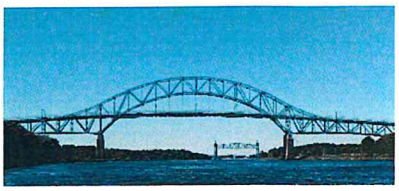
Board of Sewer Commissioners Meeting Agenda



Date	Time	Location
September 28, 2021	7:00 P.M.	Bourne Veteran's Memorial Community Center 239 Main Street, Buzzards Bay

Note this meeting is being televised, streamed or recorded by Bourne TV. If anyone in the audience is recording or video-taping, they need to acknowledge such at this time.

All items within the meeting agenda are subject to deliberation and vote(s) by the Board of Sewer Commissioners.

7:00 P.M. Call Public Session to Order in Open Session

1. Moment of Silence to recognize our Troops and our public safety personnel
2. Salute to the Flag
3. Vision: Bourne is a proud community that embraces change while respecting the rich heritage of the town and its villages. It is a municipality based on strong fiscal government with a durable economy that recognizes the rights of all citizens, respects the environment, especially the coastal areas of the community and the amenities that it affords. Bourne embraces excellent education, and offers to citizens a healthy, active lifestyle.
4. Mission: Bourne will maximize opportunities for social and economic development while retaining an attractive, sustainable and secure coastline and environment for the enjoyment of residents and visitors. Through responsible and professional leadership and in partnership with others, Bourne will strive to improve the quality of life for all residents living and working in the larger community.
5. Public Comment on Non-Agenda Items: Public comments are allowed for up to a total of 12 minutes at the beginning of each meeting. Each speaker is limited to 3 minutes for comment. Based on past practice, members of the Board are not allowed to comment or respond.
6. Minutes: No minutes to approve
7. Board of Sewer Commissioners Business
    a. Sewer Allocation and Grease Trap Waiver Request – Domino's Pizza, 2 Bridge Approach 2F, William Mohan
    b. Buzzards Bay Water District update – Kristen Berger, P.E., ENV SP and town staff will update the Board of Sewer Commissioners on a recent meeting between the three Bourne Water Districts, the Department of Environmental Protection (DEP) and Town of Bourne Staff.

c. Review Fiscal Year 2021 Final Sewer Enterprise Fund Budget and Fiscal Year 2022 Enterprise Fund Budget

d. Report from the Policy Sub-Committee – Discussion 9/9/21 including Sewer Overage Rate, Sewer Development Charge and Allocation Fees

e. Sewer Overage Rate – Discussion and possible vote on the 2022 calendar year sewer overage rate.

f. American Rescue Plan Act (ARPA) Funds –
   i. Discussion and possible vote to approve the use of American Rescue Plan Act (ARPA) funds to implement the recommendation outlined in the Inflow and Infiltration (I/I) Study conducted by Environmental Partners including trenchless sewer pipe lining and manhole repair recommendations (approximately $750,000).
   ii. Discussion and possible vote to approve the use of American Rescue Plan Act (ARPA) funds to complete the DRAFT Sewer Regulations.
   iii. Discussion and possible vote to approve the use of American Rescue Plan Act (ARPA) funds to review and make recommendations on both the existing sewer rates/fees and any proposed new sewer rates/fees structure.

8. Future Agenda Items

9. Correspondence

10. Adjourn

RECEIVED
2022 AUG 31 PM 2:13
TOWN CLERK BOURNE

Board of Sewer Commissioners
Minutes of Tuesday, September 28, 2021
Bourne Veterans' Community Center
Buzzards Bay, MA

ATA Tim King
ATA Glenn Cannon

Board of Selectmen

Mary Jane Mastrangelo, Chair
Jared MacDonald, Vice Chair
George Slade, Clerk
Peter Meier
Judith Froman

Others: William Mohan, Mr. Murat, Terri Guarino, Health Agent, Tim Lydon, Engineering Department, Kristen Berger, and Steven Souza, Buzzards Bay Water District.

7:00 PM Call Public Session to Order in Open Session

Chair Mary Jane Mastrangelo called the meeting of the Sewer Commissioners to order.

Note this meeting is being televised, streamed, or recorded by Bourne TV.

All items within the meeting agenda are subject to deliberation and vote(s) by the Board of Sewer Commissioners. Michael Rausch acknowledged that he is recording the meeting.

1. **Moment of Silence to recognize our Troops and our public safety personnel.**
2. **Salute to the Flag.**
3. **Vision:** Bourne is a proud community that embraces change while respecting the rich heritage of the town and its villages. It is a municipality based on strong fiscal government with a durable economy that recognizes the rights of all citizens, respects the environment, especially the coastal areas of the community and the amenities that it affords. Bourne embraces excellent education, and offers to citizens a healthy, active lifestyle.
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5. **Public Comment on Non-Agenda Items**
   a. Public comments are allowed for up to a total of 12 minutes at the beginning of each meeting. Each speaker is limited to 3 minutes for comment. Based on past practice, members of the Board are not allowed to comment or respond.

6. Minutes: No minutes to approve.

7. Board of Sewer Commissioners Business

a. Sewer Allocation and Grease Trap Waiver Request – Domino's Pizza 2 Bridge Approach 2F, William Mohan

Mr. Mohan said he is a licensing and permitting consultant and he works with several corporations and fast-food franchises and Domino's is one of them. Mr. Murat introduced himself and said he is the franchise owner of Domino's Pizza in Bourne and Wareham and Marshfield.

Mr. Mohan explained where the Domino's will be located and why they are there for the waiver request. He said that there would be no grease escaping anywhere and that it is self-contained because everything is pre-cooked and baked. He also explained that the allocation of 1000 gallons a day is too much for this business and that they would not even use 500 gallons a day.

There was some discussion about how the Board of Health and the Fire Department monitor requests such as these. Terri Guarino said that a grease trap is typically a requirement and the Wareham Dominos has an exterior grease trap. There was more discussion about external grease traps and internal grease traps. Ms. Guarino said that the Health Department is recommending an external grease trap for the Bourne Domino's location. Mr. Mohan said that there is not an external grease trap in Wareham, he said they have an internal grease trap in Wareham.

Tim Lydon said that he met with Mr. Mohan at length and told him that he needs to go in front of the Board of Sewer Commissioners. Mr. Lydon said that grease threatens the sewer system. He explained how they came to 1000 gallons of water a day and said he thinks the external grease trap is the right thing to do because it protects the system.

Judith Froman said with the different answers about the grease traps, she does not feel that a decision can be made at this meeting. Mr. Mohan said that they will get the correct information for the Board.

Voted: Peter Meier moved, and Judith Froman seconded to continue this to the next available Sewer Commissioner's meeting.
Vote: 5-0-0.

b. Buzzards Bay Water District update – Kristen Berger, P.E., ENV SP and town staff will update the Board of Sewer Commissioners on a recent meeting between the three Bourne Water Districts, the Department of Environmental Protection (DEP) and Town of Bourne Staff. -

Kristen Berger with Resilience Civil Engineering said she has been working with the Buzzards Bay Water District on their Water Management Act Permit. She said that they applied for a new Water Management Act Permit in October of 2020, and that was to be able to increase their annual authorized withdrawal that DEP regulates. This was to be able to supply water to some new

developments that had been coming up in Town that had requested connection to the Buzzards Bay Water System. She said in August of 2021, Mass DEP issued a draft Water Management Permit and the public comment period just ended. The existing permit is 0.53 million gallons per day and the draft permit came out at 0.79 million gallons per day, which is what they had asked for. She said the new permit does have some additional caveats, including a new baseline threshold in which mitigation is required.

Ms. Berger said that on September 21st, there was a meeting with representatives of the Mass DEP Water Management Program which Steven Souza and Glenn Cannon attended as well as the Superintendents from the other two water districts. She said that once the other 2 districts get their new permits, they will see the need to mitigate as well. She said that Bourne Water District will need to mitigate about 20,000 gallons per day. She also said that the team that met in September will be meeting regularly with the next meeting scheduled for November.

c. Review Fiscal Year 2021 Final Sewer Enterprise Fund Budget and Fiscal Year 2022 Enterprise Fund Budget

Chair Mastrangelo said that the original purpose to have this on the agenda was to talk about potentially having a consultant out of this year's budget. Mr. Cannon said there were some significant turnbacks in the Sewer Enterprise Fund last fiscal year, which he equates to the change in leadership and in salaries. He does not think this past year is a good year to judge by going forward and this has affected moving forward with obtaining a consultant.

d. Report from the Policy Sub-Committee – Discussion 9/9/21 including Sewer Overage Rate, Sewer Development Charge and Allocation Fees

Mr. Cannon said that at the last Sewer Policy Sub-Committee meeting they discussed what had been done regarding regulations and fees in the past. They were not able to make any changes on either due to complications, although they did have a good discussion about existing regulations and fees. He said that they discovered a little bit of overlap in the fees. Jared MacDonald said they had a good conversation about definitions and the flow chart, and they still have a long way to go.

Chair Mastrangelo said they also discussed the sewer overage rate and that the overage rates that the Town currently has at 0.01 per gallon, do not cover the cost of overage or processing. She said that trying to bring that up to speed quickly would be a burden to businesses and others. She said they talked about doing it incrementally over 4 or 5 years. There was some discussion about overage rates and the complexity of increasing the fees.

e. Sewer Overage Rate – Discussion and possible vote on the 2022 calendar year sewer overage rate.

There was some discussion about what the increase in the sewer overage rate should be. It was discussed that for the average user this rate increase will not be seen, it is for the heavy users.

Voted: Judith Froman moved, and Jared MacDonald seconded to approve the sewer overage rate for Calendar Year 2022 at $ 0.125 dollars per gallon for usage in excess of 45,000 gallons per calendar year.

Vote: 5-0-0.

f. American Rescue Plan Act (ARPA) Funds –

i. Discussion and possible vote to approve the use of American Rescue Plan Act (ARPA) funds to implement the recommendation outlined in the Inflow and Infiltration (I/I) Study conducted by Environmental Partners including trenchless sewer pipe lining and manhole repair recommendations (approximately $750,000).

Acting Town Administrator Tim King said that he has researched the use of ARPA funds and he said they are quite specific on what the funds can be used for. He provided a document for the Commission on what they can be used for. His recommendation given the circumstances in Bourne is to use the funds to pay for some of the sewer projects including the implementation of the I/I study, redo the policies and regulations, and do a rate study.

ii. Discussion and possible vote to approve the use of American Rescue Plan Act (ARPA) funds to complete the DRAFT Sewer Regulations.

iii. Discussion and possible vote to approve the use of American Rescue Plan Act (ARPA) funds to review and make recommendations on both the existing sewer rates/fees and any proposed new sewer rates/fees structure.

Voted: Jared MacDonald moved, and Peter Meier seconded to approve the use of American Rescue Plan Act funds to review sewer rates and fees, complete the draft sewer regulations, implement the recommendations outlined in the I/I study conducted by Environmental Partners including the sewer line study, and recommend that it go to the Board of Selectmen for final approval.
Vote: 5-0-0.

8. Future Agenda Items

Chair Mastrangelo said that Environmental Partners will be at the meeting next month to give a quarterly review. The six-month application will be discussed also.

9. Correspondence

George Slade said there were 7 items of correspondence:

- Skip Barlow looking to craft language for an article for Special Town Meeting.
- Mark Durell looking at development possibilities within the community because of the Wastewater Treatment Plant.
- Various emails and voice conversations between sewer users and Kathleen Thut about sewer bills:
    - M. Barrios
    - Resident from 9F Hideaway Village

- Notes from a conversation with someone from 20 Bay Drive
- Phone call from the last name Zaner
- Notes from someone living at 9 Wright Lane

There was some discussion about second home water usage.

10. Adjourn

Voted: Jared MacDonald moved, and Judith Froman seconded to adjourn.
Vote: 5-0-0.

This meeting of the Bourne Board of Sewer Commissioners was adjourned at 8:40 PM.

Respectfully Submitted,

Kim Johnson, Recording Secretary

Town of Bourne
Application for Preliminary Commercial Wastewater Management Allocation

Date submitted: 9/10/21

Applicant name: WILLIAM MOHAN

Applicant contact address: 59 CODDING Rd. Norton, MA 02766

Applicant e-mail and phone number: WFMOHAN@YAHOO.com 508-934-9802

Is applicant the property owner? Yes ☐ No ☒

If no, who is owner? Key Point Partners, LLC Burlington, MA 01803

If no, is applicant: leasing ☒ buying ☐ the property

If buying, attach copy of P&S — If leasing, attach copy of lease agreement – sent in by franchise owner

Location of proposed project:

Street address: 2 Bridge Approach St. Plaza Lot 2F

Map and parcel number(s): 20.3 67 TL

Description of proposed project: Empty storefront, next to Starbuck's in the Plaza. It has been vacant for several years.

Financing:

Financing is in place - documentation to that effect is attached ☒ Documentation attached

OR Applicant has letter of intent to finance - copy is attached ☐ Letter of Intent attached

Date of Planning Board preliminary review: DNA.

Allocation requested: ~~60~~ gallons per day 2 sinks + 1 washer/dryer

Basis of request: 1000 min. per Engineering

Any unusual characteristics of projected flow? less than 100 gallons per day.

Requested amount exceeds available allocation Yes ☐ No ☐ If yes, application is wait-listed

Application is Accepted ☐ Rejected ☐ Wait-listed ☐ and dated _____

Application Fee attached: already paid Yes ☒ No ☐

Reviewed for completeness - Signed _____

Date Stamp when determined to be complete

Town of Bourne

Board of Sewer Commissioners

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TOWN CLERK BOURNE

Allocation Process Fees

Application Fee (Filing Fee) (one-time): $1,500 - fee paid to Nancy Sundman

Preliminary Allocation Fee (one-time): $5,000 plus $1 per projected gallons per day flow

Preliminary Allocation Extension Fee (annual): $2,500 plus $1 per projected gallons per day flow

Operational Allocation Fees or sewer use fees: annual user fees defined by vote of the Board

Certificate of Vote

Adopted by vote of the Bourne Board of Sewer Commissioners Sept 26, 2017 Date

Board of Sewer Commissioners:

Peter J. Meier, Chair

George G. Slade, Jr. Vice Chair

Donald J. Pickard, Clerk

Michael A. Blanton

Judith MacLeod-Froman

A True Record

Barry H. Johnson

Barry Johnson, Town Clerk

TOWN OF BOURNE

SCHEDULE OF DEPARTMENTAL PAYMENTS TO TREASURER

DATE: **September 10, 2021**

FROM WHOM: **SEWER ENTERPRISE FUND**

CROSS REF	DESCRIPTION	REVENUE ACCOUNT NUMBER	TOTAL
0134	Design Review & Construction Inspection Fee	60-999-230-999-4243-4402	$ -
0135	Commercial Sewer Permit Fee	60-999-230-999-4243-4403	$ -
0136	Sewer Connection Fee	60-999-230-999-4243-4404	$ -
0137	Residential Sewer Permit Fee	60-999-230-999-4243-4405	$ -
0138	Sewer System Development Charge	60-999-230-999-4243-4406	$ -
0478	Master Drainlayers License	60-999-230-999-4245	
0480	Other Fees	60-999-230-999-4246	$ -
0482	Industrial Hookups	60-999-230-999-4248	$ -
00623	Allocation Fee	60-999-230-999-4252-9999-999-99	
	Domino's Pizza - Murat Taskaynatan, 137 Massacjhusetts Ave., Lesington, MA 02420-4039		$ 1,500.00

TOWN OF BOURNE

AMOUNT: $ 1,500.00

FROM: SEWER ENTERPRISE FUND

COIN TOTAL: _____

CASH TOTAL: _____

CHECK TOTAL: $ 1,500.00

_____
TREASURER

59 Codding Rd.
Norton, MA 02766
August 28, 2021

Bourne Board of Health
24 Perry Avenue
Buzzards Bay, MA 02532-3441

RE: Variance request for need of an external grease trap at Domino's Pizza

Dear Members:

In accordance with the Bourne Board of Health Regulations, please accept this letter of request to be heard before the Board of Health at their next meeting to discuss relief from the Board of Health Regulations for the need to install an external grease trap at our Domino's Pizza franchise currently under construction. We respectfully request consideration of the variance to accommodate our project.

Our store, like most Domino's Pizza franchises, uses the XLT Conveyor Type Pizza Ovens. With this oven, there is no flame because nothing is cooked, it's baked. All meat products come to the franchise pre-cooked. That is why the Massachusetts Department of Health classifies these businesses as bakeries, not restaurants. I have documentation and material provided by leading experts in fire suppression that state that a Type II hood and duct are more than sufficient for this facility. Along with this oven and hood, we will be installing an internal grease trap, capable of handling 250 gallons of grease during a 90 day cycle. We have contracted to have that internal grease trap professionally cleaned every 90 days. During that time, this oven is expected to produce less than 150 gallons per 90-day cycle. By being required to install an external grease trap, expected to cost between $25,000-$30,000, and knowing that we'll never use it, presents an extreme financial burden on the franchise owner. I would welcome the opportunity to come before your Board to present the evidence we have accumulated to support our request and I thank you for your time and consideration in this matter.

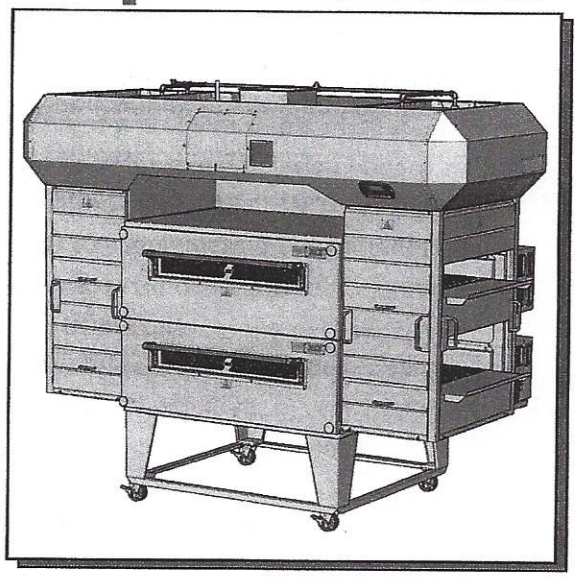
Sincerely,

William Mohan

William Mohan, Agent
Wareham Pizza Company

XD 9006F
AGKGSWGHE
09/30/2019

Simple. Smart.



XLT Gas Oven & XLT Hood Parts & Service Manual

Read This Manual Before Using This Appliance.

Electronic copies of this manual, Technical Specifications, Installation & Operation Manual, Architectural Drawings, & a list of International Authorized Distributors are available at: www.xltovens.com

For use with the following XLT Gas Oven Versions:

Australia (AE)	G
Korea (K)	G
Standard (S)	G
World (W)	G

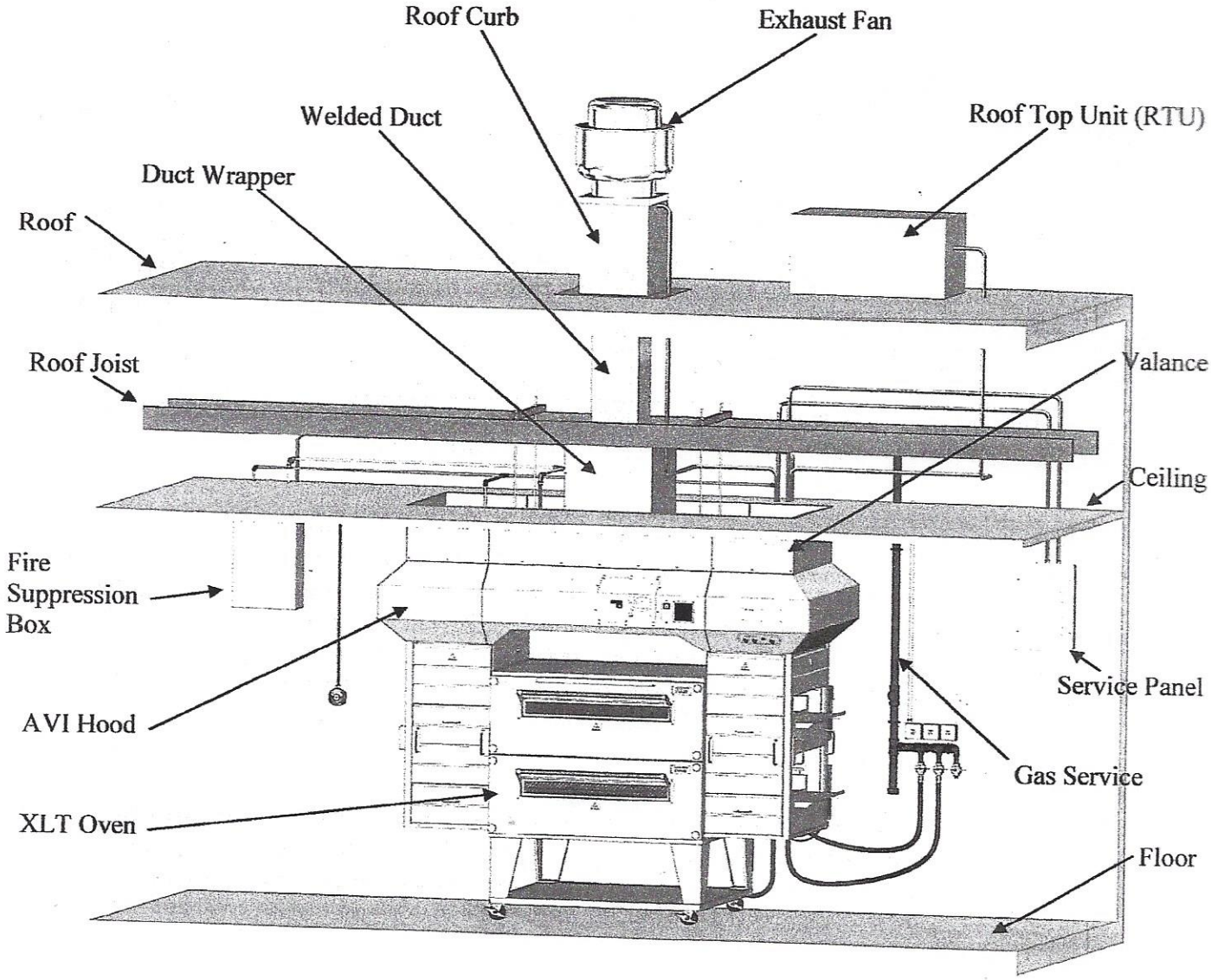
For use with the following XLT Gas Hood Versions:

Standard (S)	E
World (W)	E

Intertek 2000887 Intertek 0359 GAS40066 SAI Global

XLT Ovens
PO Box 9090
Wichita, Kansas 67277
US: 888-443-2751 FAX: 316-943-2769 INTL: 316-943-2751 WEB: www.xltovens.com

2 TYPICAL STORE INSTALLATION



Typical Store Installation

Revision History Table		
Revision	**Comments**	**Date**
A	Initial Release	02/20/2013

Monday, July 01, 2019

TBD Pizza, Inc.
329 Washington St.
Suite 203
Woburn, MA 01801

Town of Canton
Board of Health
Pequitside Farm
79 Pleasant St.
Canton, MA 02021

Dear Board Members,
As allowed by Section 6.4 of the Canton Board of Health Regulations, we are asking for a variance from Regulation 3.2, Grease Traps, Section 3, Location, which requires an exterior grease trap for all new facilities. We are asking to be allowed to construct an interior grease trap for the Domino's Pizza franchise that we are planning to construct at 100C Washington St. Canton.
The reason for our request is that Domino's does not generate any grease. We have no fryers or grills. We only have one cooking appliance, a closed combustion, convection pizza oven. In essence, we are considered a bakery and we have been granted variances in every other municipality that calls for external grease traps. We contract Wind River Environmental to provide grease trap cleaning monthly. The time required and cost incurred to construct an exterior grease trap is unnecessary in this instance.
As required by your regulations, as we do in our other locations, we will contract with the Terminix Company to implement an Integrated Pest Management Program.
We would be happy to attend the meeting when this issue is presented for discussion. I thank you for your time and consideration in this matter.

Very truly yours,

Robert Rivard, President
TBD Pizza, Inc., dba Domino's Pizza

Domino's Pizza Inc.
30 Frank Lloyd Wright Drive
P.O. Box 997
Ann Arbor, MI 48106-0997

Telephone: 734-930-3030

GREASE TRAPS

Based on a Domino's Pizza Store doing an average of $12,000 of business, cleaning the surfaces as described and emptying the grease trap/interceptor on a weekly basis, the installation of a 10 to 20 lb. unit would be required.

The amount of residual grease that may find its way into the waste drains can be significantly reduced by installing a grease trap. A grease trap will separate the grease from the water and trap it to allow for removal and discarding. Preventing the grease from entering the drain and sewage system will reduce blockage in the drainage system and help protect the environment.

The following calculations provide a basis to determine the size of grease trap that is suitable for your operation and how often it may need to be cleaned out. In some states, liquid grease and oils wastes that are removed from a trap may not be placed directly into the rubbish without first converting them to solid wastes. For small quantities of waste, this can easily be accomplished by absorbing the waste into a paper towel before placing it into the trash.

All equipment, utensils and counters with residual grease or oils **MUST BE THOROUGHLY WIPED WITH A PAPER TOWEL PRIOR TO WASHING**. The residual calculations below are based on this procedure. **FAILURE TO THOROUGHLY WIPE AN ITEM MAY RESULT IN GREASE RESIDUAL UP TO 10 TIMES GREATER THAN THOSE INDICATED BELOW.**

RESIDUALS PER DAY

Miscellaneous Sources - **50 grams**
(Make line tubs, screens, pizza cutters, forks and utensils, etc.)

Squeeze Bottles - **60 grams (per bottle)**

25 Fresh Pan Pizzas
34 Orders of Chicken Wings
(340 pieces)
} **1780.35 grams**

Note: 454 grams equals one pound.

Prepared by Quality Assurance
February 11, 2013

January 8, 2012

GREASE AND HOOD INFORMATION

To Whom It May Concern

Historically our stores have been classified as bakeries. All products, with the exception of our pizza dough, cheese and vegetables, arrive at our stores fully cooked. All of our meats, to include our chicken, have been fully cooked; all substantial grease has been removed at our Suppliers locations. Our chicken is re-heated in the oven in aluminum foil. This is why our stores are not considered food preparation facilities but are bake-off locations (bakeries). Our cooking standards in every store are consistent and oven settings are set to regulate the cooking of products so there is never a variance in under or over cooking..

The ovens we specify all have closed combustion chambers and therefore have no open flame in the cavity. This hot air system blows onto our products via a self-contained heat exchanger for cooking. This has allowed that our stores are operated with Type II hoods. Due to the nonexistence of grease vapor there is no need for the Type I exhaust hood with ANSUL systems.

Please find information attached from Mr. Art Shaw whereby he explains the differences between the Domino's food cooking vs. a standard pizza store.

In summary, I am supplying this letter to make clear and assure that our products in the ovens we heat with, "do not produce any substantial amount of grease vapor" due to our "reheating" "pre-cooked" meat products. At no time would there be an accumulation of grease in the catch pan of the hood or the grease capture container on the roof top.

We at Domino's Pizza ask that the Type II hood be allowed and the ANSUL system not be required based on our minimal grease producing reheating/cooking procedures.

If you have any questions please feel free to call me 314-910-8560 or you can email me at tom.mcbride@dominos.com.

Best Regards,

Tom McBride
Store Construction Project Manager
Domino's Pizza LLC

Fire Suppression Information for Conveyor Type Pizza Ovens

Is a pizza oven required to be protected by a fire suppression system and have the need for a type I xhaust hood?

The following information has been presented by Mr. Art Shaw. Retired Fire Marshal, third party inspector and fire suppression system analyst.

This is a reoccurring question!

The following comments are based upon your typical conveyor type pizza oven (type found at pizza hut, Domino's, Papa John's or other major pizza chains) that are self-contained. These ovens and not the solid fuel ovens in use by restaurants that you may see by watching any of the cooking channels that are heated by coal, or wood and ovens that are domed shape and fire brick lined where a few stick of wood are placed in the cooking area to warm the fire brick to cook a pizza.

Using the I-codes section 904.2.1 of the International Building Code states "Each required commercial kitchen exhaust hood and duct system required by Section 609 of the International Fire Code (IFC) or Chapter 5 of the International Mechanical Code to have a Type 1 hood shall be protected with an approved automatic fire-extinguishing system installed in accordance with this code". The code commentary for this section and the corresponding section in the International Fire Code note the need for an approved automatic fire –extinguishing system because a Type 1 hood and duct system is used for handling grease-laden vapors.

A lesson learned a long time ago is to look at the definitions of words or phrases as they are used in the codes. In this case it is important to look up the definition for "Commercial Cooking Appliances". In this case the definition is found in Section 602 of the IFC and the IMC. There you find a list of cooking appliances that require exhaust hoods and duct work. Another definition worthy of looking up is "Hood".

Section 609 of the IFC has two sections, the first of which requires exhaust hood for commercial kitchen cooking equipment. The code commentary for this section reads "An exhaust system is required for all appliances used for commercial cooking as defined in Section 602. In addition to the specific cooking appliances identified in the definition, further examples of commercial cooking appliances that require a commercial exhaust system are griddles (flat or grooved); tilting skillets or woks; braising and frying pans; roasters; pastry ovens; pizza ovens; char broilers, salamanders and upright broilers; infrared broilers and open-burner stoves and ranges." Note that pizza ovens make the expanded list.

The second requirement found in Section 609 is section 609.2. This section deals with were Type 1 hoods are required. It notes that "Type 1 hoods shall be installed at or above all commercial cooking appliances and domestic cooking appliances used for commercial purposes that produce grease vapors."

So now the question is "*Do pizza's, when cooking produce grease vapors or smoke?*"

When this subject comes up toppings such as pepperoni, bacon, and sausage are said to be the potential cause of grease vapors. When you last inspected a pizza parlor was there an accumulation of grease in the hood (if there is one) and duct? The Chief Mechanical Inspector for the State of Michigan has reportedly told mechanical inspectors that pepperoni on pizza's does not produce grease laden vapors so a Type 1 hood is not required which then would not require an automatic fire-extinguishing system in the hood and duct. Note that an exhaust hood and duct is required but not a Type I.

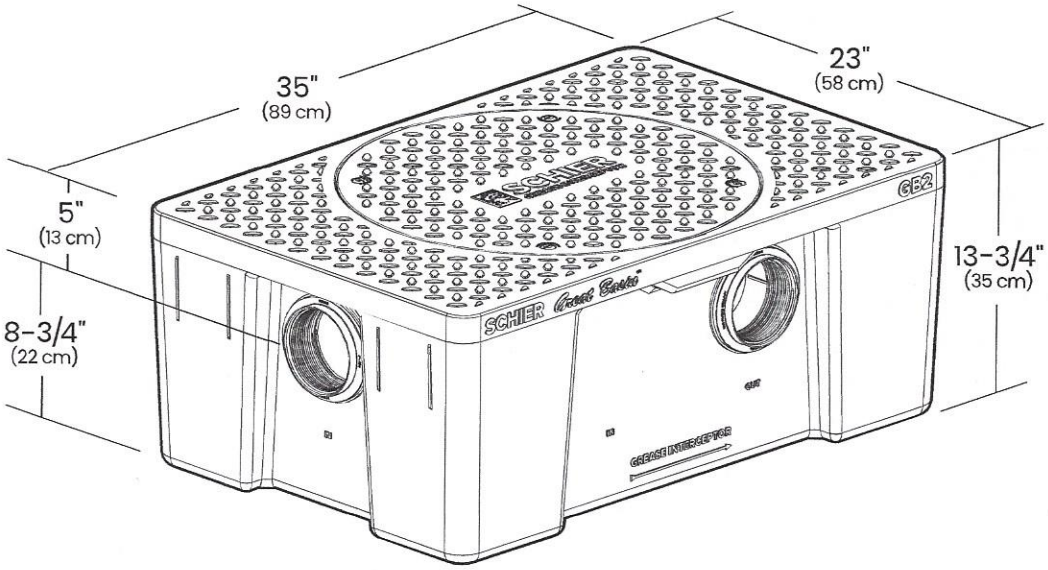
It is determined that pizza's, cooked through modern conveyor type ovens, shouldn't cause the need for a Type 1 hood with an automatic fire-extinguishing system.

Result, A Type II hood can be used in pizza stores using conveyor type ovens. If a type 1 hood is already in existence or planned to be used, an ANSUL fire suppression system is not required

Art Shaw is a consultant with A. Shaw and associates. He recently retired after a full career in the public sector as a Fire Marshal and specializes in working with communities.

SPECIFICATION AND SUBMITTAL

GB2 35/50 GPM Grease Interceptor for Indoor Use



This unit is certified to ASME A112.14.3 (Type C) and CSA B481.1 at two different flow rates and includes the internal flow controls for both. External flow control with vent not required.

Satisfies Miami DERM 99% efficiency requirements when at least 2 units are installed in series

SUBMITTAL

Standard

Location: indoor
Installation: above/below grade
Flow Rates / Grease Capacities:
35 GPM (2.2 L/s) / 130.5 lbs. (59.2 kg)
50 GPM (3.2 L/s) / 127.6 lbs. (57.9 kg)
Solids Capacity: 1.8 gal. (6.8 L)
Liquid Capacity: 20 gal. (75.7 L)
Weight: 49 lbs. (22.2 kg)
Connections: 3" (75 mm) and 4" (100 mm) plain end
Cover: bolted gas/water tight polypropylene with 1,000 lb. load rating when unit is buried with FCR1 riser

Options

- ☐ **-FO:** fixed outlet diffuser
- ☐ **FCR1** (x1)**:** > 2-1/8" - 12" field cut riser
- ☐ **FCR1** (x2)**:** > 12" - 24" field cut risers
- ☐ **CC1:** membrane clamping collar kit (requires FCR1 riser)
- ☐ **PP1:** pumpout port kit
- ☐ **SGK2:** support gusset kit
- ☐ **PLAIN-EA-24:** 2" (50 mm) plain end fitting
- ☐ **FPT-EA-34:** 4" x 3" (100 mm x 75 mm) FPT fitting
- ☐ **FPT-EA-23:** 3" x 2" (75 mm x 50 mm) FPT fitting

Approval

Signature:	Date:	Company:
Specifying Engineer:	Engineering Firm:	

SCHIER
LIFETIME GUARANTEED GREASE INTERCEPTORS
9500 Woodend Road | Edwardsville, KS 66111 | Tel: 913-951-3300 | www.schierproducts.com

MODEL NUMBER: GB2	DESCRIPTION: 35/50 GPM Polyethylene Grease Interceptor			
PART #: 4065-001-05	DWG BY: B. Karrer	DATE: 4/10/2019	REV:	ECO:

SPECIAL PRECAUTIONS

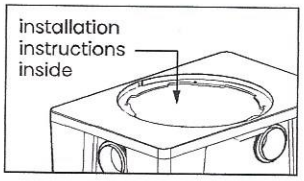
For Schier Grease Interceptor Installations - Failure to follow this guidance voids your warranty

⚠ WARNING! DO NOT AIR TEST UNIT OR RISER SYSTEM!
Doing so may result in property damage, personal injury or death.

⚠ CAUTION! Do not install this unit in any manner except as described in these instructions.

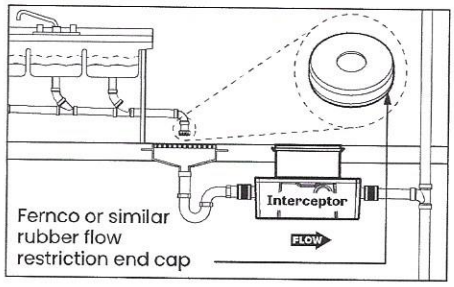
Installation Instructions

Installation instructions and additional components are included with the interceptor. Read all instructions prior to installation. This interceptor is intended to be installed by a licensed plumber in conformance with all local codes.



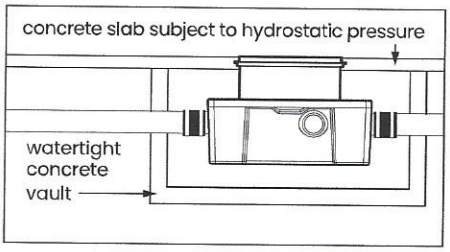
When Installing Interceptor Inside

If your dishwashing sink(s) discharges into a floor drain/sink (drain), you must regulate the flow into the drain to avoid an overflow of water onto the kitchen floor. This can be done by installing a valve or flow restriction cap on the sink piping that discharges into the drain. See drawing for guidance. For detailed guidance on indirect connections, go to: webtools.schierproducts.com/Technical_Data/Indirect_Connections.pdf

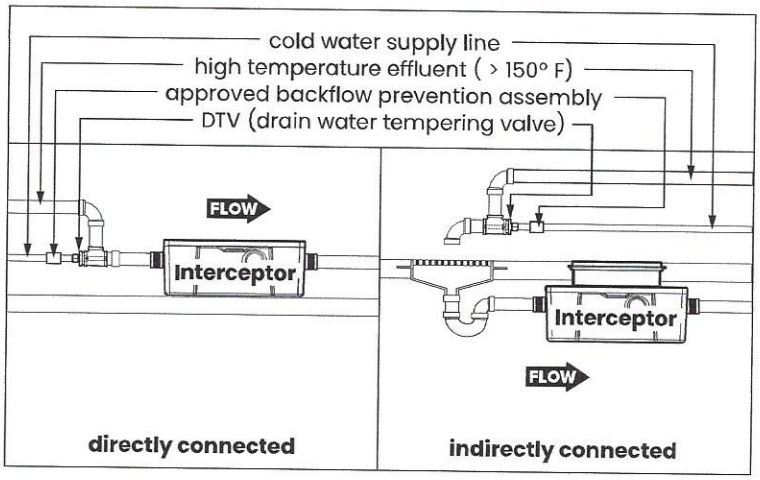


Hydrostatic Slabs (or Pressure Slabs)

When installed under a hydrostatic slab (slab designed to withstand upward lift, usually caused by hydrostatic pressure) interceptor must be enclosed in a watertight concrete vault.



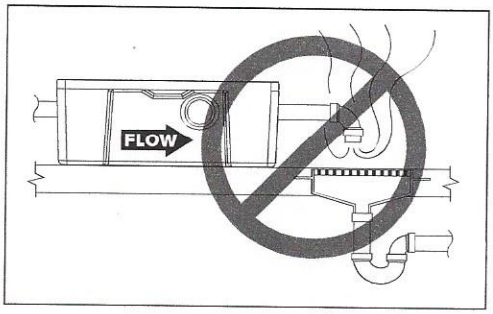
High Temperature Kitchen Water



If water is entering the interceptor at excessive temperature (over 150° F), a drain water tempering valve (DTV) and approved backflow prevention assembly must be installed. Most state and local plumbing codes prohibit water above 150° F being discharged into the sanitary sewer. Water above 150° F will weaken or deform PVC Schedule 40 pipe, poly drainage fixtures like interceptors and erode the coating of cast iron (leading to eventual failure).

ODOR ALERT!

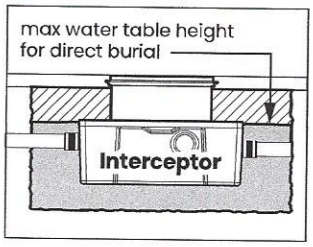
Do not install air gap on outlet side of interceptor.



SPECIAL PRECAUTIONS

For Schier Grease Interceptor Installations - Failure to follow this guidance voids your warranty

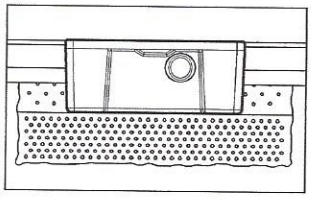
High Water Table Installations



Interceptors and risers are not designed to withstand water table height in excess of the top of the unit when buried (see figure). If it is possible for this to occur, install the interceptor and risers in a water-tight concrete vault or backfill with concrete or flowable fill (wet concrete and flowable backfill should be poured in stages to avoid crushing the interceptor). At risk areas include but are not limited to tidal surge areas, floodplains and areas that receive storm water. Great Basin™ models that are direct buried in high water table scenarios must be installed with an anchor kit. Models GB-50, GB-75, and GB-250 use model AK1 anchor kit. Model GB-500 uses model AK2 anchor kit for use with deadmen anchors. Models GB-1000, GGI-750 and GGI-1500 use model AK3 anchor kit for use with deadmen anchors.

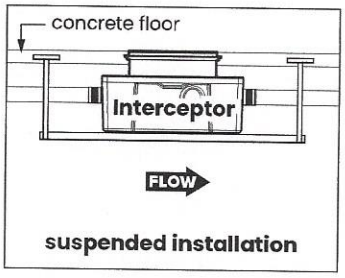
Flush-to-Grade Burials

Flush-to-Grade buried installations (without a riser) are not recommended for heavy foot traffic areas without the use of an internal gusset support kit **SGK2** (for GB2) or **SGK3** (for GB3).



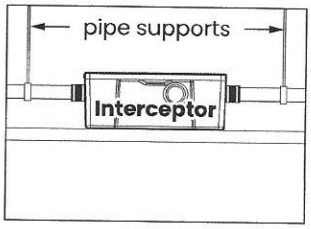
Fully Support Base of Unit

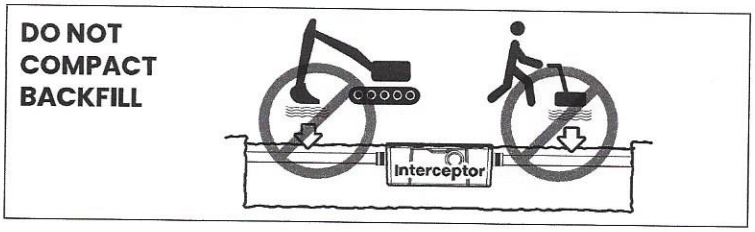
Install unit on solid, level surface in contact with the entire footprint of unit base; for suspended installations design trapeze to support the wet weight of the unit. Do not partially support unit or suspend unit using metal U-channel to create a trapeze.



Support Inlet and Outlet Piping

For above grade installations ensure heavy inlet and outlet piping (such as cast iron or long runs) is properly supported or suspended during the entire installation process to prevent connection failure or damage to bulkhead fittings.





SCHIER
LIFETIME GUARANTEED GREASE INTERCEPTORS

MODEL NUMBER: GB2	DESCRIPTION: 35/50 GPM Polyethylene Grease Interceptor			
PART #: 4065-001-05	DWG BY: B. Karrer	DATE: 4/10/2019	REV:	ECO:

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SPECIFICATIONS

Notes

1. 4" FPT inlet/outlet with 3" and 4" plain end fittings.
2. Unit weight - 49 lbs. (wet weight 216 lbs.)
3. Capacities - Liquid: 20 gal.
   @35 GPM- Grease: 130 lbs. (17.8 gal.)
   @50 GPM- Grease: 127 lbs. (17.3 gal.)
   Solids: 1.8 gal.
4. Built-in flow control.
5. For gravity drainage applications only.
6. Do not use for pressure applications.
7. Cover placement allows full access to tank for proper maintenance.
8. Vent not required unless per local code.
9. Engineered inlet and outlet diffusers are removable to inspect/clean piping.
10. Integral air relief / anti-siphon.

