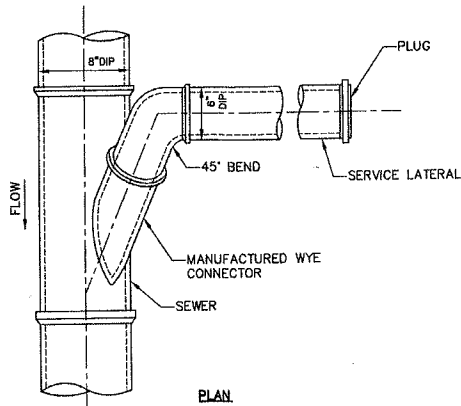
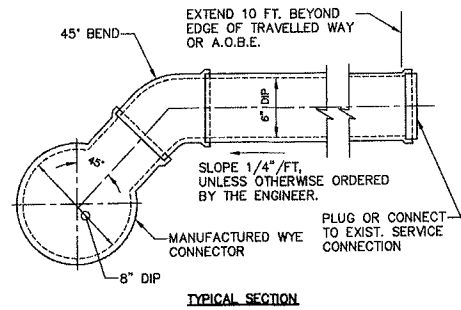
**Sanitary Sewer  
Plan and Profile**

SCALE: 1" = 40'

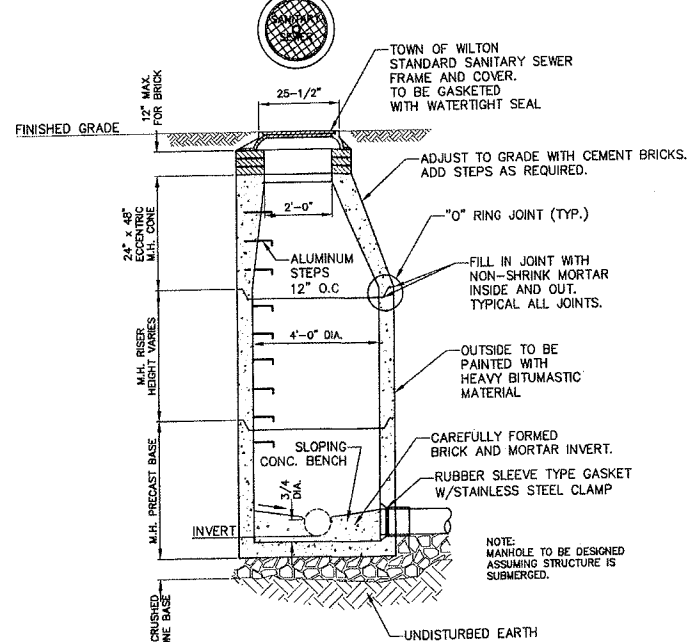
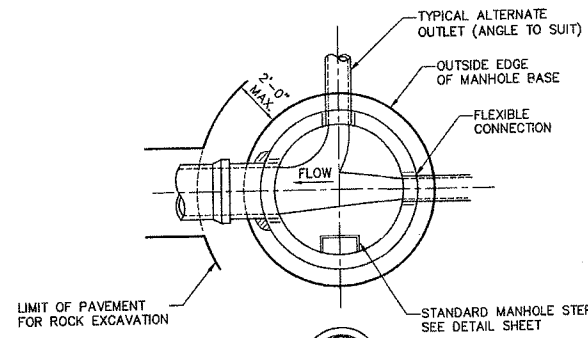
**C2.2**



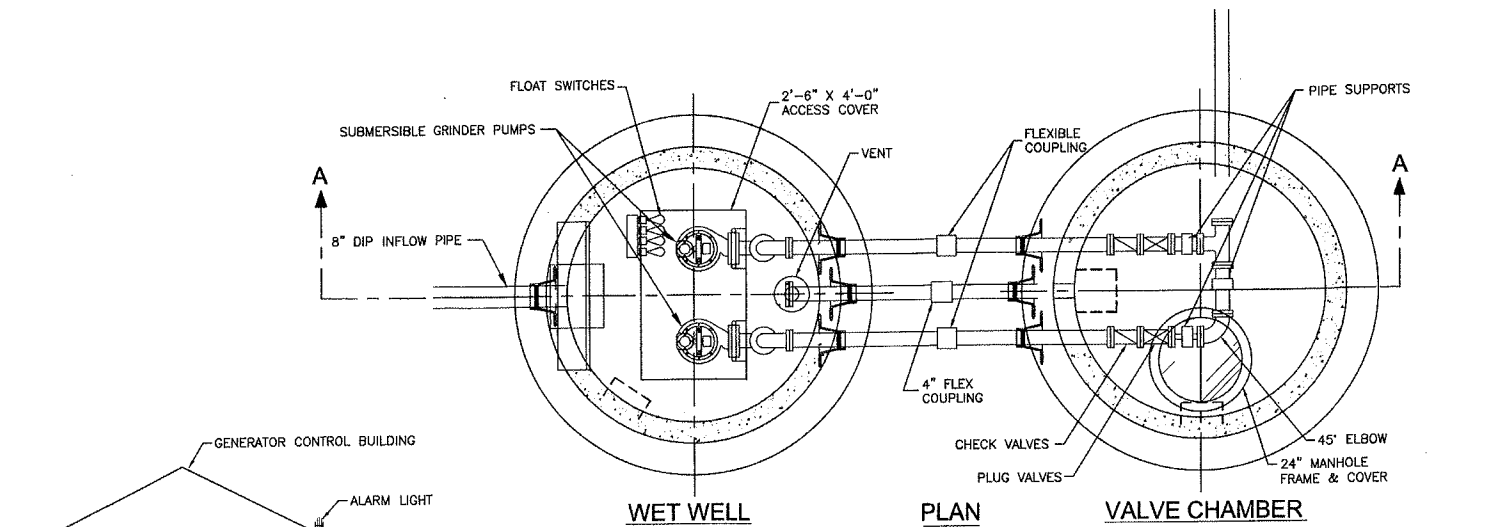
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 Tighe & Bond, Inc. \\C:\CD721\Verenings\0\_Corren\WPCA\Sheets\PP-WPCS-C0721-01.dwg



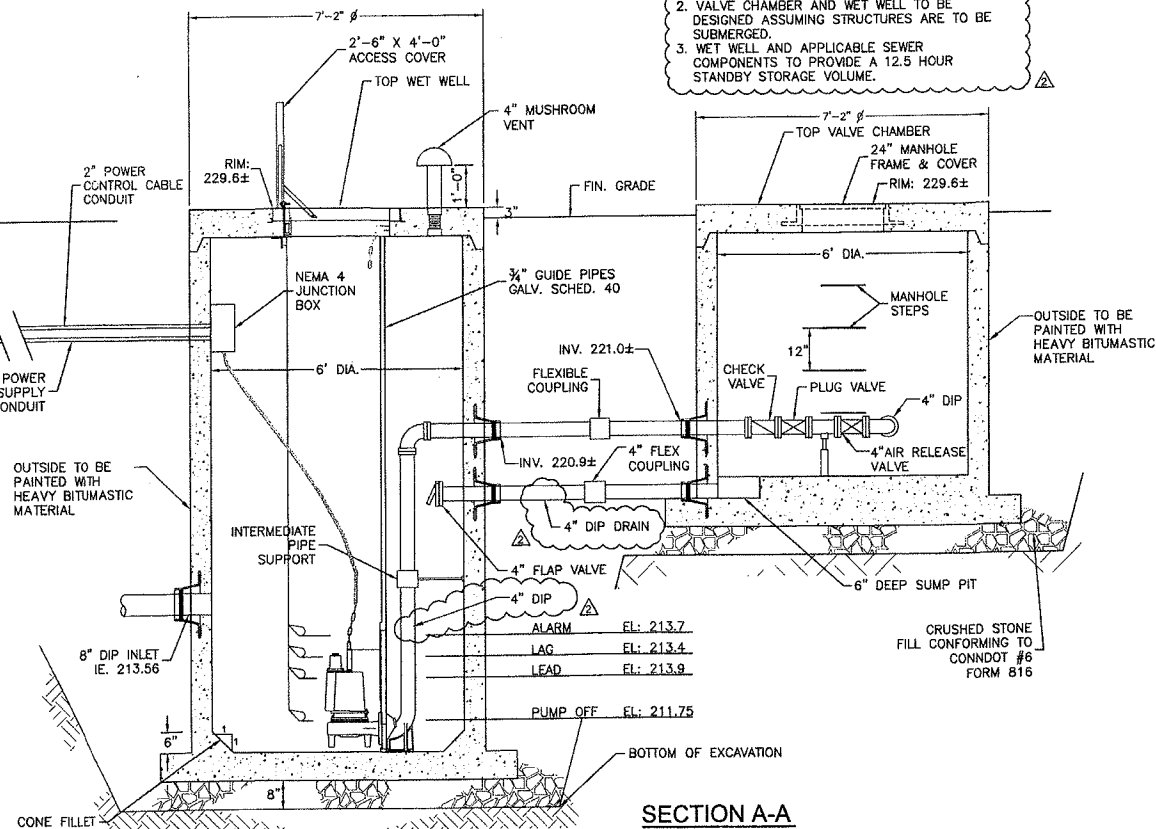
**STANDARD SERVICE LATERAL CONNECTION**  
NO SCALE



**STANDARD SANITARY SEWER MANHOLE**  
NO SCALE



- NOTES**
1. PUMP STATION WET WELL AND VALVE CHAMBER ACCESS HATCH, MANHOLE FRAMES AND COVERS TO BE DESIGNED FOR HS-20 LOADING, AND TO BE GASKETED WITH WATERTIGHT SEAL.
  2. VALVE CHAMBER AND WET WELL TO BE DESIGNED ASSUMING STRUCTURES ARE TO BE SUBMERGED.
  3. WET WELL AND APPLICABLE SEWER COMPONENTS TO PROVIDE A 12.5 HOUR STANDBY STORAGE VOLUME.