Engineer Specification Guide

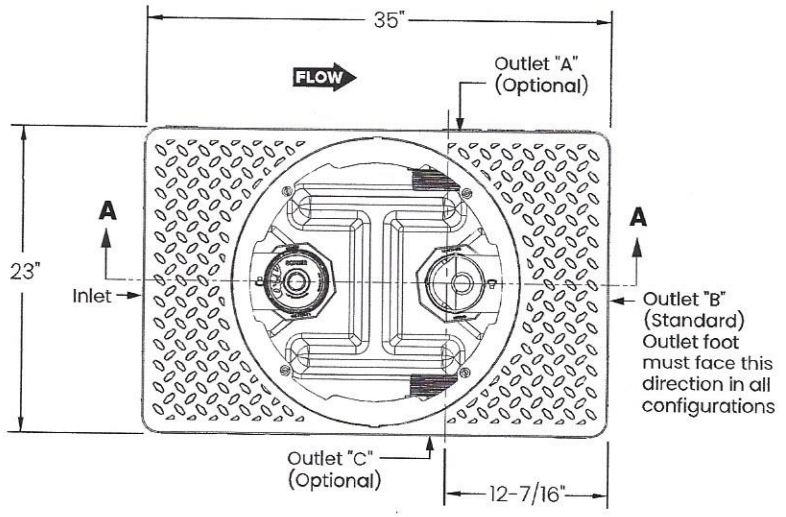
Schier Great Basin™ grease interceptor model #GB2 shall be lifetime guaranteed and made in USA of seamless, rotationally-molded polyethylene. Interceptor shall be furnished for above or below grade installation. Interceptor shall be certified to ASME A112.14.3 (type C) and CSA B481.1, with field cut riser system, built-in flow control and three outlet options. Interceptor flow rate shall be 35 or 50 GPM. Interceptor grease capacity shall be 130 lbs. @ 35 GPM or 127 lbs. @ 50 GPM. Cover shall provide water/gas-tight seal and have minimum 450 lbs. load capacity.

Certified Performance

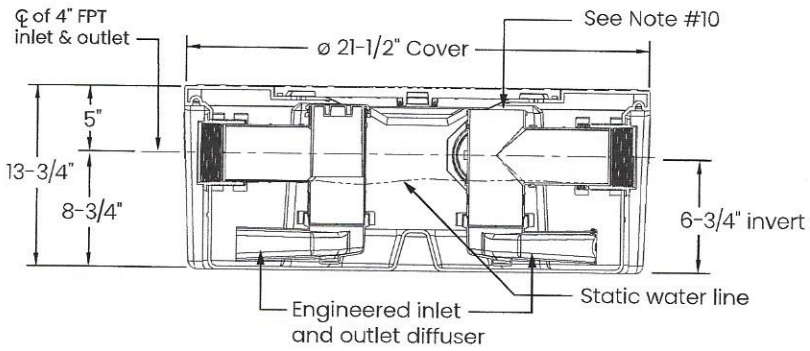
Great Basin™ hydromechanical grease interceptors are third party performance-tested and listed by IAPMO to ASME #A112.14.3 and CSA B481.1 grease interceptor standards and greatly exceed requirements for grease separation and storage. They are compliant to the Uniform Plumbing Code, the National Standard Plumbing Code, the National Plumbing Code of Canada, and the International Plumbing Code.

UPC

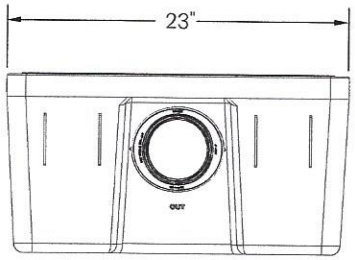
TOP VIEW



SECTION A-A



OUTLET END VIEW



Rated Grease Capacites for Units Piped in Series

No. of Units in Series	Removal Efficiency 97.8%	99%*
2	274 lbs.	180 lbs.

NOTE: Flow rate for 2 GB2 units piped in series is 35 GPM only

* Satisfies Miami DERM 99% efficiency requirements

SCHIER
LIFETIME GUARANTEED GREASE INTERCEPTORS

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Cannon, Glenn

From: Gutterson, Ann
Sent: Monday, September 27, 2021 1:09 PM
To: Cannon, Glenn
Subject: Domino's Pizza

From Mike Golden, Plumbing/Gas Inspector:

An outside grease trap is necessary for anything coming out of the building and it has to have a chamber vent.

Any questions, please call my cell: 508-274-7695.

Thank you.

Have an excellent day!

Ann Gutterson
Administrative Assistant
Bourne Building Dept.
24 Perry Avenue
Buzzards Bay MA 02532
508-759-0600 ex. 1512

Please use our E-Permitting system!
https://bournema.viewpointcloud.com/

Buzzards Bay Commercial Wastewater Summary Sheet (July 21, 2021)

OWNER	LOCATION	GPD Req'd	GPD Exist'g	$1500 App Paid Date	Planning Board Approval Date	Preliminary Allocation Approval Date	Prelim Alloc Fee (2017) [1]	Prelim Allocation Date Paid	Sewer Develop Charge (2006) [2]	Comments	6-Month Review Date
	2020 GPD Downtown Actual Use	112496									
	2% Residential Reserve	6000									
Operational Allocations											
Vincent Michienzi	85-93 Main Street	13000	931	10/24/2018		10/15/2018	$18,000.00	10/24/2019		Temporary Certificate of Occupany	11/25/19, 5/25/2020, 9/8/2020, 4/27/21
HAMPTON INN	12 Kendall Rae Place	15243	4614			9/30/2014		11/11/2019	$48,533.12	Certificate of Occupancy issued in January 2020	On-line (3 year review Jan 2023) 2020 = 4614gpd
	Total Operational GPD	**146739**									
Preliminary Allocations											
Maritime Holdings LLC/Rob	12 Wagner Way	17750		1/5/2018		6/18/2019	$22,750.00	11/20/2019			11/25/2019, 5/25/2020, 2/1/2021, 4/27/21
CALAMAR	13 Kendall Rae Place	16800			1/29/2018	9/19/2017	$21,800.00	1/6/2020		Calamar representatives appeared at the Board of Selectmen on April 6, 2021	11/25/19, 5/25/20,4/6/21
Vincent Michienzi	100 Block	26080				10/13/2015				-1000 gpd 11/25/2019 (originally 27080)	11/25/19, 5/25/2020, 9/8/2020, 4/27/21
MMA Cadet Housing	11 Buttermilk Way	7070	310	12/27/2019	N/A	1/28/2020	$12,070.00	2/20/2020		11 Buttermilk Way was reviewed by the BOSC on Feb 23, 2021	9/8/2020
James McLaughlin	227 Main Street	79	40	12/31/2019	10/10/2019	1/28/2020	$5,079.00	2/7/2020			9/8/2020, 4/27/21
Bay Motor Inn	223 Main Street	11985	640	5/20/2020		7/28/2020	$16,335.00	9/1/2020		Approval after BBWD moratorium sent letter 08.03.2020	2/1/2021, 4/27/21
CMP Development LLC	2 Kendall Rae Place	46475		2/25/2020		7/28/2020	$0.00			Approval after BBWD moratorium sent letter 08.03.2020	10/28/2020, 4/27/21
340 Main St LLC	340 Main St	3095		8/19/2020	2/27/2020	8/25/2020	$8,095.00	11/2/2020		Potential 2nd phase to include 18-24 residential units / sent letter 09.01.2020	2/1/2021, 4/27/21
	Total Approved GPD	**276073**									
	Total Available GPD	**23927**									
Pending Applications		Requested:									
Domino's/Wareham Pizza Co	2 Bourne Bridge Appr	1000	0 (unit)	9/15/2021							
To the Rescue K9 Training	10 St. Margaret's St									WITHDRAWN 9/23/2021	
Projects Not Counted		Requested:									
Louis Costa	25-27 Main Street	0	36				$0.00	N/A		Waiver Received	Waiver Req'd
Judah Branagan	6 Washington Ave	880	0					N/A		Approval not required	
Oak Bay Brewery	140 Main Street	2256		8/23/2019	11/14/2019	12/18/2019	$7,256.00	1/16/2020		Sewer Allocation revoked on March 23, 2021	N/A
						Total Fees:	$104,129.00		$48,533.12		

1 Preliminary Allocation Fee is based on the Commercial Wastewater Management Allocation Policy approved in 2017

2 Sewer Development Charge based on the Sewer Use Charges Certificate of Vote dated January 17, 2006

Buzzards Bay Water District Water Management Act (WMA) Permit Update for the Bourne Sewer Commission

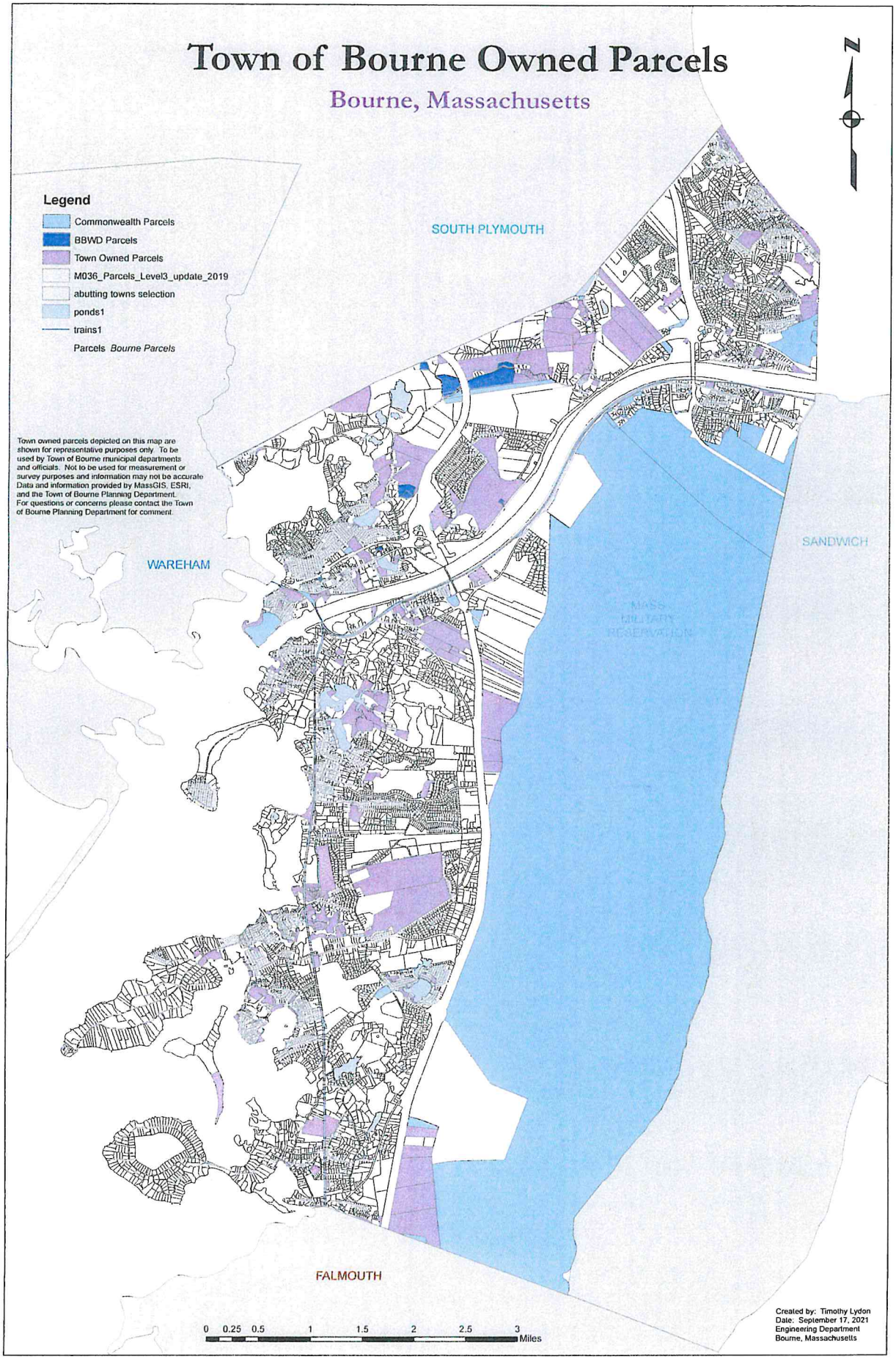
September 28, 2021

Presented by Kristen Berger, P.E., Resilient Civil Engineering, PC

1. Buzzards Bay Water District (BBWD) applied for a new Water Management Act (WMA) Permit in Oct. 2020.
2. Water Needs Forecast was conducted by the Department of Conservation and Recreation (DCR).
3. MassDEP issued a draft WMA Permit in August 2021 and the public comment period ended Sep. 24, 2021.
4. MassDEP will soon issue the final WMA Permit increasing the BBWD's authorized annual average withdrawal from 0.53 to 0.79 mgd.
    a. 0.79 mgd was requested by BBWD in the permit application to allow for supply of water to pending/future developments.
5. New WMA Permit will include a requirement to mitigate water withdrawn that is in excess of a BBWD withdrawal Baseline of 0.51 mgd. Meaning an amount of 0.28 mgd is required to be mitigated.
6. An estimated 0.23 mgd of the needed BBWD mitigation is obtained through groundwater recharge from septic systems and the new wastewater treatment facility.
7. BBWD Mitigation Plan will be due December 2022.
8. At a Sep. 21, 2021 meeting with representatives of MassDEP, the Town and the three Water Districts, it was determined that both BBWD and Bourne Water District will have amounts to mitigate in their new or renewed WMA Permits. North Sagamore Water District may have to mitigate in the future depending on if they start using more water. Current total mitigation need is 70,000 gpd (50,000 gpd for BBWD and 20,000 gpd for Bourne Water District).
9. Most of the mitigation items require that the Districts work in partnership with the Town.
10. Methods of mitigation identified by MassDEP as priorities include
    a. Item (1) Infiltration and Inflow (I/I) Removal from Sewer Collection Systems,
    b. Item (2) decommissioning of cranberry bog operations,
    c. Item (3) purchase of property for source water or natural resources protection and
    d. Item (4) incorporation of wetlands by-law.
11. Credit for mitigation activities completed since Jan. 1, 2005 can be requested.
12. Regarding Item (1), the Town recently conducted an I/I Removal Study. The report will be reviewed to determine the volume of mitigation that could be achieved by I/I Removal.
13. Working with Glenn Cannon and Timothy Lydon on mitigation Items (2) and (3) above.
14. The Town's current Wetland By-laws will be reviewed to determine if mitigation credit can be requested for Item (4).
15. Goal is to identify mitigation to reach 70,000 gpd for the present. The Mitigation Plan will be a "living document" and can be updated in the future to document additional mitigation exceeding the current goal.
16. Continued support of the Sewer Commission and the Town is needed to comply wth MassDEP's requirements in each of the water District's WMA Permits.

Town of Bourne Owned Parcels

Bourne, Massachusetts



Town owned parcels depicted on this map are shown for representative purposes only. To be used by Town of Bourne municipal departments and officials. Not to be used for measurement or survey purposes and information may not be accurate. Data and information provided by MassGIS, ESRI, and the Town of Bourne Planning Department. For questions or concerns please contact the Town of Bourne Planning Department for comment.

Created by: Timothy Lydon
Date: September 17, 2021
Engineering Department
Bourne, Massachusetts

TOWN OF BOURNE

Fund Report by Department

Fiscal Year 2021
From 07/01/2020 to 06/30/2021

60 - SEWER ENTERPRISE		400 - PUBLIC WORKS & UTILITIES		442 - SEWERAGE COLLECTION & DISPOSAL				
Account	**Description**	**Carry Fwd**	**Orig Bud**	**Amended**	**Encumb**	**Expend**	**Unencum Bal**	**% Exp**
5111	SALARIES - DEPT.HEADS		31,931.00			33,916.19	-1,985.19	106.21 %
5112	SALARIES - SUPERVISORS/ADM.SEC		61,632.00			46,125.49	15,506.51	74.84 %
5116	SALARIES - LABORERS		70,959.00			52,861.07	18,097.93	74.49 %
5117	WAGES - HOURLY EMP.(PERM)							100.00 %
5130	OVERTIME - WAGES		30,000.00			42,981.32	-12,981.32	143.27 %
5141	LONGEVITY		2,858.00			2,918.11	-60.11	102.10 %
5190	INCENTIVE PAY		300.00				300.00	0.00 %
5100 Total PERSONAL SERVICES			197,680.00			178,802.18	18,877.82	
5211	ENERGY - ELECTRICITY	555.43	8,500.00			8,026.03	1,029.40	88.63 %
5213	ENERGY - OTHER FUELS		1,000.00			1,165.96	-165.96	116.59 %
5230	NON-ENERGY - WATER		750.00			475.50	274.50	63.40 %
5240	R&M - BLDGS & GROUNDS		300.00				300.00	0.00 %
5242	R&M - LIGHT TRUCKS		1,000.00				1,000.00	0.00 %
5248	R&M - MACH.& EQUIP (BY OTHER)		30,000.00			25,658.21	4,341.79	85.52 %
5273	RENTALS - HEAVY EQUIPMENT		2,500.00				2,500.00	0.00 %
5274	RENTALS - UNIFORMS		550.00			316.46	233.54	57.53 %
5304	SERVICES - CONSULTANTS		55,000.00			26,197.49	28,802.51	47.63 %
5315	SERVICES-LEGAL,OUTSIDE COUNSEL		5,000.00				5,000.00	0.00 %
5318	SERVICES-WASTE REMOVAL & DISPO		410,000.00			410,000.00		100.00 %
5340	COMMUNICATIONS - TELEPHONE	36.90	2,000.00			1,361.88	675.02	66.86 %
5341	COMMUNICATIONS - POSTAGE		900.00			884.69	15.31	98.29 %
5342	COMMUNICATIONS - PRINTING		350.00				350.00	0.00 %
5200 Total PURCHASE OF SERVICES		592.33	517,850.00			474,086.22	44,356.11	
5420	OFFICE SUPPLIES - GENERAL		150.00			220.38	-70.38	146.92 %
5432	BLDG./EQUIP.SUPP.- TOOLS		5,000.00			3,114.10	1,885.90	62.28 %
5450	CUSTODIAL SUPP. - CLEANING		25.00				25.00	0.00 %
5451	HAZARDOUS MATERIAL EQUIP		4,000.00				4,000.00	0.00 %
5480	VEH.SUPP.- GASOLINE		1.00				1.00	0.00 %
5481	VEH.SUPP.- DIESEL		3,500.00			2,265.70	1,234.30	64.73 %
5482	VEH.SUPP.- OIL & LUBE		1.00				1.00	0.00 %
5484	VEH.SUPP.- PARTS		2,500.00			55.45	2,444.55	2.21 %
5485	VEH.SUPP.- REG,INSPECTIONS		350.00			110.00	240.00	31.42 %
5584	OTHER SUPP.- PROTECTIVE CLOTH.		4,500.00			4,457.13	42.87	99.04 %

TOWN OF BOURNE

Fund Report by Department

Fiscal Year 2021
From 07/01/2020 to 06/30/2021

60 - SEWER ENTERPRISE	400 - PUBLIC WORKS & UTILITIES	442 - SEWERAGE COLLECTION & DISPOSAL					
Account	**Description**	**Carry Fwd**	**Orig Bud**	**Amended**	**Encumb**	**Expend**	**Unencum Bal**	**% Exp**
5588	OTHER SUPP.- 2-WAY DEVICES		1.00				1.00	0.00 %
5400 Total SUPPLIES			20,028.00			10,222.76	9,805.24	
5760	CAPITAL ASSESSMENT - TOWN OF W		188,478.00			188,477.53	0.47	99.99 %
5781	LICENSE REIMBURSEMENT		375.00			257.00	118.00	68.53 %
5700 Total OTHER CHARGES AND EXPENDITURES			188,853.00			188,734.53	118.47	
5870	REPLACEMENT EQUIPMENT		105,000.00			11,630.47	93,369.53	11.07 %
5871	NEW EQUIPMENT		5,000.00			632.40	4,367.60	12.64 %
5800 Total CAPITAL OUTLAY			110,000.00			12,262.87	97,737.13	
5910	PRINCIPAL LONG TERM DEBT		35,000.00			69,250.00	-34,250.00	197.85 %
5915	INTEREST-LONG-TERM DEBT		35,000.00			3,423.61	31,576.39	9.78 %
5920	TEMPORARY INTEREST		2,000.00			941.42	1,058.58	47.07 %
5900 Total PERMANENT DEBT SERVICE			72,000.00			73,615.03	-1,615.03	
442 Total SEWERAGE COLLECTION & DISPOSAL		592.33	1,106,411.00			937,723.59	169,279.74	

TOWN OF BOURNE

Fund Report by Department

Fiscal Year 2021
From 07/01/2020 to 06/30/2021

60 - SEWER ENTERPRISE		900 - MISCELLANEOUS		947 - MISCELLANEOUS				
Account	**Description**	**Carry Fwd**	**Orig Bud**	**Amended**	**Encumb**	**Expend**	**Unencum Bal**	**% Exp**
5798	RESERVE FUND		100,000.00				100,000.00	0.00 %
5700 Total OTHER CHARGES AND EXPENDITURES			100,000.00				100,000.00	
947 Total MISCELLANEOUS			100,000.00				100,000.00	

TOWN OF BOURNE

Fund Report by Department

Fiscal Year 2022
From 07/01/2021 to 06/30/2022

60 - SEWER ENTERPRISE		400 - PUBLIC WORKS & UTILITIES		442 - SEWERAGE COLLECTION & DISPOSAL				
Account	**Description**	**Carry Fwd**	**Orig Bud**	**Amended**	**Encumb**	**Expend**	**Unencum Bal**	**% Exp**
5112	SALARIES - SUPERVISORS/ADM.SEC		55,108.00			12,739.47	42,368.53	23.11 %
5116	SALARIES - LABORERS		127,029.00			26,841.10	100,187.90	21.12 %
5130	OVERTIME - WAGES		30,000.00			12,928.35	17,071.65	43.09 %
5141	LONGEVITY		1,583.00				1,583.00	0.00 %
5190	INCENTIVE PAY		300.00				300.00	0.00 %
5100 Total PERSONAL SERVICES			214,020.00			52,508.92	161,511.08	
5211	ENERGY - ELECTRICITY	977.00	8,500.00			2,808.16	6,668.84	29.63 %
5213	ENERGY - OTHER FUELS		1,000.00			26.00	974.00	2.60 %
5230	NON-ENERGY - WATER	718.39	750.00			718.39	750.00	48.92 %
5240	R&M - BLDGS & GROUNDS		300.00				300.00	0.00 %
5242	R&M - LIGHT TRUCKS		1,000.00				1,000.00	0.00 %
5248	R&M - MACH.& EQUIP (BY OTHER)		27,500.00			425.00	27,075.00	1.54 %
5273	RENTALS - HEAVY EQUIPMENT		2,200.00				2,200.00	0.00 %
5274	RENTALS - UNIFORMS		550.00			54.63	495.37	9.93 %
5304	SERVICES - CONSULTANTS	13,140.50	25,000.00			12,325.50	25,815.00	32.31 %
5315	SERVICES-LEGAL,OUTSIDE COUNSEL		5,000.00				5,000.00	0.00 %
5318	SERVICES-WASTE REMOVAL & DISPO		420,250.00				420,250.00	0.00 %
5340	COMMUNICATIONS - TELEPHONE	36.90	2,000.00			1,143.88	893.02	56.15 %
5341	COMMUNICATIONS - POSTAGE		900.00				900.00	0.00 %
5342	COMMUNICATIONS - PRINTING		300.00				300.00	0.00 %
5351	CONTRACTED SERVICES - O&M		256,000.00				256,000.00	0.00 %
5200 Total PURCHASE OF SERVICES		14,872.79	751,250.00			17,501.56	748,621.23	
5420	OFFICE SUPPLIES - GENERAL		150.00				150.00	0.00 %
5432	BLDG./EQUIP.SUPP.- TOOLS		5,000.00			825.04	4,174.96	16.50 %
5451	HAZARDOUS MATERIAL EQUIP	2,337.00	4,000.00			2,337.00	4,000.00	36.87 %
5481	VEH.SUPP.- DIESEL		3,500.00			350.78	3,149.22	10.02 %
5484	VEH.SUPP.- PARTS		2,500.00			513.91	1,986.09	20.55 %
5485	VEH.SUPP.- REG,INSPECTIONS		350.00				350.00	0.00 %
5584	OTHER SUPP.- PROTECTIVE CLOTH.		4,500.00			449.87	4,050.13	9.99 %
5400 Total SUPPLIES		2,337.00	20,000.00			4,476.60	17,860.40	
5760	CAPITAL ASSESSMENT - TOWN OF W		188,478.00				188,478.00	0.00 %
5781	LICENSE REIMBURSEMENT		375.00				375.00	0.00 %
5700 Total OTHER CHARGES AND EXPENDITURES			188,853.00				188,853.00	

TOWN OF BOURNE

Fund Report by Department

Fiscal Year 2022
From 07/01/2021 to 06/30/2022

60 - SEWER ENTERPRISE		400 - PUBLIC WORKS & UTILITIES		442 - SEWERAGE COLLECTION & DISPOSAL				
Account	**Description**	**Carry Fwd**	**Orig Bud**	**Amended**	**Encumb**	**Expend**	**Unencum Bal**	**% Exp**
5870	REPLACEMENT EQUIPMENT	53.16	90,000.00			680.32	89,372.84	0.75 %
5871	NEW EQUIPMENT		5,000.00			1,634.89	3,365.11	32.69 %
5800 Total CAPITAL OUTLAY		53.16	95,000.00			2,315.21	92,737.95	
5910	PRINCIPAL LONG TERM DEBT		10,000.00				10,000.00	0.00 %
5915	INTEREST-LONG-TERM DEBT		28,100.00				28,100.00	0.00 %
5900 Total PERMANENT DEBT SERVICE			38,100.00				38,100.00	
442 Total SEWERAGE COLLECTION & DISPOSAL		17,262.95	1,307,223.00			76,802.29	1,247,683.66	

TOWN OF BOURNE

Fund Report by Department

Fiscal Year 2022
From 07/01/2021 to 06/30/2022

60 - SEWER ENTERPRISE		900 - MISCELLANEOUS		947 - MISCELLANEOUS				
Account	**Description**	**Carry Fwd**	**Orig Bud**	**Amended**	**Encumb**	**Expend**	**Unencum Bal**	**% Exp**
5798	RESERVE FUND		50,000.00				50,000.00	0.00 %
5700 Total OTHER CHARGES AND EXPENDITURES			50,000.00				50,000.00	
947 Total MISCELLANEOUS			50,000.00				50,000.00	

		Carry-Forward (PY Encumbrances)	Appropriation	Expended	Encumbrances	June 30, 2021 Turn-Backs	Notes
Personal Services							
Dept. Heads	60-999-400-442-5100-5111-999-99	-	31,931.00	33,916.19	-	(1,985.19)	Grade/Step discrepancy
Supervisors/Admin. Sec.	60-999-400-442-5100-5112-999-99	-	61,632.00	46,125.49	-	15,506.51	Retirement of Sewer Administration
Laborers	60-999-400-442-5100-5116-999-99	-	70,959.00	52,861.07	-	18,097.93	Sewer laborer out medical resulted in surplus
Overtime	60-999-400-442-5100-5130-999-99	-	30,000.00	42,981.32	-	(12,981.32)	Increase in OT due to short staffing (medical)
Longevity	60-999-400-442-5100-5141-999-99	-	2,858.00	2,918.11	-	(60.11)	Percentage of salary rounding
Incentive Pay	60-999-400-442-5100-5190-999-99	-	300.00	-	-	300.00	Not needed - sick time was used, no incentive
			197,680.00	178,802.18	-	**18,877.82**	**Total Salary Turn-Back**
Purchase of Services							
Electricity	60-999-400-442-5200-5211-999-99	555.43	8,500.00	8,026.03	977.00	52.40	
Other Fuels	60-999-400-442-5200-5213-999-99	-	1,000.00	1,165.96	-	(165.96)	
Water	60-999-400-442-5200-5230-999-99	-	750.00	475.50	718.39	(443.89)	
Buildings & Grounds	60-999-400-442-5200-5240-999-99	-	300.00	-	-	300.00	
Light Trucks	60-999-400-442-5200-5242-999-99	-	1,000.00	-	-	1,000.00	
Mach. & Equip	60-999-400-442-5200-5248-999-99	-	30,000.00	25,658.21	-	4,341.79	
Heavy Equipment	60-999-400-442-5200-5273-999-99	-	2,500.00	-	-	2,500.00	
Uniforms	60-999-400-442-5200-5274-999-99	-	550.00	316.46	-	233.54	
Consultants	60-999-400-442-5200-5304-999-99	-	55,000.00	26,197.49	13,140.50	15,662.01	
Legal	60-999-400-442-5200-5315-999-99	-	5,000.00	-	-	5,000.00	
Waste Removal	60-999-400-442-5200-5318-999-99	-	410,000.00	410,000.00	-	-	Wareham IMA
Telephone	60-999-400-442-5200-5340-999-99	36.90	2,000.00	1,361.88	36.90	638.12	
Postage	60-999-400-442-5200-5341-999-99	-	900.00	884.69	-	15.31	
Printing	60-999-400-442-5200-5342-999-99	-	350.00	-	-	350.00	
		592.33	517,850.00	474,086.22	14,872.79	29,483.32	
Supplies							
Office Supplies	60-999-400-442-5400-5420-999-99	-	150.00	220.38	-	(70.38)	
Buildings & Equip. Tools	60-999-400-442-5400-5432-999-99	-	5,000.00	3,114.10	-	1,885.90	
Custodial Supplies	60-999-400-442-5400-5450-999-99	-	25.00	-	-	25.00	
Hazardous Material	60-999-400-442-5400-5451-999-99	-	4,000.00	-	2,337.00	1,663.00	
Gasoline	60-999-400-442-5400-5480-999-99	-	1.00	-	-	1.00	
Diesel	60-999-400-442-5400-5481-999-99	-	3,500.00	2,265.70	-	1,234.30	
Vehicle- Oil, Lubrication	60-999-400-442-5400-5482-999-99	-	1.00	-	-	1.00	
Vehicle-Parts	60-999-400-442-5400-5484-999-99	-	2,500.00	55.45	-	2,444.55	
Vehicle-Inspections	60-999-400-442-5400-5485-999-99	-	350.00	110.00	-	240.00	
Other-Protective Clothing	60-999-400-442-5400-5584-999-99	-	4,500.00	4,457.13	-	42.87	
Other-2-Way Devices	60-999-400-442-5400-5588-999-99	-	1.00	-	-	1.00	
		-	20,028.00	10,222.76	2,337.00	7,468.24	
Other Charges							
Capital Assessment	60-999-400-442-5700-5760-999-99	-	188,478.00	188,477.53	-	0.47	Warham Capital
License Reimbursement	60-999-400-442-5700-5760-999-99	-	375.00	257.00	-	118.00	
		-	188,853.00	188,734.53	-	118.47	
Capital Outlay							
Replacement Equipment	60-999-400-442-5800-5870-999-99	-	105,000.00	11,630.47	53.16	93,316.37	
New Equipment	60-999-400-442-5800-5871-999-99	-	5,000.00	632.40	-	4,367.60	
		-	110,000.00	12,262.87	53.16	97,683.97	
Debt							
Principal LTD	60-999-400-442-5900-5910-999-99	-	35,000.00	69,250.00	-	(34,250.00)	BAN Payment
Interest LTD	60-999-400-442-5900-5915-999-99	-	35,000.00	3,423.61	-	31,576.39	
Temporary Interest	60-999-400-442-5900-5920-999-99	-	2,000.00	941.42	-	1,058.58	
		-	72,000.00	73,615.03	-	(1,615.03)	
		592.33	**908,731.00**	**758,921.41**	**17,262.95**	**133,138.97**	Total Expenses (net of encumbrances)
Reserve Fund							
Reserve Fund	60-999-900-947-5700-5798-999-99	-	100,000.00	-	-	100,000.00	
		-	100,000.00	-	-	100,000.00	

Total Unencumbered per SoftRight Report	169,279.74	6.30.2021 Sal. & Exp.
FY21/22 Encumbrances	(17,262.95)	Carry-Forward @ 7.1.2021
Operational Turn-Backs	152,016.79	Sal. & Exp.
Reserve Fund Turn-Back	100,000.00	No RFTs in FY21
	252,016.79	**Total Turn-Back to Retained Earnings**

Town of Bourne
Sewer Rate Analysis

Expenses:	FY2020	Voted 7.28.20 FY2021	Amended STM 11.16.20 Voted 12.22.20 FY2021	Prelim 3.30.2021 FY2022	Prelim 3.30.2021 FY2022	Scenario A Overage $0.012 Increase of $26,000 FY2022	Scenario B Overage $0.013 Increase of $39,000 FY2022	Scenario C Overage $0.014 Increase of $52,000 FY2022	Scenario D Overage $0.015 Increase of $65,000 FY2022
Salaries	$ 187,843	$ 197,680	$ 197,680	$ 214,020	$ 214,020	$ 214,020	$ 214,020	$ 214,020	$ 214,020
Purchase of Services	103,850	107,850	107,850	75,000	75,000	75,000	75,000	75,000	75,000
Supplies	19,825	20,028	20,028	20,000	20,000	20,000	20,000	20,000	20,000
Other Charges & Exps	375	375	375	375	375	375	375	375	375
Capital Outlay	110,000	110,000	110,000	95,000	95,000	95,000	95,000	95,000	95,000
Capital Outlay reduction									
Transfer to General Fund									
Debt Service	24,000	72,000	72,000	38,100	12,000	12,000	12,000	12,000	12,000
Reserve Fund	50,000	100,000	100,000	50,000	50,000	50,000	50,000	50,000	50,000
Wareham Operating Charge	350,000	410,000	410,000	420,250	420,250	420,250	420,250	420,250	420,250
Wastewater Facility Operating Cost				256,000	256,000	256,000	256,000	256,000	256,000
Wareham Capital Charge	188,478	188,478	188,478	188,478	188,478	188,478	188,478	188,478	188,478
Indirect Expenses	134,709	140,944	140,944	148,315	148,315	148,315	148,315	148,315	148,315
Total Expenses	**1,169,080**	**1,347,355**	**1,347,355**	**1,505,538**	**1,479,438**	**1,479,438**	**1,479,438**	**1,479,438**	**1,479,438**
Revenues:									
Miscellaneous Dept Revenue & Interest	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000
GF Reserve Fund Transfer									
Sewer User fees									
Est. Overage fees	130,000	140,000	140,000	130,000	130,000	156,000	169,000	182,000	195,000
Sub-total	**165,000**	**175,000**	**175,000**	**165,000**	**165,000**	**191,000**	**204,000**	**217,000**	**230,000**
Amount Needed Per Unit	**1,004,080**	**1,172,355**	**1,172,355**	**1,340,538**	**1,314,438**	**1,288,438**	**1,275,438**	**1,262,438**	**1,249,438**
Users	1,086	1,068	1,069	1,069	1,069	1,069	1,069	1,069	1,069
Per Unit Sewer Charge - NO Retained Earnings	**925**	**1,098**	**1,097**	**1,254**	**1,230**	**1,205**	**1,193**	**1,181**	**1,169**
Retained Earnings Rate Subsidy	50,000	50,000	185,000	50,000	50,000	50,000	50,000	50,000	50,000
Retained Earnings Rate Subsidy Reduction per User	46	47	173	47	47	47	47	46.77	47
Per Unit Sewer Charge with Retained Earnings Rate Subsidy	**$ 879**	**$ 1,051**	**$ 924**	**$ 1,207**	**$ 1,183**	**$ 1,159**	**$ 1,146**	**$ 1,134**	**$ 1,122**
Rate Decrease Per Scenario						**$ 24**	**$ 12**	**$ 12**	**$ 12**

SEWER SYSTEM
INFILTRATION AND INFLOW ANALYSIS

Town of Bourne, MA

August 2021

ENVIRONMENTAL PARTNERS

TABLE OF CONTENTS

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LIST OF ABBREVIATIONS

EP	Environmental Partners
DEP	Massachusetts Department of Environmental Protection
GIS	Geographical Information System
gpd	Gallons per Day
gpm	Gallons per Minute
I/I	Infiltration and Inflow
idm	Inch-Diameter * Mile
in	Inch
in/hr	Inch per Hour
LF	Linear Feet
MassDEP	Massachusetts Department of Environmental Protection
MGD	Million Gallons per Day
mi	Mile
PS	Pump Station
RII	Rain Induced Infiltration

EXECUTIVE SUMMARY

The Town of Bourne sanitary sewer collection system transports an average wastewater flow of 0.11 MGD[1] through over 8 miles of sewer pipe, more than 90 manholes, and 2 pump stations. Wastewater from the collection system discharges from the Town at the Red Brook Pump Station via 6-inch forcemain and at the Main Street Pump Station via 6-inch forcemain to the Town of Wareham Collection System and WWTF. As required by MassDEP, the Town has performed this I/I Analysis to track and remove extraneous water from the sanitary sewer system. **Figure ES-1** displays the sanitary sewer collection system (gravity and low pressure), and delineates the four (4) sewershed subareas used for this evaluation.

INFILTRATION RESULTS

The Town conducted a wastewater flow metering program between March and April 2021 to identify infiltration and inflow in the system. Environmental Partners isolated the nighttime flows during dry weather in high groundwater season to quantify infiltration in each subarea. Approximately 2,250 linear feet of gravity sewer located in Subarea C experiences excessive infiltration, or more than 4,000 gpd/idm.

INFLOW RESULTS

During the metering period, EP compared wet weather events to dry weather events to identify inflow. EP developed trendlines to model the inflow experienced in a series of wet weather events, then interpolated the data based on a 5-year design storm to quantify the peak hour inflow that would be anticipated in each subarea. The top 40% of inflow occurred in Subarea D.

CONCLUSIONS

EP has ranked the subareas based on a combined need for further investigations specifically CCTV inspection from both the infiltration and inflow analysis:

1. B &C
2. D

[1] Based on data collected during the flow monitoring period between March and April 2021.

RECOMMENDATIONS

EP recommends that Bourne conduct CCTV and MH inspections of the gravity sewers in Subareas B and C in Year 1, and investigate remaining Subarea D in Year 2.

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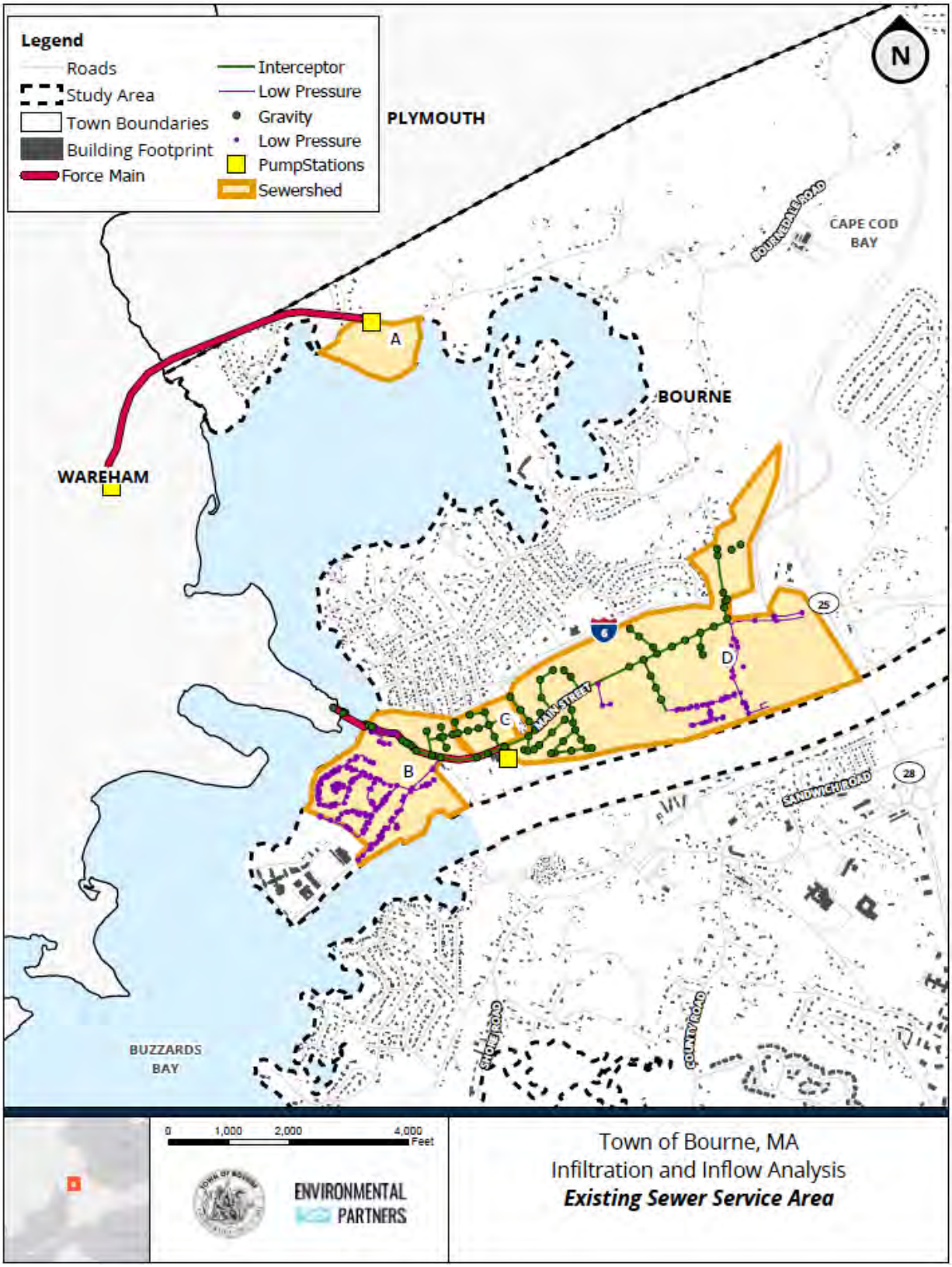
Figure ES-1


Legend
Roads
Study Area
Town Boundaries
Building Footprint
Force Main
Interceptor
Low Pressure
Gravity
Low Pressure
PumpStations
Sewershed
N
PLYMOUTH
CAPE COD BAY
BOURNE
WAREHAM
A
B
C
D
MAIN STREET
SANDWICH ROAD
BUZZARDS BAY
0 1,000 2,000 4,000 Feet
ENVIRONMENTAL PARTNERS
Town of Bourne, MA
Infiltration and Inflow Analysis
Existing Sewer Service Area

Back of Figure ES-1

SECTION 1 INTRODUCTION

The Town of Bourne (Town) is located in Barnstable County, abutting Plymouth to the north, Sandwich to the east, Wareham to the west, and Falmouth to the south. The Town spans approximately 40.7 square miles and, according to Town Annual Reports, houses more than 20,000 year-round residents and up to 40,000 residents during summer months.

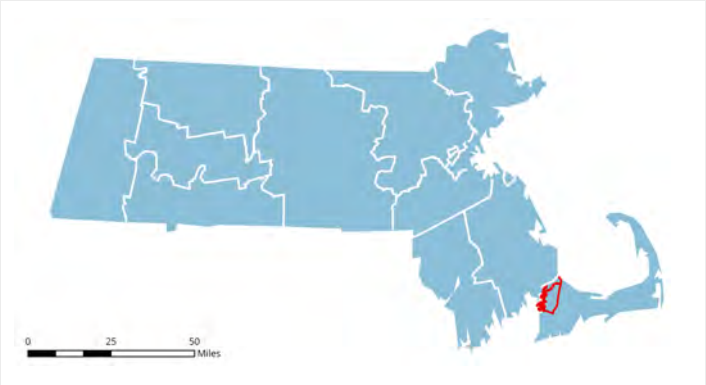


Figure 1-1: Town of Bourne Location Map

Bourne's location in the Commonwealth is in **Figure 1-1**.

SECTION 1.1 PURPOSE AND SCOPE OF STUDY

On January 19, 2021, the Town of Bourne (Town) retained Environmental Partners (EP) to perform a Phase I Infiltration and Inflow (I/I) Analysis on the sanitary sewer collection system owned by the Town, compliant with the Massachusetts Guidelines. Data was collected during flow monitoring conducted in Spring 2021 by EST Associates, Inc. (EST), as designed and procured by EP. This is part of the Town's on-going efforts to identify and remove extraneous water from their sanitary sewer system.

The Town of Bourne sewer system connects Downtown Buzzards Bay, Downtown Bourne, Taylor Point, and Hideaway Village. The existing sewer system serves approximately 604 residential and commercial properties. According to record drawings, the Town sewer system was designed and constructed in the early 1990s.