**TYPICAL PUMP STATION DETAIL**  
NO SCALE

May 04, 2011 - 10:26am. Plotted By: Inequitas  
 Tigue & Bond, Inc. J:\030721\_Vermapro\030721\WPCA\Sheet\DS-WPCA-C0721-01.dwg

**Tigue & Bond**

Consulting Engineers  
 1000 Bridgeport Avenue  
 Suite 320  
 Shelton, CT 06484  
 (203) 712-1100  
 www.tiguebond.com

ENVIRONMENTAL LAND SOLUTIONS, LLC  
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 email: landscapenet@net.net

**FAESY-SMITH**  
ARCHITECTS PC

523 DANBURY ROAD WILTON, CT 06897  
 phone 203.834.2724 fax 203.762.9694

**R&C**

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Rehabilitaion and  
 Redevelopment of  
 Cannondale Village

Wilton, Connecticut

February 25, 2011  
 WPCA Submission

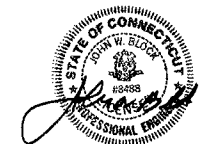
NOT FOR  
 CONSTRUCTION

2	5/3/2011	ENGINEERING COMMENTS
1	4/12/2011	ENGINEERING COMMENTS
MARK	DATE	DESCRIPTION
PROJECT NO:	C-0721	
	DS-WPCA-C0721-01.dwg	
DRAWN BY:	EWL	
CHECKED BY:	EWL	
APPROVED BY:	JWB	

**Sanitary Sewer  
 Details**

SCALE: As Noted

**C4.4**



Rehabilitaion and  
Redevelopment of  
Cannondale Village

Wilton, Connecticut

February 25, 2011  
WPCA Submission

NOT FOR  
CONSTRUCTION

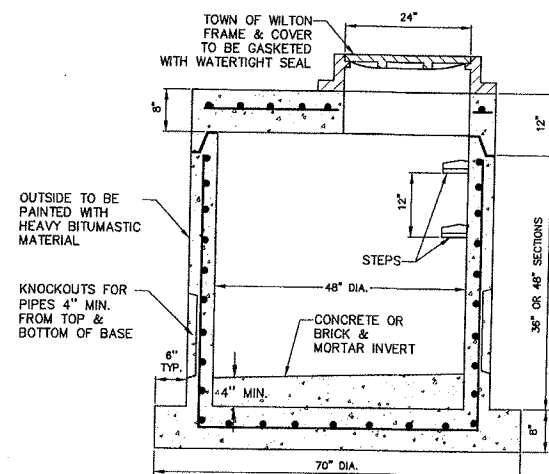
MARK	DATE	DESCRIPTION
2	5/3/2011	ENGINEERING COMMENTS
1	4/12/2011	ENGINEERING COMMENTS

PROJECT NO: C-0721  
DRAWN BY: EWL  
CHECKED: EWL  
APPROVED BY: JWB

Sanitary Sewer  
Details

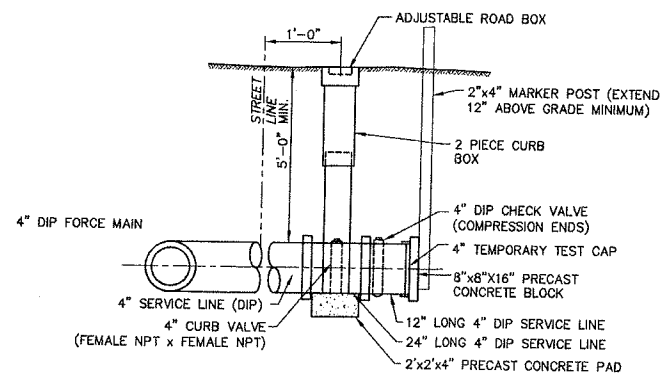
SCALE: As Noted

C4.5



**SHALLOW SANITARY MANHOLE**  
NO SCALE

NOTE: MANHOLE TO BE DESIGNED ASSUMING STRUCTURE IS SUBMERGED.



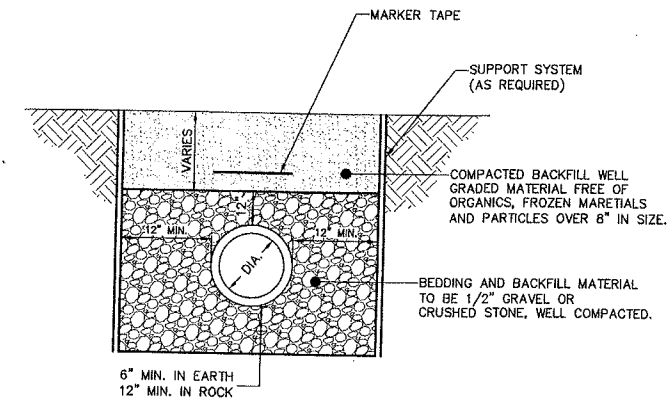
**CURB VALVE & RISER INSTALLATION**  
NO SCALE

FOR LOW PRESSURE SEWER SYSTEM

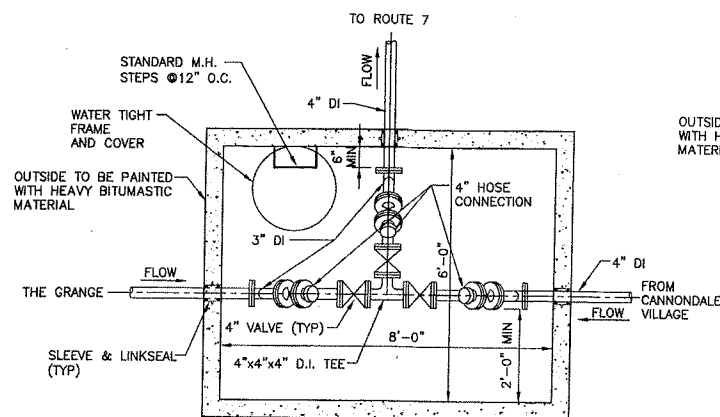
LOCATION OF SERVICE INSTALLATIONS TO BE DETERMINED IN THE FIELD.

FOR MAINLINE PIPE SIZES LESS THAN 3", TEE SHALL HAVE COMPRESSION ENDS FOR BRANCH AND RUN.

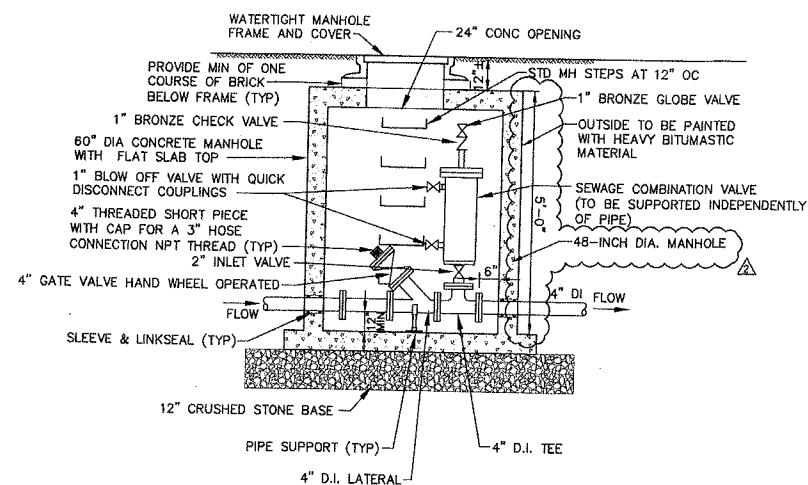
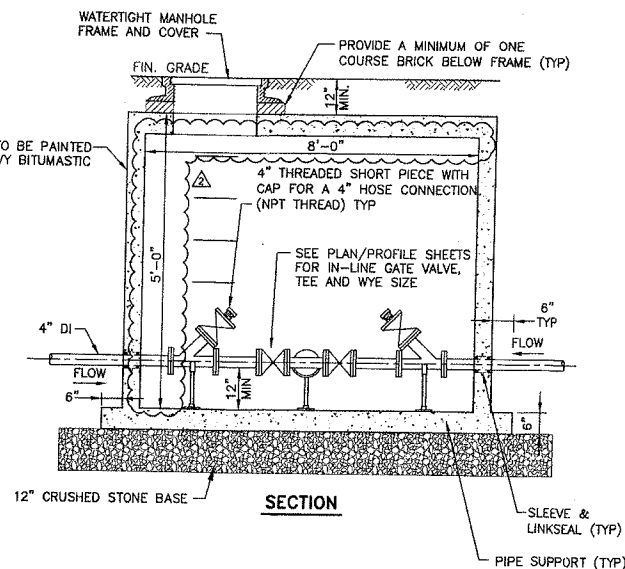
FOR FUTURE CONNECTION LATERALS, PROVIDE CONCRETE THRUST BLOCK DIRECTLY BEHIND CURB VALVE



**SANITARY TRENCH BEDDING**  
NO SCALE



**JUNCTION CLEANOUT STRUCTURE**  
NO SCALE



**IN-LINE CLEANOUT AND AIR RELEASE STRUCTURE**  
NO SCALE

NOTE:  
1. BACK FLUSHING ATTACHMENTS SHALL BE PROVIDED FOR ALL SEWAGE VALVES.