The existing sanitary sewer collection system consists of approximately 3.5 miles (over 17,000 linear feet (LF)) of gravity sewer, approximately 9,500 LF of force main, over 90 manholes, and 2 municipally owned and operated wastewater pumping stations. The Town's sanitary sewer system collects an average wastewater flow of 0.11 million gallons per day (MGD). Wastewater from the collection system discharges from the Town at the Hideaway Village Pump Station and the Main Street Pump Station both via a 6–inch force main to the Town of Wareham Collection System and treatment plant.

The purpose of this analysis is to identify and quantify the infiltration and inflow (I/I) in the Town's sanitary sewer collection system. This report will provide the Town with an understanding of I/I conditions in the collection system and identify subareas experiencing the most severe I/I issues. Infiltration, the penetration of subsurface water into a pipe, may enter a sewer system at pipe joints, breaks, or manhole defects, which can be a result of infrastructure aging or poor construction. Inflow, the flow of surface water into a pipe, typically occurs during rainfall events and can enter the system

at illegal sewer connections to roof leaders, yard drains, catch basins, or sump pumps; at defective manhole covers and frame seals; or through connections to stormwater infrastructure. Excessive I/I in a sanitary network can increase treatment costs, reduce the useful life of a sanitary network, and, in severe cases, lead to sanitary sewer overflows. Evidence of severe I/I can also indicate an environment for exfiltration during periods of low groundwater levels. Thus, proper evaluation and mitigation of I/I is a valuable capital and environmental investment.

The scope of work for the I/I Analysis includes the following tasks:

1. Categorization of flow within each subsystem into three categories: sanitary flow, infiltration, and inflow, in accordance with MassDEP's Guidelines.
2. Assessment of recurrence interval of storms from metering period.
3. Determination of inflow volume during a 1-year, 6-hour design storm event.
4. Assessment of risk of SSO during a 5-year, 24-hour storm event using the model developed in 2019 as part of Task Order No. 2 – Infiltration/Inflow Analysis 2019.
5. Development of a final report that includes:
    a. An Executive Summary highlighting all tasks performed, a subsection of conclusions, recommendations, and approximate costs.
    b. Description of existing wastewater treatment and collection systems.
    c. Description of problems (overflows, surcharging, etc.) within the system.
    d. Sewer map delineating subsystems, gauging locations, sewer size, surcharge locations, etc.
    e. Narrative description of analysis including flow categorization methodology.
    f. Tabular summary of flow metering results.
    g. Summary of all inspection reports.
    h. Recommendations for Phase 1 SSES work including estimated cost and schedule.

The system has no known sewer system overflows or bypasses. The Town Operations Staff indicates that significant surcharging events related to maintenance issues (i.e. clogs, blockages) are infrequent. There are no areas of the collection system that experience chronic surcharging/SSOs due to hydraulic restrictions or poor condition of the sewer infrastructure. Several low pressure sewer areas exist within the existing sewer system, and metering does not need to be performed in these neighborhoods, as they are considered closed loop systems. For this study, only gravity sewers were metered.

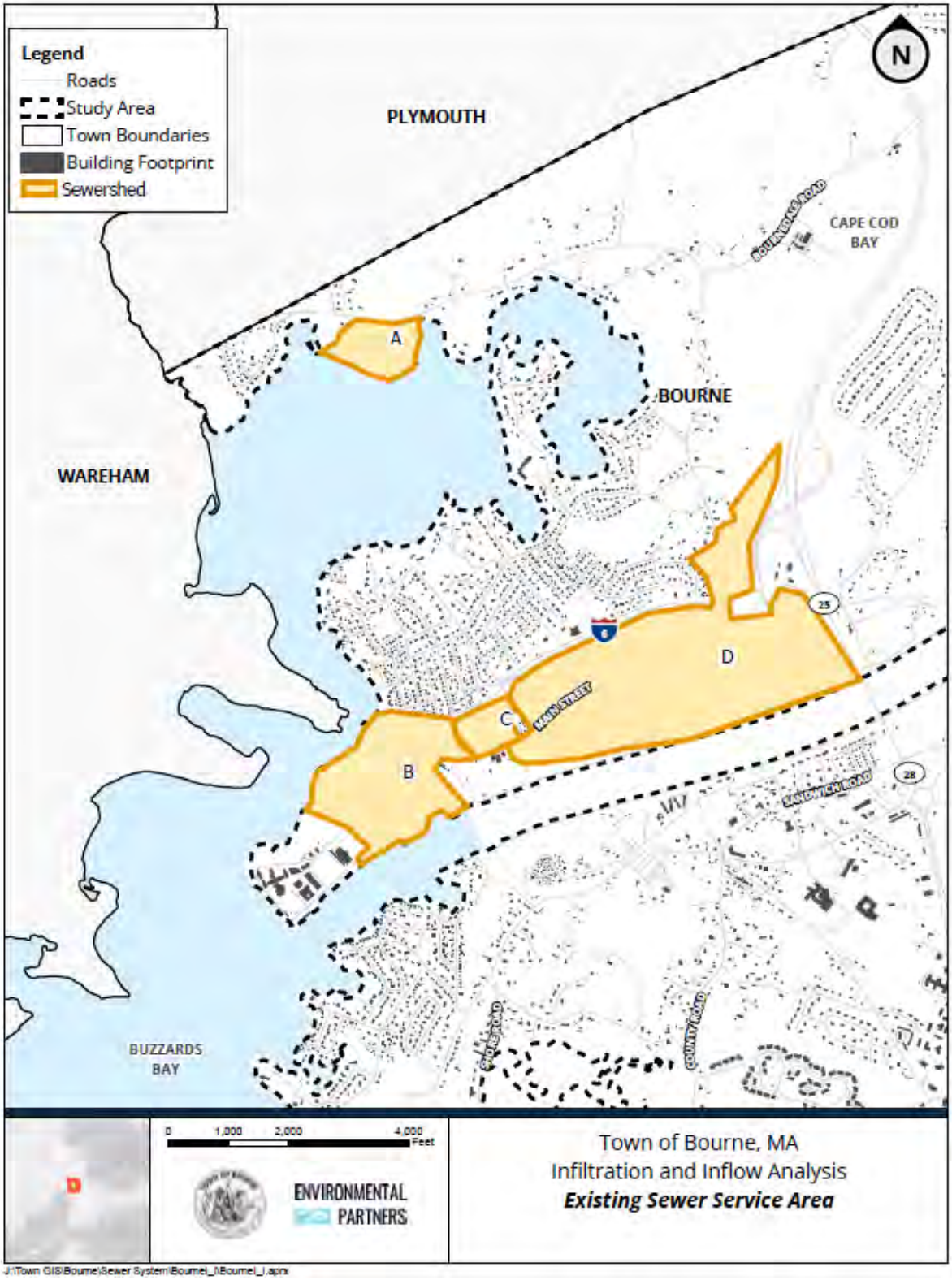
EP divided the sanitary sewer collection system into 4 subareas. Subareas were generally selected using pump station tributary areas, with the exception of Subarea C, which is located between the two metered subareas and the Main Street Pump Station. When possible, manholes selected for flow meter placement show only one inflow and one outflow pipe with wastewater flowing approximately straight through the manhole to maximize flow meter accuracy. **Figure 1-2** shows the selected sewer subarea boundaries within the Town.

Two flow meters operated between March and April 2021. EST installed the groundwater monitors in the lower elevation manhole of the two metering locations. Two (2) rain gauges were installed to

measure rainfall during the flow-monitoring period. Per Massachusetts guidelines, EST placed one groundwater gauge per 20,000 LF of sewer system area.

EP used the data from the flow meters, rain gauges, and groundwater gauges to estimate infiltration and inflow in the sanitary sewer collection system.

Figure 1-2: Town of Bourne Sewer Subareas



SECTION 1.2 GUIDELINES

This report references the Commonwealth of Massachusetts Department of Environmental Protection (MassDEP) *Guidelines for Performing Infiltration/Inflow Analyses and Sewer System Evaluation Surveys*, (May 2017) (Guidelines) for industry standards and methods for conducting SSES reports.

SECTION 1.3 DEFINITIONS

The following table defines phrases and concepts utilized for this analysis:

1-year, 6-hour Design Storm	1-year, 6-hour Design Storm a storm with total rainfall depth of 1.72 inches, and a peak hourly intensity of 0.87 inches/hour.
5-year, 24-hour Design Storm	5-year, 24-hour Design Storm a storm with total rainfall depth of 4.61 inches, and a peak hourly intensity of 0.73 inches/hour.
Gallons per day per inch diameter * mile (gpd/idm)	Gallons per Day per Inch Diameter * Miles of Sewer (gpd/idm) is the amount of infiltration in a pipe, in gallons per day (gpd), divided by the inch diameter * miles of that pipe reach.
Inch Diameter * Mile	Inch Diameter * Mile of sewer (idm) is the sum of the products of sewer diameter, in inches, multiplied by the lengths of sewers, in miles, of corresponding pipe diameters.
Infiltration	Groundwater entering the sanitary sewer is considered infiltration. Infiltration can enter the system through defective pipes, pipe joints, connections, or manholes. Prior to entering the sewer, the groundwater does not require treatment, but once in enters it mixes with sewage, becomes polluted, and must be handled like wastewater, increasing the cost of treatment and transportation. Infiltration can contribute to system back ups and surcharging during high groundwater season.
Inflow	Water from a storm event that enters the sanitary sewer, either immediately or with some delay, is considered inflow. Inflow often comes through roof leaders, yard drains, defective manhole covers, and cross connections from storm drainage collection systems. Surges in sewer flows due to inflow are caused by rain events, and are not exclusively related to groundwater levels.

Direct Inflow	Direct inflow is the portion of total inflow that originates from direct connections to the sanitary sewer system such as catch basins, roof leaders, manhole covers, etc. Influence by direct inflow is quickly observed after the onset of a storm event, and the effect of direct inflow quickly subsides after the conclusion of the storm event.
Delayed Inflow	Delayed inflow is the portion of total inflow that originates from indirect connections to the sanitary sewer system (e.g. sump pump and foundation drains) which contribute inflow after a significant time delay from the onset of a storm event. The effect of delayed inflow gradually subsides after the conclusion of the storm event.
Rain Induced Infiltration	Rain induced infiltration (RII) is the increased flow that occurs more than 12 hours and less than 24 hours after a rain event has finished. This is a result of the lag time from the beginning of the storm to the point when sump pumps turn on or additional infiltration of rainwater through cracked manholes and pipes occurs. The difference between the average dry weather flow and the average wet weather flow for the time period immediately (12-24 hours) following a storm event is typically considered RII. A portion of RII may be delayed inflow, or any water that enters the system via sump pumps, etc.

SECTION 1.4 RECORD DRAWINGS AND MAPPING

The Town of Bourne provided EP with the collection system data, including lengths, some diameters, and general layout of the pipes and manholes, via GIS (Geographic Information System) files. EP updated portions of the sewer system layers by incorporating record drawing informaiotn where available and inspections performed by EST for this analysis.

SECTION 2 STUDY AREA DESCRIPTION

The following section describes the area analyzed by this study.

SECTION 2.1 DESCRIPTION OF THE STUDY AREA

The Town of Bourne (Town) is located in Barnstable County, abutting Plymouth to the north, Sandwich to the east, Wareham to the west, and Falmouth to the south. The Town spans approximately 40.7 square miles and houses more than 19,000 residents year-round, with population estimates of up to 40,000.

Section 2.1.1 Population

The United States Census Bureau provides lists of population by town, and the Town collects similar information between census years. The last five years of US and Town Reports are presented in Table 2-1.

Table 2-1: Population Data

		US Census Data		Town Report	
	Year	Pop.	Growth Rate	Pop.	Growth Rate
Historical	1990	16,064	15.8%	N/A	
	2000	18,721	16.5%		
	2010	19,754	5.5%	20,495	
	2015	N/A		19,507	-4.8%
	2016			20,185	+3.5%
	2017			20,987	+4.0%
	2018			20,501	-2.3%
	2019	19,762	0.04%	20,392	-0.5%

Based on this analysis, we do not anticipate the population to change significantly over the next twenty years. We predict residential wastewater flow to respond proportionally, outside the effects of infiltration and inflow.

Section 2.1.2 Subarea Descriptions

Subarea A

Subarea A is in the northwestern part of the Town, separated from the other subareas by Buttermilk Bay. Subarea A is a self-contained low-pressure system serving homes in the Hideaway Village community, on the north side of Buttermilk Bay. The Hideaway Village community contains largely two and three season homes. The Hideaway Village Pump Station collects flow and conveys directly to the Town of Wareham Sewer Collection System via the Red Brook Pump Station. Subarea A covers

approximately 26 acres. Subarea A is not connected to the remaining subareas within the sewer system.

Subarea B

Subarea B is located in Taylor's Point, the western most part of Town in Buzzards Bay Sewer Area Subarea C is to the east. Subarea B contains a majority of residential properties with few commercial and public properties. Subarea B discharges into the Main Street Interceptor at Academy Drive. Subarea B covers approximately 92 acres.

Subarea C

Subarea C is in the southwestern part of the Town. Subarea B is to the west and Subarea D is to the east. Subarea C contains residential properties with some public properties. Subarea C receives flow from Subarea B and discharges to the Main Street Pump Station by way of gravity sewer. Subarea C covers approximately 15 acres.

Subarea D

Subarea D is in the southwestern part of the Town. Subarea C is to the west. Subarea D contains equal parts commercial and residential properties with some public properties. Subarea D conveys flows to the Main Street Pump Station via gravity sewer. Subarea D covers approximately 262 acres.

Table 2-2 below shows the list of subareas along with the approximate area in acres.

Table 2-2: Subarea Area in Acres

	Subarea	Area (acres)
1	A	26
2	B	92
3	C	15
4	D	262
TOTAL ESTIMATED SEWERED AREA		**395**

Section 2.1.3 Pumping Station Locations

There are two (2) municipally owned wastewater pumping stations located throughout the Town sanitary sewer collection system.

	Pump Station Name	Subarea
1	Hideaway Village PS	A
2	Main Street PS	C

Figure 2-1 shows a schematic diagram of how the wastewater flows in the system, and **Figure 2-2** shows the existing gravity sewer, pressure force main, and pump stations. The Hideaway Village pump station effluent is conveyed to the Town of Wareham Red Brook pump station by approximately 6,089 ft. of forcemain. The Hideaway Village pump station and forcemain are

maintained by the Town of Bourne Sewer Department. The Main Street pump station effluent is conveyed by 3,412 ft. of forcemain. Both the Main Street pump station and forcemain are maintained by the Town of Bourne Sewer Department.

Figure 2-1: Flow Schematic of Town Subareas

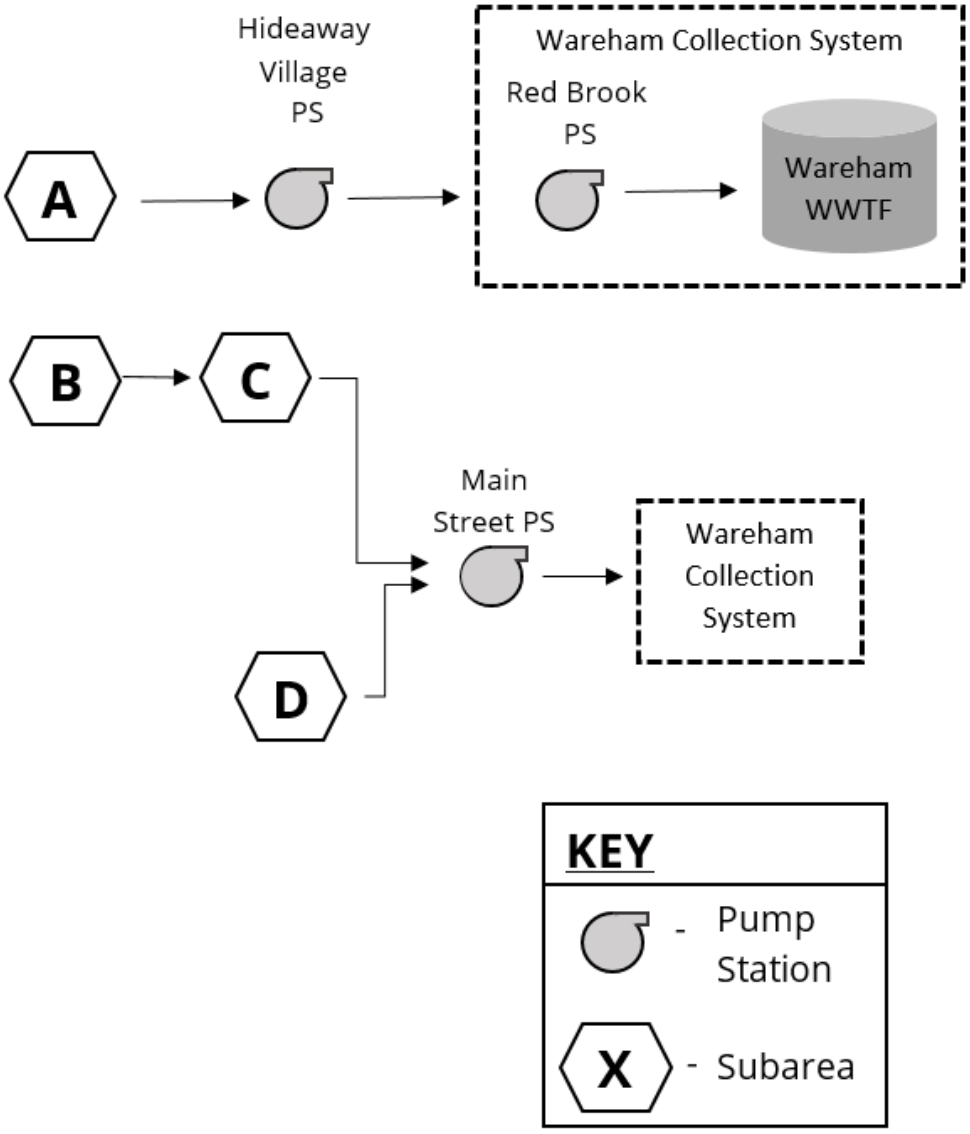
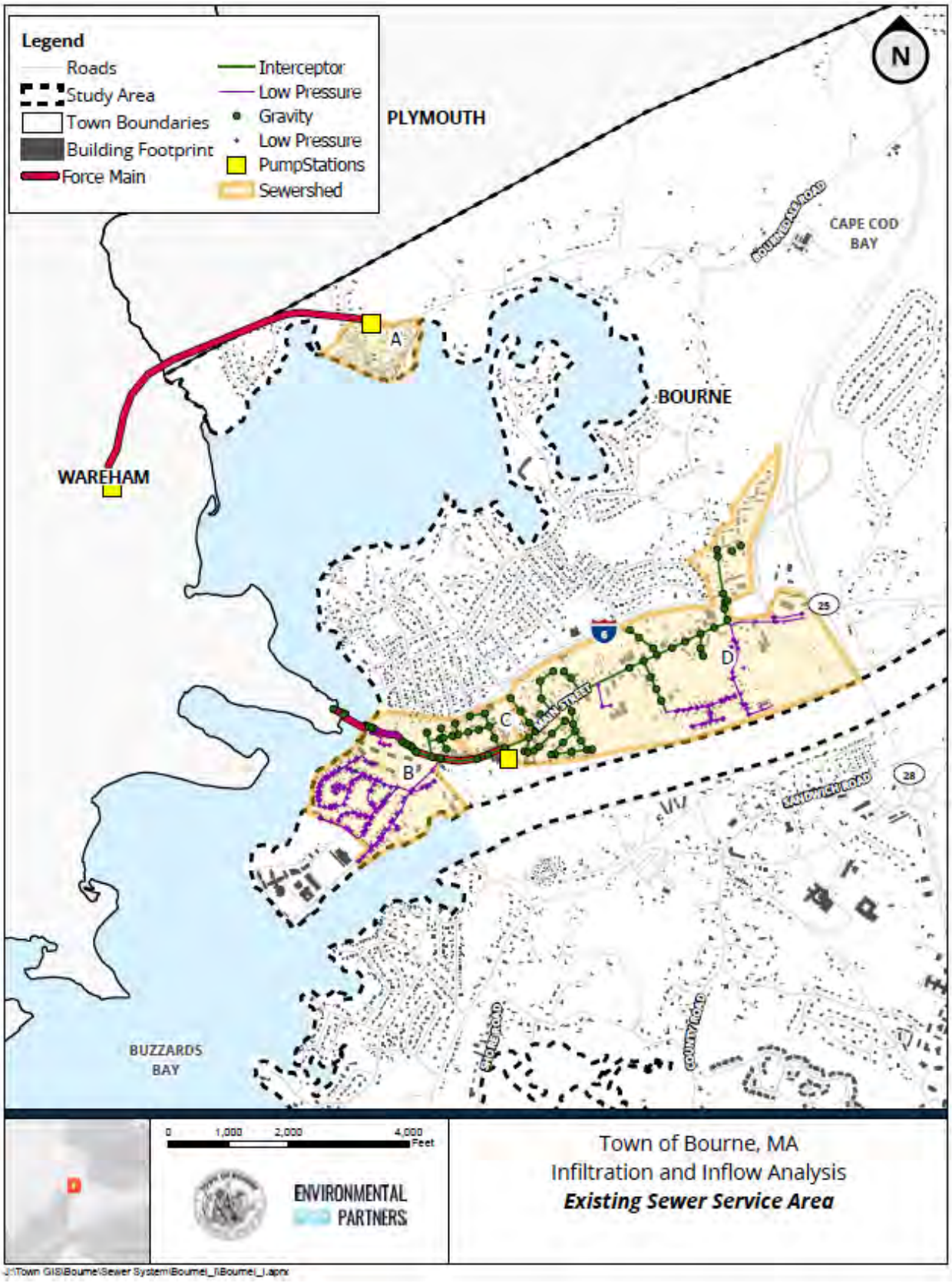


Figure 2-2: Town Sewer System Map



SECTION 2.2 UPDATED EXISTING COLLECTION SYSTEM DATA

Based on the GIS database, the existing public sanitary sewer collection system contains 5 miles of gravity sewer pipe. **Table 2-3** shows the pipe distribution by subarea in miles and **Table 2-4** shows the same information in linear feet. **Table 2-5** shows the length of pipe at each nominal diameter in the system in feet.

Table 2-3: Gravity Sewer Pipe Lengths by Diameter and Subarea in Miles

Subarea	≤8"	10" – 12"	Total Miles
A	0.00	0.00	0.00
B	0.54	0.00	0.54
C	0.39	0.04	0.43
D	1.89	0.52	2.41
Total Miles	2.82	0.56	3.38

Table 2-4: Gravity Sewer Pipe Lengths by Diameter and Subarea in Feet

Subarea	≤8"	10" – 12"	Total Feet [2]
A	0	0	0
B	2,835	0	2,835
C	2,043	204	2,247
D	9,987	2,759	12,746
Total Feet	14,865	2,963	17,828

Table 2-5: Gravity Sewer Pipe Length Summary by Diameter

Diameter	Length (ft)
6"	338
8"	14,527
10"	570
12"	2,393
TOTAL	17,828

The inch diameter mile (idm) of each subarea was calculated based on the total lengths of pipe at each nominal diameter. **Table 2-6** shows the values used to calculate the idm for each subarea.

[2] Length in feet is shown rounded to the nearest ten feet. Geospatial data has not been field verified and may be different from actual existing conditions.

Table 2-6: Gravity Sewer Pipe Inch Diameter Miles

Subarea	Diameter (in)	Length (mi)	idm
A	0		
		A Subtotal	**N/A**
B	8	0.54	4.30
		B Subtotal	**4.30**
C	8	0.39	3.10
	12	0.04	0.46
		C Subtotal	**3.56**
D	6	0.06	0.38
	8	1.83	14.62
	10	0.11	1.08
	12	0.41	4.98
		D Subtotal	**21.06**
		Total	**28.91**

Table 2-7 summarizes the calculated idm for each subarea which will be used for further analysis.

Table 2-7: Gravity Sewer Pipe Inch Diameter Mile Summary

Subarea	idm
A	N/A
B	4.30
C	3.56
D	21.06

SECTION 2.3 TIDAL INFLUENCE

The Town is coastal and the subsurface conditions are subject to tidal influence. During high tide, the groundwater fluctuates (seasonally) and recedes during low tide. Traditional low-pressure systems are designed to transport only sewage, however the Taylor's Point neighborhood contains a boat pump out station, whose effluent discharges into the low pressure system. During high tides, water has been observed entering the intermediate pumping station, indicating that the collection line requires additional dye and smoke testing. Details on the additional investigation is required is summarized in Section 6.2 Recommendations.

Figure 2-3: Example Dockside Pump-out System

Figure 2-4: Suspected Tidal Inflow MH

SECTION 3 FLOW MONITORING ANALYSIS

The following section discusses the monitoring program for the sanitary sewer system.

SECTION 3.1 ANALYSIS SUMMARY

EP worked with the Town to divide the sanitary sewer collection system into four (4) subareas, as described in the previous sections. Subareas were selected to contain approximately 20,000 linear feet of gravity sewer pipe and were based on topography, flow, and layout of existing pump stations. EP selected the 2 upstream subareas to meter, and collected pump station flow data from the pump stations that were at the terminal points of subareas. The pump station flow data was collected during the metering period from:

1. Hideaway Pump Station
2. Main Street Pump Station

On March 3, 2021, field crews from EST installed two flow meters, which operated for approximately 7 weeks between March and April 2021. They installed two groundwater gauges across the sewersheds. **Tables 3-1** and **3-2** lists the flow meter and groundwater gauge locations.

EST installed two (2) rain gauges to measure rainfall during the flow-monitoring period. EST installed rain gauges at the following locations:

- One (1) Main St. Pump Station, 130 Main Street providing spatial coverage for the western area of the sewer system.
- One (1) at the rear of 320 Main Street, providing spatial coverage for the eastern area of the sewer system.

EP used the data from the pump stations, flow meters, rain gauges, and groundwater gauges to estimate infiltration and inflow in the sanitary sewer collection system. The data received from EST is included in **Appendix C**, inclusive of site photographs where they installed each meter and gauge. **Figure 3-1** below provides an example of flow data collected at each meter location, with the depth, velocity, and the flow calculated based on the measured items and the geometry of the gravity sewer.

Table 3-1: Flow Meter Locations

Meter Number	Subarea	Manhole ID	Meter ID	Location
1	B	SMH-169	MH-1	90 Main Street, Buzzards Bay
2	D	SMH-174	MH-2	140 Main Street, Buzzards Bay

Table 3-2: Groundwater Gauge Locations

GW Gauge Number	Subarea	Manhole ID	GW Gauge ID	Location
1	B	SMH-169	Meter-1	90 Main Street, Buzzards Bay

Figure 3-1: Typical Flow Meter Data (from Subarea B)

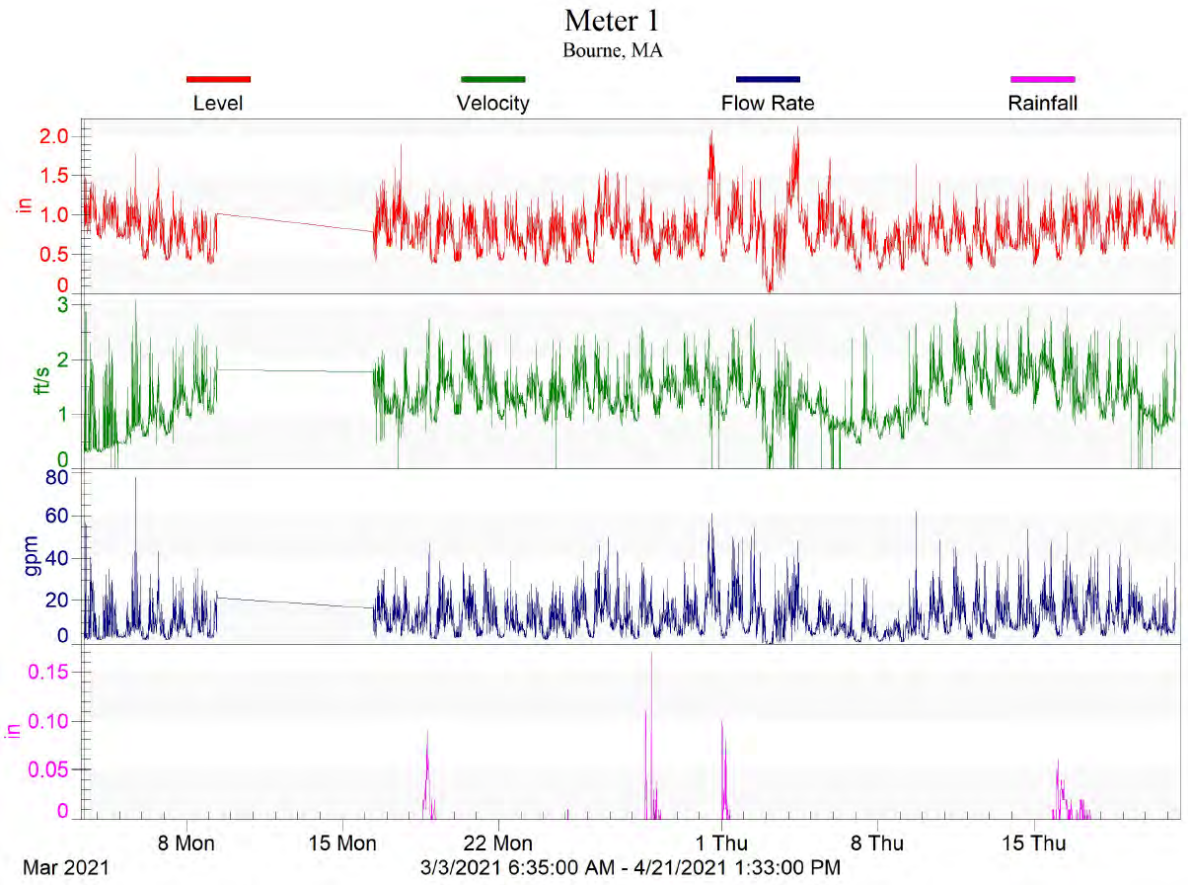


Figure 3-2: Flow Meter Locations

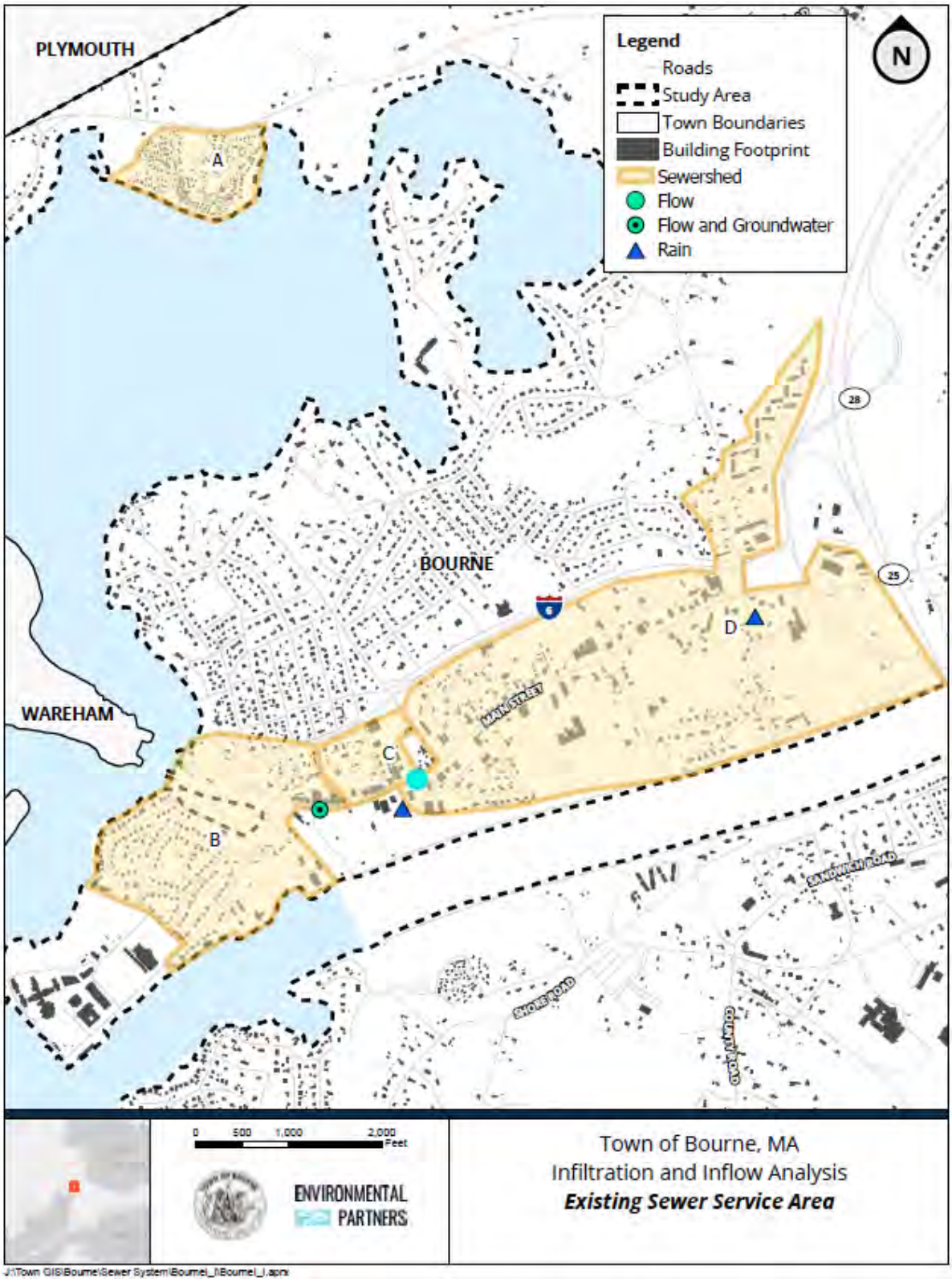


Figure 3-3 displays a composite of the flow data collected during the metering period along with a hyetograph of the rain events. The trend line shows that the overall average flows in the system during the metering period were roughly 0.12 MGD, with the lowest average flows metered mid-March after several weeks of dry weather.

Figure 3-3: Overall Metered Flow

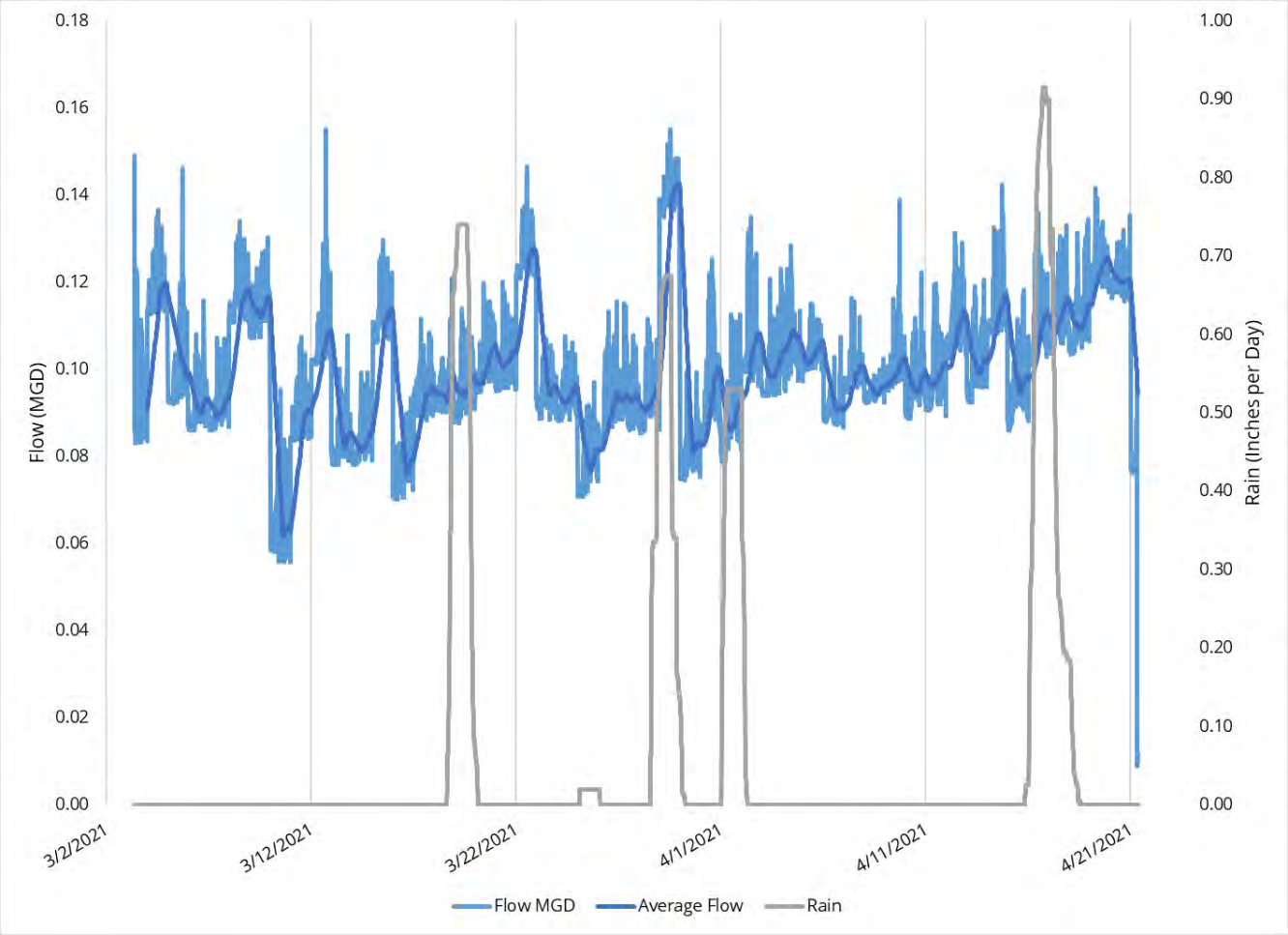
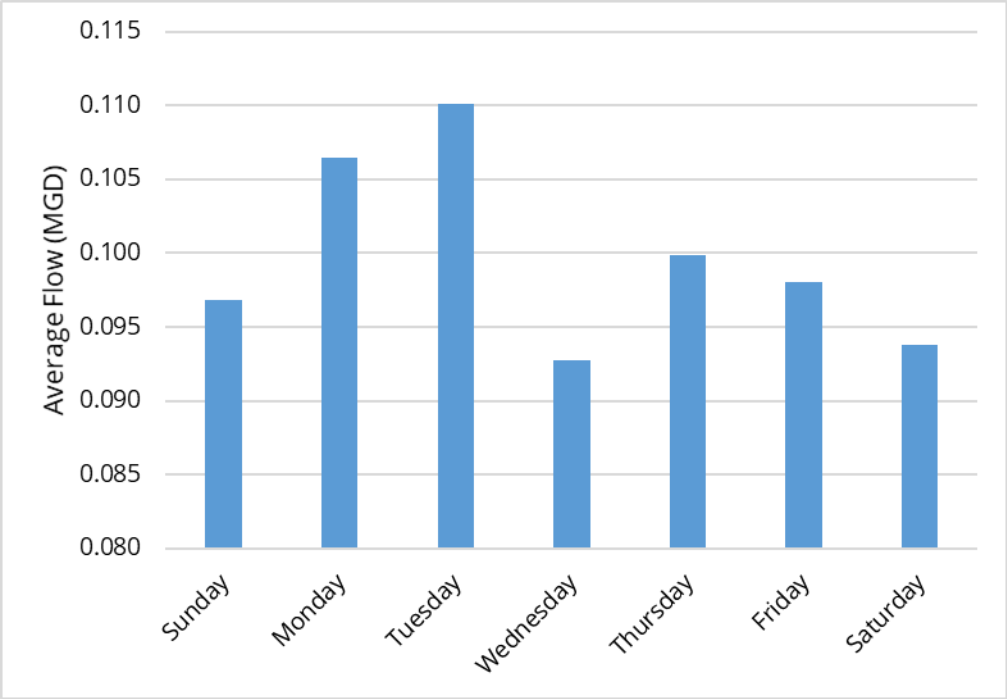


Figure 3-4 shows the average flows during the metering period based on day of the week. Between March and April 2021, the Town's sanitary sewer flowed with greater volumes on Mondays and Tuesdays, with the least volume on Wednesdays.

Figure 3-4: Weekly Flow Pattern



SECTION 3.2 DATA OBSERVATIONS AND CORRECTIONS

EP compared the metered flow data to the collection system network for connectivity to gain a general understanding of sanitary flow potential concerns. In general, raw metered data was used directly for upstream subareas, and the upstream data was subtracted from the raw metered data of downstream subareas. If the system experienced only gravity based flow, each change in upstream flow would directly affect downstream flow, with attenuation proportional to the pipe roughness and the distance traveled. In a system with pump stations, upstream flows accumulate in a wet well prior to the pump engaging, and then flow is dispersed downstream based on the pump hydraulics. When subtracting raw metered upstream data from a downstream subarea that is separated by a pump station, it is reasonable to anticipate ebbs and surges in the calculated downstream data, and negative values can appear in calculated datasets if the data contains surges that compensate for the apparent losses. Although sometimes datasets contain anomalies that are true indicators to the conditions of the system, through logical observation, often the datasets require correction or even omission in the analysis. Revisions and omissions made during this analysis are detailed in this section.

Section 3.2.1 Pump Station Flow Data

The Town tracks the daily total flows from each pump station based on a flow chart recorder located at each station (monitored semi-regularly and changed weekly). To verify order of magnitude measured from the metering program, EP compared the pump station data to the values tracked by the flow meters. EP calculated the average daily flow at each of the evaluated pump stations during the metering period as presented in **Table 3-3** below.

Table 3-3: Pump Station Flow Averages (March – April 2021)

Pump Station Name	Average Gallons per Day	Average Gallons Per Minute
Hideaway Pump Station	8,051	5.6
Main Street Pump Station	91,493	63.1

EP compared the average flow rate from each pump station to the average flow rate per subarea as measured by the flow meters. The data was evaluated for reliability and consistency, and outliers were identified and discussed.

Since Subarea A, the subarea immediately upstream of Hideaway Pump Station (the terminal pump station that carries wastewater out of this area of Town), was not metered by EST, and information about flows in this subarea is limited to the daily flow data collected from the flow chart for the Hideaway Pump Station. Subarea A is privately owned and calculations were not performed for Infiltration and Inflow analysis.

SECTION 4 INFILTRATION DERIVATION

This section details the infiltration analysis performed for the Town sewer system.

SECTION 4.1 INFILTRATION ANALYSIS SUMMARY

Infiltration is groundwater entering the sanitary sewer system through defects in the underground gravity pipes, lateral building connections, manhole structures, and joints. Infiltration varies seasonally increasing as groundwater rises above the collection system infrastructure elevations. Infiltration is determined by finding the average minimum flow rates when water usage is lowest (overnight), during a dry event period, and during high groundwater season (typically in early spring).

Section 4.1.1 Identifying Dry Weather Events

When the rain gauge had been dry for over 72 consecutive hours, EP noted the beginning of a dry weather event in our dataset. Any indication of precipitation effectively "restarted the clock", requiring 72 consecutive hours of consistent dry weather after the precipitation ended until the data period was designated a dry weather event. All infiltration was calculated based on flow in the system during the determined dry weather events.

Table 4-1: Dry Weather Events

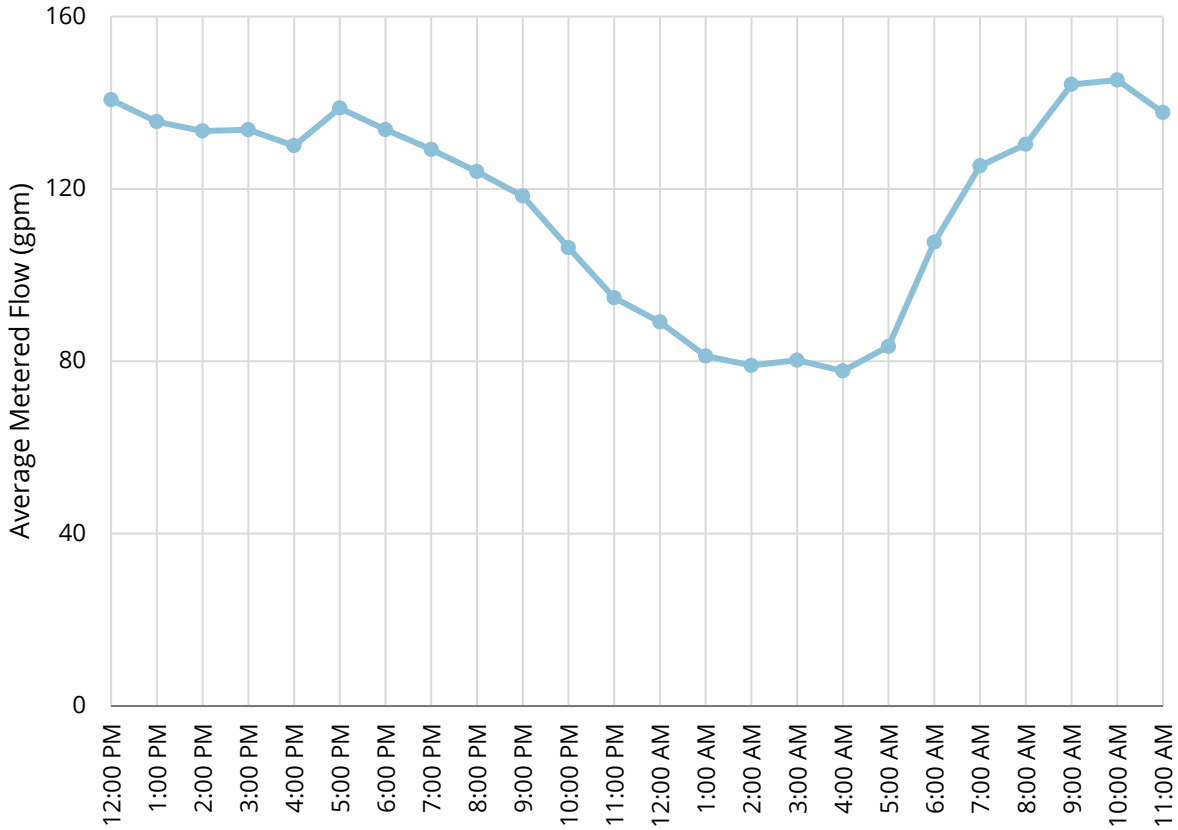
Dry Event	Start of Event	End of Event	Duration (hours)
1	3/3/21 9:00 AM	3/18/21 2:15 PM	365
2	3/19/21 4:00 PM	3/25/21 2:00 AM	130
3	3/25/21 2:25 PM	3/28/21 1:15 PM	71
4	3/29/21 6:30 AM	4/1/21 12:15 AM	66
5	4/1/21 9:00 AM	4/15/21 8:00 PM	347
6	4/17/21 1:00 PM	4/21/21 7:45 AM	91

Section 4.1.2 Identifying Overnight Low Flow

On March 12, 2020, the Governor of Massachusetts issued the first order of provisions and restrictions regarding COVID-19. By March 23, 2020, the Governor's Orders prohibited gatherings of more than 10 people, which inspired many businesses to shift to having employees work remotely (from their homes) when possible. The societal impact of COVID-19 has continued to affect nearly every metric of life, including activities that generate wastewater. Note that flow rates during this year may vary from previous years due to ongoing COVID-19 impacts.

For this analysis, EP calculated the overall average flow per subarea per hour from the dataset. The sum of the average hourly flow per subarea was evaluated to determine the overall daily system flow, by hour, and this was divided by the overall daily-metered total. The period of overnight low flow was determined by the sag in flow rate over a 24-hour span, shown in **Figure 4-1** to occur between midnight and 5:00 AM, during which time sewer activity is at a minimum.

Figure 4-1: Overall Diurnal Flow Trend March through April 2021



Section 4.1.3 Identification of Infiltration

Infiltration flow can be determined during periods of low sewer activity and dry weather flow. Infiltration flow in each subarea determined from the average of each measured flow rate during periods that met that criteria (i.e., periods of both nighttime and dry weather flow). To quantify severity of infiltration, the inch-diameter-mile for each subarea was calculated. An inch-diameter-mile (idm) is a value that represents summation each pipe diameter in the subarea times its length. This value indicates the amount of surface area available for infiltration. Dividing the infiltration flow rate, in this instance given in gallons per day (gpd) by the inch-diameter mile, gives a gpd/idm, a value that can express infiltration on a normalized unit basis. Results of the infiltration analysis are shown in **Table 4-2**.

Table 4-2: Infiltration Results

Subarea	Infiltration (gpd)	idm	gpd/idm
B	16,788	4.30	3,904
C	22,017	3.56	**6,185**
D	60,886	21.06	2,891

SECTION 4.2 INFILTRATION RANKING

Subarea C is experiencing more than 4,000 gpd/idm of infiltration, as highlighted and ranked in **Table 4-2** below. The highest gpd/idm is 6,185, according to data collected.

Table 4-3: Infiltration Ranking

Rank	Subarea	gpd/idm
1	C	**6,185**
2	B	3,904
3	D	2,891

SECTION 5 INFLOW DERIVATION

This section details the inflow analysis performed for the Town sewer system.

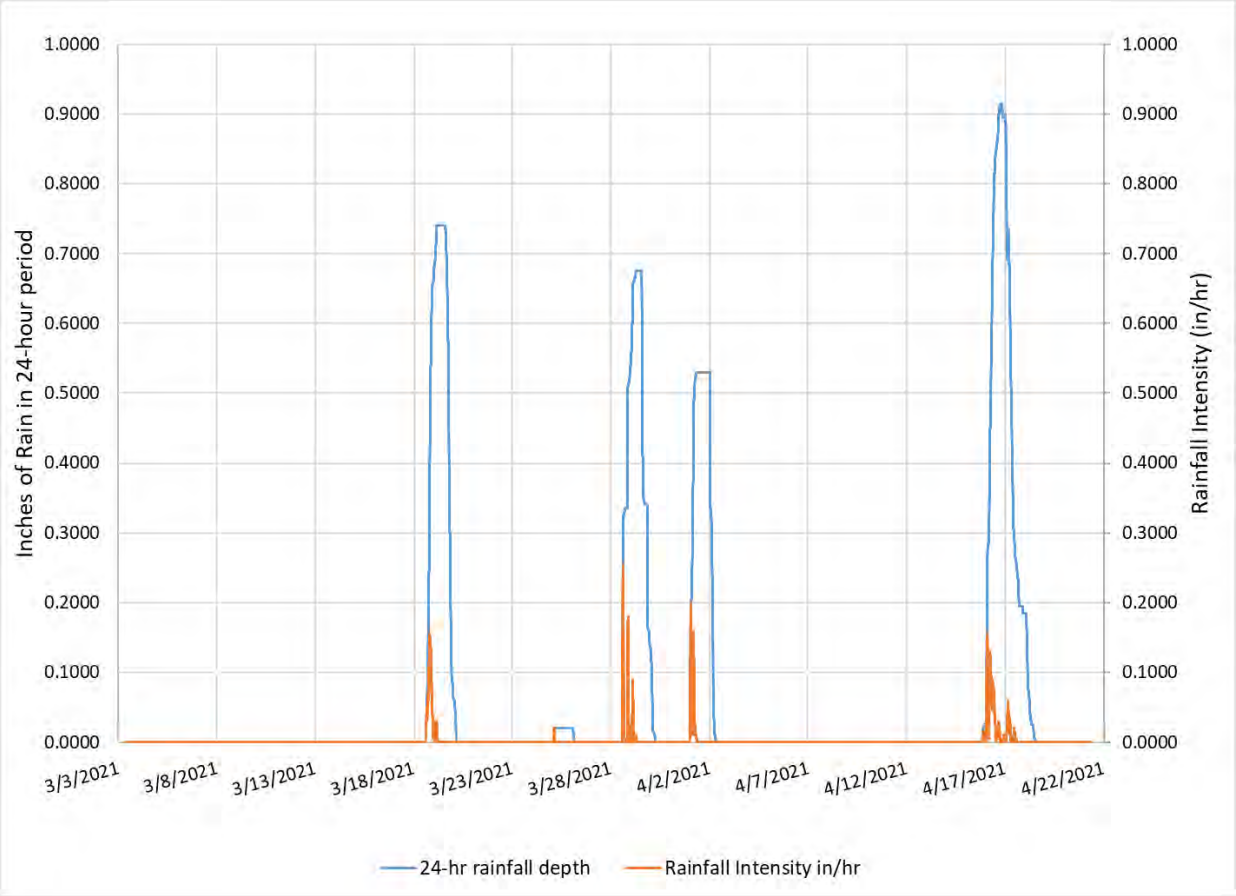
SECTION 5.1 INFLOW ANALYSIS SUMMARY

Inflow is water from a storm event that enters the sanitary sewer from sources such as roof leaders, yard drains, defective manhole covers, and cross connections from stormwater/drainage collection systems. Historically, collection systems were designed and constructed to gather both sanitary sewage and rain water, however that practice is no longer acceptable because the rain water does not need to be treated as wastewater (prior to entering the system) and the costs associated with the surge in system flow contributes significantly to capacity limitations within the collection system. The Bourne sewer system was designed and constructed as a completely separated system; there are no combined sewer overflow structures included in Bourne's system.

Section 5.1.1 Identification of Wet and Dry Weather Events

A composite of the rain gauge data collected during the flow-metering period in **Figure 5-1** are both based on intensity in inches per hour, and in total depth in inches over a rolling 24-hour period.

Figure 5-1: Wet Weather Events



Based on intensity and total rainfall depth over a 24-hour period, EP identified three (3) significant storm events. These two events, including the date of occurrence, peak rainfall intensity, and total rainfall are in **Table 5-1**, along with corresponding dry event. A corresponding dry weather event is one that occurred during similar time of day and day of the week.

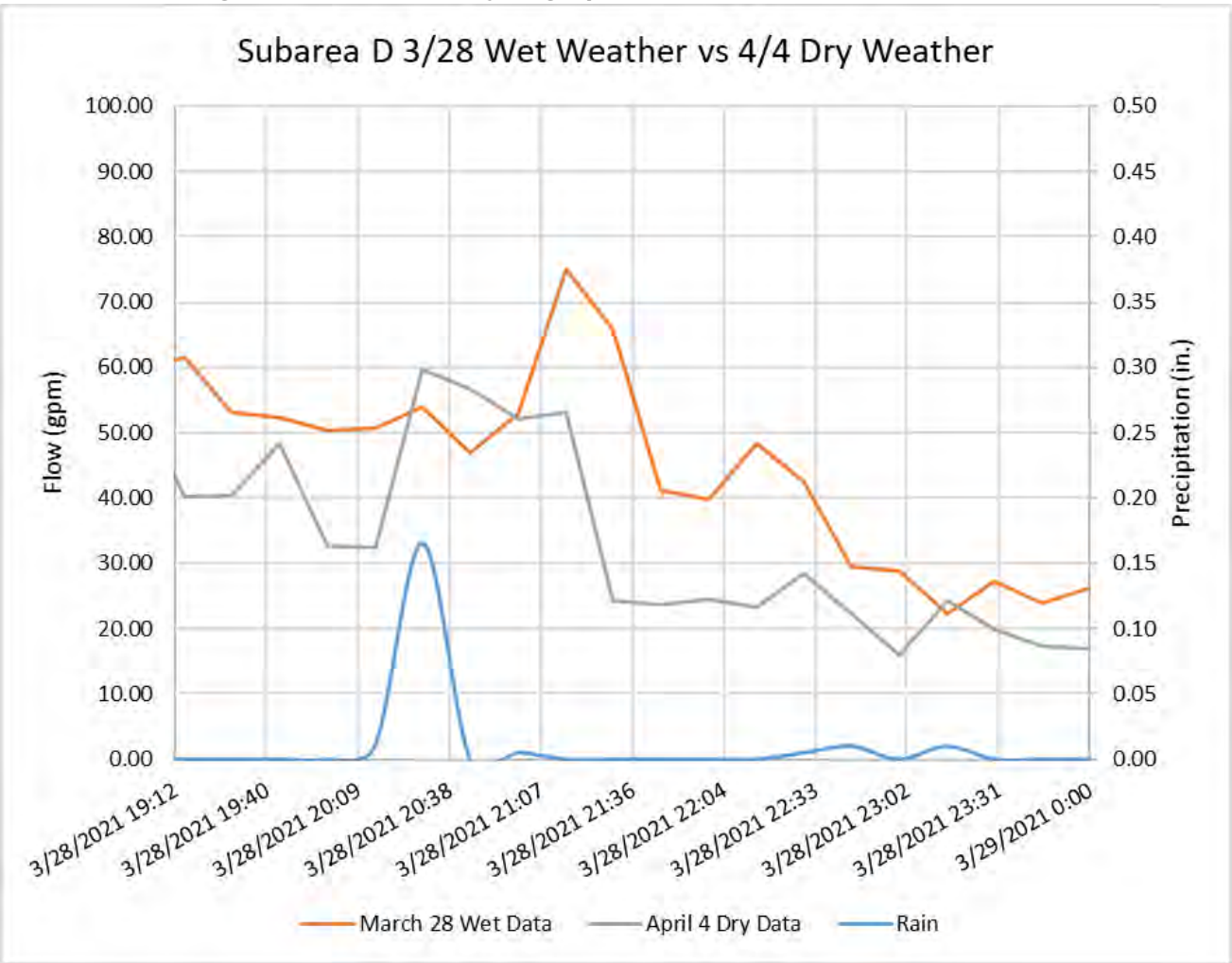
Table 5-1: Inflow Analysis 2021 Wet and Dry Events

Wet Event				Corresponding Dry Event Date	Day of the Week
Event	Peak Intensity (in./hr.)	Rainfall Total (in.)	Date		
1	0.05	1.14	March 18 – 19	March 25 - 26	Thursday - Friday
2	0.04	1.05	March 28 – 29	April 4 - 5	Sunday - Monday
3	0.03	1.60	April 15 - 17	April 8 – 10	Thursday - Saturday

Section 5.1.2 Identification of Inflow

The selection of the corresponding dry event provides a baseline flow to estimate the amount of inflow that occurred during the storm. For example, the hyetograph for Subarea B included in **Figure 5-2** shows the flow rate during the wet weather event on 3/28/2021, the precipitation depth during the wet weather event and the corresponding dry weather flow on 4/4/2021. In this figure, the wet weather flows appear much higher than those of the corresponding dry weather events. This indicates that the discrepancy between these flow rates is a result of inflow into the system from the rain event.

Figure 5-2. Subarea D Hydrograph Events 3/28/2021 vs 4/4/2021



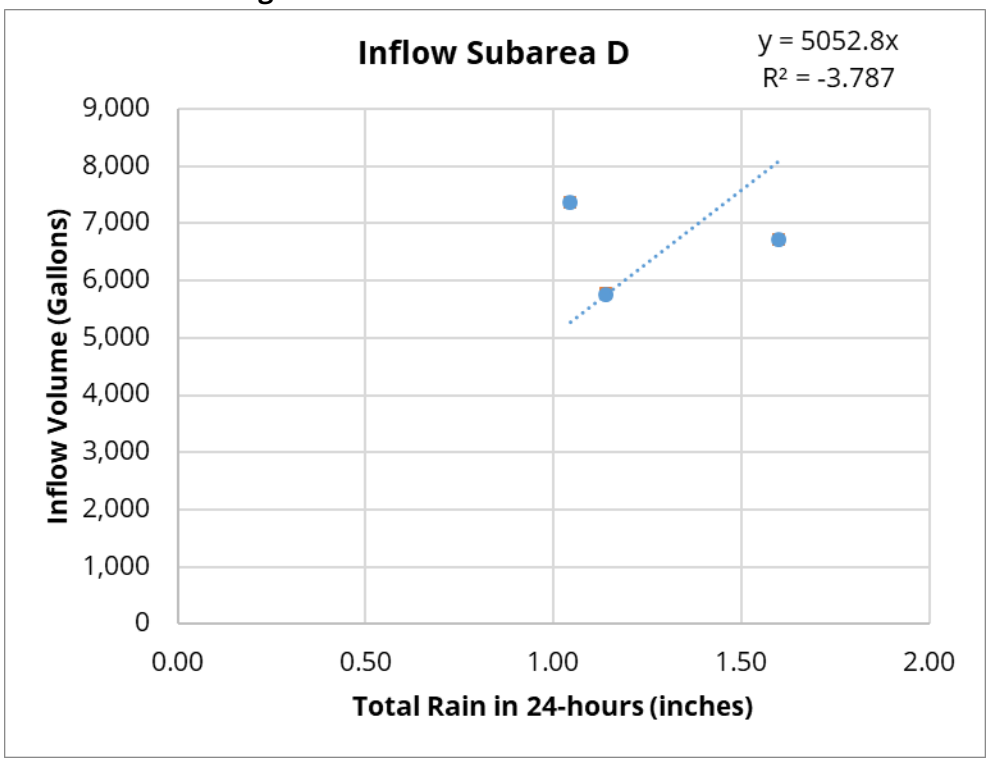
To determine the inflow during each storm, the difference between wet weather and dry weather flow rate was calculated and totaled for each wet weather event in each subarea. Results of this analysis are shown in **Table 5-2**.

Table 5-2: Wet Weather Analysis

Parameter	Event 1	Event 2	Event 3
Intensity (in/hr)	0.05	0.04	0.03
Peak Hour	(19:30)	(21:00)	(4/16, 2:15)
24-hr Total Inches	**1.14**	**1.05**	**1.60**
Rain Day	3/18 - 3/19	3/28 – 3/29	4/15 – 4/17
Dry Day	3/25 – 3/26	4/4 – 4/5	4/8 – 4/10
Subarea	**Inflow (gallons)**		
B	-1,148	3,137	**5,765**
C	**947**	-1,214	**7,368**
D	**14,660**	-3,231	**6,718**

EP developed trend lines for each subarea to show the total rainfall compared to the calculated total inflow. EP set the y-interceptor to zero (0) because when there is no rain there is theoretically no direct inflow. Not all calculated inflow volumes were included for every subarea. Bold values from **Table 5-2** developed the trend lines, and grey values are omitted. **Figure 5-2** shows an example trend line for Subarea B.

Figure 5-3. Subarea D Inflow Trend Line



These trend lines were used to interpolate the expected inflow during a rain event with the depth of the design storm. Results of this analysis are shown in **Table 5-3.**

Per MassDEP Guidelines, the data was adjusted to reflect the expected inflow during both the 5-year, 24-hour Design Storm (total rainfall depth of 4.61 inches, peak hourly intensity of 0.73 inches/hour) and the 1-year, 6-hour Design Storm (total rainfall depth of 1.72 inches, peak hourly intensity of 0.29 inches/hour).

Table 5-3: Inflow Results

Subarea	Design Storm Inflow (gallons)	
	1-yr, 6-hr Storm	5-yr, 24-hr Storm
B	8,037	21,540
C	4,733	12,686
D	8,691	23,294

For further consideration, and because both design storms produce the same ranking of results, EP will consider the inflow from the 1-year 6-hour storm as the inflow of the subarea.

SECTION 5.2 INFLOW RANKING

Expected inflow for each Subarea from the 1-year, 6-hour Design Storm is ranked greatest to least in **Table 5-4**.

Table 5-4: Ranked Inflow Results

Rank	Subarea	Design Storm Inflow (gallons)	% of Total
1	D	8,691	40%
2	B	8,037	37%
3	C	4,733	22%

SECTION 6 I/I SUMMARY

This section compiles the results of the infiltration and inflow analysis into a comprehensively ranked list.

SECTION 6.1 ANALYSIS SUMMARY

To develop a general condition assessment of each subarea based on the I/I Analysis, EP considered the subareas' rank for both infiltration and inflow, as shown in **Table 6-1** below. Because there was limited information available for Subarea A, EP assigned Subarea A as an area in need of further investigation.

Table 6-1: Subareas I/I Rank

Subarea	Inflow Rank	Infiltration Rank	Further Investigation Need[1]
B	**2**	**2**	**4**
C	3	**1**	**4**
D	**1**	3	**4**

1. Further Investigation Need is the summation of the ranks from inflow and infiltration.

The subareas were listed based on their further investigation need, with the lowest value having the greatest need, as shown in **Table 6-2** below.

Table 6-2: Further Investigation Rank

Further Investigation Rank	Subarea	Further Investigation Need Based on I/I Analysis
1	C	Mostly Infiltration Needs
2	D	Mostly Inflow Needs
3	B	Infiltration and Inflow Needs

This I/I based ranking provides a basis for assigning priority to the areas of the sewer system with the greatest need. As the town addresses needs in the priority subareas, the needs will develop further down the list. Therefore, this list can be used as a tool to develop a plan.

SECTION 6.2 RECOMMENDATIONS

EP recommends the Town of Bourne investigate 20% of their sanitary sewer collection system on an annual basis. Highest priority for further investigation should be given to the subareas that experienced the most severe infiltration and inflow rates. Using the ranking developed from the I/I analysis as the basis of priority EP prepared a plan for inspection and rehabilitation of the entire gravity wastewater system over a two year period. **Table 6-3** shows this plan.

Section 6.2.1 Year 1 and Year 2 Projects

Subareas B and C were combined as they are both relatively smaller than Subarea D. The plan will be to CCTV and repair or rehabilitate mains and connections at the same time to address issues immediately and reduce overall cost of the projects.

Table 6-3: Future Collection System Planning

Rank	Subarea	Linear Feet	% of Total	Investigate
1	B & C	5,082	29%	Year 1
2	D	12,746	71%	Year 2
	Total	17,828		

With this approach, the Town can develop an annual investigation budget to comprehensively identify both I/I and structural needs within the system. By focusing first on the priority areas identified in this analysis, the Town will identify their known I/I defects efficiently and within a reasonable budget for a system of this size. Additionally, reduction of I-I flows reduces the amount of flow sent to Wareham, making the inspection and repairs a cost effective way to manage wastewater flows.

Environmental Partners approach will be as follows:

1. **Year 1 – Subareas B & C work and assumptions**
    a. The preparation of specifications and GIS mapping for cleaning, CCTV inspection, identification and repair of damaged sewers, manholes, sewer connections and sewer laterals. Bidding oversight, construction administration and assistance on interpretation of damage and resident project representation for 2 months five days a week for 8 hours per day.
    b. Assumptions have been made for the extent of rehabilitation required based on age, material and initial metering program.
    c. As stated in Section 2.3, some additional investigation is required at the Taylor's Point Marina sewer connection, including dye testing and service line locating for inspection and possible repair. Approximate costs for this investigation is included in the cost estimate for Subarea B.
    d. **Table 6-4** presents the Opinion of Construction Costs and engineering fees. OPCC is based on recently bid similar projects. The costs of the construction could vary greatly due to the high volatile nature of the construction market. Costs are based on Turner Construction Index of 1187.

Table 6-4: Subareas B & C CCTV Inspection & Rehabilitation OPCC

Item No.	Item Description and Unit Price in Words	Units	Estimated Quantity - Subareas B and C	OPCC	
				Unit Price	Extended Amount
1	Mobilization and Demobilization	LS	1	$20,000.00	$20,000.00
2	Light Cleaning (6"-12" Sewer Mains)	LF	2,582	$2.00	$5,164.00
3	Heavy Cleaning (all sizes, as directed)	LF	2,500	$5.00	$12,500.00
4	CCTV Inspection (6"- 12" Sewer Mains)	LF	2,582	$2.00	$5,164.00
5	Mechanical Root Removal (All Sizes, Sewer Mains)	LF	100	$20.00	$2,000.00
6	Chemical Root Treatment (6"-12" Sewer Mains)	LF	100	$3.00	$300.00
7A	CIPP Structural Continuous Liner, 8-inch Sewer Pipe	LF	508	$32.00	$16,300.00
7B	CIPP Structural Continuous Liner, 12-inch Sewer Pipe	LF	102	$36.00	$3,672.00
7C	Remove and Replace, 8"	LF	50	$200.00	$10,000.00
7D	Remove and Replace, 12"	LF	20	$240.00	$4,800.00
8	Cutting Protruding Taps	EA	50	$50.00	$2,500.00
9	Reinstate Service Connections	EA	60	$105.00	$6,300.00
10	Grout Service Connections	EA	60	$260.00	$15,600.00
11	Chemical Grout	GAL	760	$5.00	$3,800.00
12	6" Lateral Lining	EA	1	$7,200.00	$7,200.00
13	Remove and Replace Gravity Sewer Manhole	EA	1	$17,199.00	$17,199.00
14	Remove and Replace Frame and Cover	EA	10	$1,047.50	$10,475.00
15	Remove and Reset Frame and Cover	EA	3	$682.50	$2,047.50
16	Furnish and Install Service Lateral Lining up to One (1) Linear Foot into Existing Service Connection	EA	5	$3,500.00	$17,500.00
17	Furnish and Install Service Lateral Lining Beyond One (1) Linear Foot into Existing Service Connection	LF	120	$50.00	$6,000.00
18	Sewer Manhole Cementitious Lining	EA	25	$170.00	$4,250.00
19	Exterior Manhole Grouting and Interior Crack Sealing to Stop Leaks	EA	2	$750.00	$1,500.00
20	Rebuild Bench and Invert	EA	5	$500.00	$2,500.00
21	Internal Chimney Seal	EA	30	$350.00	$10,500.00
22	Sewer Manhole Epoxy Lining	EA	5	$490.00	$2,450.00
23	Temporary Trench Paving	SY	100	$30.00	$3,000.00
24	Permanent Trench Paving	SY	100	$30.00	$3,000.00
25	Uniformed Police Officers	HOUR	300	$60.00	$18,000.00
26a	Taylor Point Dye-Testing at Pump Station.	Days	1	$1,000.00	$1,000.00
26b	Allowance for Taylor Point sewer repair and electrical upgrades at the submerged pump station	LS	1	$17,240.00	$17,240.00
27	Miscellaneous Work Items	LS	1	$1,000.00	$1,000.00
			TOTAL		**$233,000.00**
			Construction Contingency		**$23,300.00**
			Estimated Engineering Services (design, const. admin, Resident Project Representation, GIS record update)	**$**	**61,200.00**
			Total Project Cost		**$317,500.00**

2. Year 2 – Subarea D work and assumptions

a. The preparation of specifications and GIS mapping for cleaning, CCTV inspection, identification and repair of damaged sewers, manholes, sewer connections and sewer laterals. Bidding oversight, construction administration and assistance on interpretation of damage and resident project representation for 3 months five days a week for 8 hours per day.

b. Assumptions have been made for the extent of rehabilitation required based on age, material and initial metering program.

Table 6-5, located on the next page, presents the Opinion of Construction Costs and engineering fees. OPCC is based on recently bid similar projects. The costs of the construction could vary greatly due to the high volatile nature of the construction market. Costs are based on Turner Construction Index of 1187.

Table 6-5: Subarea D CCTV Inspection & Rehabilitation OPCC

Item No.	Item Description and Unit Price in Words	Units	Estimated Quantity - Subarea D	OPCC	
				Unit Price	Extended Amount (Rounded up)
1	Mobilization and Demobilization	LS	1	$20,000.00	$20,000.00
2	Light Cleaning (6"-12" Sewer Mains)	LF	10,246	$2.00	$20,492.00
3	Heavy Cleaning (all sizes, as directed)	LF	2,500	$5.00	$12,500.00
4	CCTV Inspection (6"- 12" Sewer Mains)	LF	10,246	$2.00	$20,492.00
5	Mechanical Root Removal (All Sizes, Sewer Mains)	LF	100	$20.00	$2,000.00
6	Chemical Root Treatment (6"-12" Sewer Mains)	LF	100	$3.00	$300.00
7A	CIPP Structural Continuous Liner, 6-inch Sewer Pipe	LF	34	$32.00	$1,100.00
7B	CIPP Structural Continuous Liner, 8-inch Sewer Pipe	LF	965	$34.00	$32,900.00
7C	CIPP Structural Continuous Liner, 10-inch Sewer Pipe	LF	57	$36.00	$2,052.00
7D	CIPP Structural Continuous Liner, 12-inch Sewer Pipe	LF	219	$36.00	$7,900.00
8A	Remove and Replace, 6"	LF	34	$200.00	$6,760.00
8B	Remove and Replace, 8"	LF	96	$200.00	$19,298.00
8C	Remove and Replace, 10"	LF	6	$240.00	$1,368.00
8D	Remove and Replace, 12"	LF	22	$240.00	$5,300.00
9	Cutting Protruding Taps	EA	50	$50.00	$2,500.00
10	Reinstate Service Connections	EA	100	$105.00	$10,500.00
11	Grout Service Connections	EA	100	$260.00	$26,000.00
12	Chemical Grout	GAL	760	$5.00	$3,800.00
13	6" Lateral Lining	EA	1	$7,200.00	$7,200.00
14	Remove and Replace Gravity Sewer Manhole	EA	1	$17,199.00	$17,199.00
15	Remove and Replace Frame and Cover	EA	10	$1,047.50	$10,475.00
16	Remove and Reset Frame and Cover	EA	3	$682.50	$2,047.50
17	Furnish and Install Service Lateral Lining up to One (1) Linear Foot into Existing Service Connection	EA	5	$3,500.00	$17,500.00
18	Furnish and Install Service Lateral Lining Beyond One (1) Linear Foot into Existing Service Connection	LF	150	$50.00	$7,500.00
19	Sewer Manhole Cementitious Lining	EA	25	$170.00	$4,250.00
20	Exterior Manhole Grouting and Interior Crack Sealing to Stop Leaks	EA	2	$750.00	$1,500.00
21	Rebuild Bench and Invert	EA	5	$500.00	$2,500.00
22	Internal Chimney Seal	EA	30	$350.00	$10,500.00
23	Sewer Manhole Epoxy Lining	EA	5	$490.00	$2,450.00
24	Temporary Trench Paving	SY	100	$30.00	$3,000.00
25	Permanent Trench Paving	SY	100	$30.00	$3,000.00
26	Uniformed Police Officers	HOUR	300	$60.00	$18,000.00
28	Miscellaneous Work Items	LS	1	$1,000.00	$1,000.00
			TOTAL	**$**	**303,400.00**
			Construction Contingency	**$**	**30,340.00**
			Estimated Engineering Services (design, const. admin, Resident Project Representation, GIS record update)	**$**	**87,900.00**
			Total Project Cost	**$**	**421,600.00**

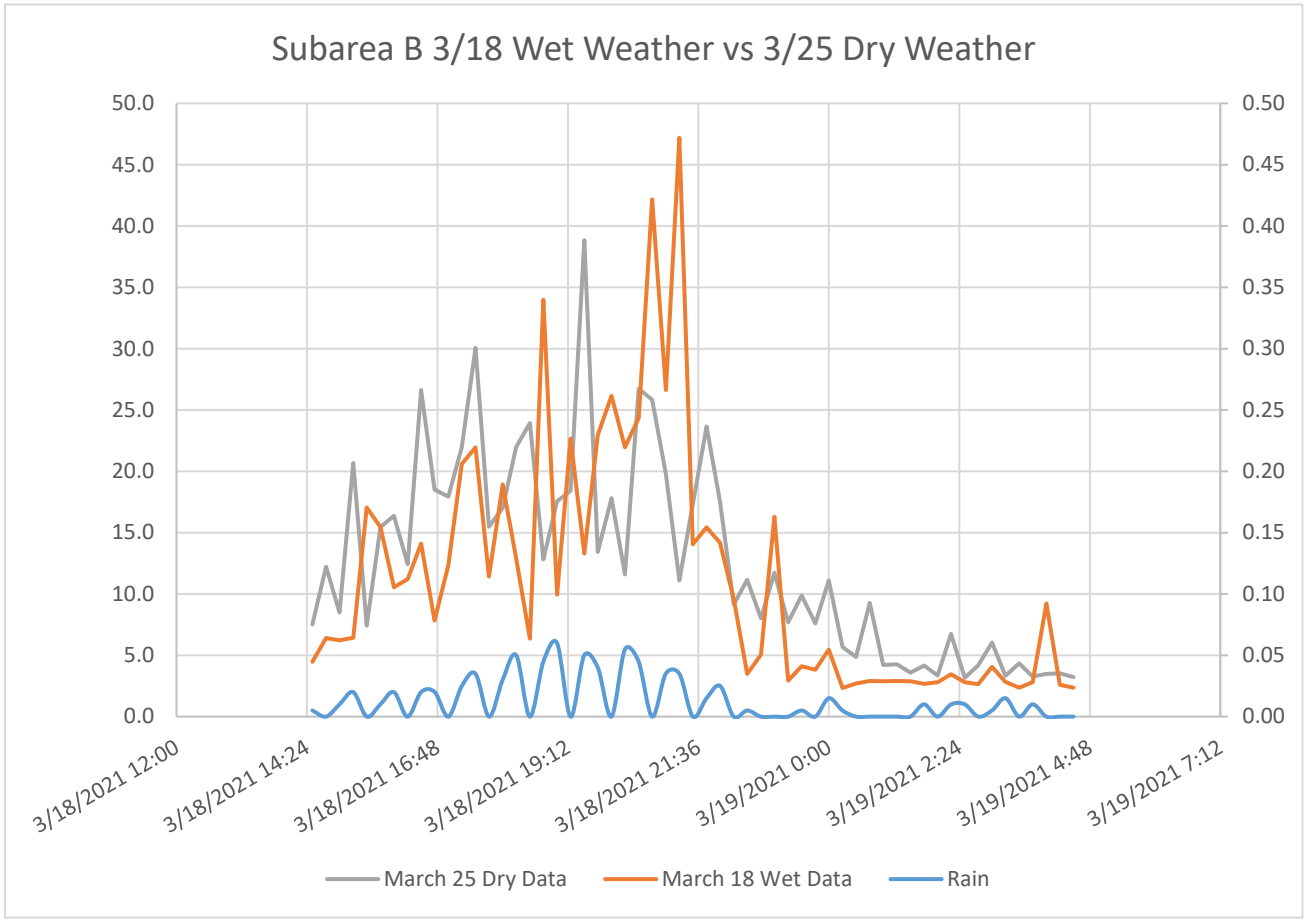
Section 6.2.2 Additional Investigations for Subsequent Years

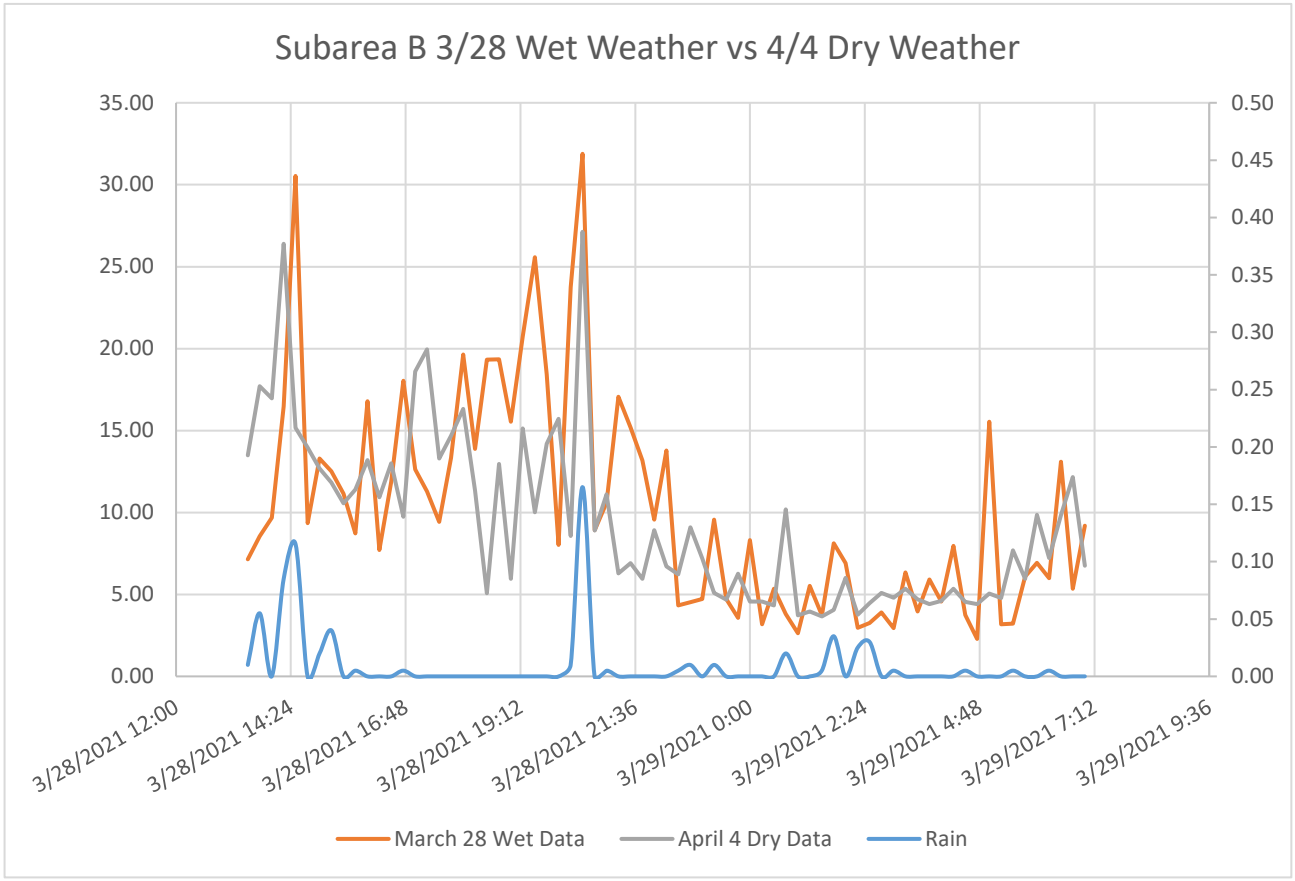
The focus of this report is on the gravity sewer system, associated MHs and sewer connections as it relates to potential locations of infiltration and inflow in the existing wastewater system. Hydrogen sulfide has been problematic for the Town over the years. This is not uncommon for a seasonal community are a community with low pressure systems. If sewage sites for a period of time an increase in hydrogen sulfide is created in the sewage. The recommended Year 1 and Year 2 rehabilitation includes epoxy lining for the MHs which receive flow from the low pressure sewer systems. These areas are:

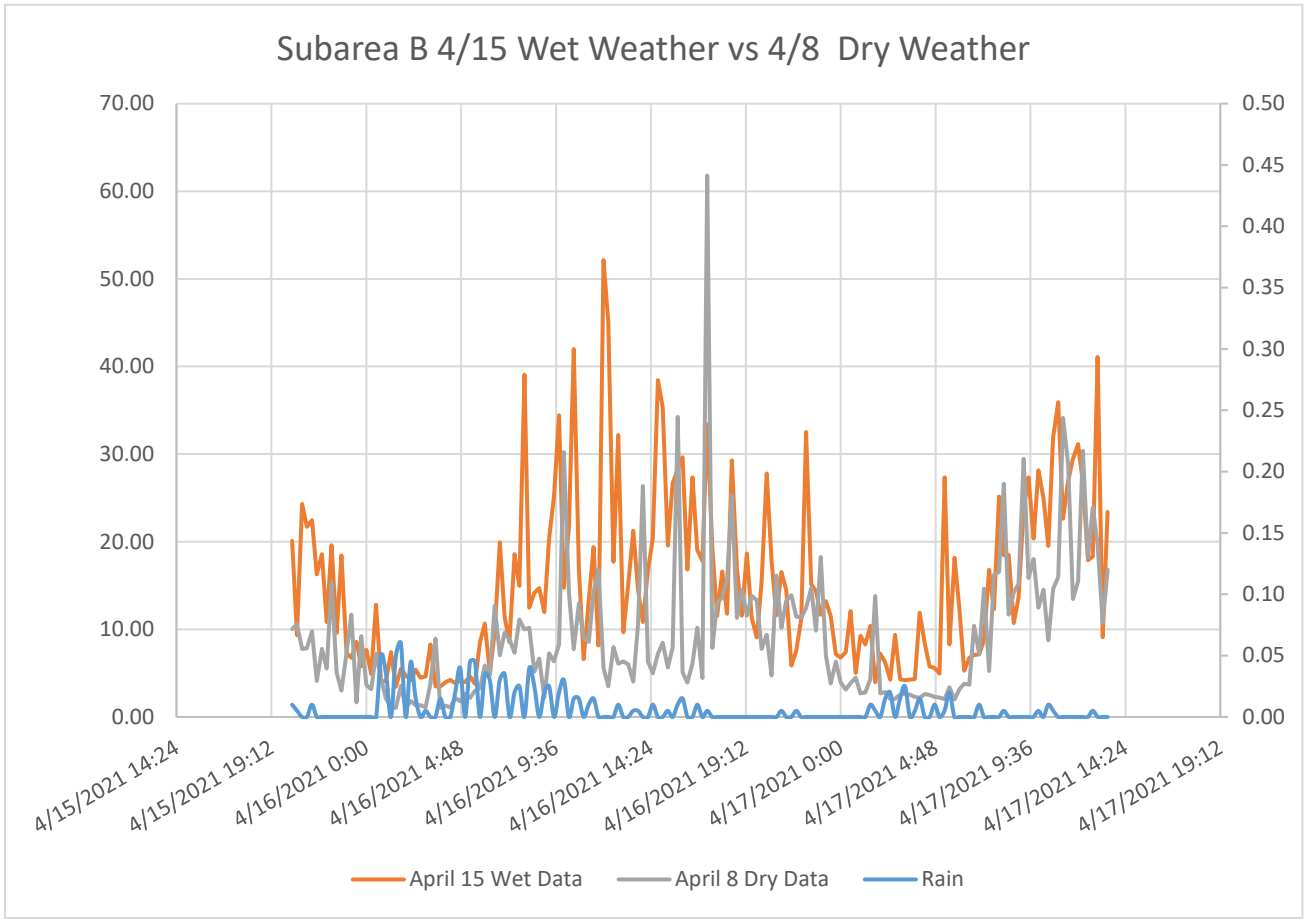
- Main Street West (SMH #191)
- Taylor's Point (SMH #168)
- Everett Road and Perry Ave (SMH #43)
- Old Bridge Road & Main Street East (SMH #99)

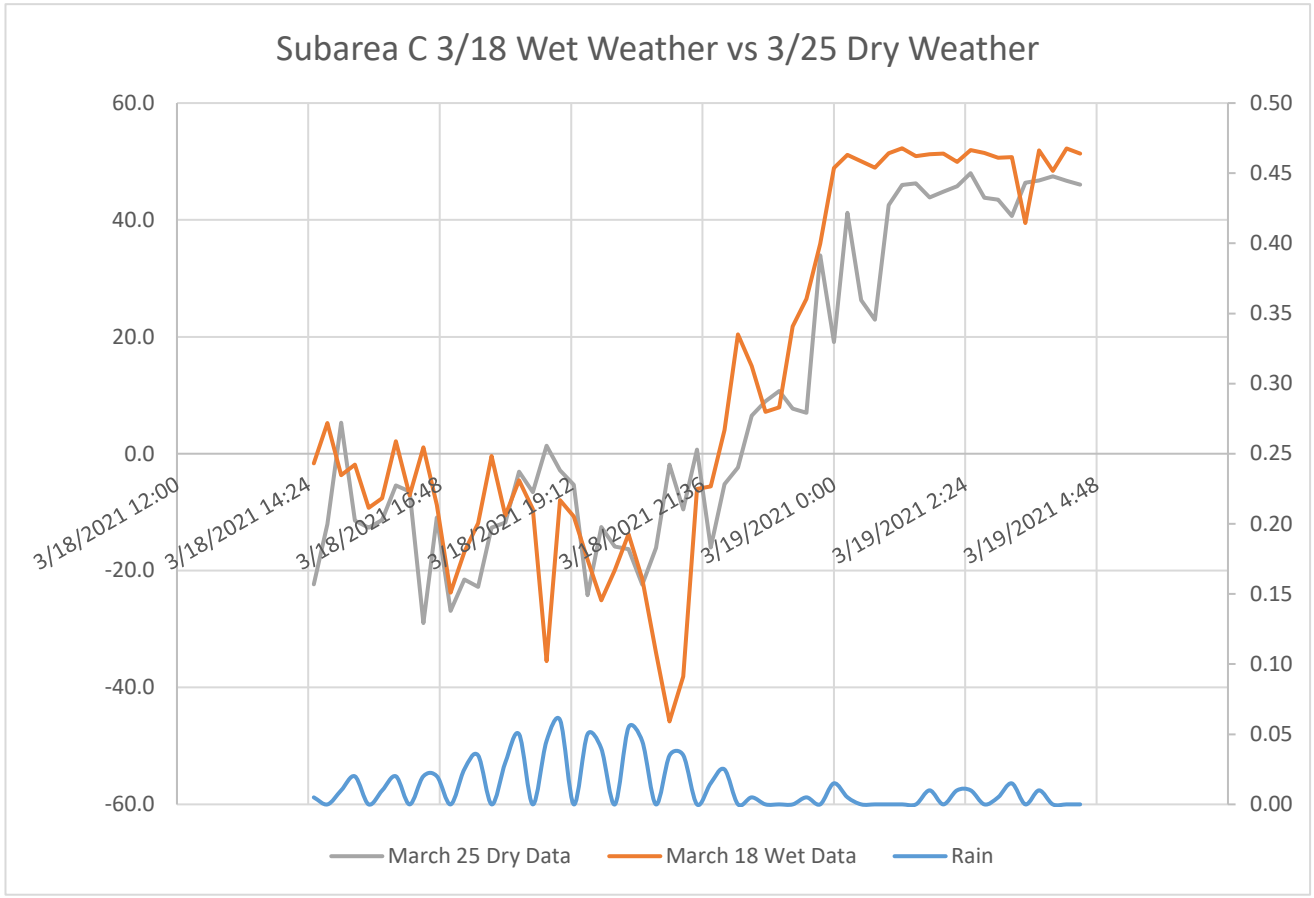
It is recommended that additional analysis be conducted on the ductile iron force main from Hideaway Village Pump station and ductile iron force main from the Main St Pump Station. These are the only pipes that transports wastewater from these areas to the Wareham water treatment plant. Since hydrogen sulfide has been problematic for the Town it is important to determine if any of the force mains have been exposed and have the potential for failure. EP recommends the Town conduct a condition assessment on both force mains. This assessment would require bypass pumping of flows, CCTV inspection and taking a sample of the pipe material. The sample will assist in confirming its structural integrity. Additional information would be needed to prepare an opinion of cost for this work.