12-0721-2-02  
May 3, 2011

Wilton Public Works Department  
Town of Wilton  
238 Danbury Road  
Wilton, CT 06897  
Attn: Mr. Mike Ahern, P.E.

RECEIVED  
MAY 05 2011  
WILTON DEPT. OF PUBLIC WORKS

**Tighe&Bond**

www.tighebond.com

Re: **Cannondale Village - Sanitary Sewer and Force Main Comments**

Dear Mr. Ahern:

Tighe & Bond has reviewed your comments dated April 27, 2011 and provided responses below. Review comments and questions are shown in italics, while our responses appear as bold text. Revised plan sheets and calculations reflecting these comments have also been provided with these responses for your review.

1. *Provide cumulative storage volume in the case of an extended shut-down below the lowest sanitary connection/finished floor elevation. In other words, identify how much volume can be accommodated by the wet well and incoming piping before it backs up into the first structure.*

**RESPONSE: We have provided with these responses a summary of the storage volumes which are provided by the various components of the sanitary sewer and pump chamber wet well. Based on this review the control elevation for the standby storage will be at SAN MH-1 since its rim elevation (222.9-ft) is lower than the lowest finished floor elevation (223.7-ft) for any of the contributing structures. We have determined that the piping, manholes, and wet well have a combined storage volume of approximately 6,111 gallons. Since the average daily flow is 11,827 gallons per day, we would be providing approximately 12.5 hours of stand-by storage.**

2. *Provide standby generator size and selection.*

**RESPONSE: A 30 kW Kohler® Power System (Model: 30REZG) is being proposed for the standby generator. The generator will be fueled by propane and measures 86.6-inches long x 40.9-inches wide x 46.1-inches high. A cut sheet has been provided with these responses for your review.**

3. *It appears that the pump selection is now a Zoeller X611. Please confirm, as letter indicates a Barnes pump, as well as identifying discharge size (4").*

**RESPONSE: The Barnes® submersible pump identified in the response letter is the pump being proposed for this installation. The corresponding cut sheet was provided with the response letter submitted last month. Additionally, the discharge pipe size will be 4-inches.**

4. *Please identify discharge pipe size and material inside the wet well on drawing number C-4.4.*

**RESPONSE: We have revised the detail sheet to incorporate this comment.**

5. *Add overall dimensions to junction cleanout and air release structure details on drawing number C-4.5.*

**RESPONSE: We have revised the detail sheet to incorporate this comment.**



6. The pump station and generator design (i.e. protection from the 100-year flood) should be in accordance with the latest FEMA floodplain mapping. Our review of the overall site plan drawings caught a reference to FEMA mapping dated 1982 - this is not the latest FEMA mapping. Keep in mind that the topo survey, which appears to be your base map for the sewer design, was done in NGVD 1929. FEMA base flood elevations are in NAVD 88. Send me any datum conversions, so that we can confirm that the rim/hatch elevations are above the current base flood elevations (and reference the FEMA sources).

**RESPONSE:** As you have referenced, the most current FEMA 100-year flood elevations are based on the NAVD 88 datum and our project survey is based on the NGVD 1929 datum. The conversion between these two datums should be calculated using the website [http://www.ngs.noaa.gov/cgi-bin/VERTCON/vert\\_con.pr!](http://www.ngs.noaa.gov/cgi-bin/VERTCON/vert_con.pr!). This site allows the user to enter the NGVD 29 datum and calculate the corresponding NAVD 88 datum, or vice versa. The user is required to enter the latitude and longitude for the desired location, the current datum, and the elevation. The website will then provide you with the appropriate conversion and datum shift. In this location the datum shift is -1.060 feet from NAVD 88 to NGVD 1929. Since the most current FEMA flood profile for the site has the 100-year flood elevation at 228.4-feet (NAVD 88) in the vicinity of the pump chamber, the corresponding elevation for the NGVD 1929 datum would then be 229.46-feet. A printout from the above referenced web page illustrating this conversion, as well as a copy of the FEMA flood profile from volume 5 of the FEMA Flood Study (Dated: 6/18/2010) have been included with this response for your review.

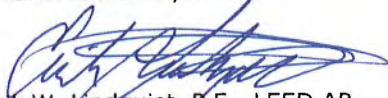
The survey references FEMA mapping dating back to 1982 for the horizontal location of the 100-year flood line. While this is not the most current flood study for the Norwalk River, the horizontal location of the 100-year flood line in the vicinity of the project site has not changed in relation to the most current mapping dated 6/18/2010. This was verified by overlaying the most current FEMA FIRM maps over the project survey.

When we compare the 100-year flood elevation in the NGVD 1929 datum (229.46) to the rim elevation of the wet well and pump chamber (229.6), we can observe that the rim/hatch for both structures are located above the 100-year flood elevation for the most current FEMA flood mapping.

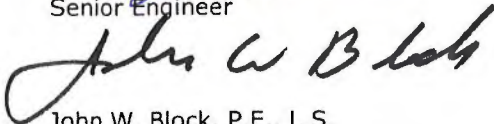
We look forward to a May 11<sup>th</sup> approval from the WPCA. If you have any questions with the plans or calculations, please feel free to contact me at your convenience.

Very truly yours,

**TIGHE & BOND, INC.**



Erik W. Lindquist, P.E., LEED AP  
Senior Engineer



John W. Block, P.E., L.S.  
Senior Vice President

Copy: Marc Gueron  
Casey Healey

C0721 Sewer Comments.doc





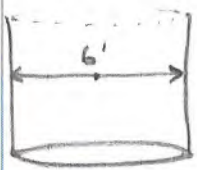
# Standby Storage Calculation



**SANITARY SEWER STORAGE**

STORAGE

- 
 6" DIA SEWER LATERAL  
 ↳ 0.20 cF/LF @ 200 LF = 40 CF
- 
 8" DIA SEWER MAIN  
 ↳ 0.35 CF/LF @ 513 LF = 180 CF



- 6' DIA WET WELL  
 ↳ 28.2 cF/LF @ 11.9 FT = 336 CF



- 4' DIA WET WELL  
 ↳ 12.5 cF/LF @ 20.9 FT = 261 CF

**TOTAL STORAGE = 817 CF**

817 CF ⇒ 6,111 GALLONS

- + BOTTOM OF WET WELL  
EL = 211.0-FT
- + LOWEST BUILDING FINISHED FLOOR  
EL = 223.7-FT
- + LOWEST STRUCTURE RIM  
EL = 222.9-FT (CONTROL)
- + AVERAGE DAILY FLOW = 11,827 GPD

$$\frac{6,111 \text{ gallons}}{11,827 \text{ gallons}} = 0.52$$

∴ 24 hours [0.52] = **12.4 hours of Storage**

# **Standby Generator Information**

Model: **30REZG**

# KOHLER POWER SYSTEMS

190-600 V

Gas



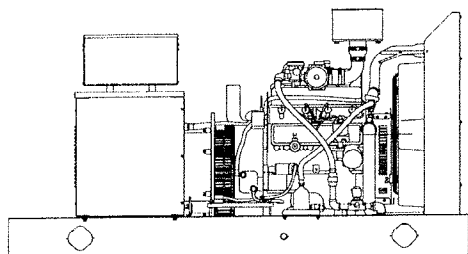
**EPA-Certified for Stationary  
Emergency Applications**

## Standard Features

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- A one-year limited warranty covers all systems and components. Two- and five-year extended warranties are also available.
- Alternator features:
  - The unique Fast-Response™ II excitation system delivers excellent voltage response and short-circuit capability using a permanent magnet (PM)-excited alternator.
  - The brushless, rotating-field alternator has broadrange reconnectability.