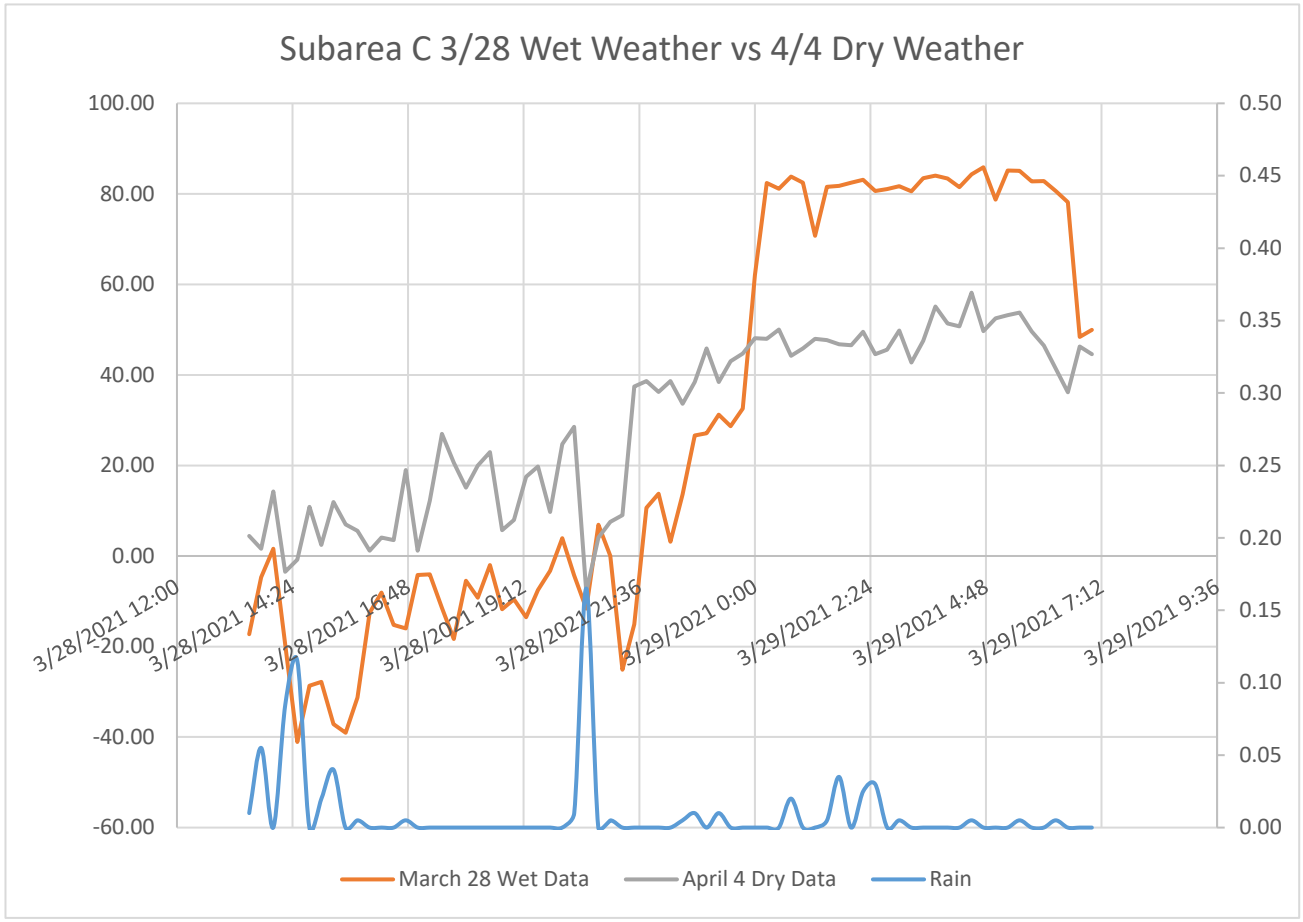
APPENDIX A
Hydrographs

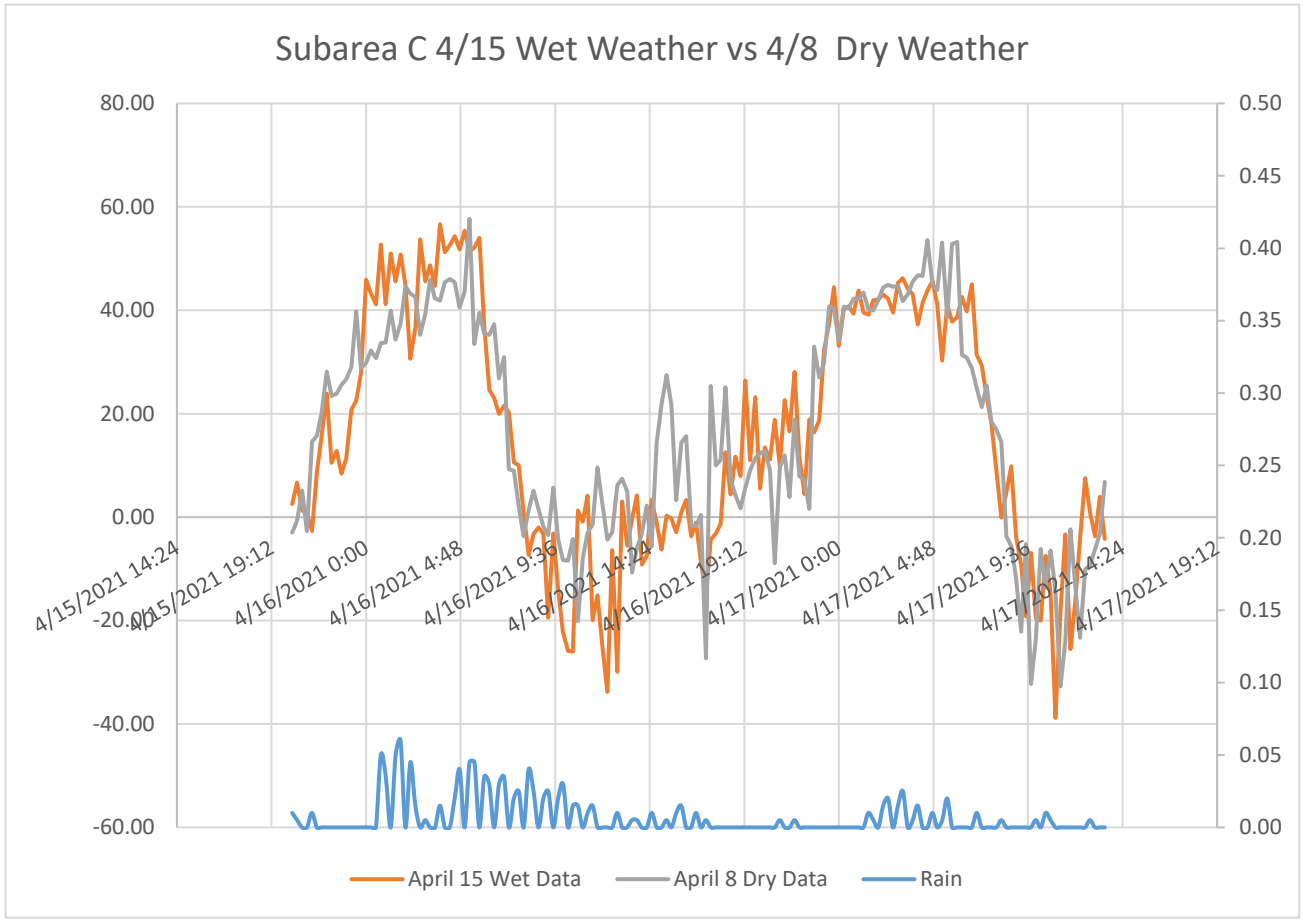

Subarea B 3/18 Wet Weather vs 3/25 Dry Weather
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
3/18/2021 12:00
3/18/2021 14:24
3/18/2021 16:48
3/18/2021 19:12
3/18/2021 21:36
3/19/2021 0:00
3/19/2021 2:24
3/19/2021 4:48
3/19/2021 7:12
March 25 Dry Data
March 18 Wet Data
Rain

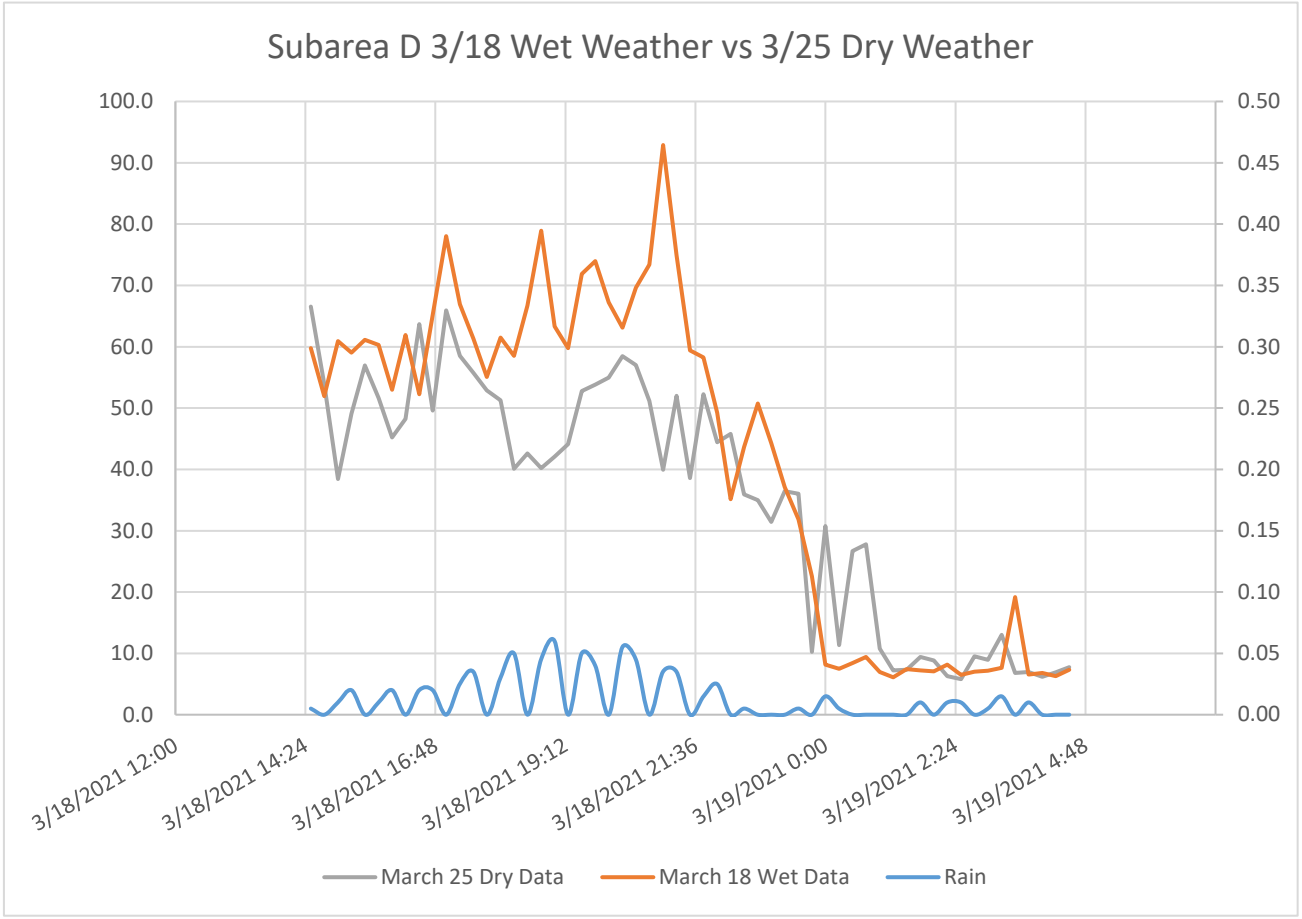

Subarea B 3/28 Wet Weather vs 4/4 Dry Weather
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
3/28/2021 12:00
3/28/2021 14:24
3/28/2021 16:48
3/28/2021 19:12
3/28/2021 21:36
3/29/2021 0:00
3/29/2021 2:24
3/29/2021 4:48
3/29/2021 7:12
3/29/2021 9:36
March 28 Wet Data
April 4 Dry Data
Rain

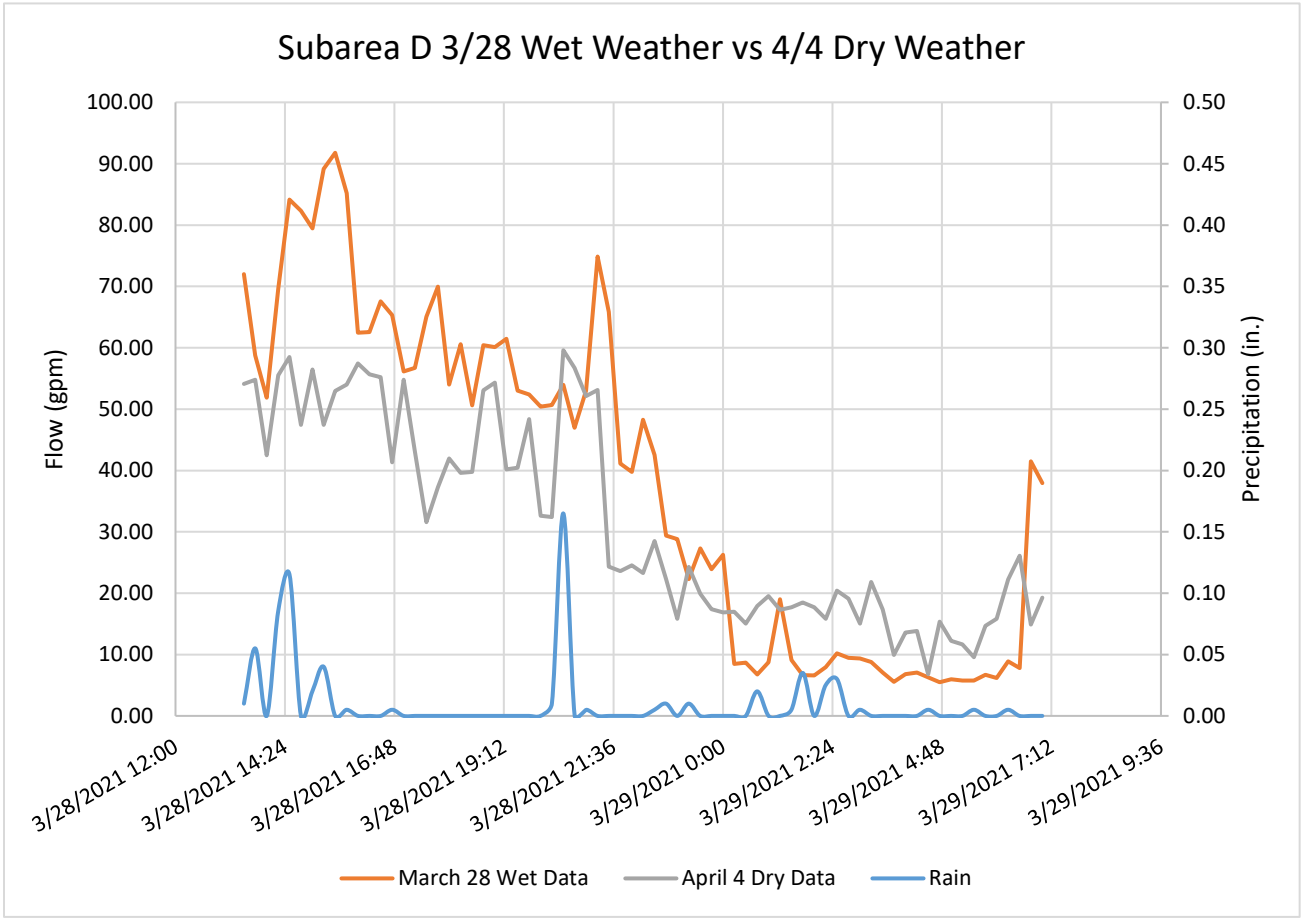

Subarea B 4/15 Wet Weather vs 4/8 Dry Weather
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
4/15/2021 14:24
4/15/2021 19:12
4/16/2021 0:00
4/16/2021 4:48
4/16/2021 9:36
4/16/2021 14:24
4/16/2021 19:12
4/17/2021 0:00
4/17/2021 4:48
4/17/2021 9:36
4/17/2021 14:24
4/17/2021 19:12
April 15 Wet Data
April 8 Dry Data
Rain

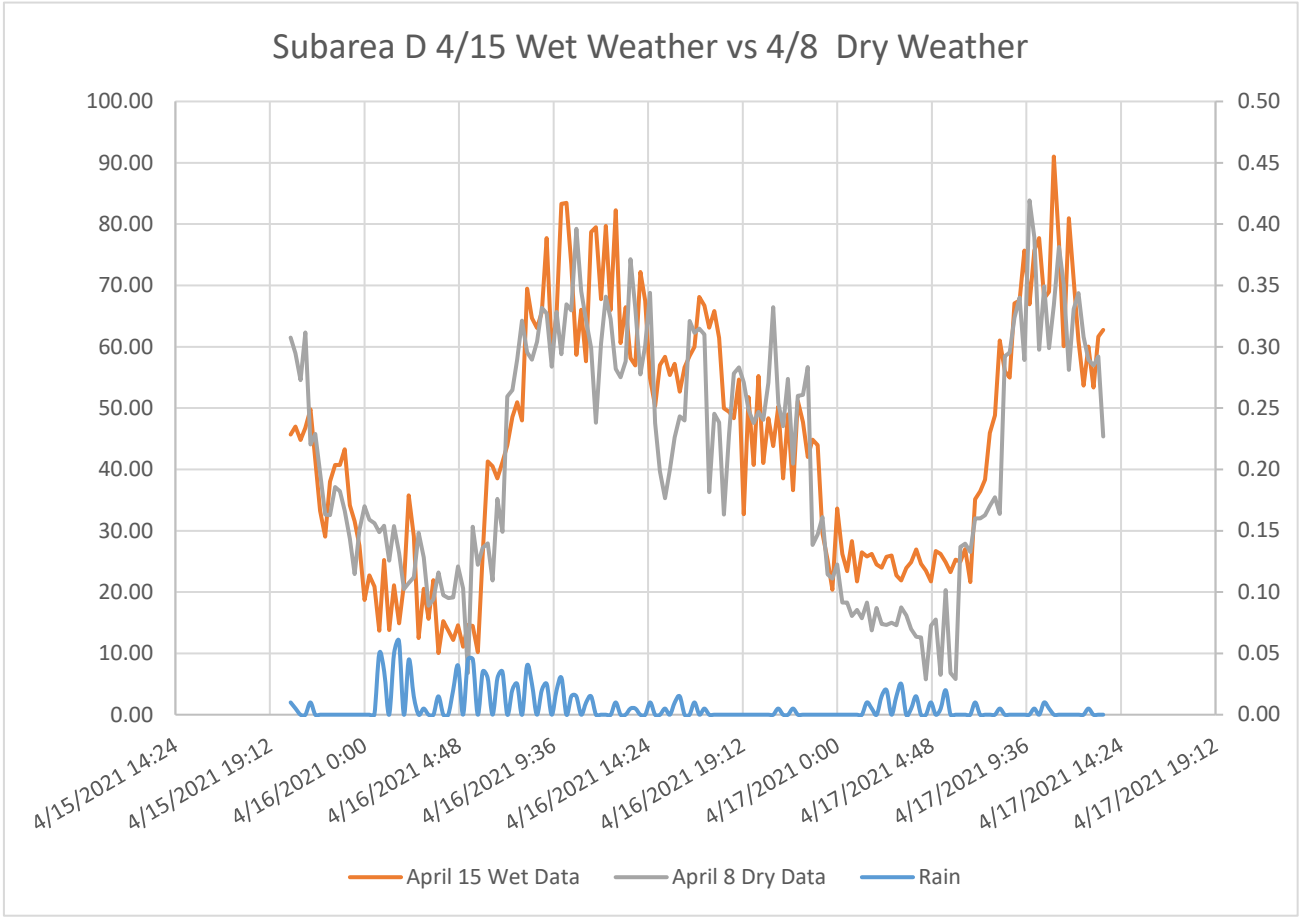

Subarea C 3/18 Wet Weather vs 3/25 Dry Weather
60.0
40.0
20.0
0.0
-20.0
-40.0
-60.0
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
3/18/2021 12:00
3/18/2021 14:24
3/18/2021 16:48
3/18/2021 19:12
3/18/2021 21:36
3/19/2021 0:00
3/19/2021 2:24
3/19/2021 4:48
March 25 Dry Data
March 18 Wet Data
Rain


Subarea C 3/28 Wet Weather vs 4/4 Dry Weather
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
3/28/2021 12:00
3/28/2021 14:24
3/28/2021 16:48
3/28/2021 19:12
3/28/2021 21:36
3/29/2021 0:00
3/29/2021 2:24
3/29/2021 4:48
3/29/2021 7:12
3/29/2021 9:36
March 28 Wet Data
April 4 Dry Data
Rain


Subarea C 4/15 Wet Weather vs 4/8 Dry Weather
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
4/15/2021 14:24
4/15/2021 19:12
4/16/2021 0:00
4/16/2021 4:48
4/16/2021 9:36
4/16/2021 14:24
4/16/2021 19:12
4/17/2021 0:00
4/17/2021 4:48
4/17/2021 9:36
4/17/2021 14:24
4/17/2021 19:12
April 15 Wet Data
April 8 Dry Data
Rain

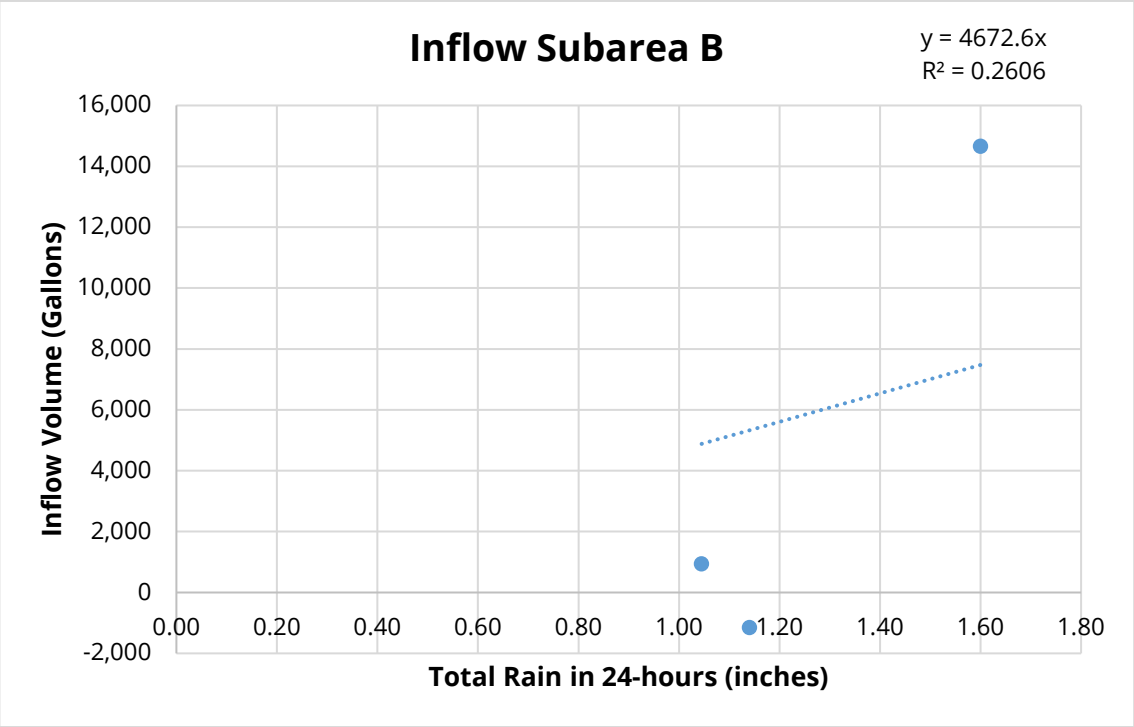

Subarea D 3/18 Wet Weather vs 3/25 Dry Weather
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
3/18/2021 12:00
3/18/2021 14:24
3/18/2021 16:48
3/18/2021 19:12
3/18/2021 21:36
3/19/2021 0:00
3/19/2021 2:24
3/19/2021 4:48
March 25 Dry Data
March 18 Wet Data
Rain

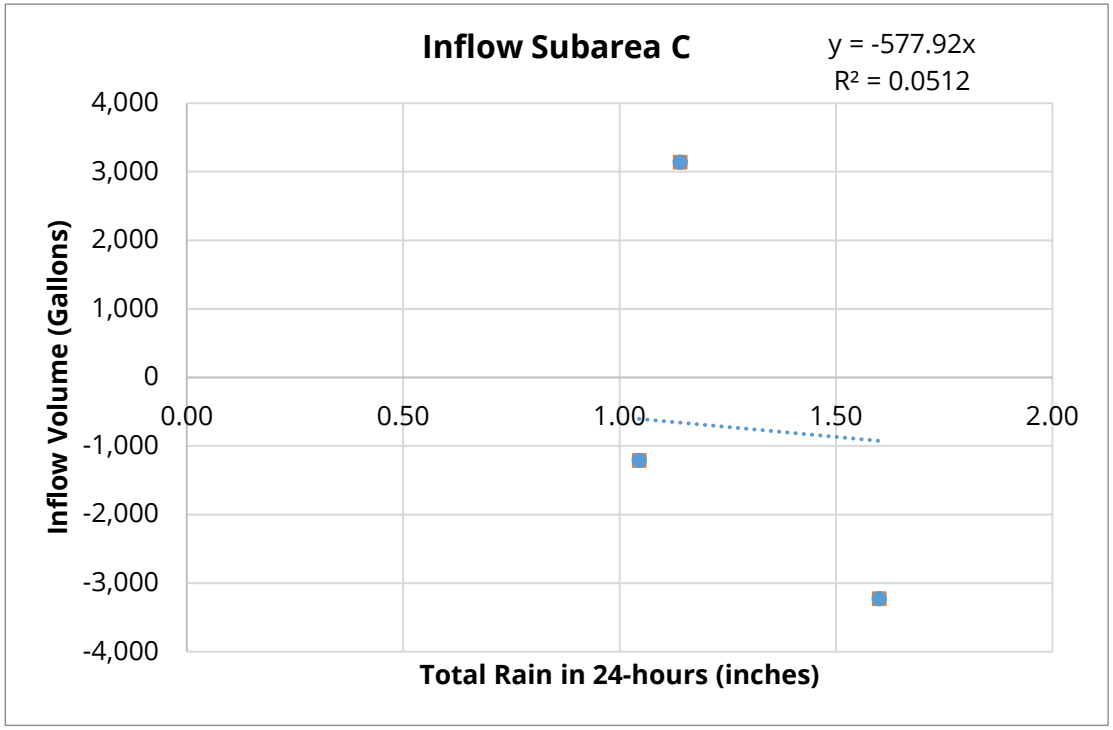

Subarea D 3/28 Wet Weather vs 4/4 Dry Weather
Flow (gpm)
Precipitation (in.)
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
3/28/2021 12:00
3/28/2021 14:24
3/28/2021 16:48
3/28/2021 19:12
3/28/2021 21:36
3/29/2021 0:00
3/29/2021 2:24
3/29/2021 4:48
3/29/2021 7:12
3/29/2021 9:36
March 28 Wet Data
April 4 Dry Data
Rain

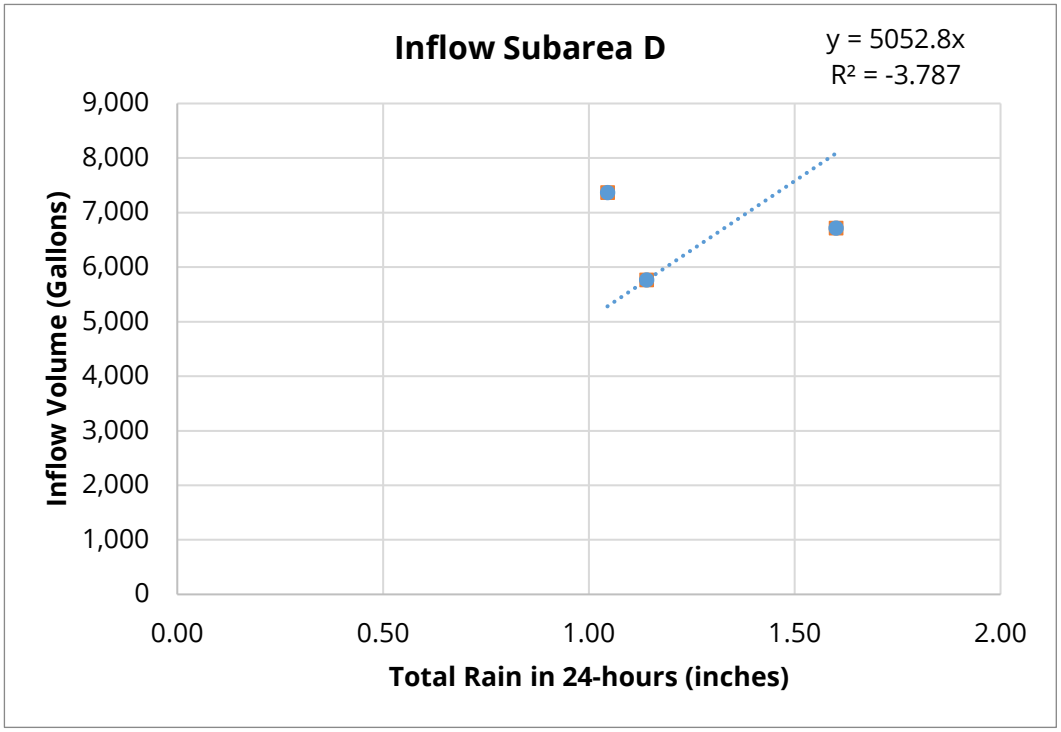

Subarea D 4/15 Wet Weather vs 4/8 Dry Weather
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
4/15/2021 14:24
4/15/2021 19:12
4/16/2021 0:00
4/16/2021 4:48
4/16/2021 9:36
4/16/2021 14:24
4/16/2021 19:12
4/17/2021 0:00
4/17/2021 4:48
4/17/2021 9:36
4/17/2021 14:24
4/17/2021 19:12
April 15 Wet Data
April 8 Dry Data
Rain

APPENDIX B

Inflow Calculation Graphs


Inflow Subarea B
y = 4672.6x
R² = 0.2606
Inflow Volume (Gallons)
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
-2,000
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
1.80
Total Rain in 24-hours (inches)


Inflow Subarea C
y = -577.92x
R² = 0.0512
4,000
3,000
2,000
1,000
0
-1,000
-2,000
-3,000
-4,000
0.00
0.50
1.00
1.50
2.00
Inflow Volume (Gallons)
Total Rain in 24-hours (inches)


Inflow Subarea D
y = 5052.8x
R² = -3.787
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Inflow Volume (Gallons)
0.00
0.50
1.00
1.50
2.00
Total Rain in 24-hours (inches)

APPENDIX C

Flow Metering and Groundwater Monitoring Data
Separately Bound

EST Associates, Inc.

Flow Monitoring Report

March - April 2021

Prepared For:

Environmental Partners Group

Services Performed In:

Bourne, MA

Prepared by:

EST Associates Inc.
124 Crescent Road, Needham, MA 02494
Tel: (781) 455-0003
ESTAssociates.com

EST
Associates, Inc.

Meter 1 - Bourne, MA

Outside View

Downhole View

Downstream View

Upstream View

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

EST
Associates, Inc.

Environmental Monitoring
Pipeline Services
Operations & Maintenance

SITE INVESTIGATION FORM

Project: EPG - Bourne, MA

Technicians: MK/TA

SITE LOCATION

Location: 90 Main Street, Buzzards Bay, MA

MH# Meter-1

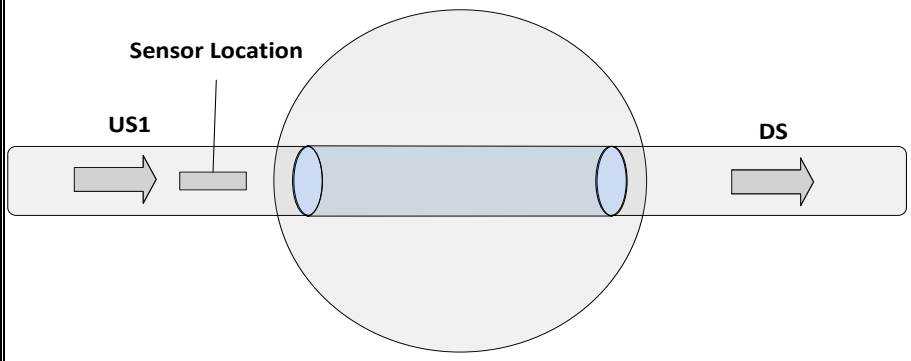
GPS Coordinates: 41.745125, -70.614776

Date: 3/3/2021

Time: 9:45 AM

Sensor Location: US1

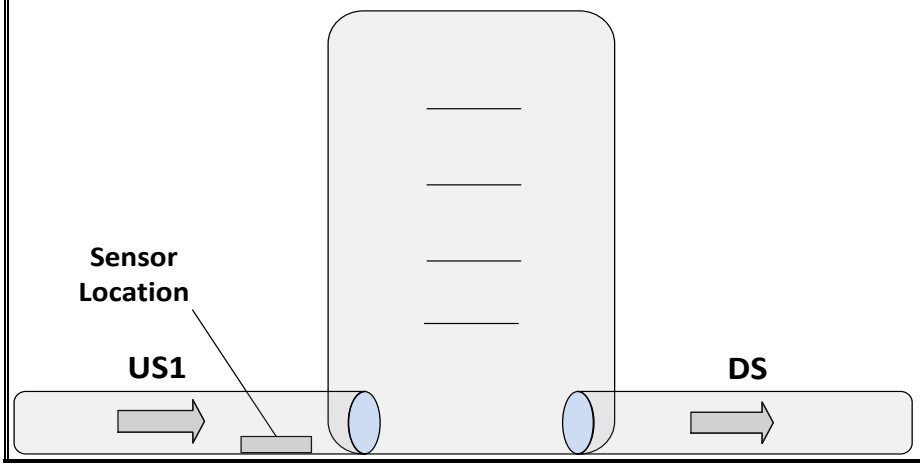
PLAN VIEW



LINE DESCRIPTIONS

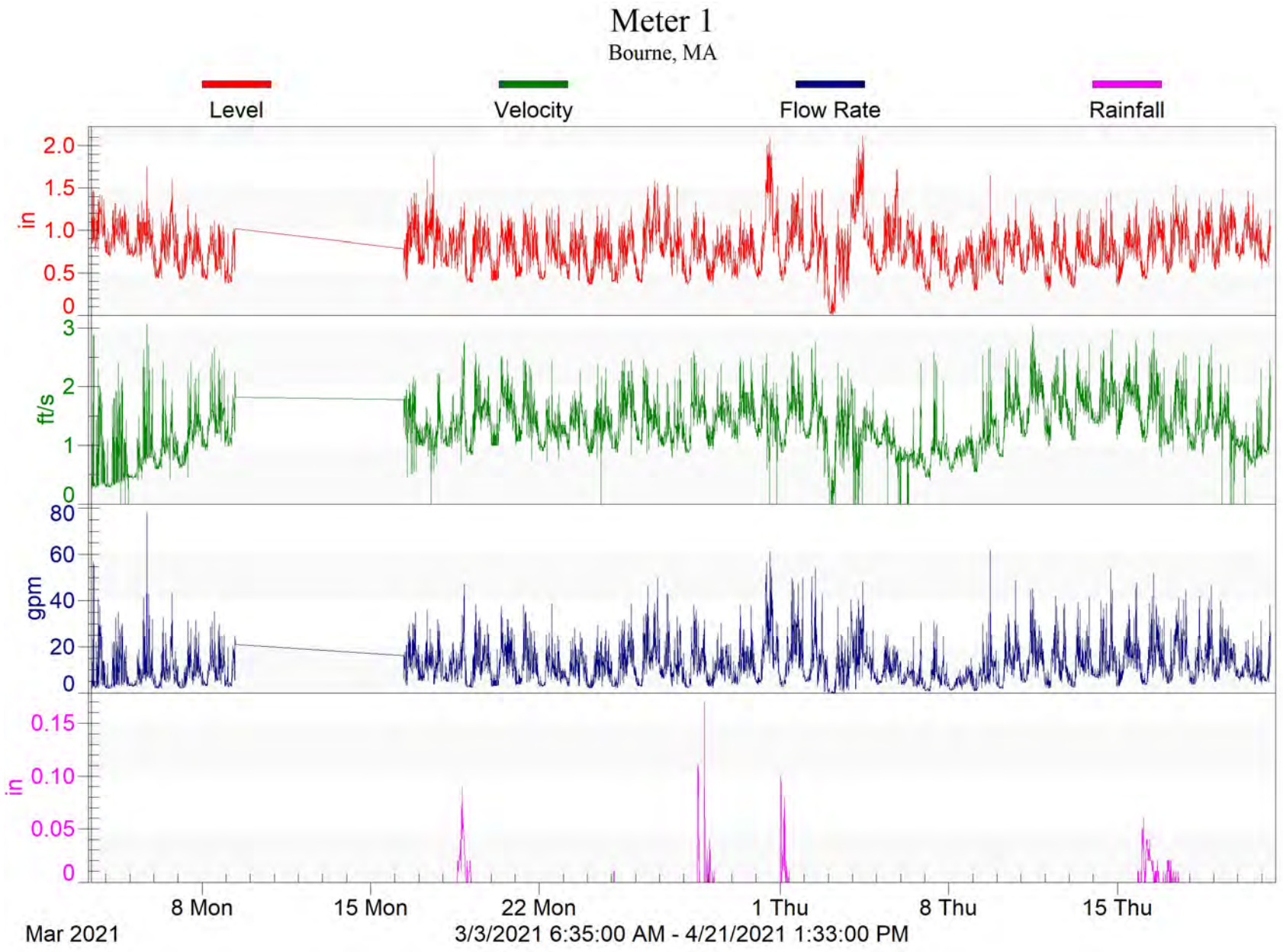
	DS	US1	US2	US3
Size	8"	8"		
Material	PVC	PVC		
Debris	/	/		
Shape	Circle	Circle		
Depth	9'5"	9'4"		

PROFILE VIEW



LINE DESCRIPTIONS (continued)

	US4	US5	US6	US7
Size				
Material				
Debris				
Shape				
Depth				


Meter 1
Bourne, MA
Level
Velocity
Flow Rate
Rainfall
in
2.0
1.5
1.0
0.5
0
ft/s
3
2
1
0
gpm
80
60
40
20
0
in
0.15
0.10
0.05
0
8 Mon
15 Mon
22 Mon
1 Thu
8 Thu
15 Thu
Mar 2021
3/3/2021 6:35:00 AM - 4/21/2021 1:33:00 PM

EST
Associates, Inc.

Environmental Monitoring
Pipeline Services
Operations Maintenance

GROUNDWATER GAUGING INSTALLATION & MAINTENANCE CHART

LOCATION: Academy Drive & Main Street, Bourne, MA

MH NUMBER: Meter-1

GPS COORDINATES: 41.745125, -70.614776

MH DEPTH: 9'5"

DATES MONITORED	COMMENTS	GROUNDWATER ABOVE INVERT
03/03/21	Tie was set to 35" above invert	35"
03/09/21	Groundwater is 3.5" below tie	31.5"
03/16/21	Groundwater is 7" below tie	28"
03/23/21	Groundwater is 7" below tie	28"
03/31/21	Groundwater is 9" below tie	26"
04/06/21	Groundwater is 9" below tie	26"
04/15/21	Groundwater is 6" below tie	29"
04/21/21	Groundwater is 1.5" above tie	36.5"

EST
Associates, Inc.

FLOW MONITORING

DATE: 3-3-21 **INSPECTORS' INITIALS:** MK/BK/SP

TIME: 0945

SITE NAME: Bourne Meter 1
ADDRESS:

METER SERIAL NUMBER: EST 144

SERVICES/ACTIONS PERFORMED:

- ☐ Sensor Cleaning
- ☐ Calibration Check
- ☐ Data Downloaded
- ☑ Other Meter Install

Data Downloaded?

- ☐ By Modem: [date:_____]
- ☑ To Laptop (Y / N) [SN: # MK]

Replace Batteries? (Y / N)

Existing voltage: 12.0
New voltage:

Dessicant Status: Good

Replaced dessicant? (Y / N)

Meter Running? (Y / N)

METER READINGS

US Level Readings	**Meter:**_____**(in)**	**Actual:**_____**(in)**	**Recalibrated** ☐
A/V Level Readings	**Meter:** .75 **(in)**	**Actual:** .75 **(in)**	**Recalibrated** ☐
Velocity Readings	**Meter:** .311 **(ft/s)**	**Actual:** .3 **(ft/s)**	

Errors recorded:

Work to be performed/Additional Comments/Observations:

EST
Associates, Inc.

FLOW MONITORING

DATE: 3-9-21 **INSPECTORS' INITIALS:** MK/TA

TIME: 0910

SITE NAME: Bourne Meter 1 **METER SERIAL NUMBER:** EST 144

ADDRESS:

SERVICES/ACTIONS PERFORMED:

- ☑ Sensor Cleaning
- ☑ Calibration Check
- ☑ Data Downloaded
- ☐ Other

Data Downloaded?

- ☐ By Modem: [date:]
- ☑ To Laptop (Y / N) [SN: # MK]

Replace Batteries? (Y / N)

Existing voltage: 12.0

New voltage:

Dessicant Status: Good

Replaced dessicant? (Y / N)

Meter Running? (Y / N)

METER READINGS

US Level Readings	**Meter:** (in)	**Actual:** (in)	**Recalibrated** ☐
A/V Level Readings	**Meter:** 1.018 (in)	**Actual:** 1.0 (in)	**Recalibrated** ☐
Velocity Readings	**Meter:** 2.404 (ft/s)	**Actual:** 2.4 (ft/s)	

Errors recorded:

Work to be performed/Additional Comments/Observations:

EST
Associates, Inc.

FLOW MONITORING

DATE: 3-16-21 **INSPECTORS' INITIALS:** MK/TA

TIME: 0839

SITE NAME: Bourne Meter 1 **METER SERIAL NUMBER:** EST 144

ADDRESS:

SERVICES/ACTIONS PERFORMED:

- ☑ Sensor Cleaning
- ☑ Calibration Check
- ☑ Data Downloaded
- ☐ Other

Data Downloaded?

- ☐ By Modem: [date:_____]
- ☑ To Laptop (Y / N) [SN: # MK]

Replace Batteries? (Y / N)

Existing voltage: 11.9

New voltage:

Dessicant Status: Good

Replaced dessicant? (Y / N)

Meter Running? (Y / N)

METER READINGS

US Level Readings	**Meter:**_____**(in)**	**Actual:**_____**(in)**	**Recalibrated** ☐
A/V Level Readings	**Meter:** .782 **(in)**	**Actual:** .75 **(in)**	**Recalibrated** ☐
Velocity Readings	**Meter:** 1.776 **(ft/s)**	**Actual:** 1.8 **(ft/s)**	

Errors recorded:

Work to be performed/Additional Comments/Observations:

EST
Associates, Inc.

FLOW MONITORING

DATE: 3-23-21 **INSPECTORS' INITIALS:** MK/TA

TIME: 0805

SITE NAME: Bovine Meter 1 **METER SERIAL NUMBER:** EST 144

ADDRESS: _____

_____

SERVICES/ACTIONS PERFORMED:

- ☑ Sensor Cleaning
- ☑ Calibration Check
- ☑ Data Downloaded
- ☐ Other _____

Data Downloaded?

- ☐ By Modem: [date:_____]
- ☑ To Laptop (Y / N) [SN: # MK]

Replace Batteries? (Y / N)

Existing voltage: 11.7

New voltage: _____

Dessicant Status: Good

Replaced dessicant? (Y / N)

Meter Running? (Y / N)

METER READINGS

US Level Readings	**Meter:**_____**(in)**	**Actual:**_____**(in)**	**Recalibrated** ☐
A/V Level Readings	**Meter:** .695 **(in)**	**Actual:** .75 **(in)**	**Recalibrated** ☐
Velocity Readings	**Meter:** 1.352 **(ft/s)**	**Actual:** 1.4 **(ft/s)**	

Errors recorded: _____

_____

_____

Work to be performed/Additional Comments/Observations: _____

_____

_____

_____

EST
Associates, Inc.

FLOW MONITORING

DATE: 3-31-21 **INSPECTORS' INITIALS:** MK/IA

TIME: 0821

SITE NAME: Bourne Meter 1 **METER SERIAL NUMBER:** EST 144

ADDRESS:

SERVICES/ACTIONS PERFORMED:

- ☑ Sensor Cleaning
- ☑ Calibration Check
- ☑ Data Downloaded
- ☐ Other

Data Downloaded?

- ☐ By Modem: [date:_____]
- ☑ To Laptop (Y / N) [SN: # MK]

Replace Batteries? (Y / N)

Existing voltage: 12.2

New voltage:

Dessicant Status: Good

Replaced dessicant? (Y / N)

Meter Running? (Y / N)

METER READINGS

US Level Readings	**Meter:**_____**(in)**	**Actual:**_____**(in)**	**Recalibrated** ☐
A/V Level Readings	**Meter:** .943 **(in)**	**Actual:** 1.0 **(in)**	**Recalibrated** ☐
Velocity Readings	**Meter:** 1.899 **(ft/s)**	**Actual:** 1.9 **(ft/s)**	

Errors recorded:

Work to be performed/Additional Comments/Observations:

EST
Associates, Inc.

FLOW MONITORING

DATE: 04/06/21 **INSPECTORS' INITIALS:** TA MK

TIME: 0824

SITE NAME: Bourne Meter 1 **METER SERIAL NUMBER:** EST 144

ADDRESS:

SERVICES/ACTIONS PERFORMED:

- ☑ Sensor Cleaning
- ☑ Calibration Check
- ☑ Data Downloaded
- ☐ Other

Data Downloaded?

- ☐ By Modem: [date:]
- ☑ To Laptop (Y / N) [SN: #MK]

Replace Batteries? (Y / (N))

Existing voltage: 12.2

New voltage:

Dessicant Status: Good

Replaced dessicant? (Y / (N))

Meter Running? (Y / N)

METER READINGS

US Level Readings	**Meter:** ✓ **(in)**	**Actual:** ✓ **(in)**	**Recalibrated** ☐
A/V Level Readings	**Meter:** .83 **(in)**	**Actual:** .8 **(in)**	**Recalibrated** ☐
Velocity Readings	**Meter:** .82 **(ft/s)**	**Actual:** .8 **(ft/s)**	

Errors recorded:

Work to be performed/Additional Comments/Observations:

EST
Associates, Inc.

FLOW MONITORING

DATE: 4-15-21 **INSPECTORS' INITIALS:** MK/TA

TIME: 0836

SITE NAME: Bourne Meter 1
ADDRESS: _____

METER SERIAL NUMBER: EST 144

SERVICES/ACTIONS PERFORMED:

- ☑ Sensor Cleaning
- ☑ Calibration Check
- ☑ Data Downloaded
- ☐ Other _____

Data Downloaded?

- ☐ By Modem: [date:_____]
- ☑ To Laptop (Y / N) [SN: #MK]

Replace Batteries? (Y / N)
Existing voltage: 12.1
New voltage: _____

Dessicant Status: Good
Replaced dessicant? (Y / N)

Meter Running? (Y / N)

METER READINGS

US Level Readings	**Meter:** _____ **(in)**	**Actual:** _____ **(in)**	**Recalibrated** ☐
A/V Level Readings	**Meter:** .686 **(in)**	**Actual:** .75 **(in)**	**Recalibrated** ☐
Velocity Readings	**Meter:** 1.762 **(ft/s)**	**Actual:** 2.0 **(ft/s)**	

Errors recorded: _____

Work to be performed/Additional Comments/Observations: Minor ragging on sensor. Readings increased after it was cleaned

EST
Associates, Inc.

FLOW MONITORING

DATE: 4-21-21 **INSPECTORS' INITIALS:** MK/TG

TIME: 0831

SITE NAME: Bourne Meter 1
ADDRESS: _____

METER SERIAL NUMBER: EST 144

SERVICES/ACTIONS PERFORMED:

- ☑ Sensor Cleaning
- ☑ Calibration Check
- ☑ Data Downloaded
- ☑ Other Meter Removal

Data Downloaded?

- ☐ By Modem: [date:_____]
- ☑ To Laptop (Y / N) [SN: FMK]

Replace Batteries? (Y / N)
Existing voltage: 12.0
New voltage:_____

Dessicant Status: Good
Replaced dessicant? (Y / N)

Meter Running? (Y / N)

METER READINGS

US Level Readings	**Meter:**_____**(in)**	**Actual:**_____**(in)**	**Recalibrated** ☐
A/V Level Readings	**Meter:** .829 **(in)**	**Actual:** .75 **(in)**	**Recalibrated** ☐
Velocity Readings	**Meter:** 1.239 **(ft/s)**	**Actual:** 1.2 **(ft/s)**	

Errors recorded: _____

Work to be performed/Additional Comments/Observations: _____

EST
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Meter 2 - Bourne, MA

Outside View

Downhole View

Downstream View

US1 View

US2 View

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

EST Associates, Inc.

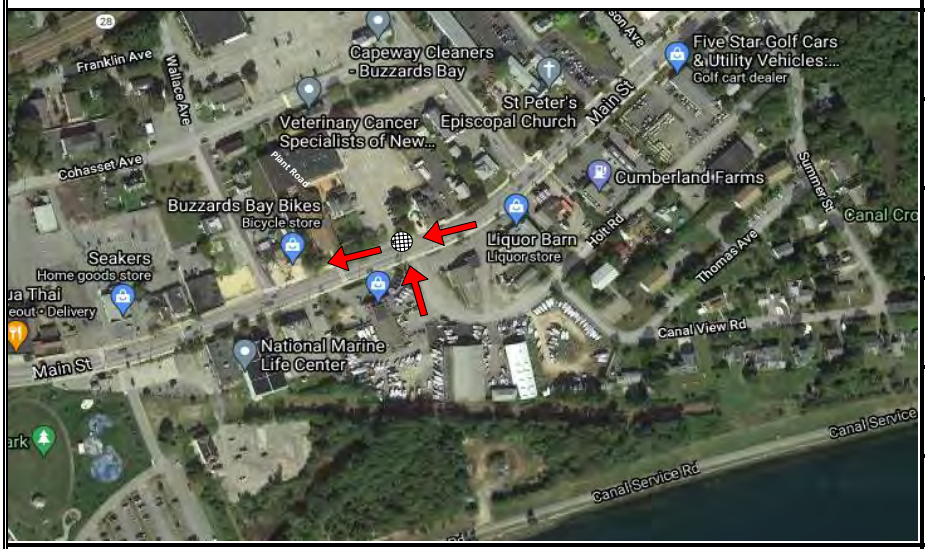
Environmental Monitoring
Pipeline Services
Operations & Maintenance

SITE INVESTIGATION FORM

Project: EPG - Bourne, MA

Technicians: MK/TA

SITE LOCATION



Location: 140 Main Street, Buzzards Bay, MA

MH# Meter-2

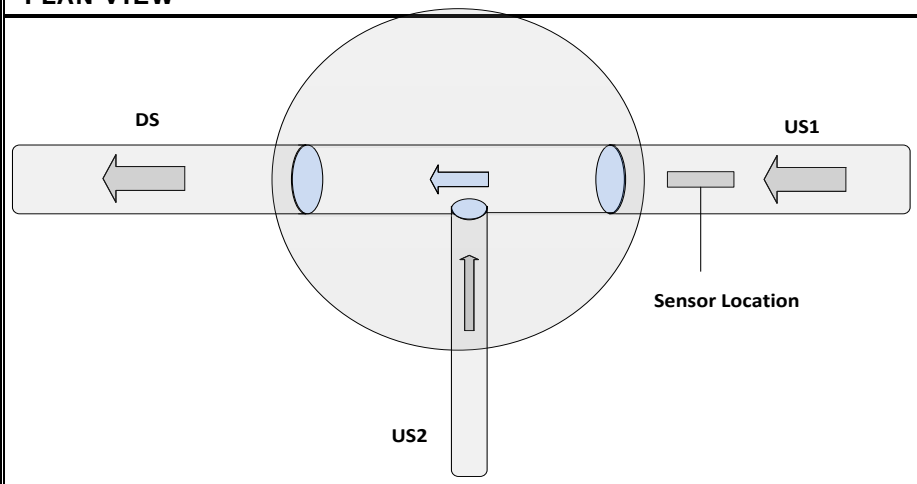
GPS Coordinates: 41.746003, -70.611053

Date: 3/3/2021

Time: 8:57 AM

Sensor Location: US1

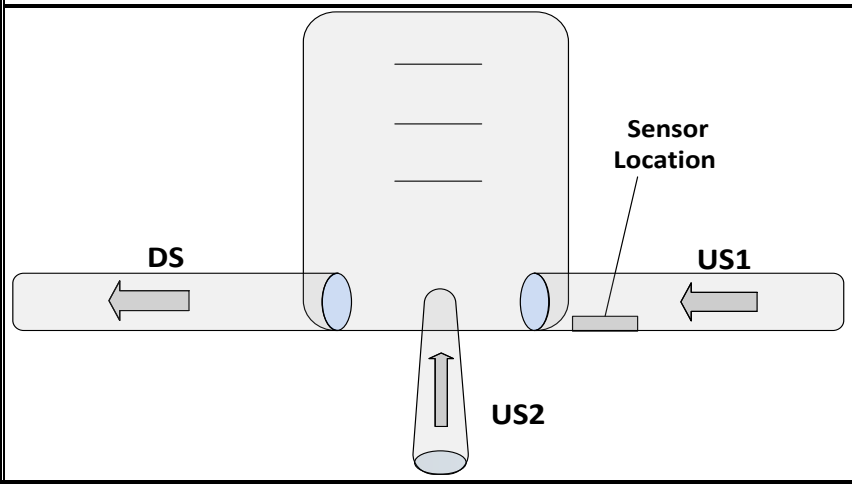
PLAN VIEW



LINE DESCRIPTIONS

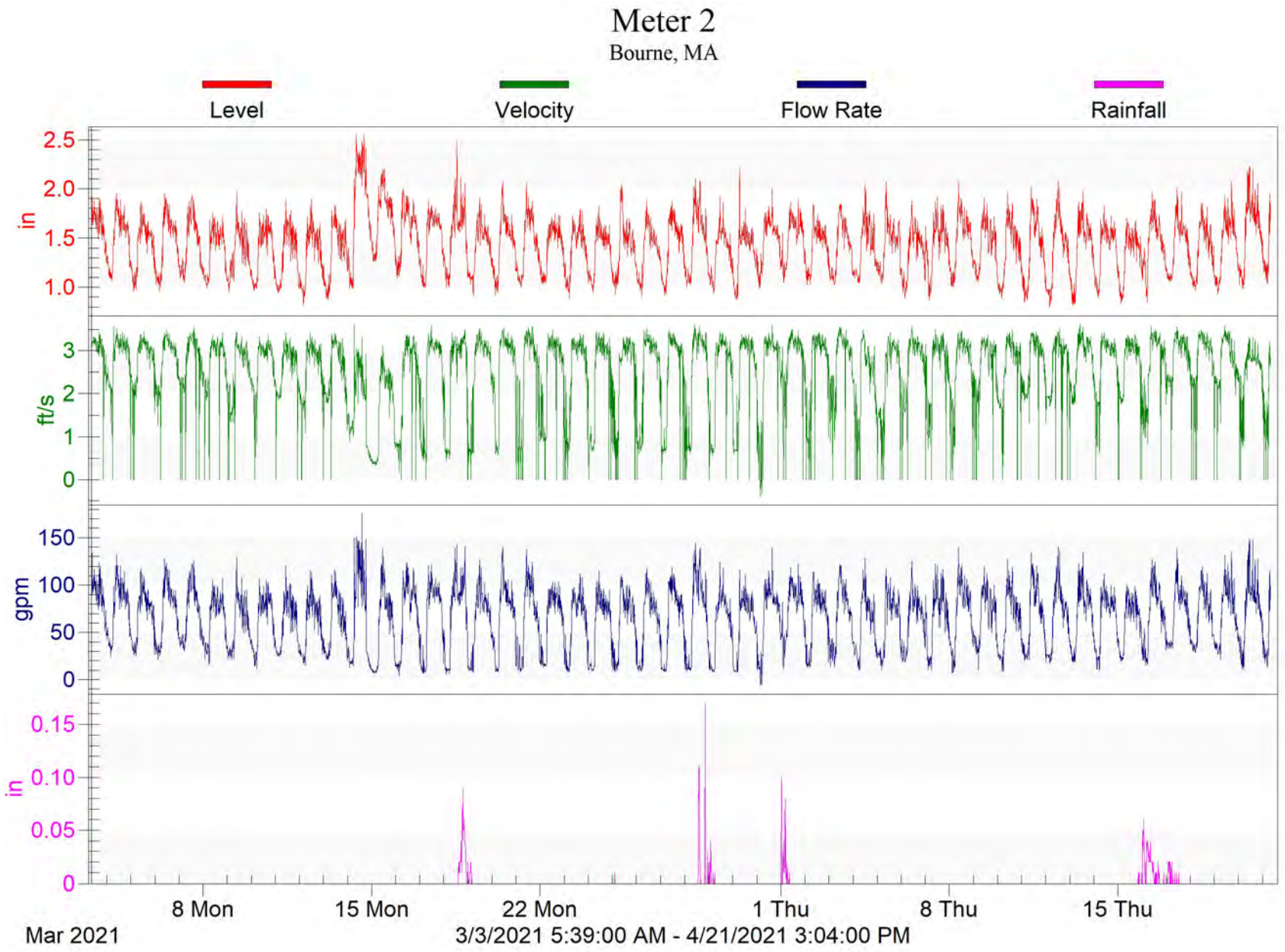
	DS	US1	US2	US3
Size	12"	12"	8"	
Material	PVC	PVC	PVC	
Debris	/	/	/	
Shape	Circle	Circle	Circle	
Depth	15'0"	14'10"	10'9"	

PROFILE VIEW



LINE DESCRIPTIONS (continued)

	US4	US5	US6	US7
Size				
Material				
Debris				
Shape				
Depth				


Meter 2
Bourne, MA
Level
Velocity
Flow Rate
Rainfall
in
2.5
2.0
1.5
1.0
ft/s
3
2
1
0
gpm
150
100
50
0
in
0.15
0.10
0.05
0
8 Mon
15 Mon
22 Mon
1 Thu
8 Thu
15 Thu
Mar 2021
3/3/2021 5:39:00 AM - 4/21/2021 3:04:00 PM

EST
Associates, Inc.

FLOW MONITORING

DATE: 3-3-21 **INSPECTORS' INITIALS:** MK/BK/SP

TIME: 0857

SITE NAME: Bourne Meter 2 **METER SERIAL NUMBER:** EST 262

ADDRESS:

SERVICES/ACTIONS PERFORMED:

- ☐ Sensor Cleaning
- ☐ Calibration Check
- ☐ Data Downloaded
- ☑ Other Meter Install

Data Downloaded?

- ☐ By Modem: [date:_____]
- ☑ To Laptop (Y / N) [SN: # MK]

Replace Batteries? (Y / N)

Existing voltage: 12.5

New voltage:_____

Dessicant Status: Good

Replaced dessicant? (Y / N)

Meter Running? (Y / N)

METER READINGS

US Level Readings	**Meter:**_____**(in)**	**Actual:**_____**(in)**	**Recalibrated** ☐
A/V Level Readings	**Meter:** 1.957**(in)**	**Actual:** 2.0 **(in)**	**Recalibrated** ☐
Velocity Readings	**Meter:** 3.297**(ft/s)**	**Actual:** 3.3 **(ft/s)**	

Errors recorded: 125 GPM

Work to be performed/Additional Comments/Observations:_____

EST
Associates, Inc.

FLOW MONITORING

DATE: 3-9-21 **INSPECTORS' INITIALS:** MK/ITA

TIME: 0830

SITE NAME: Bourne Meter 2 **METER SERIAL NUMBER:** EST 262

ADDRESS: _____

_____

SERVICES/ACTIONS PERFORMED:

- ☑ Sensor Cleaning
- ☑ Calibration Check
- ☑ Data Downloaded
- ☐ Other _____

Data Downloaded?

- ☐ By Modem: [date:_____]
- ☑ To Laptop (Y / N) [SN: # MK]

Replace Batteries? (Y / N)

Existing voltage: 12.4

New voltage: _____

Dessicant Status: Good

Replaced dessicant? (Y / N)

Meter Running? (Y / N)

METER READINGS

US Level Readings	**Meter:** _____ **(in)**	**Actual:** _____ **(in)**	**Recalibrated** ☐
A/V Level Readings	**Meter:** 1.611 **(in)**	**Actual:** 1.75 **(in)**	**Recalibrated** ☐
Velocity Readings	**Meter:** 3.291 **(ft/s)**	**Actual:** 3.3 **(ft/s)**	

Errors recorded: _____

_____

_____

Work to be performed/Additional Comments/Observations: _____

_____

_____

_____

EST
Associates, Inc.

FLOW MONITORING

DATE: 3-16-21 **INSPECTORS' INITIALS:** MK/TA

TIME: 0825

SITE NAME: Bourne Meter 2
ADDRESS: _____

METER SERIAL NUMBER: EST 262

SERVICES/ACTIONS PERFORMED:

- ☑ Sensor Cleaning
- ☑ Calibration Check
- ☑ Data Downloaded
- ☐ Other _____

Data Downloaded?

- ☐ By Modem: [date:_____]
- ☑ To Laptop (Y / N) [SN: #MK _____]

Replace Batteries? (Y / N)

Existing voltage: 12.3
New voltage: _____

Dessicant Status: Good

Replaced dessicant? (Y / N)

Meter Running? (Y / N)

METER READINGS

US Level Readings	**Meter:**_____**(in)**	**Actual:**_____**(in)**	**Recalibrated** ☐
A/V Level Readings	**Meter:** 1.932 **(in)**	**Actual:** 2.0 **(in)**	**Recalibrated** ☐
Velocity Readings	**Meter:** 2.381 **(ft/s)**	**Actual:** 2.4 **(ft/s)**	

Errors recorded: _____

Work to be performed/Additional Comments/Observations: _____

EST
Associates, Inc.

FLOW MONITORING

DATE: 3-23-21 **INSPECTORS' INITIALS:** MK/TA

TIME: 0820

SITE NAME: Bourne Meter 2 **METER SERIAL NUMBER:** EST 262

ADDRESS:

SERVICES/ACTIONS PERFORMED:

- [x] Sensor Cleaning
- [x] Calibration Check
- [x] Data Downloaded
- [ ] Other

Data Downloaded?

- [ ] By Modem: [date:_____]
- [x] To Laptop (Y / N) [SN: #MK]

Replace Batteries? (Y / N)

Existing voltage: 12.1

New voltage:

Dessicant Status: Good

Replaced dessicant? (Y / N)

Meter Running? (Y / N)

METER READINGS

US Level Readings	**Meter:**_____**(in)**	**Actual:**_____**(in)**	**Recalibrated** ☐
A/V Level Readings	**Meter:** 1.658 **(in)**	**Actual:** 1.75 **(in)**	**Recalibrated** ☐
Velocity Readings	**Meter:** 3.313 **(ft/s)**	**Actual:** 3.3 **(ft/s)**	

Errors recorded:

Work to be performed/Additional Comments/Observations:

EST
Associates, Inc.

FLOW MONITORING

DATE: 3-31-21 **INSPECTORS' INITIALS:** MK/TA

TIME: 0835

SITE NAME: Bourne Meter 2 **METER SERIAL NUMBER:** EST 262

ADDRESS:

SERVICES/ACTIONS PERFORMED:

- ☑ Sensor Cleaning
- ☑ Calibration Check
- ☑ Data Downloaded
- ☐ Other

Data Downloaded?

- ☐ By Modem: [date:]
- ☑ To Laptop (Y / N) [SN: # MK]

Replace Batteries? (Y / N)

Existing voltage: 11.9

New voltage:

Dessicant Status: Good

Replaced dessicant? (Y / N)

Meter Running? (Y / N)

METER READINGS

US Level Readings	**Meter:** (in)	**Actual:** (in)	**Recalibrated**	☐
A/V Level Readings	**Meter:** 1.566 (in)	**Actual:** 1.5 (in)	**Recalibrated**	☐
Velocity Readings	**Meter:** 3.166 (ft/s)	**Actual:** 3.2 (ft/s)		

Errors recorded:

Work to be performed/Additional Comments/Observations:

EST
Associates, Inc.

FLOW MONITORING

DATE: 4-6-21 **INSPECTORS' INITIALS:** MK/TA

TIME: 0811

SITE NAME: Bourne Meter 2 **METER SERIAL NUMBER:** EST 262

ADDRESS:

SERVICES/ACTIONS PERFORMED:

- ☑ Sensor Cleaning
- ☑ Calibration Check
- ☑ Data Downloaded
- ☐ Other

Data Downloaded?

- ☐ By Modem: [date:]
- ☑ To Laptop (Y / N) [SN: #mk]

Replace Batteries? (Y / N)

Existing voltage: 11.9

New voltage:

Dessicant Status: Good

Replaced dessicant? (Y / N)

Meter Running? (Y / N)

METER READINGS

US Level Readings	**Meter:** (in)	**Actual:** (in)	**Recalibrated** ☐
A/V Level Readings	**Meter:** 1.657 (in)	**Actual:** 1.75 (in)	**Recalibrated** ☐
Velocity Readings	**Meter:** 3.409 (ft/s)	**Actual:** 3.4 (ft/s)	

Errors recorded:

Work to be performed/Additional Comments/Observations:

EST
Associates, Inc.

FLOW MONITORING

DATE: 4-15-21 **INSPECTORS' INITIALS:** MK/TA

TIME: 0825

SITE NAME: Bourne Meter 2
ADDRESS: _____

METER SERIAL NUMBER: EST 262

SERVICES/ACTIONS PERFORMED:

- ☑ Sensor Cleaning
- ☑ Calibration Check
- ☑ Data Downloaded
- ☐ Other _____

Data Downloaded?

- ☐ By Modem: [date:_____]
- ☑ To Laptop (Y / N) [SN: # MK]

Replace Batteries? (Y / N)

Existing voltage: 11.8
New voltage: _____

Dessicant Status: Good

Replaced dessicant? (Y / N)

Meter Running? (Y / N)

METER READINGS

US Level Readings	**Meter:** _____ **(in)**	**Actual:** _____ **(in)**	**Recalibrated** ☐
A/V Level Readings	**Meter:** 1.473 **(in)**	**Actual:** 1.5 **(in)**	**Recalibrated** ☐
Velocity Readings	**Meter:** 3.290 **(ft/s)**	**Actual:** 3.3 **(ft/s)**	

Errors recorded: _____

Work to be performed/Additional Comments/Observations: _____

EST
Associates, Inc.

FLOW MONITORING

DATE: 4-21-21 **INSPECTORS' INITIALS:** MK/TA

TIME: 0816

SITE NAME: Bourne Meter 2
ADDRESS:

METER SERIAL NUMBER: EST 262

SERVICES/ACTIONS PERFORMED:

- [x] Sensor Cleaning
- [x] Calibration Check
- [x] Data Downloaded
- [x] Other Meter Removal

Data Downloaded?

- [ ] By Modem: [date:_____]
- [x] To Laptop (Y / N) [SN: #MK]

Replace Batteries? (Y / N)

Existing voltage: 11.6
New voltage:_____

Dessicant Status: Good

Replaced dessicant? (Y / N)

Meter Running? (Y / N)

METER READINGS

US Level Readings	**Meter:**_____**(in)**	**Actual:**_____**(in)**	**Recalibrated** ☐
A/V Level Readings	**Meter:** 1.686 **(in)**	**Actual:** 1.75 **(in)**	**Recalibrated** ☐
Velocity Readings	**Meter:** 2.856**(ft/s)**	**Actual:** 2.9 **(ft/s)**	

Errors recorded:

Work to be performed/Additional Comments/Observations:

EST
Associates, Inc.

Environmental Monitoring
Pipeline Services
Operations Maintenance

GROUNDWATER GAUGING INSTALLATION & MAINTENANCE CHART

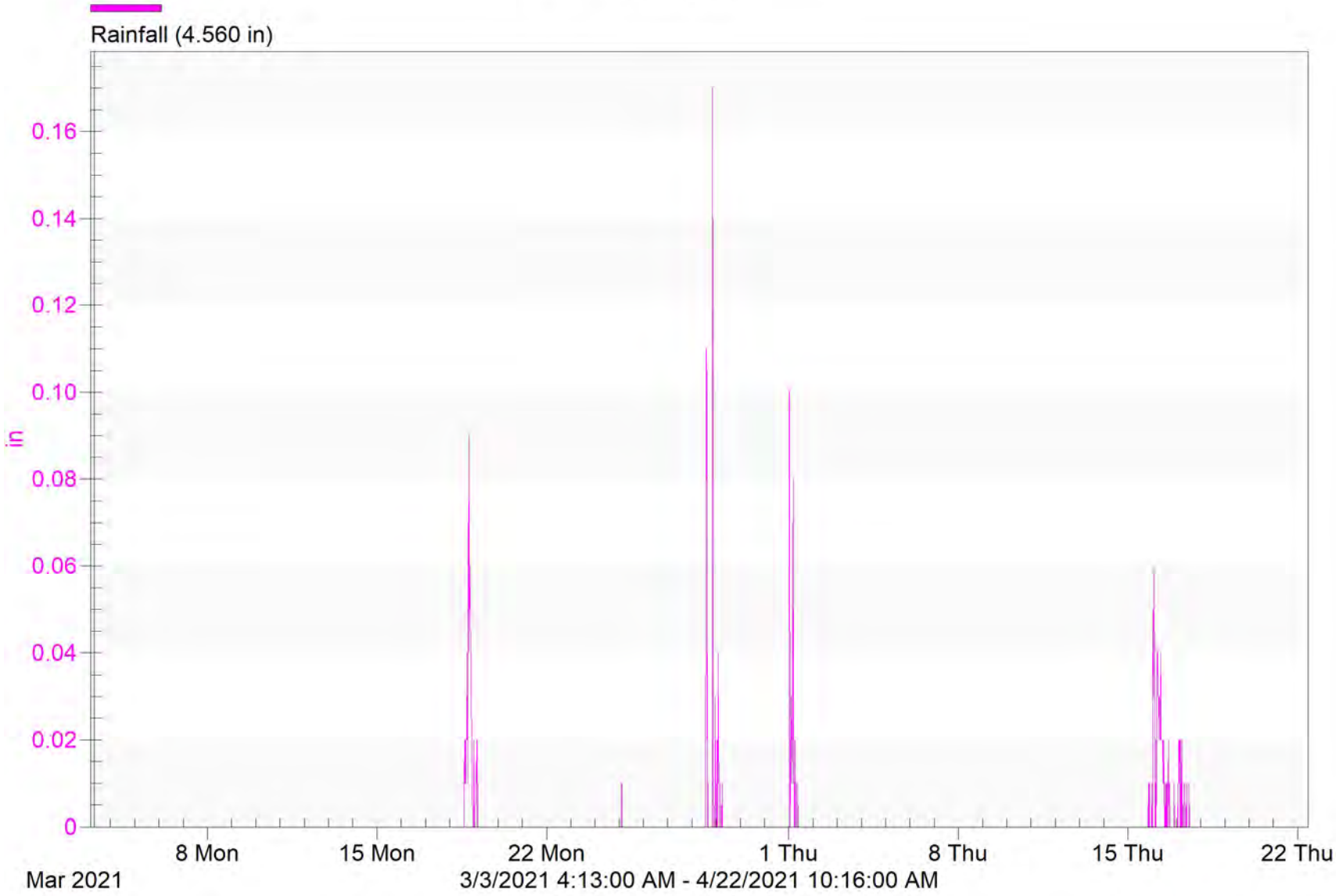
LOCATION: Perry Avenue & Everett Road Bourne, MA **MH NUMBER:** SMH-44

GPS COORDINATES: 41.747280, -70.602082 **MH DEPTH:** 9'2"

DATES MONITORED	COMMENTS	GROUNDWATER ABOVE INVERT
03/09/21	DRY	--
03/16/21	DRY	--
03/23/21	DRY	--
03/31/21	DRY	--
04/06/21	DRY	--
04/15/21	DRY	--
04/21/21	DRY	--

Pump Station Rain Gauge

Bourne, MA



EST Associates, Inc.

Pump Station Rain Gauge - Bourne, MA

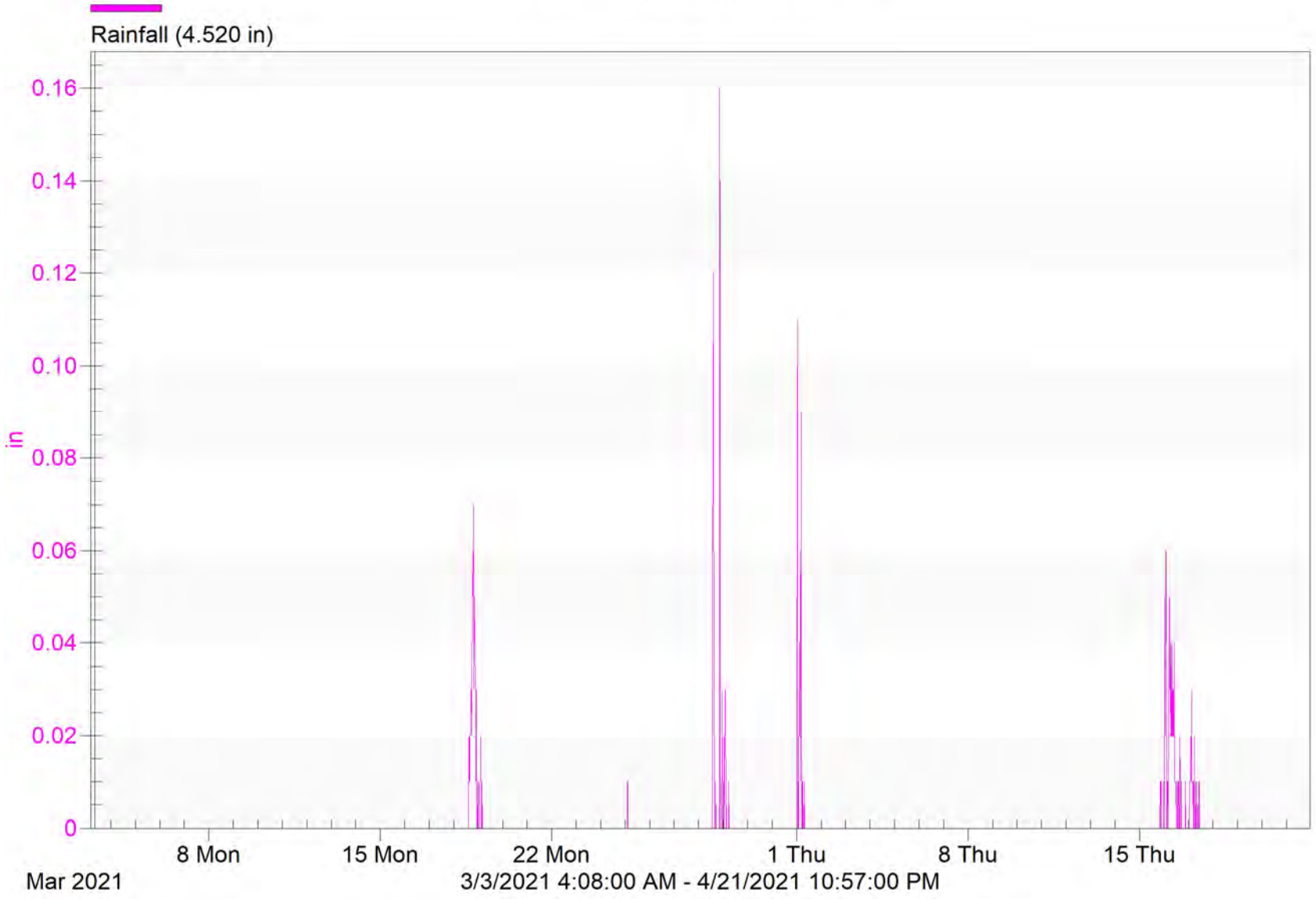
Daily Rainfall Table

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)
3/3/2021	0.000	0.000	8:00 AM	0.000	8:00 AM	0.000
3/4/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/5/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/6/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/7/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/8/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/9/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/10/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/11/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/12/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/13/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/14/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/15/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/16/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/17/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/18/2021	0.011	0.000	12:00 AM	0.090	7:15 PM	1.070
3/19/2021	0.001	0.000	12:30 AM	0.020	12:00 AM	0.130
3/20/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/21/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/22/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/23/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/24/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/25/2021	0.000	0.000	12:00 AM	0.010	2:15 AM	0.020
3/26/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/27/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/28/2021	0.009	0.000	12:00 AM	0.170	8:30 PM	0.890
3/29/2021	0.002	0.000	12:00 AM	0.040	1:45 AM	0.160
3/30/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/31/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/1/2021	0.008	0.000	12:00 AM	0.100	12:30 AM	0.760
4/2/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/3/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/4/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/5/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/6/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/7/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/8/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000

4/9/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/10/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/11/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/12/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/13/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/14/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/15/2021	0.000	0.000	12:00 AM	0.010	8:15 PM	0.040
4/16/2021	0.013	0.000	12:00 AM	0.060	1:45 AM	1.260
4/17/2021	0.002	0.000	12:00 AM	0.020	2:00 AM	0.230
4/18/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/19/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/20/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/21/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
Rainfall Total *(in)*	**Average Rainfall** *(in)*	**Minimum Rainfall** *(in)*	**Time of Minimum Rainfall** *(m/d/yyyy h:mm)*	**Maximum Rainfall** *(in)*	**Time of Maximum Rainfall** *(m/d/yyyy h:mm)*	**Average Total Rainfall** *(in)*
4.560	0.001	0.000	3/3/21 8:00 AM	0.170	3/28/21 8:30 PM	0.091

Old Bridge Road Rain Gauge

Bourne, MA



EST Associates, Inc.

Old Bridge Road Rain Gauge - Bourne, MA

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)*
3/3/2021	0.000	0.000	8:15 AM	0.000	8:15 AM	0.000
3/4/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/5/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/6/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/7/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/8/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/9/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/10/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/11/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/12/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/13/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/14/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/15/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/16/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/17/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/18/2021	0.010	0.000	12:00 AM	0.070	7:15 PM	0.990
3/19/2021	0.001	0.000	12:15 AM	0.020	2:45 AM	0.090
3/20/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/21/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/22/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/23/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/24/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/25/2021	0.000	0.000	12:00 AM	0.010	2:15 AM	0.020
3/26/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/27/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/28/2021	0.009	0.000	12:00 AM	0.160	8:30 PM	0.880
3/29/2021	0.002	0.000	12:00 AM	0.030	1:45 AM	0.160
3/30/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
3/31/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/1/2021	0.007	0.000	12:00 AM	0.110	1:00 AM	0.710
4/2/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/3/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/4/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/5/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/6/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/7/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/8/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000

4/9/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/10/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/11/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/12/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/13/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/14/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/15/2021	0.001	0.000	12:00 AM	0.010	8:15 PM	0.050
4/16/2021	0.014	0.000	12:00 AM	0.060	1:30 AM	1.340
4/17/2021	0.003	0.000	12:00 AM	0.030	3:15 AM	0.280
4/18/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/19/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/20/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
4/21/2021	0.000	0.000	12:00 AM	0.000	12:00 AM	0.000
Rainfall Total *(in)*	**Average Rainfall** *(in)*	**Minimum Rainfall** *(in)*	**Time of Minimum Rainfall** *(m/d/yyyy h:mm)*	**Maximum Rainfall** *(in)*	**Time of Maximum Rainfall** *(m/d/yyyy h:mm)*	**Average Total Rainfall** *(in)*
4.520	0.001	0.000	3/3/21 8:15 AM	0.160	3/28/21 8:30 PM	0.090

EST Associates, Inc.

Manhole Inspection Report

March 2021

Prepared For:

Environmental Partners Group

Completed At:

Bourne, MA

Prepared by:

EST Associates Inc.
124 Crescent Road, Needham, MA 02494
Tel: (781) 455-0003
ESTAssociates.com

Code	Description
B	BROKEN
BSV	BROKEN SOIL VISIBLE
BVV	BROKEN VOID VISIBLE
CC	CRACK CIRCUMFERENTIAL
CL	CRACK LONGITUDINAL
CM	CRACK MULTIPLE
CS	CRACK SPIRAL
DAE	DEPOSITS ATTACHED ENCRUSTATION
DAGS	DEPOSITS ATTACHED GREASE
DAR	DEPOSITS ATTACHED RAGGED
DAZ	DEPOSITS ATTACHED OTHER
DB	DISPLACED BRICK
DI	BRICKWORK DROPPED INVERT
DNF	DEPOSITS INGRESSED FINE
DSC	DEPOSITS SETTLED COMPACTED
DSF	DEPOSITS SETTLED FINE
DSGV	DEPOSITS SETTLED GRAVEL
DSZ	DEPOSITS SETTLED OTHER
FC	FRACTURE CIRCUMFERENTIAL
FL	FRACTURE LONGITUDINAL
FM	FRACTURE MULTIPLE
FS	FRACTURE SPIRAL
H	HOLE
HSV	HOLE SOIL VISIBLE
HVV	HOLE VOID VISIBLE
ID	INFILTRATION DRIPPER
IDB	INFILTRATION DRIPPER BARREL
IDC	INFILTRATION DRIPPER CONNECTION
IDJ	INFILTRATION DRIPPER JOINT
IG	INFILTRATION GUSHER
IGB	INFILTRATION GUSHER BARREL
IGC	INFILTRATION GUSHER CONNECTION
IGJ	INFILTRATION GUSHER JOINT
IR	INFILTRATION RUNNER
IRB	INFILTRATION RUNNER BARREL
IRC	INFILTRATION RUNNER CONNECTION
IRJ	INFILTRATION RUNNER JOINT
IS	INFILTRATION STAIN
ISB	INFILTRATION STAIN BARREL
ISC	INFILTRATION STAIN CONNECTION
ISJ	INFILTRATION STAIN JOINT

ISZ	INTRUDING SEALING MATERIAL OTHER
IW	INFILTRATION WEEPER
IWB	INFILTRATION WEEPER BARREL
IWC	INFILTRATION WEEPER CONNECTION
IWJ	INFILTRATION WEEPER JOINT
IWL	INFILTRATION WEEPER LATERAL
JAL	JOINT ANGULAR LARGE
JAM	JOINT ANGULAR MEDIUM
JOL	JOINT OFFSET LARGE
JOM	JOINT OFFSET MEDIUM
JSL	JOINT SEPERATED LARGE
JSM	JOINT SEPERATED MEDIUM
MB	MISSING BRICK
MML	MISSING MORTAR LARGE
MMM	MISSING MORTAR MEDIUM
MMS	MISSING MORTAR SMALL
MSA	MISCELLANEOUS SURVEY ABANDONED
MWM	MISCELLANEOUS WATER MARK
OBB	OBSTRUCTION BRICK OR MASONRY
OBC	OBSTRUCTION THROUGH CONNECTION
OBI	OBSTRUCTION INTRUDING THROUGH WALL
OBJ	OBSTRUCTION WEDGED IN THE JOINT
OBM	OBSTRUCTION PIPE MATERIAL IN INVERT
OBN	OBSTRUCTION CONSTRUCTION DEBRIS
OBP	OBSTRUCTION EXTERNAL PIPE OR CABLE
OBR	OBSTRUCTION ROCKS
OBS	OBSTRUCTION BUILT INTO STRUCTURE
OBZ	OBSTRUCTION OTHER
RBB	ROOTS BALL BARREL
RBC	ROOTS BALL CONNECTION
RBJ	ROOTS BALL JOINT
RFB	ROOTS FINE BARREL
RFC	ROOTS FINE CONNECTION
RFJ	ROOTS FINE JOINT
RFL	ROOTS FINE LATERAL
RMB	ROOTS MEDIUM BARREL
RMC	ROOTS MEDIUM CONNECTION
RMJ	ROOTS MEDIUM JOINT
RML	ROOTS MEDIUM LATERAL
SAM	SURFACE DAMAGE AGGREGATE MISSING
SAP	SURFACE DAMAGE AGGREGATE PROJECTING
SAV	SURFACE DAMAGE AGGREGATE VISIBLE
SCP	SURFACE DAMAGE CORROSION

SMW	SURFACE DAMAGE MISSING WALL
SRC	SURFACE DAMAGE REINFORCEMENT CORRODED
SRI	SURFACE DAMAGE ROUGHNESS INCREASED
SRP	SURFACE DAMAGE REINFORCEMENT PROJECTING
SRV	SURFACE DAMAGE REINFORCEMENT VISIBLE
SSC	SURFACE SPALLING OF DAMAGE COATING
SSS	SURFACE SPALLING OF DAMAGE
SZ	SURFACE DAMAGE OTHER
VC	VERMIN COCKROACH
VR	VERMIN RAT
VZ	VERMIN OTHER

EST Associates, Inc.