## Ratings Range

Standby:	kW kVA	60 Hz	50 Hz
		28-31 28-39	23-26 23-33



## Generator Set Ratings

Alternator	Voltage	Ph	Hz	Natural Gas 130°C Rise Standby Rating		LP Gas 130°C Rise Standby Rating	
				kW/kVA	Amps	kW/kVA	Amps
4P5	120/208	3	60	29/36	101	30/38	104
	127/220	3	60	29/36	95	30/38	98
	120/240	3	60	29/36	87	30/38	90
	120/240	1	60	28/28	117	28/28	117
	139/240	3	60	29/36	87	30/38	90
	220/380	3	60	29/36	55	30/38	57
	277/480	3	60	29/36	44	30/38	45
	347/600	3	60	29/36	35	30/38	36
	110/190	3	50	25/31	95	25/31	95
	115/200	3	50	25/31	90	25/31	90
	120/208	3	50	25/31	87	25/31	87
	110/220	1	50	23/23	105	23/23	105
	110/220	3	50	25/31	82	25/31	82
	220/380	3	50	25/31	47	25/31	47
230/400	3	50	25/31	45	25/31	45	
240/416	3	50	25/31	43	25/31	43	
4P7	120/208	3	60	30/38	104	31/39	108
	127/220	3	60	30/38	98	31/39	102
	120/240	3	60	30/38	90	31/39	93
	120/240	1	60	28/28	117	29/29	121
	139/240	3	60	30/38	90	31/39	93
	220/380	3	60	30/38	57	31/39	59
	277/480	3	60	30/38	45	31/39	47
	347/600	3	60	30/38	36	31/39	37
	110/190	3	50	26/33	99	26/33	99
	115/200	3	50	26/33	94	26/33	94
	120/208	3	50	26/33	90	26/33	90
	110/220	1	50	25/25	114	25/25	114
	110/220	3	50	26/33	85	26/33	85
	220/380	3	50	26/33	49	26/33	49
230/400	3	50	26/33	47	26/33	47	
240/416	3	50	26/33	45	26/33	45	
4Q7	120/240	1	60	30/30	125	30/30	125
	110/220	1	50	25/25	114	25/25	114

RATINGS: All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor. **Standby Ratings:** The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. **Prime Power Ratings:** At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528-1 and ISO-3046-1. For limited running time and continuous ratings, consult the factory. Obtain technical information bulletin (TIB-101) for ratings guidelines, complete ratings definitions, and site condition derates. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. For dual fuel engines, use the natural gas ratings for both the primary and secondary fuels.

# Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Permanent-Magnet
Leads: quantity, type	
4P5, 4P7	12, Reconnectable
4Q7	4, 110-120/220-240
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H
Temperature rise	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load	
Decision-Maker® 550 controller (with 0.5% drift due to temperature variation)	3-Phase Sensing, ±0.25%
Decision-Maker® 3000 controller	3-Phase Sensing, ±0.5%
One-step load acceptance	100% of Rating
Unbalanced load capability	100% of Rated Standby Current
Peak motor starting kVA:	(35% dip for voltages below)
480 V, 380 V 4P5 (12 lead)	140 (60 Hz), 98 (50 Hz)
480 V, 380 V 4P7 (12 lead)	194 (60 Hz), 134 (50 Hz)
240 V, 220 V 4Q7 (4 lead)	104 (60 Hz), 91 (50 Hz)

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof construction.
- Vacuum-impregnated windings with fungus-resistant epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.
- Fast-Response™ II brushless alternator with brushless exciter for excellent load response.

## Application Data

### Engine

Engine Specifications	60 Hz	50 Hz
Manufacturer	General Motors	
Engine: model, type	Industrial Powertrain 3.0 L, 4-Cycle Natural Aspiration	
Cylinder arrangement	4 Inline	
Displacement, L (cu. in.)	3.0 (181)	
Bore and stroke, mm (in.)	101.6 x 91.4 (4.00 x 3.60)	
Compression ratio	8.2:1	
Piston speed, m/min. (ft./min.)	329 (1080)	274 (900)
Main bearings: quantity, type	2 Bolt	
Rated rpm	1800	1500
Max. power at rated rpm, kW (HP)	36.5 (49)	32 (43)
Engine power at standby rating, kW (HP)	36.5 (49)	32 (43)
Cylinder head material	Cast Iron	
Piston type and material	High Silicon Aluminum	
Crankshaft material	Nodular Iron	
Valve (exhaust) material	Forged Steel	
Governor type	Electronic	
Frequency regulation, no-load to full-load	Isochronous	
Frequency regulation, steady state	±0.5%	
Frequency	Fixed	
Air cleaner type, all models	Dry	

### Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust manifold type	Dry	
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)	7.1 (250)	5.9 (208)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	688 (1270)	
Maximum allowable back pressure, kPa (in. Hg)	10.2 (3.0)	
Exhaust outlet size at engine hookup, mm (in.)	64 (2.5) OD	

### Engine Electrical

Engine Electrical System	60 Hz	50 Hz
Ignition system	Electronic, Distributor	
Battery charging alternator:		
Ground (negative/positive)	Negative	
Volts (DC)	12	
Ampere rating	70	
Starter motor rated voltage (DC)	12	
Battery, recommended cold cranking amps (CCA):		
Qty., rating for -18°C (0°F)	1, 630	
Battery voltage (DC)	12	

### Fuel

Fuel System	60 Hz	50 Hz
Fuel type	Natural Gas, LP Gas, or Dual Fuel	
Fuel supply line inlet	1 NPTF	
Natural gas fuel supply pressure, kPa (in. H <sub>2</sub> O)	1.74-2.74 (7-11)	
LPG vapor withdrawal fuel supply pressure, kPa (in. H <sub>2</sub> O)	1.24-2.74 (5-11)	
Dual fuel engine, LPG vapor withdrawal fuel supply pressure, kPa (in. H <sub>2</sub> O)	1.24 (5)	

Fuel Composition Limits *	Nat. Gas	LP Gas
Methane, % by volume	90 min.	—
Propane, % by volume	1.0 max.	85 min.
Propene, % by volume	0.1 max.	5.0 max.
C <sub>4</sub> and higher, % by volume	0.3 max.	2.5 max.
Sulfur, ppm mass	25 max.	
Lower heating value, kJ/m <sup>3</sup> (Btu/ft <sup>3</sup> ), min.	26.6 (890)	67.5 (2260)

\* Fuels with other compositions may be acceptable. If your fuel is outside the listed specifications, contact your local distributor for further analysis and advice.

## Application Data

### Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, L (qt.)	3.8 (4.0)	
Oil pan capacity with filter, L (qt.)	4.1 (4.3)	
Oil filter: quantity, type	1, Cartridge	

### Cooling

Radiator System	60 Hz	50 Hz
Ambient temperature, °C (°F) *	50 (122)	
Engine jacket water capacity, L (gal.)	6.8 (1.8)	
Radiator system capacity, including engine, L (gal.)	14.9 (3.9)	
Engine jacket water flow, Lpm (gpm)	42 (11)	35 (9)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	34.1 (1940)	28.4 (1617)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	533 (21)	
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O)	0.125 (0.5)	

\* Enclosure with enclosed silencer reduces ambient temperature capability by 5°C (9°F).

### Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm)‡	200 (7100)	167 (5916)
Combustion air, m <sup>3</sup> /min. (cfm)	2.1 (74)	1.75 (62)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	9.2 (522)	15.4 (860)
Alternator, kW (Btu/min.)	4.5 (259)	3.75 (216)

‡ Air density = 1.20 kg/m<sup>3</sup> (0.075 lbm/ft<sup>3</sup>)

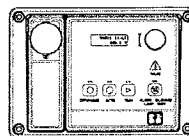
Fuel Consumption	60 Hz	50 Hz
<b>Natural Gas, m<sup>3</sup>/hr. (cfh) at % load‡</b>	<b>Standby Ratings</b>	
100%	12.2 (430)	10.2 (358)
75%	9.6 (340)	8.0 (283)
50%	7.2 (255)	6.0 (213)
25%	5.1 (179)	4.3 (149)
<b>LP Gas, m<sup>3</sup>/hr. (cfh) at % load</b>	<b>Standby Ratings</b>	
100%	5.0 (175)	4.2 (146)
75%	4.1 (144)	3.4 (120)
50%	3.1 (108)	2.6 (90)
25%	2.1 (74)	1.8 (62)

‡ Fuel consumption is based on 1015 Btu/standard cu. ft. natural gas.

LP vapor conversion factors:

- 8.58 ft.<sup>3</sup> = 1 lb.
- 0.535 m<sup>3</sup> = 1 kg.
- 36.39 ft.<sup>3</sup> = 1 gal.

### Controllers

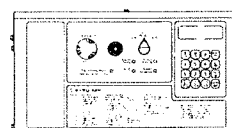


#### Decision-Maker<sup>®</sup> 3000 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- Digital display and menu control provide easy local data access
- Measurements are selectable in metric or English units
- Scrolling display shows critical data at a glance
- Integrated hybrid voltage regulator with ±0.5% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-100 for additional controller features and accessories.



#### Decision-Maker<sup>®</sup> 550 Controller

Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities.

- Digital display and keypad provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or modem configuration
- Controller supports Modbus<sup>®</sup> protocol
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-46 for additional controller features and accessories.