Manhole Inspections - March 2021

Bourne, MA

Manhole ID	Address
SMH-1	Wright Lane
SMH-44	Perry Avenue
SMH-95	Main Street
SMH-101	Head of the Bay Road
SMH-169	Main Street
SMH-172	Main Street
SMH-174	Main Street
SMH-178	Main Street
SMH-181	Main Street
SMH-182	Main Street

EST
Associates, Inc.

SMH-1 - Bourne, MA

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

EST Associates, Inc.

Environmental Monitoring
Pipeline Services
Operations & Maintenance

Manhole Inspection Form

Client: EPG **Date:** 03/09/2021 **MH #:** **SMH-1**

General Information

Inspector(s): MK
Certificate #:
Ft. to Downstream MH: 0
Purpose of Survey: I/I Study
Inspection Status: Complete
Inspection Level: Level 1

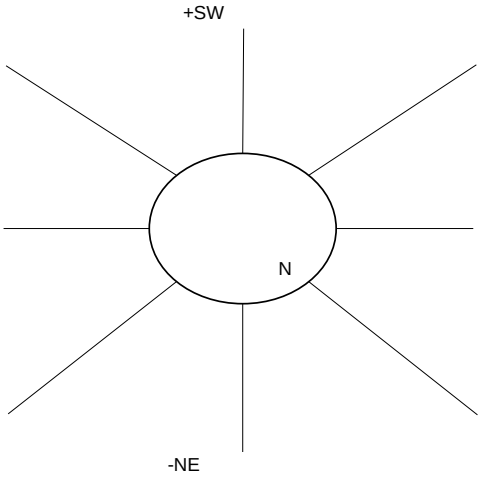
Location

Street: Wright Lane
City, State: Bourne, MA

Manhole Information

Cover:
Holes in Cover: [ ] *Yes* [X] *No* # of Holes: 0
Cover Condition: Sound Size (in.): 0
Grade: At
General Comments: Lifter station

Manhole Sketch & Photo



Manhole Cover Adjustment Ring:

Ring Condition: None
Drainage Area: 2x2

Internal Manhole Observations

ITEM	MATERIAL	CONDITION	LEAKS (gpm)	DEFECTS	COMMENTS
Frame	Cast Iron	Pitted	0		
Chimney	Block	Defective	0	FL MML	Brick, PIP
Cone	N/A	N/A			
Steps	Aluminum	Sound	0		
Walls	Precast	Defective	5	IR	
Bench	N/A	N/A			
Channel	N/A	N/A			

Surcharge from Invert Evident: [X] *Yes* [ ] *No* Currently: 0 ft. Marks to: 6 ft.

Line Conditions

Directon (in/out)	Connect Assets	Rim to Invert Depth (ft., in.)	Pipe Diameter (in.)	Pipe Material	Flow Depth (in.)	Debris Depth (in.)	Pipe Conn. Leak (gpm)	Photo	Comments
Out	NE	6ft 9in	3	PVC	0	0	0		
In	SW	N/A							Heavy groundwater coming in

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SMH-44 - Bourne, MA

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

EST Associates, Inc.

Environmental Monitoring
Pipeline Services
Operations & Maintenance

Manhole Inspection Form

Client: EPG **Date:** 03/09/2021 **MH #:** SMH-44

General Information

Inspector(s): MK
Certificate #:
Ft. to Downstream MH: 156
Purpose of Survey: I/I Study
Inspection Status: Complete
Inspection Level: Level 1

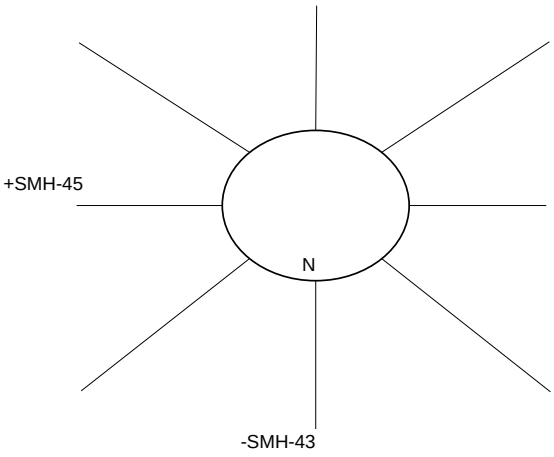
Location

Street: Perry Ave
City, State: Bourne, MA

Manhole Information

Cover:
Holes in Cover: [ ] *Yes* [X] *No* # of Holes: 0
Cover Condition: Sound Size (in.): 0
Grade: At
General Comments:

Manhole Sketch & Photo



Manhole Cover Adjustment Ring:

Ring Condition: Sound
Drainage Area: 4x4

Internal Manhole Observations

ITEM	MATERIAL	CONDITION	LEAKS (gpm)	DEFECTS	COMMENTS
Frame	Cast Iron	Pitted	0		
Chimney	Brick	Sound	0		Precast
Cone	N/A	Sound	0		
Steps	Other	Sound	0		Plastic steps
Walls	Precast	Defective	0	SCP IS	H2S damage
Bench	Brick	Sound	0		
Channel	Brick	Sound	0		

Surcharge from Invert Evident: [ ] *Yes* [X] *No* Currently: ft. Marks to: ft.

Line Conditions

Directon (in/out)	Connect Assets	Rim to Invert Depth (ft., in.)	Pipe Diameter (in.)	Pipe Material	Flow Depth (in.)	Debris Depth (in.)	Pipe Conn. Leak (gpm)	Photo	Comments
Out	SMH-43	9ft 2in	8	VCP	0	0	0		
In	SMH-45	4ft 5in	4	PVC	0	0	0		Forced main

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SMH-95 - Bourne, MA

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

EST Associates, Inc.

Environmental Monitoring
Pipeline Services
Operations & Maintenance

Manhole Inspection Form

Client: EPG **Date:** 03/31/2021 **MH #:** SMH -95

General Information

Inspector(s): MK TA
Certificate #:
Ft. to Downstream MH: 260
Purpose of Survey: I/I Study
Inspection Status: Complete
Inspection Level: Level 1

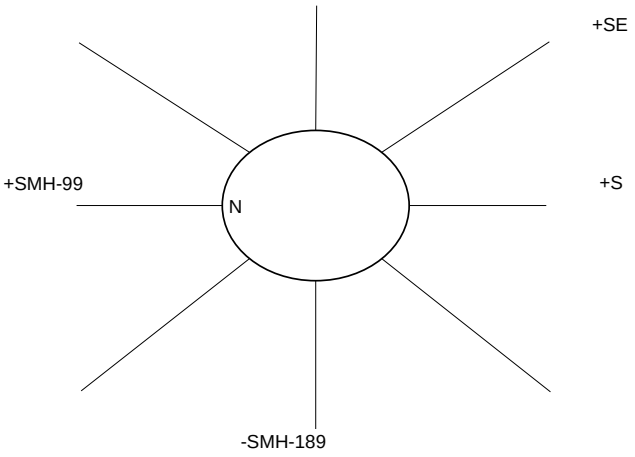
Location

Street: Main St.
City, State: Bourne, MA

Manhole Information

Cover:
Holes in Cover: [X] *Yes* [ ] *No* # of Holes: 2
Cover Condition: Sound Size (in.): 0.75
Grade: Above
General Comments:

Manhole Sketch & Photo



Manhole Cover Adjustment Ring:

Ring Condition: Broken
Drainage Area: 2x2

Internal Manhole Observations

ITEM	MATERIAL	CONDITION	LEAKS (gpm)	DEFECTS	COMMENTS
Frame	Cast Iron	Corroded	0	SCP	
Chimney	Precast	Defective	0	MMM	Brick, cracked bricks
Cone	Precast	Sound	0		
Steps	Other	Sound	0		Plastic steps
Walls	Precast	Sound	0		
Bench	Brick	Sound	0		
Channel	Brick	Sound	0		

Surcharge from Invert Evident: [ ] *Yes* [X] *No* Currently: 0 ft. Marks to: 0 ft.

Line Conditions

Directon (in/out)	Connect Assets	Rim to Invert Depth (ft., in.)	Pipe Diameter (in.)	Pipe Material	Flow Depth (in.)	Debris Depth (in.)	Pipe Conn. Leak (gpm)	Photo	Comments
Out	SMH-189	10'9"	8	PVC	1.5	0	0		
In	SMH-99	10'8"	8	PVC	1.5	0	0		
In	SE	5'10	4	PVC	0	0	0		
In	S	5'10"	4	PVC	0.25	0	0		

EST
Associates, Inc.

SMH-101 - Bourne, MA

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

EST Associates, Inc.

Environmental Monitoring
Pipeline Services
Operations & Maintenance

Manhole Inspection Form

Client: EPG **Date:** 03/31/2021 **MH #:** SMH-101

General Information

Inspector(s):	MK TA
Certificate #:	
Ft. to Downstream MH:	320
Purpose of Survey:	I/I Study
Inspection Status:	Complete
Inspection Level:	Level 1

Location

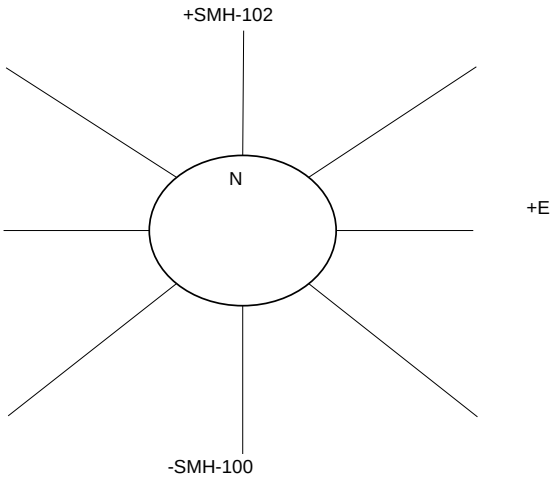
Street:	Head of the Bay Rd.
City, State:	Bourne, MA

Manhole Information

Cover:

Holes in Cover:	[X] *Yes*	[ ] *No*	# of Holes:	2	
Cover Condition:	Sound		Size (in.):	0.75	
Grade:	At				
General Comments:					

Manhole Sketch & Photo



Manhole Cover Adjustment Ring:

Ring Condition:	None
Drainage Area:	5x5

Internal Manhole Observations

ITEM	MATERIAL	CONDITION	LEAKS (gpm)	DEFECTS	COMMENTS
Frame	Cast Iron	Sound	0		
Chimney	Brick	Sound	0		
Cone	Precast	Sound	0		
Steps	Other	Sound	0		Plastic steps
Walls	Precast	Sound	0		
Bench	Brick	Sound	0	DSZ	Mud on bench
Channel	Brick	Sound	0		

Surcharge from Invert Evident: [ ] *Yes* [X] *No* Currently: 0 ft. Marks to: 0 ft.

Line Conditions

Directon (in/out)	Connect Assets	Rim to Invert Depth (ft., in.)	Pipe Diameter (in.)	Pipe Material	Flow Depth (in.)	Debris Depth (in.)	Pipe Conn. Leak (gpm)	Photo	Comments
Out	SMH-100	7'3"	8	PVC	0.75	0	0		
In	SMH-102	7'2"	8	PVC	0.75	0	0		
In	E	6'6"	4	PVC	0	0	0		

EST
Associates, Inc.

SMH-169 - Bourne, MA

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

EST Associates, Inc.

Environmental Monitoring
Pipeline Services
Operations & Maintenance

Manhole Inspection Form

Client: EPG **Date:** 03/09/2021 **MH #:** **SMH-169**

General Information

Inspector(s):	MK
Certificate #:	
Ft. to Downstream MH:	275
Purpose of Survey:	I/I Study
Inspection Status:	Complete
Inspection Level:	Level 1

Location

Street:	Main St.
City, State:	Bourne, MA

Manhole Information

Cover:

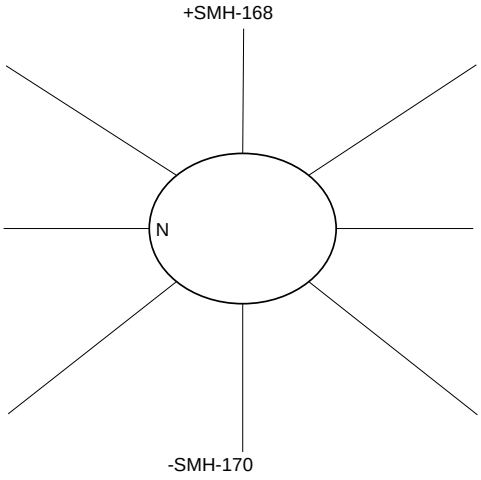
Holes in Cover: [ ] *Yes* [X] *No* # of Holes: 0

Cover Condition: Sound Size (in.): 0

Grade: At

General Comments:

Manhole Sketch & Photo



Manhole Cover Adjustment Ring:

Ring Condition:	None
Drainage Area:	4x4

Internal Manhole Observations

ITEM	MATERIAL	CONDITION	LEAKS (gpm)	DEFECTS	COMMENTS
Frame	Cast Iron	Pitted	0		
Chimney	Brick	Defective	0	SCP	Precast, H2S damage
Cone	Precast	Defective	0	SCP	H2S damage
Steps	Other	Defective	0	SCP	H2S damage, plastic steps
Walls	Precast	Defective	0	SCP	H2S damage
Bench	Brick	Sound	0		
Channel	Brick	Sound	0		

Surcharge from Invert Evident: [ ] *Yes* [X] *No* Currently: ft. Marks to: ft.

Line Conditions

Directon (in/out)	Connect Assets	Rim to Invert Depth (ft., in.)	Pipe Diameter (in.)	Pipe Material	Flow Depth (in.)	Debris Depth (in.)	Pipe Conn. Leak (gpm)	Photo	Comments
Out	SMH-170	9ft 5in	8	PVC	1	0	0		
In	SMH-168	9ft 4in	8	PVC	1	0	0		

EST
Associates, Inc.

SMH-172 - Bourne, MA

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

EST Associates, Inc.

Environmental Monitoring
Pipeline Services
Operations & Maintenance

Manhole Inspection Form

Client: EPG **Date:** 03/09/2021 **MH #:** SMH-172

General Information

Inspector(s): MK
Certificate #:
Ft. to Downstream MH: 80
Purpose of Survey: I/I Study
Inspection Status: Complete
Inspection Level: Level 1

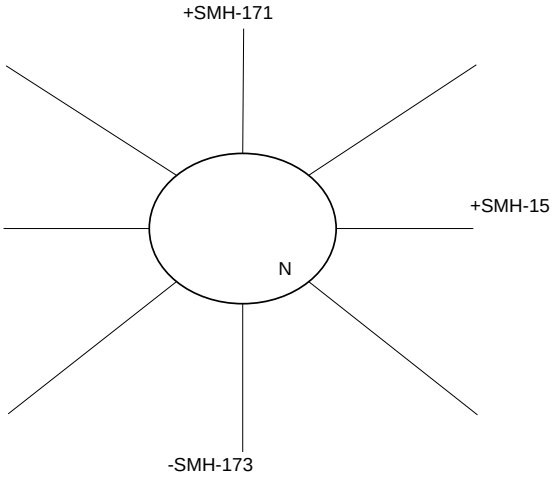
Location

Street: Main St
City, State: Bourne, MA

Manhole Information

Cover:
Holes in Cover: [ ] *Yes* [X] *No* # of Holes: 0
Cover Condition: Sound Size (in.): 0
Grade: At
General Comments: Flood Cover

Manhole Sketch & Photo



Manhole Cover Adjustment Ring:

Ring Condition: None
Drainage Area: 4x4

Internal Manhole Observations

ITEM	MATERIAL	CONDITION	LEAKS (gpm)	DEFECTS	COMMENTS
Frame	Cast Iron	Pitted	0		
Chimney	Parged	Defective	0	SCP	Brick, H2S damage
Cone	Precast	Defective	0	SCP	H2S damage
Steps	Other	Sound	0		Plastic steps
Walls	Precast	Defective	0	SCP	H2S damage
Bench	Brick	Sound	0		
Channel	Brick	Sound	0		

Surcharge from Invert Evident: [ ] *Yes* [X] *No* Currently: ft. Marks to: ft.

Line Conditions

Directon (in/out)	Connect Assets	Rim to Invert Depth (ft., in.)	Pipe Diameter (in.)	Pipe Material	Flow Depth (in.)	Debris Depth (in.)	Pipe Conn. Leak (gpm)	Photo	Comments
Out	SMH-173	11 ft 7in	8	PVC	0.75	0	0		
In	SMH-171	11ft 5in	8	PVC	0.75	0	0		
In	SMH-15	8ft 11in	8	PVC	0.25	0	0		

EST
Associates, Inc.

SMH-174 - Bourne, MA

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

EST Associates, Inc.

Environmental Monitoring
Pipeline Services
Operations & Maintenance

Manhole Inspection Form

Client: EPG **Date:** 03/09/2021 **MH #:** SMH-174

General Information

Inspector(s):	MK
Certificate #:	
Ft. to Downstream MH:	271
Purpose of Survey:	I/I Study
Inspection Status:	Complete
Inspection Level:	Level 1

Location

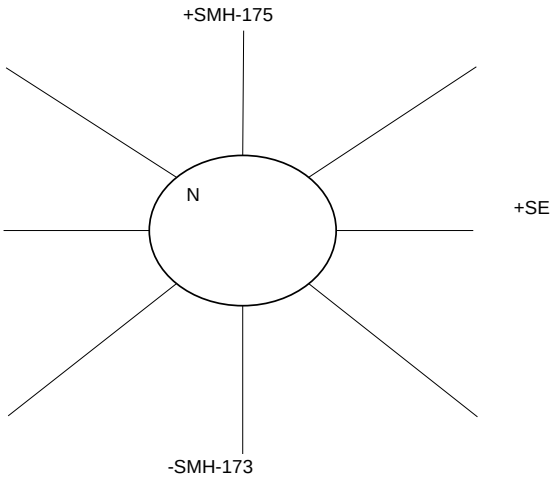
Street:	Main St.
City, State:	Bourne, MA

Manhole Information

Cover:

Holes in Cover:	[ ] *Yes*	[X] *No*	# of Holes:	0	
Cover Condition:	Restraint Missing/Defective		Size (in.):	0	
Grade:	At				
General Comments:					

Manhole Sketch & Photo



Manhole Cover Adjustment Ring:

Ring Condition:	None
Drainage Area:	4x4

Internal Manhole Observations

ITEM	MATERIAL	CONDITION	LEAKS (gpm)	DEFECTS	COMMENTS
Frame	Cast Iron	Pitted			
Chimney	Parged	Sound			Precast
Cone	Precast	Sound			
Steps	Other	Sound			Plastic steps
Walls	Precast	Sound			
Bench	Brick	Sound			
Channel	Brick	Sound			

Surcharge from Invert Evident: [ ] *Yes* [X] *No* Currently: ft. Marks to: ft.

Line Conditions

Directon (in/out)	Connect Assets	Rim to Invert Depth (ft., in.)	Pipe Diameter (in.)	Pipe Material	Flow Depth (in.)	Debris Depth (in.)	Pipe Conn. Leak (gpm)	Photo	Comments
Out	SMH-173	15 ft	12	PVC	1.75	0	0		
In	SMH-175	14 ft 10in	12	PVC	1.75	0	0		
In	SE	10 ft 9in	8	PVC	0.25	0	0		

EST
Associates, Inc.

SMH-178 - Bourne, MA

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

EST Associates, Inc.

Environmental Monitoring
Pipeline Services
Operations & Maintenance

Manhole Inspection Form

Client: EPG **Date:** 03/09/2021 **MH #:** SMH-178

General Information

Inspector(s):	MK
Certificate #:	
Ft. to Downstream MH:	183
Purpose of Survey:	I/I Study
Inspection Status:	Complete
Inspection Level:	Level 1

Location

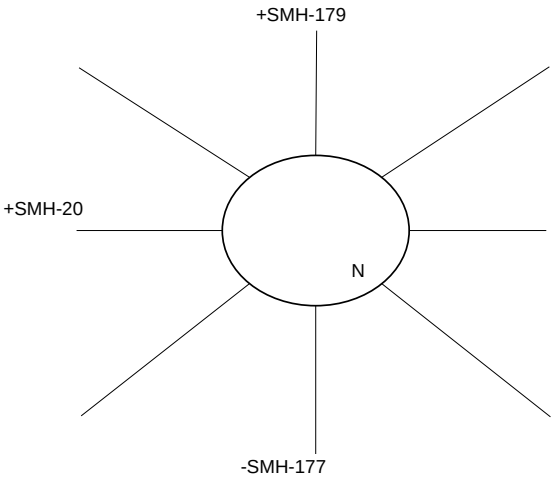
Street:	Main St
City, State:	Bourne, MA

Manhole Information

Cover:

Holes in Cover:	[ ] *Yes*	[X] *No*	# of Holes:	0	
Cover Condition:	Sound		Size (in.):	0	
Grade:	At				
General Comments:	Flood cover w/ broken handles, missing asphalt around rim				

Manhole Sketch & Photo



Manhole Cover Adjustment Ring:

Ring Condition:	None
Drainage Area:	4x4

Internal Manhole Observations

ITEM	MATERIAL	CONDITION	LEAKS (gpm)	DEFECTS	COMMENTS
Frame	Cast Iron	Sound	0		
Chimney	Parged	Sound	0		Precast
Cone	Precast	Sound	0		
Steps	Other	Sound	0		Plastic
Walls	Precast	Sound	0		
Bench	Brick	Sound	0		
Channel	Brick	Sound	0		

Surcharge from Invert Evident: [ ] *Yes* [X] *No* Currently: ft. Marks to: ft.

Line Conditions

Directon (in/out)	Connect Assets	Rim to Invert Depth (ft., in.)	Pipe Diameter (in.)	Pipe Material	Flow Depth (in.)	Debris Depth (in.)	Pipe Conn. Leak (gpm)	Photo	Comments
Out	SMH-177	14 ft 7in	12	PVC	2	0.5	0		
In	SMH-20	11ft 8in	8	PVC	0	2	0		
In	SMH-179	14ft 6in	12	PVC	2	0.5	0		

EST
Associates, Inc.

SMH-181 - Bourne, MA

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

EST Associates, Inc.

Environmental Monitoring
Pipeline Services
Operations & Maintenance

Manhole Inspection Form

Client: EPG **Date:** 03/09/2021 **MH #:** **SMH-181**

General Information

Inspector(s):	MK
Certificate #:	
Ft. to Downstream MH:	300
Purpose of Survey:	I/I Study
Inspection Status:	Complete
Inspection Level:	Level 1

Location

Street:	Main St.
City, State:	Bourne, MA

Manhole Information

Cover:

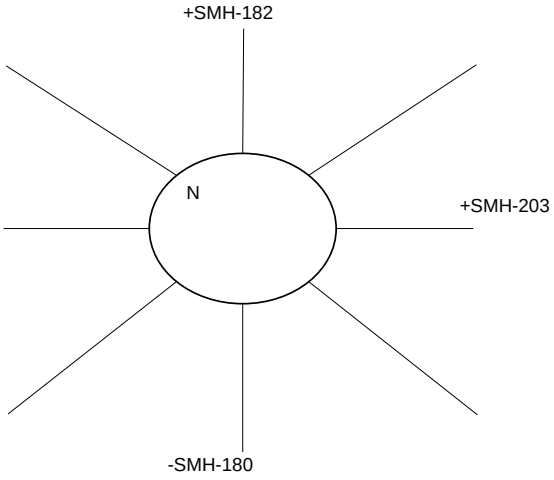
Holes in Cover: [ ] *Yes* [X] *No* # of Holes: 0

Cover Condition: Sound Size (in.): 0

Grade: At

General Comments:

Manhole Sketch & Photo



Manhole Cover Adjustment Ring:

Ring Condition:	None
Drainage Area:	4x4

Internal Manhole Observations

ITEM	MATERIAL	CONDITION	LEAKS (gpm)	DEFECTS	COMMENTS
Frame	Cast Iron	Sound	0		
Chimney	Brick	Sound	0		Precast
Cone	Precast	Sound	0		
Steps	Other	Sound	0		Plastic steps
Walls	Precast	Sound	0		
Bench	Brick	Sound	0		
Channel	Brick	Sound	0		

Surcharge from Invert Evident: [ ] *Yes* [X] *No* Currently: ft. Marks to: ft.

Line Conditions

Directon (in/out)	Connect Assets	Rim to Invert Depth (ft., in.)	Pipe Diameter (in.)	Pipe Material	Flow Depth (in.)	Debris Depth (in.)	Pipe Conn. Leak (gpm)	Photo	Comments
Out	180	14 ft 5in	12	PVC	2	0.5	0		
In	182	14ft 4in	12	PVC	2	0.5	0		
In	203	12ft 2in	12	PVC	0.5	0	0		

EST
Associates, Inc.

SMH-182 - Bourne, MA

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

EST Associates, Inc.

Environmental Monitoring
Pipeline Services
Operations & Maintenance

Manhole Inspection Form

Client: EPG **Date:** 03/09/2021 **MH #:** SMH-182

General Information

Inspector(s):	MK
Certificate #:	
Ft. to Downstream MH:	292
Purpose of Survey:	I/I Study
Inspection Status:	Complete
Inspection Level:	Level 1

Location

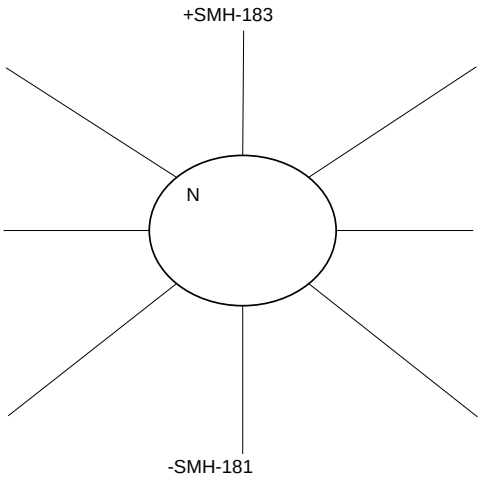
Street:	Main St.
City, State:	Bourne, MA

Manhole Information

Cover:

Holes in Cover:	X	*Yes*		*No*	# of Holes: 2
Cover Condition:	Sound				Size (in.): 0.75
Grade:	At				
General Comments:					

Manhole Sketch & Photo



Manhole Cover Adjustment Ring:

Ring Condition:	None
Drainage Area:	4x4

Internal Manhole Observations

ITEM	MATERIAL	CONDITION	LEAKS (gpm)	DEFECTS	COMMENTS
Frame	Cast Iron	Sound	0		
Chimney	Brick	Sound	0		Precast
Cone	Precast	Sound	0		
Steps	Other	Sound	0		Plastic steps
Walls	Precast	Sound	0		
Bench	Brick	Sound	0		
Channel	Brick	Sound	0		

Surcharge from Invert Evident: [ ] *Yes* [X] *No* Currently: ft. Marks to: ft.

Line Conditions

Directon (in/out)	Connect Assets	Rim to Invert Depth (ft., in.)	Pipe Diameter (in.)	Pipe Material	Flow Depth (in.)	Debris Depth (in.)	Pipe Conn. Leak (gpm)	Photo	Comments
Out	SMH-181	14ft 3in	10	PVC	1.75	0	0		
In	SMH-183	14ft 2in	10	PVC	1.75	0	0		

ENVIRONMENTAL PARTNERS

1900 Crown Colony Drive, Suite 402
Quincy, MA 02169
P: 617.657.0200 F: 617.657.0201

envpartners.com

Bourne Board of Sewer Commissioners

Sewer Policy and Regulations

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Attachments & Forms

Residential and Commercial (alterations only) Use Forms:

Town of Bourne Board of Sewer Commissioners

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The Town of Bourne Board of Sewer Commissioners (BOSC) manages the municipal sewer system in the village of Buzzards Bay, providing sewer services to more than one thousand units daily. The BOSC oversees the allocation of the availability of wastewater disposal and in turn guides the approved development and redevelopments in the Town of Bourne.

The BOSC was created due to a critical environmental need for municipal sewer in the Town, replacing separate septic systems on individual properties in the Buzzards Bay village that contributed to severely contaminated water quality. The BOSC is a five-member board that is comprised of the elected board of selectmen and shall serve until such time as the town adopts legislation creating a board of sewer commissioners.

In 2019, the BOSC set out to codify and amend its various regulations, procedures, and policies. With the onset of a focused and goal oriented Board, a new Town Administrator and Assistant Town Administrator, and several newly appointed Department heads, these regulations were a result of comprehensive and extensive review. The Department of Public Works, the Sewer Department, the Engineering Department, Board of Health, and Town Administration have contributed wholly or partly in order to provide the residents and business owners of Bourne with a safe, practical, and pragmatic document that could guide current and future growth of our municipal sanitary sewer in Bourne.

Goals

The goal of the BOSC is to provide residents and businesses in the town of Bourne with the best quality sewer services available in a way that is both protective of the environment and financially prudent. Expansion of the municipal system by the Town will be guided by the most recently adopted Comprehensive Wastewater Management Plan (CWMP.)

History

For over 30 years the BOSC has consistently delivered efficient sanitary sewer services to over a thousand units every day with fiscal integrity in a manner that protects and promotes public health. BOSC's system comes from an extensive focus on water quality and a desire to promote business growth in the downtown village of Buzzards Bay. Since 1990, the Town of Bourne has sent up to 200,000 gallons per day (gpd) to the Town of Wareham Wastewater Treatment Plant (WWTP) on the Agawam River. In 2015, the Town undertook the responsibility of constructing its own WWTP at Queen Sewell park after several feasibility studies going as far back as 2005. Completion of the WWTP is expected in April 2021 and will allow another 100,000 gpd for expansion of the municipal sewer system.

1.0 USE OF SEWERS

1.1 These Sanitary Sewer Regulations are promulgated pursuant to Chapter 117 of the Acts of 2012.

Deleted: M.G.L. ch. 83, §10, and shall also constitute a pricing structure adopted pursuant to M.G.L. ch. 40, §39J.

1.2 The use of all public sewers in the Town shall be controlled by the Department of Public Works Sewer Division and policy decisions by the Board of Sewer Commissioners. No person shall, without prior authorization from the DPW and/or the Board of Sewer Commissioners, uncover, make any connection with or opening into, alter, or disturb the Town's wastewater systems.

1.3 Rates and Fees

A. Allocation Fees

Allocations fees are based on the Allocation Policy as set forth by the Board of Sewer Commissioners. The charge is a specified amount of wastewater treatment capacity measured in gallons per day (gpd) assigned to a specific project on a specific parcel or parcels upon a majority vote of the Board. All allocations to projects shall be based on state and local regulations. The transfer of all or part of an allocation is prohibited unless approved in writing by the Board. See Attachment C.

B. Sewer Development Fee (Connection Charges)

Applicants must pay a connection charge to connect to the Town's sanitary sewer systems. These charges are one-time charges for connecting to the Bourne sanitary sewer system. The sewer system connection charge, as applicable, must accompany an application for service before Department of Public Works Sewer Division. It is the responsibility of the Applicant or the Applicant's Contractor to install the building sewer from the Applicant's building to the public sewer system according to Department of Public Works Sewer Division.

C. Sewer Rates (User Charges)

All sewer rates are based on the fee established by the Board of Sewer Commissioners on an annual basis plus a surcharge for water use above a designated quantity of the water that passes through the water meter. Consumption is billed at rates in effect at time of use. Current rates are outlined in Attachment A.

D. Sump Pumps

For sump pumps approved to be connected to the public sewer, there is a separate sewer use charge since flow from sump pumps is not accounted for in

typical water meter usage. Sump pumps connected to the public sewer are generally not allowed by the Town of Bourne and would only be considered in extreme cases.

New and Existing Sewer Service Connections:

Minimum application/connection fees for new and existing sewer services are calculated with current connection fees per equivalent unit included in Attachment A.

Fees will apply to all new connections to the public sewer system. The "Re-connect" fee will only be applicable to residential properties and will be used in the case where an existing structure, which is connected to the public sewer system, is completely re-built or substantially renovated in the opinion of the DPW Director.

1.4 Private Sewers

All private sewers in the Town that connect to the public wastewater shall be controlled as to discharge by the DPW Sewer Division, but maintained and operated by their owner(s). Repairs to private sewers, including repairs required to comply with these Regulations, shall be made by an approved drain layer at the expense of the owner.

1.5 Applicable Regulations

Any user of the Town's wastewater system shall be subject to Town rules and regulations and to any charges, rates, fees, and assessments which are or may be established by the Town. Any user of the Town's wastewater system shall also be subject to applicable Federal and State regulations. In instances where various regulations contain different requirements, the most stringent requirements shall be met.

1.6 Wastewater Connections

The DPW Sewer Division recommends that wastewater disposal facilities be connected to its wastewater system whenever the lack of such connections would endanger public health, create a public nuisance, or impair water quality. Connection to the wastewater system shall be subject to the availability of capacity in the system as determined by the Board of Sewer Commissioners. The Commissioners may request that the Applicant perform an analysis to show that the Town wastewater system has adequate capacity to accept the additional flow. Connections shall be made in compliance with all DPW Sewer Division rules, regulations, and specifications, and at the owner's expense.

2.0 ALLOCATION POLICY

2.1 PURPOSE

The Town of Bourne (referred to herein as the Town), through an Inter-Municipal Agreement, may send up to 200,000 gallons per day (gpd) of wastewater for treatment and disposal to a plant owned by the Town of Wareham. Another 100,000 gpd is also available for allocation from a new package treatment plant on the Town's Queen Sewell Park site. The Board of Sewer Commissioners (referred to herein as the Board) controls the allocation of wastewater treatment capacity among parcels in the sewered areas of the Village of Buzzards Bay and assigns allocations on a parcel-by-parcel basis. (See Attachment G)

In order to follow an objective process for remove subjective factors from the process of awarding wastewater allocations, the Board may henceforth apply the following procedures for granting allocations from the Town's Uncommitted Reserve Capacity for the purpose of development and re-development in Bourne's Downtown.

These procedures are in effect primarily for properties proposing a change of use and/or change in septage flow. The guideline for which properties/projects are required to follow these procedures is: if a development has either a change of use or an increase in flow then it requires review by the Board of Sewer Commissioners using the policies and procedures described herein.

Further, in order to ensure that unused allocations will not prevent property owners and/or developers from coming forward with projects that may be in the long term best interests of the Town, the Board hereby establishes a system of periodic reviews of allocations.

2.2 UNCOMMITTED RESERVE CAPACITY

Annually, the Board shall determine the Uncommitted Reserve Capacity.

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2.3 OBTAINING A PRELIMINARY ALLOCATION

A. The Applicant shall apply to the Board for a Preliminary Allocation on a form attached herein (Attachment C). An Application Fee is due when the application is submitted (see Attachement A, page 3). The Application is reviewed by staff within 30 days then placed on a Board agenda once deemed complete.

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B. If the application requests a flow amount that exceeds the Uncommitted Reserve Capacity (see draft application), the application may ask for a meeting with Town Staff to discuss possible solutions and then request a meeting with the Board. If enough allocation is available, the application fee is paid, and the project application will be deemed complete. The Board will consider requests on the waiting list in the order in which they were dated.

Deleted: will be rejected considered incomplete but is otherwise complete it will be dated and put on a waiting list. When allocation becomes available, t

Deleted: he Board will consider requests on the waiting list in the order in which they were dated.

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C. The Board shall review applications on a first come, first served basis within sixty days after the Application is deemed complete. If the requested allocation is

available within the Uncommitted Reserve Capacity, the Board may grant Preliminary Allocations to projects which:

1. Demonstrate evidence of adequate financing;
2. Demonstrate control of the project's parcels (i.e. Purchase and Sale agreement, evidence of ownership);
3. Have preliminary project review with Town Planner;
4. Demonstrate that the requested allocation is based on state and local regulations.

D. If the Board grants a Preliminary Allocation, the Applicant shall have up to two years to initiate construction. A Preliminary Allocation Fee is due within 30 days after the Board grants the Preliminary Allocation.

1. During the two years, the Applicant shall show substantial progress in regular six-month reports to the Board. The Board retains the right to revoke the Preliminary Allocation if the Applicant cannot demonstrate progress, although the Board may allow for the continuation or extension of a Preliminary Allocation in any case. If the Preliminary Allocation is revoked, the allocation shall revert to the Town.
2. When the Board grants a Preliminary Allocation, the Applicant shall pay a Preliminary Allocation Fee as set forth in the Town's Schedule of Rates and Fees.
3. If the Board extends the Preliminary Allocation beyond the designated two-year period, the Applicant shall annually pay a Preliminary Allocation Extension Fee.
4. The Application Fee, the Preliminary Allocation Fee, and any Preliminary
5. After the Board's vote to grant a Preliminary Allocation, the Applicant will be issued a letter signed by the Town Administrator certifying to the existence of a Preliminary Allocation for that specific project/parcel(s) and including any conditions imposed by the Board. The Town Planner, the Building Inspector and the Health Agent will be copied on the allocation letter issued by the Town Administrator.

2.4 FEES

A. During the process of obtaining a Preliminary Allocation, the applicant shall be assessed fees as periodically established by the Board, which is hereby authorized to establish or amend wastewater allocation fees from time to time as follows:

1. Application Fee: due upon application for a Preliminary Allocation.
2. Preliminary Allocation Fee: due within 30 days of the Board's approval of the Preliminary Allocation. The fee shall be based upon the projected wastewater flow.

3. Preliminary Allocation Extension Fee: due within 30 days of the Board's vote to extend the Preliminary Allocation beyond the original two years and shall be paid annually for as long as the extension is continued.

B. When the project connects to the sewer system, the applicant shall pay user fees as designated by the Board of Sewer Commissioners

C. In cases where a Preliminary Allocation expires and a new person applies for capacity for the same project on the same site, the Board may consider previous fees paid by the original person when establishing fees for the new project.

3.0 BUILDING SEWERS AND CONNECTIONS

3.1 Separate Building Sewers

Separate and independent building sewer connections shall be provided for all new or substantially rehabilitated buildings. Where one building stands behind another on an interior lot, and no private sewer is available or can be constructed to the rear of the building through an adjoining alley, court, yard, or driveway, the building sewer may be extended from the front building to the rear building with the approval of the Board of Sewer Commissioners.

3.2 Existing Building Sewers and Building Storm Sewers

With DPW approval, existing building sewers may be used to accommodate new uses which result in changes in volumes or characteristics of wastewater and stormwater. The property owner is required to perform a television inspection of the existing sewer proposed for use prior to reuse. If, in the opinion of the sewer division, the existing gravity sewer pipe is not suitable for reuse it must be replaced with SDR35 PVC pipe. The costs of any inspection and testing required by the DPW as a precondition to such approval shall be at the owner's expense.

3.3 Gravity Discharge to Sewer

All building sewers shall discharge by gravity to the public sewer. In all new or substantially rehabilitated buildings in which any building sewer is too low to permit gravity discharge (other than for a low pressure sewer system), wastewater shall be lifted by an approved means and allowed to discharge by gravity (i.e., not under pressure) to the sewer.

3.4 Backwater Valves

All existing or new building drains from plumbing fixtures liable to backflow from a public sewer, or a private sewer connected to the public sewer, shall be required to

have backwater valves installed at the owner's expense. Any plumbing fixture located at an elevation below the top of the manhole on the public sewer serving the fixture shall be considered to be liable to backflow. Backflow valves shall be installed in accordance with 248 CMR Section 2.09(4) of the Uniform State Plumbing Code, as amended. The DPW shall have the right to inspect all backwater values in accordance with Section 6.0 of these regulations. Where backwater values are required, they shall be installed and maintained continuously in satisfactory and effective operation by and at the expense of the owner or user.

3.5 Oil Traps for Commercial and Industrial Garages

Oil traps shall be required on sewers directly or indirectly tributary to the Town's wastewater system from existing or new garages, and other establishments capable of discharging petroleum-based oil or grease, flammable wastes, sand, or other harmful substances. Oil traps shall not normally be required for garages associated with private dwelling units. The determination as to whether an oil trap is required rests with the Town Plumbing Inspector/Building Department and the DPW. All oil traps shall be of a type and capacity approved by the DPW and shall be located so as to be readily accessible for maintenance and inspection. The DPW shall have the right to inspect such facilities in accordance with Section 6.0 of these regulations. Where oil traps are required, they shall be installed and maintained continuously in satisfactory and effective operation by and at the expense of the owner or user.

3.6 Grease Traps

Grease traps shall be required for all restaurants, facilities that prepare and/or package food or beverages for sale or consumption, on or off-site, and any other industrial or commercial establishments which discharge significant amounts of animal or vegetable fat, oil or grease. The discharge concentration shall not exceed 100 milligrams per liter for any building sewer. Such devices shall not normally be required for private dwelling units. The Board of Health Agent will determine whether a grease trap is required. All grease traps shall be of a type and capacity approved by the Board of Health Agent and shall be located so as to be readily accessible for maintenance and inspection. Where grease traps are required, they shall be installed, inspected at least once each month, and maintained continuously in satisfactory and effective operation and in accordance with the requirements of the Uniform State Plumbing Code and the State Environmental Code, Title 5, all by and at the expense of the owner and user. The DPW shall have the right to inspect such facilities in accordance with Section 6.0 of these regulations. All grease trap/interceptors shall be subject to the following:

(a) All grease traps/interceptors shall comply with the Massachusetts Plumbing and Building Codes. Grease traps/interceptors shall be sized in accordance with 310 CMR 15 (Title V) and the Plumbing and Drainage

Institute (PDI) standard G-101, as amended.

(b) In every case where a food establishment is preparing or selling food or business of a similar nature is carried on, a suitable internal grease trap in compliance with Board of Health Regulations must be installed.

(c) Establishments in excess of 150 seats that prepare food must install an external grease interceptor. External grease interceptors shall have a minimum depth of four feet, minimum capacity of 1,500 gallons, have a grease retention capacity of not less than two (2) pounds for each gallon per minute of flow, and provide a minimum 24- hour detention time for kitchen flows. Interceptors shall be easily accessible for maintenance and have 24-inch (minimum) diameter risers to grade. Flow rates from the State Environmental Code, Title V, 310 CMR 15, shall be used to determine the size of a grease interceptor. Other alternative and innovative approved methods of grease removal and disposal may be used if approved by the Board of Health, Plumbing Inspector and DPW. All new facilities must install industrial type grease interceptors.

(d) The owner or his designee shall inspect grease traps/interceptors at least monthly. Internal grease traps must be cleaned monthly by the owner, operator or approved vendor. External grease traps must be pumped by an approved vendor a minimum of every six months and more frequently if required by the Superintendent. Service records must be maintained and readily accessible to Board of Health, and Plumbing agents and inspectors. Failure to clean traps/interceptors and provide evidence of such cleaning shall be considered a violation of these regulations. Failure to maintain adequately sized grease traps/interceptors in proper working order shall result in fines. Repeated failure to maintain adequately sized grease traps/interceptors in proper working order shall result in suspension of the Food Establishment Permit.

(e) Grease traps/interceptors shall be permitted annually, in collaboration with the renewal and inspection for a Food Establishment Permit. There shall be no additional charge for the grease trap/interceptor permit. The grease trap/interceptor permit shall be displayed prominently at the facility.

(f) Disposal of waste materials from grease traps/interceptors shall be by a licensed disposal facility/hauler only. Owner shall maintain records of disposal readily available for review by the Superintendent or his authorized agent.

(g) Any facility with a grease trap/interceptor permit shall post educational information (e.g., fact sheet, maintenance requirements, etc.) in the vicinity of the grease trap/interceptor.

(h) Any facility with a grease trap/interceptor permit shall keep a maintenance log available at the facility.

(i) The Town Plumbing Inspector and Board of Health Agent have the authority to act on behalf of the Town for the purpose of inspecting grease traps/interceptors, issuing permits for grease traps/interceptors, or issuing violations relative to the operation of a grease trap/interceptor.

3.7 Wastewater - Stormwater Separation

The plumbing of any existing or new building shall be so constructed as to keep all stormwater, surface water, groundwater, roof and surface runoff, subsurface drainage, and allowable non-stormwater discharges separate from the building sewer. In no case shall a building storm sewer be connected to a sanitary sewer. No person shall make connection of roof downspouts, exterior foundation drains, areaway drains, or other sources of surface runoff or groundwater to a building sewer which in turn is connected directly or indirectly to the sanitary sewer. No wastewater shall be discharged into a storm drain. (All wastewater-stormwater separation shall comply with the requirements outlined in the Town's Board of Health regulation regarding Illegal (Illicit) Discharges to any storm drainage system, as well as, the Town's Zoning Bylaw (especially Section 3490) and any other Federal, State, and local laws pertaining to stormwater.)