## Additional Standard Features

- Alternator Protection
- Battery Rack and Cables
- Electronic, Isochronous Governor
- Gas Fuel System (includes fuel mixer, electronic secondary gas regulator, gas solenoid valve, and flexible fuel line between the engine and the skid-mounted fuel system components)
- Integral Vibration Isolation
- Local Emergency Stop
- Oil Drain Extension
- Operation and Installation Literature

## Available Options

### Approvals and Listings

- CSA Approval
- IBC Seismic Certification
- UL 2200 Listing

### Enclosed Unit

- Sound Enclosure (with enclosed critical silencer)
- Weather Enclosure (with enclosed critical silencer)

### Open Unit

- Exhaust Silencer, Critical (kit: PA-352663)
- Flexible Exhaust Connector, Stainless Steel

### Fuel System

- Dual Fuel NG/LPG (automatic changeover)
- Flexible Fuel Line (required when the generator set skid is spring mounted)
- Gas Filter
- Secondary Gas Solenoid Valve

### Controller

- Common Fault Relay
- Communication Products and PC Software (Decision-Maker® 550 controller only)
- Customer Connection (Decision-Maker® 550 controller only)
- Dry Contact (isolated alarm) (Decision-Maker® 550 controller only)
- Input/Output Module (Decision-Maker® 3000 controller only)
- Remote Annunciator Panel
- Remote Audiovisual Alarm Panel (Decision-Maker® 550 controller only)
- Remote Emergency Stop
- Run Relay

### Cooling System

- Block Heater [recommended for ambient temperatures below 10°C (50°F)]
- Radiator Duct Flange

### Electrical System

- Alternator Strip Heater
- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater
- Line Circuit Breaker (NEMA1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)

### Miscellaneous

- Air Cleaner Restrictor Indicator
- Certified Test Report
- Engine Fluids (oil and coolant) Added
- Rated Power Factor Testing
- Rodent Guards

### Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

### Warranty

- 2-Year Basic
- 5-Year Basic
- 5-Year Comprehensive

### Other Options

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

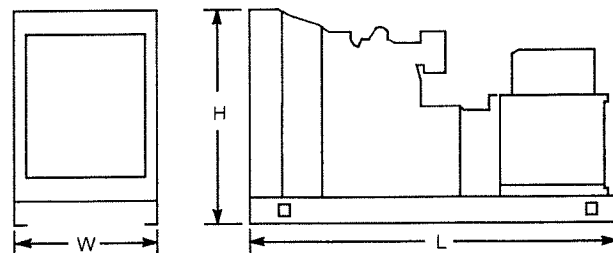
## Dimensions and Weights

Overall Size, L x W x H, mm (in.):

Wide Skid 2200 x 1040 x 1172 (86.6 x 40.9 x 46.1)

Narrow Skid 2200 x 864 x 1172 (86.6 x 34.0 x 46.1)

Weight (radiator model), wet, kg (lb.): 573 (1260)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

**DISTRIBUTED BY:**

**FEMA 100-year Flood Study  
Information**

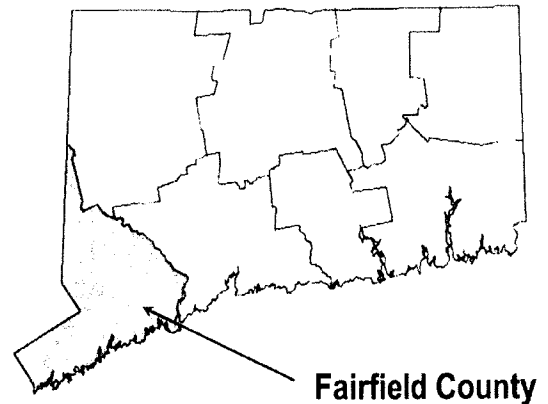
# FLOOD INSURANCE STUDY

VOLUME 5 OF 6



## FAIRFIELD COUNTY, CONNECTICUT (ALL JURISDICTIONS)

COMMUNITY NAME	COMMUNITY NUMBER
BETHEL, TOWN OF	090001
BRIDGEPORT, CITY OF	090002
BROOKFIELD, TOWN OF	090003
DANBURY, CITY OF	090004
DARIEN, TOWN OF	090005
EASTON, TOWN OF	090006
FAIRFIELD, TOWN OF	090007
GREENWICH, TOWN OF	090008
MONROE, TOWN OF	090009
NEW CANAAN, TOWN OF	090010
NEW FAIRFIELD, TOWN OF	090188
NEWTOWN, TOWN OF	090011
NORWALK, CITY OF	090012
REDDING, TOWN OF	090141
RIDGEFIELD, TOWN OF	090013
SHELTON, CITY OF	090014
SHERMAN, TOWN OF	090166
STAMFORD, CITY OF	090015
STRATFORD, TOWN OF	090016
TRUMBULL, TOWN OF	090017
WESTON, TOWN OF	090018
WESTPORT, TOWN OF	090019
WILTON, TOWN OF	090020



Fairfield County

EFFECTIVE:  
JUNE 18, 2010

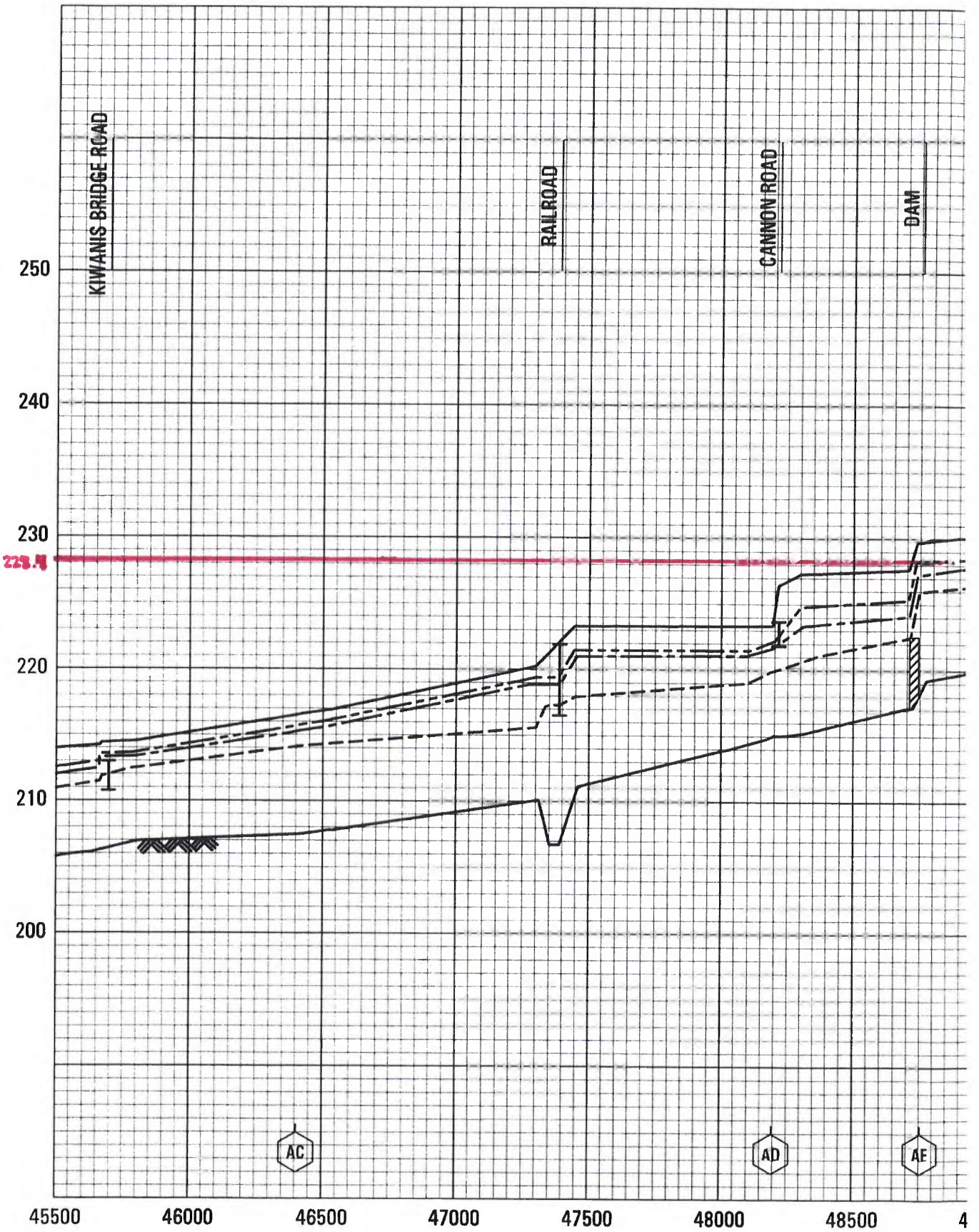


Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER  
09001C005A



ELEVATION IN FEET (NAVD 88)



STREAM DISTANCE IN FEET ABOVE DOWNS

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 41.2170805

Longitude: 73.424978

NAVD 88 height: 228.4 FT

Datum shift (NAVD 88 minus NGVD 29): -1.060 feet

Converted to NGVD 29 height: 229.460 feet

**WATER POLLUTION CONTROL AUTHORITY  
REGULAR MEETING TOWN HALL  
MEETING ROOM B  
WEDNESDAY, JUNE 8, 2011**

PRESENT: Al Stauderman, James Newton, Eric Fanwick, Andy McNee,

ABSENT: William Brennan, Rich Tomasetti,

OTHERS: Tom Thurkettle, (Director of DPW), Mike Ahern, (Field Engineer, DPW), Sandy Dennies, (CFO), Pete Lucia, John Block, (Tighe and Bond).

**Call to Order**

Mr. Stauderman called the meeting to order at 5:05 pm.

**Approval of April 13, 2011 Meeting Minutes**

A Motion was made seconded and carried to approve the Minutes of April 13, 2011.

**Approval of the Assessment for 10 Ridge Lane**

Having held a Public Hearing on April 13, 2011 on the Assessment for 10 Ridge Lane, Mr. Fanwick made a Motion to approve the assessment of \$17,823.00 for 10 Ridge Lane as recommended by the Sandy Dennies. The Motion was seconded and carried.

**Approval of the FY 12 Budget and User Fees**

Having held a Public Hearing on April 13, 2011 on the FY 12 Budget and User Fees, Mr. Fanwick made a Motion to approve the FY 12 Budget and User Fees of \$180.00 per unit as proposed. The Motion was seconded and carried.

**Review and Consider Approval of Cannondale Village Sewer Connection**

Mr. Block of Tighe & Bond showed drawings to the members of the Authority illustrating the proposed sewer connection. Mr. Thurkettle explained that the developer of the property in Cannondale Village wants to put in a pump station on the property and run a force main under the railroad tracks all the way to a gravity sewer that will go across Route 7. Mr. Thurkettle and Mr. Ahern's recommendation, and one that Chairman Brennan concurs with, is to accept only the 8" gravity sewer that runs from the west side of Route 7 to the east side of Route 7 and Cannon Road as the public sewer, everything else would be a private force main sewer. A discussion ensued by the members of the Authority present.

Mr. Stauderman made a Motion that the Authority grants permission for the Developer to connect to the Town's sewer system. The Developer will install the whole system at his cost and once it's completed the Town will be responsible for the gravity portion of the system and the Developer will be responsible for the maintenance on the force main portion of the sewer system. This is conditional upon the Developer notifying future owners of a capital assessment and user fees as required by the WPCA. It is also conditional upon the Developer

establishing a maintenance bond for the force main portion of the sewer in an amount acceptable to the Town Engineer. The Motion was seconded by Mr. Newton and carried 3- yes, 1- no. Mr. Fanwick was the dissenting vote.

**Further Business**

There being no further business, the meeting was adjourned.

Respectively submitted,

Mariana Corrado  
Recording Secretary

# Tab 9

All content

Enter terms, citations, databases, questions,

All Federal

Search Tips  
Advanced

### Dauti Const., LLC v. Water and Sewer Authority of Town of Newt...

Related documents

Appellate Court of Connecticut • December 28, 2010 • 125 Conn.App. 652 • 10 A.3d 84 (Approx. 13 pages)

Document

Filings (1)

Negative Treatment (1)

History (3)

Citing References (35)

Table of Authorities

Fullscreen



Synopsis

Distinguished by *Summit Saugatuck, LLC v. Water Pollution Control Authority*,  
Conn.Super., May 7, 2018

West Headnotes

Original Image of 10 A.3d 84 (PDF)

Attorneys and Law Firms

125 Conn.App. 652  
Appellate Court of Connecticut.

Opinion

## DAUTI CONSTRUCTION, LLC v. WATER AND SEWER AUTHORITY OF the TOWN OF NEWTOWN.

All Citations

Footnotes

No. 31496.

Argued Sept. 1, 2010.

Decided Dec. 28, 2010.

### Synopsis

**Background:** Residential developer appealed from decision of town water and sewer authority denying developer's application to connect a proposed 26-unit residential development to town's existing public sewer system. The Superior Court, Judicial District of New Britain, Tanzer, J., 2009 WL 1754624, sustained the appeal. Authority appealed.

**Holding:** The Appellate Court, Alvord, J., held that regulation promulgated by town water and sewer authority acting as a water pollution control authority, allocating sewer capacity pursuant to a priority matrix that was based on the zoning classification of property on date of adoption of priority matrix, was invalid as applied to the residential developer's sewer connection application.

Notes

Quick Check

## Procedure

When it appears that a public agency reasonably could reach only one conclusion, the court may direct that agency to do that which the conclusion requires.

1 Case that cites this headnote

15AIV

Judicial Remedies and Review

15AIV(G)

Review

15AIV(G)8

Sufficiency of Evidence

15Ak1835

Inferences and conclusions drawn from evidence

*(Formerly 15Ak789)*

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## Attorneys and Law Firms

**\*\*86** David L. Grogins, Danbury, with whom was Barbara M. Schellenberg, Bridgeport, for the appellant (defendant).

Timothy S. Hollister, with whom was Ryan K. McKain, Hartford, for the appellee (plaintiff).

DiPENTIMA, C.J., and ALVORD and PELLEGRINO, Js.

## Opinion

ALVORD, J.

**\*653** The defendant, the water and sewer authority of the town of Newtown, appeals from the judgment of the trial court sustaining the appeal of the plaintiff, Dauti Construction, LLC, from the defendant's decision denying the plaintiff's application for a permit to connect to the town's public sewer system. On appeal, the defendant claims that the court improperly determined that its regulation that allocated sewer capacity pursuant to a priority matrix was facially invalid because it was not rationally related to public health, safety and welfare concerns. Because we conclude that the priority matrix as applied to the plaintiff's

application was invalid, we affirm the judgment of the trial court.

The record reveals the following facts and procedural history. The plaintiff, a limited liability company, owns a parcel of land located at 95 Church Hill Road in Newtown and is the contract purchaser of an adjacent parcel of land located at 99 Church Hill Road. The combined area of the two parcels (property) is approximately four and one-half acres. In February, 2006, the plaintiff ¶\*654 submitted an application to the planning and zoning commission of the town of Newtown (commission) for a zone change to construct twenty-three residential units on the portion of the property located at 95 Church Hill Road.

The defendant is the agency designated by the town to carry out the duties of a municipal water pollution control authority as set forth in chapter 103 of the General Statutes. Pursuant to General Statutes § 7-246,<sup>1</sup> the town maintains a public sewer system controlled by the defendant that services a portion of the town. The plaintiff's ¶\*\*87 property is located entirely within the town's central sewer district. In July, 2006, after having received a preliminary request for sewer service for the plaintiff's proposed development, the defendant sent a letter to the plaintiff and all town boards and departments recommending the denial of the plaintiff's application for a zone change. In that letter, the defendant indicated that it had not allocated any sewer capacity for potential development that did not meet current zoning classifications and that the proposed zone change would allow sewer discharge at an amount greater than the amount permitted in its priority matrix. In August, 2006, the commission denied the plaintiff's application.

¶\*655 Following the commission's denial, the plaintiff then signed a contract to purchase the adjacent land at 99 Church Hill Road.<sup>2</sup> With the combined area of its property now totaling approximately four and one-half acres, the plaintiff submitted a three part affordable housing application to the commission in October, 2006, for a zoning amendment, map change and site plan approval in connection with a proposed development of

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twenty-six residential units. The commission again requested review and comment from the defendant with respect to the plaintiff's proposal. By memorandum dated January 16, 2007, the defendant responded: "It is ... clear that the proposed development does not meet current zoning as defined in the [water pollution control] [p]lan. The [p]lan makes clear that the term 'current' for zoning refers 'to the adoption date of this [priority] matrix, April 28, 1994.' [The plaintiff] has filed applications with [the commission] seeking amendments to the zoning regulations and a zone change for the subject property that would increase the number of units allowed per acre for the subject property. As such, there can be no disagreement that the [plaintiff's] proposal does not meet zoning requirements as they existed on April 28, 1994." The letter concluded with the statement that "there is insufficient sewer capacity for the development of the subject property as proposed by the [plaintiff]." On April 5, 2007, the commission denied the plaintiff's application for the primary reason that the plaintiff had failed to provide an adequate sewage disposal plan to meet the need of the future residents of the development. The plaintiff appealed from the commission's decision.<sup>3</sup>

**\*656** On August 7, 2007, pursuant to General Statutes § 7-246a (a)(2),<sup>4</sup> the plaintiff **\*\*88** submitted a formal application to the defendant, requesting a permit to connect to the public sewer system for a twenty-six unit residential development on the property. A public hearing on the plaintiff's application was held on August 16 and September 20, 2007. At the conclusion of the public hearing, the defendant denied the plaintiff's application for the following reason: "[I]t fails to meet [the defendant's] regulations in that it does not qualify for any category of the priority matrix for allocation of remaining sewer capacity." The plaintiff filed an appeal from the defendant's decision in the trial court pursuant to § 7-246a (b).<sup>5</sup>

The plaintiff's appeal from the commission's decision denying its affordable housing application was scheduled for oral argument on the same date and before the same judge, *Tanzer, J.*, as the present action.

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On June 1, 2009, the court issued its memorandum of decision in this case and sustained the plaintiff's appeal. It concluded that the defendant's regulation, allocating sewer capacity on the basis of the zoning classification of the plaintiff's property in 1994, was invalid. The court found ¶\*657 that the evidence in the record indicated that the denial was based on a mathematical or mechanical application of the priority matrix and that there had been no evidence demonstrating that the priority matrix was rationally related to public health, safety or welfare. The defendant filed the present appeal after this court granted its petition for certification.

The defendant claims that the court improperly determined that the defendant's sewer use regulation, which allocated sewer capacity on the basis of a priority matrix, was facially invalid because it was not rationally related to public health, safety and welfare concerns. The following additional facts and procedural history are relevant to the resolution of this claim. The defendant adopted a water pollution control plan (plan) on March 9, 1995, which was amended on June 24, 1999. The stated purpose of the plan was "to designate and delineate the boundaries of areas to be served by [t]own sewers and areas where sewers are to be avoided and to describe the policies and programs to be carried out to control surface and groundwater pollution problems." The plan further provides that the town did not intend to extend sewers to areas outside of the sewer service area, and it incorporates a priority matrix<sup>6</sup> for the central sewer service area to "ensure that the limited treatment plant capacity of 332,000 [gallons per day ¶\*658 would] be allocated in a logical manner." The plan clarifies that the terms "current" and "existing" in the priority matrix refer to the adoption date of the matrix, April 28, 1994. Pursuant to its authority under General Statutes § 7-247(a), the defendant ¶\*\*89 also adopted sewer use regulations, which initially were issued on August 13, 1997, and were revised on September 27, 2001. Those regulations reference the plan and the 1994 priority matrix.

Accordingly, as of April 28, 1994, all developed and undeveloped properties in the town were allocated a

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specific gallonage per day of the wastewater treatment plant's capacity based on the zoning classifications of the properties on April 28, 1994. The plaintiff's property, which was located in a one acre zone and was more than four acres but less than five acres in size, was assigned 850 gallons per day and 212.5 gallons of capacity per equivalent dwelling unit. The plaintiff's August 7, 2007 application sought a sewer connection permit for twenty-six dwelling units to discharge domestic sewage at a rate of 5525 gallons per day based on the defendant's stated discharge rate of 212.5 gallons per day per dwelling unit. The defendant concluded that the proposed amount of discharge exceeded the amount allowed by the 1994 priority matrix and denied the application. The court concluded that the defendant's stated reason for its denial was invalid.

1 Although the defendant claims that the court improperly determined that its regulation incorporating the 1994 priority matrix was *facially invalid*, we conclude that the issue to be determined by this court is whether the plaintiff's appeal was properly sustained because the 1994 priority matrix was invalid *as applied* to the plaintiff's proposal. We reach this conclusion for two reasons. First, in the plaintiff's prayer for relief, it specifically requests, inter alia, that the court render judgment declaring "invalid the portions of the ... [r]egulations [§\*659 that regulate individual connections to the sewer system based on zoning categories or land use designations adopted by the [commission], as applied to the application of [the plaintiff] for approval to hook up to the Newtown sewer system...." (Emphasis added.) Second, at the hearing before the trial court, counsel for the plaintiff stated: "We have no problem with the regulations, we're not trying to overturn the regulations, we're not—we're not asking the court to declare ... null and void any of the [defendant's] plans or ordinances or enabling regulations. What we're asking the court to look at is the way the [defendant] interprets its own regulations, *how they apply them to the [plaintiff's] case*, and to determine that they did in fact make a ... zoning based decision on that application." (Emphasis added.)

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Because the plaintiff's complaint and representations to the trial court clearly indicate that it was seeking a determination that the 1994 priority matrix as applied to its application was invalid, we review the claim on appeal as the claim was presented to the trial court. "Pleadings have an essential purpose in the judicial process.... The purpose of pleading is to apprise the court and opposing counsel of the issues to be tried.... For that reason, [i]t is imperative that the court and opposing counsel be able to rely on the statement of issues as set forth in the pleadings."

(Citations omitted; internal quotation marks omitted.)

*Somers v. Chan*, 110 Conn.App. 511, 528, 955 A.2d 667 (2008). It is fundamental in our law that "the right of a plaintiff to recover is limited by the allegations of the complaint ... and *any judgment should conform to the pleadings, the issues and the prayers for relief.*"

(Emphasis added; internal quotation marks omitted.)

*Journal Publishing Co. v. Hartford Courant Co.*, 261 Conn. 673, 686, 804 A.2d 823 (2002). "The [trial] court is not permitted to decide issues outside of those raised in the pleadings." <sup>[\*660</sup> Internal quotation marks omitted.)

<sup>[\*\*90</sup> *Gaffey v. Gaffey*, 91 Conn.App. 801, 804 n. 1, 882 A.2d 715, cert. denied, 276 Conn. 932, 890 A.2d 572 (2005).

Having concluded that we will review the defendant's claim in the context of whether the court improperly determined that the 1994 priority matrix was invalid as applied to the plaintiff's proposed development, we next consider the merits of that claim. The plaintiff had argued, and the trial court agreed, that a sewer agency has only those powers granted to it by the legislature, and those powers do not include the authority to regulate the use of land on the basis of zoning considerations. The court stated: "[A]lthough the allocation of sewer capacity was consistent with the zoning of the plaintiff's property at the time the priority matrix was adopted, the water pollution control plan and the priority matrix therein do not allow for changes in zoning to affect the allocation of sewer capacity, essentially restricting the density of development to that for which it was zoned in 1994...." Accordingly, the court concluded that the defendant's denial of the plaintiff's application for the reason that it failed to

meet the limits set forth in the 1994 priority matrix was improper.

5 6 We begin our analysis by setting forth the standard of review. “In considering an application for sewer service, a water pollution control authority performs an administrative function related to the exercise of its powers.... When a water pollution control authority performs its administrative functions, a reviewing court's standard of review of the [authority's] action is limited to whether it was illegal, arbitrary or in abuse of [its] discretion.... Moreover, there is a strong presumption of regularity in the proceedings of a public agency, and we give such agencies broad discretion in the performance of their administrative duties, provided that no statute or regulation is violated.” (Citations omitted; internal quotation marks omitted.) ¶661 *Forest Walk, LLC v. Water Pollution Control Authority*, 291 Conn. 271, 285–86, 968 A.2d 345 (2009).

7 8 Our Supreme Court has recognized that water pollution control authorities are quasi-municipal corporations created pursuant to statute that may exercise “the power to acquire, construct, maintain, supervise, manage and operate a sewer system and perform any act pertinent to the collection, transportation and disposal of sewage.” (Internal quotation marks omitted.) *AvalonBay Communities, Inc. v. Sewer Commission*, 270 Conn. 409, 425, 853 A.2d 497 (2004). In defining the powers and duties of such authorities, § 7-247(a) provides, inter alia, that they “may establish and revise rules and regulations for the supervision, management, control, operation and use of a sewerage system, including rules and regulations prohibiting or regulating the discharge into a sewerage system of any sewage or any stormwater runoff which in the opinion of the water pollution control authority will adversely affect any part or any process of the sewerage system....” General Statutes § 7-247(a). Nevertheless, “[a]n administrative agency, in making rules and regulations, must act within its statutory authority, within constitutional limitations, and in a lawful and reasonable manner.” (Internal quotation marks omitted.) *Queach Corp. v. Inland Wetlands Commission*, 258 Conn. 178, 193 n. 22, 779 A.2d 134 (2001).

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9 The 1994 priority matrix at issue in the present case clearly is zoning based in its language and as applied to the plaintiff's application. Because the property is located in a sewer service area and the application proposes new development, the defendant determined that the proposal failed to fall within any of the five categories affording priority for a requested <sup>\*\*91</sup> hookup to the sewer system. The second category of priority in the matrix is the only category that addresses "potential" as opposed to "existing" development. In order to fall <sup>662</sup> within the second category, the plaintiff's proposal would be entitled to priority only if its "potential development [meets] current zoning within the sewer service area." As previously noted, current zoning refers to the zoning classification of the plaintiff's property in April, 1994. At that point in time, the plaintiff would have been permitted the equivalent of one residential unit per acre, for a total of four units. Even if, sometime after 1994, the town's zoning authority had decided to change the plaintiff's property to a zoning classification that permitted greater density, the plaintiff still would not have been able to meet the parameters of the defendant's priority matrix. As conceded by the defendant, the priority matrix was tied to zoning classifications as they existed in 1994, and any subsequent zoning changes by the commission after the adoption of that matrix would be of no consequence and totally ignored by the defendant when considering sewer connection permit applications for new developments.

10 The 1994 priority matrix, as applied to the plaintiff's property, foreclosed any possibility of development that exceeded the equivalent of four dwelling units. As did the zoning regulations in 1994, the priority matrix regulated the density of population and the use of the plaintiff's property. "[T]he power to determine what are the needs of a town with reference to the use of the real property located in it and to legislate in such a manner that those needs will be satisfied is, by statute, vested exclusively in the zoning commission." (Internal quotation marks omitted.) *Harris v. Zoning Commission*, 259 Conn. 402, 425, 788 A.2d 1239 (2002). General Statutes § 8-2(a) authorizes a *zoning commission* to "regulate, within the limits of such municipality, the

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height, number of stories and size of buildings and other structures; the percentage of the area of the lot that may be occupied; the size of yards, courts and other open spaces; *the density of population and the location and* ¶663 *use of buildings, structures and land for trade, industry, residence or other purposes ...*” (Emphasis added.) The legislature has not authorized water pollution control authorities to exercise those zoning powers. The defendant, in its application of the 1994 priority matrix to the plaintiff's proposal, usurped the authority of the commission and restricted the density and use of the plaintiff's property.<sup>7</sup>

11 In determining the plaintiff's remedy for the defendant's improper denial of its application, the court found that “adequate capacity for twenty-six units must exist. More importantly, the defendant has not referred to any evidence in the record in support of a finding that the town's sewer system lacks sufficient capacity for the plaintiff's proposed development or that other property owners would be deprived of sewer connections to which they are entitled.” Because the only reason given by the defendant for its denial of the sewer connection permit was the failure to comply with the regulation allocating sewer capacity based on the 1994 zoning of the plaintiff's property, the court sustained the plaintiff's appeal.<sup>8</sup>

12 ¶¶92 For the reasons previously discussed, we agree that the defendant's stated reason for its denial is invalid. ¶664 Further, the defendant concedes in its brief on appeal before this court that “there currently is enough capacity for [the] plaintiff's proposed development and there was no evidence of current, identified property owners who absolutely will be deprived of sewer connections if the application is granted.” Additionally, it is not disputed that the plaintiff is seeking a permit to connect to an existing sewer system; it is not requesting an extension of that system. Our case law has made a distinction between the mere connection to an existing system as opposed to construction of an extension to a sewer system. See *AvalonBay Communities, Inc. v. Sewer Commission*, supra, 270 Conn. at 421–29, 853 A.2d 497. Moreover, the plaintiff has asserted—and there is nothing in the record

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that contradicts or challenges that assertion—that the proposal complied with all of the defendant's engineering and administrative requirements as set forth in the sewer use regulations. See *Schuchmann v. Milford*, 44 Conn.App. 351, 358, 689 A.2d 513, cert. denied, 240 Conn. 924, 692 A.2d 818 (1997). Thus, this is one of those relatively rare situations in which it is appropriate to order the defendant to issue the permit. When it appears that a public agency reasonably could reach only one conclusion, the court may direct that agency to do that which the conclusion requires. *Jersey v. Zoning Board of Appeals*, 101 Conn.App. 350, 361, 921 A.2d 683 (2007).

Although the trial court indicated, in its concurrent decision in the planning and zoning appeal, that it remanded this matter to the defendant to approve the plaintiff's application; see footnote 8 of this opinion; its memorandum of decision in this case simply indicated that the appeal was sustained. There was but one conclusion, however, that the defendant could reach, and we conclude that the trial court did order the approval of the sewer permit.

**\*665** The judgment is affirmed and the case is remanded to the trial court with direction to render judgment directing the defendant to approve the plaintiff's application under terms and conditions as the defendant might reasonably prescribe in accordance with its regulations.

In this opinion the other judges concurred.

## All Citations

125 Conn.App. 652, 10 A.3d 84

## Footnotes

- 1 General Statutes § 7-246 provides in relevant part: "(a) Any municipality may, by ordinance, designate its legislative body ... or any existing board or commission, or create a new board or commission to be designated, as the water pollution control authority for such municipality...."

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“(b) Each municipal water pollution control authority designated in accordance with this section may prepare and periodically update a water pollution control plan for the municipality. Such plan shall designate and delineate the boundary of: (1) Areas served by any municipal sewerage system; (2) areas where municipal sewerage facilities are planned and the schedule of design and construction anticipated or proposed; (3) areas where sewers are to be avoided; (4) areas served by any community sewerage system not owned by a municipality; (5) areas to be served by any proposed community sewerage system not owned by a municipality; and (6) areas to be designated as decentralized wastewater management districts....”

- 2 The 99 Church Hill Road property included an existing multifamily dwelling with an existing sewer connection.
- 3 The plaintiff filed an administrative appeal from the commission's decision in the trial court. The court sustained the appeal and remanded the matter to the commission with direction to effect certain modifications to the proposed regulations and plans. This court granted the commission's petition for certification to appeal, and our decision in that appeal was released on the same date as this opinion. See *Dauti Construction, LLC v. Planning & Zoning Commission*, 125 Conn.App. 665, 10 A.3d 92 (2010).
- 4 General Statutes § 7-246a (a) provides: “Whenever an application or request is made to a water pollution control authority or sewer district for (1) a determination of the adequacy of sewer capacity related to a proposed use of land, (2) approval to hook up to a sewer system at the expense of the applicant, or (3) approval of any other proposal for wastewater treatment or disposal at the expense of the applicant, the water pollution control authority or sewer district shall make a decision on such application or request within sixty-five days from the date of receipt, as defined in subsection (c) of section 8-7d, of such application or request. The applicant may consent to one or more extensions of such period, provided the total of such extensions shall not exceed sixty-five days.”
- 5 General Statutes § 7-246a (b) provides: “Notwithstanding any other provision of the general statutes, an appeal may be taken from an action of a water pollution control agency or sewer district pursuant to subsection (a) of this section in accordance with section 8-8.”
- 6 The following is the priority matrix as it appears in the town's water pollution control plan: “1st priority: 260,000 [gallons per day]—Existing development within the sewer service area.  
“2nd priority: 30,000 [gallons per day]—Potential development meeting current zoning within the sewer

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service area.

“3rd priority: 4,000 [gallons per day]—Existing development along sewer transmission routes[.]

“4th priority: 21,000 [gallons per day]—Existing development outside the sewer service area identified as areas of concern in the Facilities Plan and reasonably close to the sewer service area.

“5th priority: 17,000 [gallons per day]—Other existing development outside the sewer service area but in close proximity.”

7 The court further noted in its memorandum of decision that “[t]he defendant’s allocation of sewer capacity in accordance with its priority matrix is not supported by any engineering or health data, nor has it offered any other evidence demonstrating that it is rationally related to the public health, safety and welfare.”

8 We note that in the court’s memorandum of decision in *Dauti Construction, LLC v. Planning & Zoning Commission*, Superior Court, judicial district of New Britain, Docket No. HHBCV-07-4014556S, 2009 WL 1814500 (June 1, 2009), which was issued the same date as the court’s decision in the present case, the court stated: “[T]he lack of adequate sewerage no longer serves as an adequate basis for the [commission’s] denial in light of this court’s concurrent decision in the related appeal, *Dauti Construction, LLC v. Water & Sewer Authority*, Superior Court, judicial district of New Britain, Docket No. CV-07-4015968S [HHBCV-07-4015968S, 2009 WL 1754624], *sustaining that appeal and remanding to the [water and sewer authority] for its approval of the plaintiff’s sewer application.*” (Emphasis added.)

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## Related documents

Selected topics

Secondary Sources

Briefs

Trial Court Documents

Municipal Corporations  
Use and Regulation of Public Places, Property, and Works  
Utility Rate Charges

Administrative Law and Procedure  
Judicial Review of Administrative Decisions

# Tab 10

[Connecticut General Statutes Annotated](#)

[Title 7. Municipalities](#)

[Chapter 103. Municipal Sewerage Systems \(Refs & Annos\)](#)

C.G.S.A. § 7-246a

§ 7-246a. Applications. Time for decision. Appeal

[Currentness](#)

(a) Whenever an application or request is made to a water pollution control authority or sewer district for (1) a determination of the adequacy of sewer capacity related to a proposed use of land, (2) approval to hook up to a sewer system at the expense of the applicant, or (3) approval of any other proposal for wastewater treatment or disposal at the expense of the applicant, the water pollution control authority or sewer district shall make a decision on such application or request within sixty-five days from the date of receipt, as defined in subsection (c) of section 8-7d, of such application or request. The applicant may consent to one or more extensions of such period, provided the total of such extensions shall not exceed sixty-five days.

(b) Notwithstanding any other provision of the general statutes, an appeal may be taken from an action of a water pollution control agency or sewer district pursuant to subsection (a) of this section in accordance with [section 8-8](#).

**Credits**

[\(2003, P.A. 03-177, § 13.\)](#)

C. G. S. A. § 7-246a, CT ST § 7-246a

The statutes and Constitution are current with all enactments of the 2021 Regular Session and the 2021 June Special Session.

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