3.8 Connections to Manholes

Building sewer connections for new or substantially rehabilitated buildings shall not be made directly to publicly-owned manholes unless expressly authorized by the DPW.

3.9 Special Facilities

The DPW may require the owner of a new or substantially-rehabilitated building to construct, operate, and maintain facilities, such as oil traps, particle separators, and wastewater retaining tanks, which will provide for the regulation and control of wastewater discharged to the Town's wastewater system... Such special facilities shall be constructed, operated, and maintained at the owner's expense. The DPW shall have the right to inspect such special facilities in accordance with Section 6.0, to ascertain compliance with these regulations.

3.10 Dewatering Drainage

In no circumstances shall dewatering drainage be discharged into a sanitary sewer. Such discharges shall comply with all other applicable regulations.

3.11 Design and Construction Standards

New building sewers, other private sewers, wastewater retaining tanks, grease traps, oil traps, appurtenances, and other wastewater facilities tributary to the public

wastewater system shall be designed and constructed in conformance with DPW standards and specifications, and as depicted in standard Town details. All new building sewers must be constructed of SDR 35 PVC pipe. All materials used must meet approved industry standards and be approved by the Bourne Department of Public Works. In the absence of such specifications or in amplification thereof, the materials and procedures set forth in appropriate specifications of the American Society for Testing and Materials, the WPCF Manual of Practice No. 9 New England Interstate Water Pollution Control Commission Guides for the Design of Wastewater Treatment Works, and Title 5 of the State Environmental Code shall apply.

Building sewer connections shall be laid at least ten (10) feet apart from any new or existing water service connection.

3.12 Approved Drain Layer

All building sewer installation, repair or maintenance work shall be performed by a drain layer who is DPW-approved. A drain layer's bond, using the DPW's standard bond form, as then in effect, must be submitted to the DPW in advance of installation for projects exceeding $10,000.

3.13 Violations to be Reported

All drain layers are required to give a full written report to the DPW within 24 hours if, in the course of performing their work, either (a) prohibited substances are found in a building drain, building sewer, building storm drain, or building storm sewer or plumbing is found that would allow discharges of such substances to a building drain, building sewer, building storm drain, or building storm sewer or (b) interconnections are observed.

3.14 Right to Inspect During Construction

The DPW shall have the right to inspect building sewers and other private sewers, wastewater retaining tanks, grease traps, oil traps, sump pumps and other wastewater facilities tributary to the public wastewater and storm drainage systems, at any reasonable time while construction is underway. The Applicant or his representative must inform the Department twenty-four (24) hours prior to beginning installation procedures, and shall notify the DPW when such facility is installed and ready for final inspection and for connection to the Town's wastewater system. A representative of the Bourne Department of Public Works must approve of the installation prior to backfilling and final connection. The cost of the inspection by the Town is paid for under the connection charge outlined in Section 1.3B. Connection to the Town's wastewater system shall be made in the presence of a DPW inspector. No facility shall be covered over until approval has been given by the DPW inspector. If the owner fails to notify the DPW in advance, any and all costs to uncover the

connection as necessary for inspection by the DPW shall be borne by the owner.

3.15 Bonding Requirements

The DPW shall have the right to require that the owners of proposed building sewers, other private sewers, wastewater retaining tanks, grease traps, and other wastewater facilities tributary to the Town's wastewater system post a bond in a form satisfactory to the DPW and in an amount and for a period of time sufficient to guarantee construction quality and operating performance.

3.16 Application Required for Building Sewer

The owner shall complete a General Sewer Service Application prior to construction, reconstruction, repair, or modification of a new or existing building sewer which connects to a Town sanitary sewer. The application shall be supplemented by building site plans approved by the DPW and by such other permits, plans, specifications and information as the DPW may require. An application/connection fee shall be paid at the time the application is filed. Construction, reconstruction, repair, or modification of the building sewer shall not proceed without authorization by the DPW. A DPW inspector will be assigned to inspect the building sewer and connection to a public sanitary sewer.

The owner shall specify for the Superintendent’s approval the nature of the work to be performed, including the proposed flow to be discharged (calculated in accordance with Title 5 (31O CMR 15)) and the size, material, mode of construction, location, direction and grade of all pipes and appurtenances to convey those flows to the public sewer. The DPW may require the Applicant to hire and pay for a Massachusetts Registered Professional Engineer to evaluate the public sewer downstream of the proposed connection to demonstrate that adequate hydraulic capacity exists in the public sewers to convey the proposed peak flows without surcharging. The Director may also require that the Applicant perform a condition assessment of sewer infrastructure in the downstream flow path of the proposed connection. If, in the opinion of the Superintendent, flow from the proposed project may cause system surcharges and/or overflows, or existing sewer deficiencies in the downstream flow path to further deteriorate, rehabilitation of the downstream infrastructure may be required.

The Superintendent may deny the owner's request to extend, replace or relocate a public sewer, or private sewer, if in the Superintendent's opinion adequate conveyance capacity cannot be achieved or the proposed work does not conform to the Town's design standards. The Superintendent may require certain conditions as part of the approval of a request to extend, replace or relocate a sewer main or service.

3.17 Connection Permit Required

No user shall connect to the public sewer without a Connection to Sewerage System Permit issued and approved by the DPW and issued by the Massachusetts Division of Water Pollution Control, if applicable.

Prior to issuance of a permit, the Superintendent shall require the Applicant to demonstrate review of and, if applicable, compliance with the requirements of the following, as well any other **applicable** state or local regulations:

3.17.1 301 CMR 11.00, Massachusetts Environmental Policy Act
3.17.2 310 CMR 10.00: Wetlands Protection Act Regulations
3.17.3 314 CMR 7.00, Sewer System Extension and Connection Permit Program
3.17.4 314 CMR 12.00, Operation & Maintenance & Pretreatment Standards for Wastewater Treatment Works and Indirect Dischargers
3.17.5 Cape Cod Commission

3.18 Expenses Borne by the Owner

All costs and expenses incidental to the application form, permitting, design, installation, connection, and maintenance of a building sewer, other private sewers, wastewater retaining tanks, grease traps, oil traps, or other wastewater facilities shall be borne by the owner. The owner shall indemnify the DPW from, and shall reimburse the DPW for, any loss or damage directly or indirectly occasioned by the installation of any building sewer, private sewer, wastewater retaining tank, grease trap, oil trap, or other wastewater facility.

3.19 Maintenance of Building Sewers

The property owner owns the building sewer from the building to the public sewer. The owner of a building sewer shall, at all times, keep such sewers in good repair in order not to cause excessive infiltration, exfiltration or inflow, depletion of groundwater, damage to property, or harm to the public sewers. Maintenance and/or repair of building sewers located under public ways shall be the responsibility of the property owner. However, the Town does have jurisdiction to make repairs to the portion of the building sewer located from the property line to the public sewer as needed at the Town's discretion. Should the Town be required to perform emergency maintenance or repair on any private sewer to eliminate a potential hazard to the public, property, or the environment, the owner of said private sewer shall reimburse the Town on a time and materials basis and be subject to the Town's direct labor burden and equipment overhead costs.

Commented [LT1]: Do we need to change this sentence? Property owner owns up to the property line. Bourne sewer owns everything else.

3.20 Construction of Below Grade Fixtures

Construction of below grade fixtures shall be in accordance with the Uniform State Plumbing Code Section 248 CMR 10.00 and a plumbing permit is required to complete the work. Plumbing that is subject to the requirements of this section shall include faucets, showers, baths, toilets and washing machine hookups. All plumbing fixtures located at an elevation below the top of the manhole on the public sewer serving the proposed plumbing shall be considered liable to backflow and shall be equipped with a backwater valve in accordance with 248 CMR Section 10.15 (10) (f) of the Uniform State Plumbing Code and 780 CMR Chapter 29 of the State Building Code. The backwater valve shall be installed and maintained at the owner's expense.

3.21 Dye Testing of Building Sewers

Prior to issuance of an occupancy permit, every new building sewer shall be dye tested by the owner or his designee in the presence of a Town inspector to establish that the building sewer is properly connected to the public sanitary sewer. At any time, the DPW may require an owner to conduct dye testing of an existing building sewer to confirm that it is properly connected to the public sanitary sewer. If the building sewer is not connected to the public sanitary sewer, the owner shall use whatever means necessary to determine the actual point of connection. The DPW shall require the owner to eliminate any connection from a building sewer to the MS4 or any other natural outlet {also referred to as an illicit connection) at the owner's expense. Where separate sanitary and storm drains exist, the DPW may also require the owner to dye test in the presence of a Town inspector, a new or existing building storm drain to establish that it is properly connected to the MS4. The DPW may also require the owner to eliminate a connection from a building storm drain to a public sanitary sewer at the owner's expense.

3.22 Sump Pump Connections

Sump pumps may be connected to the public storm drainage system at the discretion of the Superintendent if the Superintendent determines that discharge on-site is not feasible. The owner shall pay a separate sump pump fee. The connection shall be in compliance with the Town's Board of Health regulation regarding Illegal (Illicit) Discharges to any storm drainage system. The Property Owner must also sign the Drainage Release Form included in Attachment B.

3.23 Private Inflow Removal

Illicit sewer connections to the public sewer system, which include stormwater connections associated with basement sump pumps, roof leaders, foundation/cellar french drains, and driveway drains, are prohibited. Illicit sewer connections that are

not removed in accordance with DPW Policy will be subject to a fine as outlined in Attachment A. The use charge is assessed on the additional water that is being contributed to the sewer system, but not being registered by the water meter. Duly authorized representatives of the DPW may inspect the property or facilities of any user (including facilities under construction) to ascertain compliance with these Regulations. If inspection access to the property is not permitted by the owner, an additional use charge shall be assessed. The charge will be removed following inspection if an illicit discharge to the sewer system is not identified.

3.24 Pump Stations

Where pump stations are required for extension, replacement, or connection to the public sanitary sewer, the Applicant must adhere to the following requirements, as certified by a Professional Engineer licensed in the Commonwealth:

(a) Pump stations shall be designed and constructed in accordance with the latest version of TR-16 Guide to Wastewater Treatment Works, or other accepted industry-standard design manual practice.

(b) The permittee must provide a full set of buoyancy calculations for pump station wet well and associated underground vaults.

(c) At a minimum, pump stations shall be equipped with the following:

(1) SCADA (Supervisory Control and Data Acquisition) system
(2) Alarm system with visual and audible components mounted outside
(3) Alternative/back-up power
(4) An Odor Control component for stations with a design flow rate higher than 350 gpm.
(5) Flow meter and run-time recorder

(d) Connection to the public sanitary sewer system shall be by gravity, not under pressure unless part of a low pressure sewer system.

(e) Upon completion of construction of the pump station, the Contractor shall provide to the Town copies of as-built drawings and an Operation & Maintenance Manual for the pump station.

(f) The permittee shall be required to enter into an annual operation and maintenance service contract for emergency services after the commencement of operation of the pump station.

(g) The permittee shall provide financial assurance for emergency repair and a long-term capital fund for replacement of the station or its components before useful life has been expended (see Attachment H for Financial Security Provisions for New Pump Stations).

4.0 **WASTEWATER DISCHARGE PROHIBITIONS AND ITEM DISPOSAL RESTRICTIONS**

4.1 General Prohibitions

No persons shall discharge or cause or allow to be discharged into a public sewer or into a sewer tributary thereto, any substances, waters or wastes that the DPW has identified as likely, either singly or by interaction with other substances, to:

a) Harm any wastewater system, wastewater treatment facility, or wastewater treatment process;

b) Pass through or be otherwise incompatible with the wastewater treatment process or sludge disposal;
c) Cause a violation of Federal or State discharge permits issued to either the DPW Sewer Division;
d) Cause a violation of water quality standards or otherwise adversely affect the receiving waters;
e) Endanger life, limb or property, or
f) Constitute a health hazard or nuisance.
g) Any liquid or vapor having a temperature higher than one hundred and fifty degrees (150 F)
h) Any water or waste containing fats, wax, grease, or oils, whether emulsified or not in excess of one hundred milligrams per liter (100mg)/L) or containing substances which may solidify or become viscous at temperatures between thirty-two degrees (32 F) and one hundred and fifty degrees (150 F).
i) Any garbage that has not been properly shredded. The installation and operation of any garbage grinder equipment with a motor of ¾ horsepower or greater shall be subject to the review and approval of the DPW Sewer Division.
j) Any waters or wastes containing strong acid iron pickling wastes, or concentrated plating solutions whether neutralized or not. Any waters or wastes containing iron, chromium, copper, zinc, and similar objectionable or toxic substances; or wastes exerting an excessive chlorine requirement, to such degree that any such material received in the composite sewage at the sewage treatment plant exceeds the limits established by the Sewer Commissioners for such materials.
k) Any waters or wastes containing phenols or other taste or odor producing substances, in concentrations which exceed maximum limits which may be established by the Commissioners, after treatment of the composite sewage in order to meet the requirements of the State, Federal, or public agencies or jurisdiction for such discharge to the receiving waters.
l) Any radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by the Commissioners in compliance with applicable State or Federal regulations.
m) Any waters or wastes having a pH in excess of 9.5.

n) Material which exert or cause:
   1. Unusual concentrations of inert suspended solids, such as but not limited to, Fullers earth, lime slurries, and lime residues, or of dissolved liquids, such as but not limited to, sodium chloride and sodium sulfate.
   2. Excessive discoloration, such as by not limited to, dye wastes and tanning solutions.
   3. Unusual BOD, chemical oxygen demand, or chlorine requirements in such quantities as to constitute a significant load on the sewerage treatment works.
   4. Unusual volume of flow or concentration of wastes constituting 'slugs' as defined herein.

o) Waters or wastes containing substances which are not amendable to treatment or reduction by the sewage treatment processes employed or are amenable to treatment only to such degree that the sewage treatment plant effluent cannot meet the requirements of other agencies having jurisdiction over discharge to receiving waters.

Unless otherwise stated herein the provisions of these rules and regulations and any supplementary revisions shall govern all discharges to the sanitary sewer system.

4.2 Prohibited Wastes and Substances

No person shall discharge or cause or allow to be discharged into a public sewer or into a sewer tributary thereto any of those wastes and substances specifically prohibited as identified in 360 CMR 10.023 and 10.024, and/or the Town.

a) Any gasoline, benzene, naphtha, fuel oil, or other flammable or explosive liquid, solid, or gas.
b) Any waters or wastes containing toxic or poisonous solids, liquids, or gases in sufficient quantity, either singly or by interaction with other wastes, so as to injure or interfere with any sewage treatment process, or which will constitute a hazard to humans or animals, create a public nuisance or create any hazard in the receiving waters of the sewage treatment process and system.
c) Any waters or wastes having a pH lower than 5.5, or higher than 9.5, or having any other corrosive property capable of causing damage or hazard to structures, equipment, and personnel of the sewerage works.
d) Solid or viscous substances in quantities or of such size capable of causing obstruction to the flow in sewers, or other interferences with the proper operation of the sewage

works such as, but not limited to, ashes, fleshing, entails and paper dishes, cups, milk containers, etc.

e) **Additional Items that cannot be flushed into the Sewer System:**

- Feminine Hygiene Products
- Wet Wipes
- Floss, Q-tips, and Cotton Balls
- Diapers
- Pills and Medications
- Paper Towels
- Cigarette Butts

4.3 Prohibited Discharges Into Sanitary Sewers

No user shall directly or indirectly discharge or cause or allow to be discharged into any public sanitary sewer or any sanitary sewer tributary thereto any groundwater, stormwater, surface water, roof runoff, subsurface drainage or any Allowable Non-Stormwater Discharge specifically stated as such in the Town's General Permit for Stormwater Discharges from Small Municipal Storm Sewer Systems that can be discharged to the Town's storm drain system.

4.4 Prohibited Discharges Into Storm Drains

No user shall directly or indirectly discharge or cause or allow to be discharged any wastewater into a building storm sewer or a public storm drain.

4.5 Dilution Prohibited

No user shall dilute a wastewater discharge to comply with the provisions of these Regulations.

4.6 Variances

Notwithstanding the limitations set forth in these Regulations, a special variance or amendment to a Sewer Use Discharge Permit may be issued by the DPW Sewer Division, whereby wastes of unusual character or strength may be accepted on an interim basis when, in the opinion of the DPW Sewer Division, unusual or extraordinary circumstances compel special terms and/or conditions of temporary duration. Such permit shall be issued only when, in the opinion of the DPW Sewer Division, the discharge associated with such a variance or amendment would not cause any interference with or disruption in the wastewater system; would not cause either

directly or through interaction, violations of either (a) any Federal discharge permit then held by the DPW, (b) the municipal discharge permit then held by the DPW, or (c) State water quality standards; and would not force additional controls on other dischargers to achieve compliance with effluent limitations. A variance or amendment to a Sewer Use Discharge Permit must be applied for in writing by the proposed discharger. No discharge to be covered by such a variance or amendment shall take place prior to its issuance.

5.0 INDUSTRIAL DISCHARGE AND PRE· TREATMENT REQUIREMENTS

5.1 Industrial Discharge Requirements

A. Compliance with MA DEP Regulations

The intent of these Regulations is to comply with Massachusetts DEP regulations governing industrial users. These Regulations shall accordingly be construed to conform with such MA DEP regulations as they now exist or may be amended, including 314 CMR 12.

B. Prohibited Discharges

No industrial user shall discharge or cause or allow to be discharged into any public sewer or into any sewer tributary thereto any prohibited or restricted wastes identified in Section 4.0.

C. Discharge Permits

No user shall discharge industrial wastes into the Town's wastewater system without a Sewer Use Discharge Permit. Every user proposing a new or modified discharge of industrial wastes shall obtain such a permit and shall file a General Service Application prior to constructing a building sewer to convey such wastes.

1) Every user required to obtain a Sewer Use Discharge Permit shall complete and file with both the DPW a permit application form which may be obtained from either the DPW.

2) The DPW shall evaluate the adequacy of data furnished in the application and may require the applicant to provide additional data within a specified time. After receipt of adequate data, the DPW may issue a permit.

3) The DPW may stipulate special conditions and terms upon which the permit is issued. Permits may contain the following terms and conditions.

a) Limits on rate, time and characteristics of discharge and requirements for flow regulation, equalization and retention.

b) Installation of inspection, flow measurement and sampling facilities, and provisions for access to such facilities for inspection and/or sampling related to the permit terms and conditions.

c) Specifications for monitoring programs which may include flow and measurement, biological tests, data sampling, physical, chemical recording, and reporting schedules.

d) Pre-treatment requirements and implementation schedules, including schedules for reporting progress towards meeting such requirements.

e) Periodic submission of discharge reports.

f) Special service charges or fees.

g) Other provisions deemed appropriate by the DPW to ensure compliance with these Regulations and with applicable requirements of State or Federal laws.

4) The DPW may change the conditions of a Sewer User Discharge Permit from time to time as circumstances (including Federal or State statutes or regulations) may require.

5) A permit shall not be assigned or transferred.

6) If an industrial user discharges types, amounts or rates of pollutants in violation of these Regulations or its permit, the DPW may revoke its permit in accordance with Section 6.0 of these regulations. If changes in the industrial process have improved the characteristics and/or volume of its discharge, an industrial user may apply to the DPW for modification of its discharge permit.

7) When required by its permit, an industrial user shall submit to the DPW at a designated frequency and in a form acceptable to the DPW a duly signed discharge report containing all information requested by the DPW. Any additional information requested from time to time by the DPW shall also be furnished.

8) The DPW may use the information provided in permit applications, permits and discharge reports as a basis for determining user charges

D. Monitoring Facility Requirements

When required by the DPW, an industrial user or discharger of industrial wastes shall install suitable control or measuring devices together with manholes, chambers, meters, and other appurtenances in 1ts building sewer(s) to facilitate waste observation, sampling and measurement. Such manholes,

chambers or meters shall be accessibly and safely located, shall be constructed in accordance with site plans approved by the DPW, shall be installed by and at the expense of the owner, and shall be maintained by the owner in good operating condition at all times: All meters and other measuring devices shall be approved by the DPW prior to installation and use. The facilities shall be constructed in accordance with all applicable construction standards. Construction shall be completed in compliance with a time schedule established by the DPW and Wareham. All records from meters and measuring devices all be kept for at least two years and furnished to the DPW upon request. During construction and after installation, the DPW shall have the right to inspect the facilities in accordance with Section 6.0 hereof.

E. Sampling and Analysis

All measurements, tests and analyses of the characteristics of water and wastes required to conform with these Regulations shall be performed in accordance with Standard Methods. Samples analyzed shall be collected at locations designated by the DPW and by methods acceptable to the DPW. The DPW will stipulate whether a composite or grab sample(s) should be taken.

Notification of Violations

User shall notify the DPW's Superintendent immediately upon discharging wastes in violation of these Regulations or their permits. Each notification shall be followed within 15 days of the date of occurrence by a detailed written statement sent by the user to both the DPW describing the causes of the discharge and the measures being taken to prevent a recurrence. Such notification will not relieve users of liability for any expense, loss or damage to the DPW wastewater system, or for any fines imposed on the DPW due to such discharge.

F. Preventative Measures

Each user shall provide reasonable and appropriate protection from any discharge, including accidental discharges, in violation of these Regulations.

G. Notification to Employees

Users other than the owners of private dwelling units shall inform their employees of the existence of these Regulations. At least one copy of the Regulations shall be permanently and conspicuously posted by each user. Each user shall also permanently post a notice identifying the employee who has been designated as the individual responsible for compliance with, and who should be notified of, any violation of these Regulations.

H. Confidentiality of Data and Documents

All information and data regarding any user, whether obtained from reports, questionnaires, permit applications, permits, monitoring programs, or inspections, may be made available upon request to other governmental agencies and to the public without restriction unless the user makes a specific

written request for a more limited distribution. Distribution will be limited only if the user demonstrates to the DPW's satisfaction that the release or communication of such information would divulge methods or processes entitled to protection as trade secrets or would violate any applicable provisions of law.

5.2. Pre-Treatment Requirements

A. Pretreatment Regulations,

All industrial users and discharges of industrial wastes shall comply with Federal, State, and DPW regulations pertinent to industrial pretreatment as they now exist or may be amended in the future. The timing of compliance shall be as directed by the DPW.

B. Pretreatment Facilities

Prior to construction or installation of any pretreatment facilities required by any applicable industrial pretreatment regulations, detailed plans and operating procedures, along with a proposed implementation schedule, shall be submitted to the DPW for review. The review of such plans and op rating procedures will in no way relieve such user from the responsibility of modifying the pretreatment facility as may be necessary to produce an effluent acceptable to the DPW under the provisions of their respective regulations and the requirements of Federal or State agencies. An approved implementation schedule will be incorporated in the Sewer Use Discharge Permit. Any subsequent proposed changes in a pretreatment facility or method of operation shall be reported to the DPW before modification of such facility. Pretreatment facilities shall .be continuously maintained in satisfactory and effective operation. All costs associated with pretreatment facility planning, design, construction, operation and maintenance shall be borne by the owner or user. The DPW shall have the right to inspect such facilities in accordance with Section 6.0 of these regulations.

6.0 ENFORCEMENT

6.1 Inspection

A. Right of Access

Duly authorized representatives of the DPW may inspect the property or facilities of any user (including facilities under construction) to ascertain compliance with these Regulations. Owners or occupants of premises where stormwater or wastewater is either generated or discharged shall allow properly identified DPW representatives ready access, at all reasonable limes during normal business hours and at such other times as the DPW reasonably suspects that a violation of these Regulations may be occurring, to such parts of the premises as would enable DPW personnel to inspect, observe, measure, sample and test

1) Internal plumbing;

2) Pre-treatment facilities

3) Internal discharge points or connections;

4) Exterior connections;

5) Building sewers;

6) Backwater Values

6) Sump pumps and basement floor drains;

7) Oil traps and grease traps;

8) Any other facilities required by the DPW utilized; to be constructed, installed or

9) Measurement, sampling and testing facilities and procedures that have been required by the DPW;

10) Such other facilities as the DPW reasonably believes may be contributing to a violation of these Regulations; and

11) DPW shall not be held responsible for damage of property when working on stoppages or backups on private property.

The DPW may conduct routine, periodic inspections of certain types of facilities. It is anticipated that restaurants, other food handling or food processing establishments, service stations, and other entities which deal with petroleum products are particularly likely to be subject to such an inspection program. Other industrial users or generators of high strength wastes (with BOD and TSS concentrations in excess of typical residential wastewater strength) may also be so inspected, as the DPW deems appropriate. Owners or occupants shall provide any labor or equipment needed by DPW personnel to open and inspect oil and grease traps and other facilities.

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B. Right of Entry

Upon proper identification and at reasonable times during normal business hours and at such other times as the DPW reasonably suspects that a violation of these Regulations may be occurring, duly authorized representatives of the DPW shall be permitted to enter all private property through which the DPW holds an easement for the purposes of inspection, observation, measurement, sampling, testing, maintenance, repair, or reconstruction of any portion of the Town's wastewater systems lying within said easement. All entry and subsequent work, if any, shall be done in full accordance with the terms of said easement.

C. Security Clearance

Where a user has security measures in force which would require clearance before any entry to the premises, the user shall make all necessary

arrangements to permit DPW personnel to enter without undue delay for the purpose of carrying out their specific responsibilities.

D. Governmental Function

The Town and the DPW shall be deemed to be performing a governmental function for the benefit of the general public. The Town and the DPW shall not be liable for any loss or damage as a result of the performance of such government function.

E. Consequences of Denial or Entry or Access

Where an owner or user, after having received reasonable notice from the DPW, refuses to permit properly identified DPW personnel or designee to enter or have access to premises or facilities in accordance with Sections 6.1A. and 6.1B. above, the DPW may give written notice of its intent to notify the Board of Sewer Commissioners to assess fines and/or terminate sewer service to such user.

F. Indemnification

An owner or user shall indemnify and hold harmless the DPW for any damages or civil liabilities the DPW may sustain or be required to pay in consequence of an injury or property damage resulting from that owner's or user's violation of these Regulations.

6.2 Record Keeping

A. Maintenance of Records

An owner or user shall maintain on its premises all documents pertinent to any of (a) the volume, components or frequency of its discharges to the Town's wastewater system, (b} its industrial pretreatment equipment and procedures, if any, and (c) its design, installation, maintenance, and operation of any special facilities (per Section 5.0), grease or oil traps, building sewers or storm sewers, private sewers, or other wastewater-related facilities or equipment. Every such document shall be maintained for at least five full years following its preparation or receipt by the user.

B. Inspection of Records

Users and owners shall permit duly authorized and properly identify representatives of the DPW to inspect and review, upon reasonable notice and during normal business hours, any and all of the records maintained pursuant to Section 6.2A. above.

C. Consequences of Denial of Access to Records

Where an owner or user, after having received reasonable notice from the DPW, refuses to permit properly identified DPW personnel to have access to records in accordance with Sections 6.2A. and 6.2B. above, the DPW may give written

notice of its intent to notify the Board of Sewer Commissioners to assess fines and/or terminate sewer service to such user.

6.3 Monetary Liability

A. Penalties

Any person who violates any provision of these Regulations shall forfeit and pay to the DPW Sewer Division an amount not exceeding five thousand dollars ($5,000) as set by the Board of Sewer Commissioners, pursuant to attached Schedule of Penalties, in accordance with Massachusetts General Laws Chapter 83, section 10, as then in effect. For purposes of this section, each day of a continuous violation shall be deemed to be a separate violation. If a violation is intermittent, each occurrence shall be deemed to be a separate violation.

B. Reimbursement for Costs to DPW

Failure to comply with any portion of these Regulations, or with any permit or order issued thereunder, shall be sufficient cause for the DPW to levy on and collect from each violator any additional cost for any expense, loss, or damage occasioned by such violation, including assessment of penalties or fines levied or imposed on the DPW pursuant to Bourne's Sewer Policy and Regulations, or the United States Environmental Protection Agency.

6.4 Enforcement Actions

A. Multiple Alternatives

When the DPW determines

(a) that a violation of these Regulations or any permit, or (b) any damage to the Town's collection system, is threatened or has occurred, the DPW shall take the following actions, in any sequence or simultaneously:

1) The DPW may issue a request or an order to cease and desist any such violation, and/or an implementation schedule for undertaking specific actions or practices.

2) The DPW may require the user in question to submit a detailed time schedule setting forth specific actions to be taken in order to prevent or correct a violation. The DPW may issue an implementation schedule to the user containing or modifying such specific actions within such times as the DPW deems appropriate.

3) The DPW may issue an order directing the user to pay to the Town penalties and costs in accordance with Section 6.3A. and/or 6.3B. above and/or discontinue sewer service to the property.

4) The DPW may request that the Sewer Commissioners take direct enforcement action by filing suit in any court of competent jurisdiction pursuant to Massachusetts General Laws Ch. 83, or any other applicable statute or regulation.

5) The DPW may take any other action available to it under any applicable stature or regulation.

6) The DPW may issue citations pursuant to M.G.L. ch. 40 § 210, non-criminal disposition, to the extent allowed by Ordinance.

7.0 APPELLATE PROCEDURES

7.1 Administrative Procedure at the Superintendent Level

A. Informal Conference by the Superintendent

Whenever the DPW issues a Sewer Use Discharge Permit; denies, revokes, modifies, or amends any form of permit or application; requires an owner or user to build or install any particular facility or devices; issues a cease and desist order, a compliance order, or an implementation schedule; or assesses penalties or other charges for non-compliance with these Regulations, any permit, or other lawful requirement, the DPW shall promptly inform the owner or user to whom such action is addressed. Such notice shall be sent first class mail and shall inform the addressee of his/her right to submit, within 14 days after the date of such notice, a written request for reconsideration of the DPW's action.. A request for reconsideration shall be addressed to the DPW Superintendent at the DPW's office and shall set forth in detail the facts supporting it. Such a request shall not have any effect to stay or delay the DPW action, unless the DPW Superintendent provides otherwise in a writing mailed to the entity making the request. Upon receiving a timely request for reconsideration, the DPW Superintendent or his/her designee shall schedule an informal conference with the entity making the request. Written notice of the conference date, time and place shall be mailed to that entity at least 10 (unless waived by the owner) days before the date of the conference, which shall be held no later than 21 days (unless waived by the owner) after receipt of the request. The DPW's superintendent or his/her designee shall rule in writing on the request for reconsideration within 14 days (unless waived by the owner) after completion of the conference.

B. Right to Hearing by the Superintendent

A copy of the ruling on the request for reconsideration shall be mailed to the entity which submitted the request. The ruling shall be accompanied by a notice that such entity has the right to request a hearing before the Board of Sewer Commissioners. The notice shall inform the addressee that a hearing on the DPW's action must be requested within 30 days after the date of such notice, by a writing addressed to the Town Administrator at the Board of Sewer Commissioners' Office.

C. Notice of Hearing by the Board of Sewer Commissioners

Within 45 days (unless waived by the owner) after receiving a timely written request for a hearing, the Board of Sewer Commissioners shall schedule a hearing and shall mail to the entity which requested the hearing, written notice specifying the date, time, place, and subject matter of the hearing. The notice shall also state that the entity requesting a hearing has the right to be represented by legal counsel

and to present evidence (in the form of both documents and testimony) at the hearing.

D. Hearing Record and Decision by the Board of Sewer Commissioners

The documents and other evidence offered at the hearing shall constitute the hearing record. The hearing decision shall be based solely on the hearing record and shall be made within 30 days (unless waived by the owner) after the conclusion of the hearing. The decision shall be embodied in a writing which summarizes the matters considered and the reasons for the determination made on each such matter. The written decision shall be signed by the Sewer Commissioners and shall be mailed to the entity which had requested the hearing.

8.0 IMPORT AND ADOPTION

8.1 Wareham Regulations

No provision of these Regulations shall be deemed to contravene or render ineffective any valid Wareham regulation, to areas connected to the Wareham Sewer line.

8.2 Supersedes Prior Regulations

These Regulations take precedence over any prior Bourne Sewer Commissioner and Town of Bourne DPW sewer (or drain) regulations.

8.3 Severability

The invalidity of any section, clause, sentence or provision of these Regulations shall not affect the validity of any other part which can be given effect without such invalid part or parts.

8.4 Right to Amend Regulations

The Sewer Commissioners reserve the right to amend these Regulations in any manner and to establish any more stringent limitations or requirements as are deemed necessary or appropriate.

8.5 Adoption

Effective Date

These Regulations shall be in full force and effect from and after their adoption and publication of notice of their adoption.

Adopted and approved by the Bourne Board of Sewer Commissioners on:

_____

9.0 DEFINITIONS

Terms which are not defined herein shall be interpreted as defined in the most recent edition of Glossary Water and Wastewater Control Engineering, published by the Water Pollution Control Federation (WPCF), Washington, D.C. Throughout these Regulations, shall is mandatory, and may is permissive. Unless the context specifically indicates otherwise, the meaning of the terms used in these Regulations shall be as follows:

Actual Flow	The volume of wastewater from any individual unit (residential, commercial or institutional) connected to the sewers as measured by a certified water meter.
Allocation	A specified amount of wastewater treatment capacity measured in gallons per day (gpd) assigned to a specific project on a specific parcel or parcels upon a majority vote of the Board. All allocations to projects shall be based on state and local regulations. The transfer of all or part of an allocation is prohibited unless approved in writing by the Board.
Allocation Fee:	A non-refundable fee established by the Board to be paid by the Applicant within 30 days of the time the Allocation, Preliminary or Operational, is voted.
Applicant	Shall mean any person or entity applying for sewer service or for a sewer main extension, replacement, alteration, removal or relocation.
Application	A form which shall be completed by the Applicant to request an allocation of wastewater management capacity from the Uncommitted Reserve Capacity. A sample form is attached to this policy statement. The Board may from time to time vote adjustments in the information requested on the form.
Application Fee	A non-refundable one-time fee established by the Board to be paid at the time the Application is deemed complete and accepted. An application shall be deemed complete when it is date stamped and signed by the receiving Town official. Incomplete applications, including applications without the required fee, shall not be processed.
Approval	Shall mean written approval by the Department of Public Works or Board of Sewer Commissioners.
Available	A public sewer or storm sewer shall be considered available when the property upon which a building is situated abuts a street, alley, easement or right of way in which a public sewer is located. If the property line of the subject parcel is more than one hundred (100) feet from the nearest public sewer, application may be made in writing to the Department to declare the public sewer "Not Available."
Biochemical Oxygen Demand or BOD	Shall mean the quantity of oxygen utilized in 5 days at 20 degrees Celsius(C), expressed in milligrams per liter (mg/l), in the biochemical

oxidation of wastewater as determined by a procedure described in Standard Methods.

Board — The Bourne Board of Sewer Commissioners.

Building — Shall mean any structure used for human occupancy, employment, recreation other purposes.

Building Drain — Shall mean that part of the lowest horizontal piping of a plumbing system, which receives the discharge from soil, waste, and other pipes, inside the walls of the building, and conveys it to the building sewer, beginning ten (10) feet outside the inner face of the building wall.

Building Sewer — Also referred to as house connections, shall mean the pipe which extends from the building drain to the sewer connection conveying wastewater to a public sewer, a private sewer, or other place of disposal.

Building Sewer Connection
Shall mean the connection of a building sewer to a sanitary sewer owned and operated by the DPW.

Cape Cod Commission
Shall mean the Regional planning agency that oversees Developments of Regional Impact (DRI) in Barnstable County.

Chemical Oxygen Demand or COD
Shall mean the oxygen equivalent of the portion of the organic matter that is susceptible to oxidation by a strong chemical oxidant, expressed in milligrams per liter, as determined by a procedure described in Standard Methods.

Collection System — Shall mean the pipes, conduits, pumping stations, and appurtenances involved in the collection and transport of wastewater and stormwater.

Composite Sample — Shall mean a combination of individual samples of wastewater taken at pre- selected intervals to represent the integrated composition of the sample source.

Contamination or Contaminated
Shall mean an impairment in the quality of the water by sewage, industrial fluids or waste liquids, compounds or other materials to a degree which creates an actual hazard to the public health through poisoning or though the spread of disease.

Cooling Water — Shall mean the water discharged from any system of condensation, air conditioning, cooling, refrigeration, or other system of heat transfer.

Development and re-development
The construction of improvements on a parcel or parcels of land for any purpose, including, but not limited to institutional, commercial and/or industrial activity.

DPW	Shall mean the Town of Bourne Department of Public Works. However, the Town Administrator has all of the authority and powers of the Department and its Director.
Drain Layer	Shall mean a person or corporation who has met the qualifications set by the Town to install sewer and/or sewer connections.
Dwelling Unit	Shall mean a house, apartment, mobile home or trailer, group of rooms or single room occupied or intended for occupancy as a separate living quarter.
Easement	Shall mean an acquired legal right for the specific use of land owned and maintained by others.
Effluent	Shall mean wastewater or other liquid, partially or completely treated, flowing out of a treatment facility or part thereof.
Excessive	Shall mean more than the limits established in these Regulations, directly or by reference, or more than limits judged by the DPW or Wareham to be acceptable.
Floatable Oil	Shall mean fat, oil, or grease (also referred to as FOG) in a physical state such that it will separate by gravity from wastewater by treatment in an approved pre- treatment facility.
Garage	Shall mean any building wherein one or more motor vehicles are serviced, kept, or stored, and shall include (without limitation) a public or private garage, carport, motor vehicle repair or paint shop, service station, car wash, or any building used for similar purposes.
Garbage	Shall mean the animal and vegetable wastes resulting from the domestic or commercial handling, storage, sale, preparation, cooking, or dispensing of food.
General Service Application	Shall mean the form completed by the property owner or by the owner's agent prior to construction, reconstruction, repair or modification to the Town's sanitary sewers or storm drains.
GPD	Shall mean gallons per day.
Grab Sample	Shall mean a sample of wastewater taken on a one-time basis without consideration of lime.
Grease Trap	Referred to as a grease interceptor by the Commonwealth of Massachusetts, "Uniform State Plumbing Code and Massachusetts Fuel Gas Code", shall mean a receptacle designed to collect and retain or remove grease and fatty substances from wastewater normally resulting from the commercial handling, preparation, cooking, or dispensing of food.
Groundwater	Shall mean a supply of water under the earth's surface contained within or flowing through a geological formation.

Incompatible Pollutant

Shall mean a substance that is not amenable to removal by the rece1v1ng wastewater treatment plant or which may cause damage to the transmission or treatment facilities or adversely impact overall treatment. Incompatible pollutants include, but are not limited to, heavy metals and persistent organics.

Industrial User — Shall mean any user identified in the U.S. Office of Management and Budget Standard Industrial Classification Manual, 1972, as amended and supplemented, under the following divisions:

a) Division A - Agriculture, Forestry, and Fishing

b) Division 8 - Mining

c) Division D - Manufacturing

d) Division E - Transportation, Communication, Electric, Gas, and Sanitary Service

Industrial User Discharge Permit

Shall mean a Sewer Use Discharge Permit for industrial Wastes as defined herein.

Industrial Wastes — Shall mean the solid, liquid, or gaseous wastes generated by industrial users from, but not limited to, industrial manufacturing processes; trade, business, or service activities; or the development, recovery or processing of natural resources. Industrial wastes do not include, and are distinct from, sanitary sewage, uncontaminated cooling water, and uncontaminated industrial process water.

Infiltration — Shall mean water other than wastewater that enters any sanitary sewer (including building sewers) from the ground through means which include, but are not limited to, defective pipes, pipe joints, service connections, or manholes. Infiltration does not include, and is distinguished from, inflow.

Infiltration and Inflow (I/I)

Shall mean the quantity of water from both infiltration and inflow.

Inflow — Shall mean precipitation or surface runoff that enters a sanitary sewer through direct and indirect sources such as downspouts, catch basins, area drains, sump pumps, subsurface drains, interconnections between sanitary sewers and storm drains, etc.

Manhole — Shall mean a vertical access shaft from the ground surface to a sewer or storm drain, usually at a junction, to allow cleaning, inspection, connections, and repairs.

Natural Outlet — Shall mean any outlet into a watercourse, pond, ditch, lake, or other body of surface or groundwater.

Oil Trap — Referred to as a separator by the Commonwealth of Massachusetts, "Uniform State Plumbing Code and Massachusetts Fuel Gas Code", shall mean a receptacle used for separating materials of different specific gravity, such as oil from water and sand from water that meets MWRA Standards.

Owner	Shall mean a person who alone or jointly or severally with others has the legal title to any premises or has care, charge or control of any premises as agent, executor, administrator, trustee, lessee, or guardian of the estate of the holder of legal title.
Person	Shall mean any individual, firm, company, partnership, association, society, corporation, group, or any political subdivision of the Commonwealth.
pH	Shall mean the logarithm of the reciprocal of the hydrogen ion concentration, expressed in moles per liter. Neutral water, for examine, has a pH value of 7 and a hydrogen ion concentration of 10. Any method of measurement approved by the U.S. Environmental Protection Agency may be used.
Pollutants	Shall mean dredged spoil, solid waste, incinerator residue, wastewater, garbage, sewage sludge, chemical wastes, biological materials, radioactive materials, heat, rock, sand, dirt, and industrial, municipal and agricultural waste.
Pollution	Shall mean the presence of any foreign substance (organic, inorganic, or biological) in water which tends to degrade its quality so as to constitute a hazard or impair the usefulness or quality of the water to a degree which does not create an actual hazard to the public health, but which does adversely and unreasonably affect such waters for domestic use.
Preliminary Allocation	An amount of wastewater treatment capacity in gallons per day assigned for a period of two years to a project in its early stages of development. If all appropriate conditions to the project are met, this Preliminary Allocation assures the applicant that the required wastewater treatment capacity will be available when the project is ready for operations. As a condition for retaining the Preliminary Allocation, the Applicant must provide status reports to the Board every six months. The Preliminary Allocation shall be voided if the Applicant does not provide information for these periodic reviews or if the Board determines by majority vote that the mutually agreed upon Milestones are not met. The Board can extend a Preliminary Allocation beyond two years or convert a Preliminary Allocation to an Operational Allocation by majority vote.
Preliminary Allocation Fee	A non-refundable one-time fee based on the project's projected flow. This fee shall be due within 30 days of the Board's vote to grant a Preliminary Allocation.
Preliminary Allocation Extension Fee	A non-refundable fee paid at the time the Board votes to extend a Preliminary Allocation beyond the normal two-year period. This fee shall be due within 30 days of the Board's vote to extend and shall be paid annually for as long as the extension is continued.
Premises	Shall mean a parcel of real estate or portion thereof, including any improvements thereon, which is determined by the DPW to be a single user for purposes of receiving, using, and paying for service.

Pre-Treatment	Shall mean the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater to a less harmful state prior to or in lieu of discharging or otherwise introducing such pollutants into the wastewater system. Dilution is not pre-treatment.
Private Sewer	Shall mean a sewer which is not owned by the Town.
Public Sewer	Shall mean a sewer which is owned by the Town.
Receiving Waters	Shall mean any watercourse, river, pond, ditch, lake, aquifer, ocean, or other body of surface water or groundwater that receives a discharge of wastewater or effluent.
Residential Reserve	Two percent of the systems' designated treatment capacity held in reserve to allow expansion by existing single-family residences. This reserve is to be calculated annually as part of the determination of the Uncommitted Reserve Capacity.
Sanitary Sewage	Shall mean liquid and water-carried human and domestic wastes from buildings, exclusive of ground, storm, and surface water, and industrial wastes and uncontaminated cooling water and uncontaminated industrial process water.
Sanitary Sewer	Shall mean a sewer designed to carry sewage and industrial wastes.
Septage	Material passing through any part of the sewer system, including, but not limited to, the solids, semi-solids, scum, sludge and liquid contents of a septic tank, privy, chemical toilet, cesspool, holding tank, or other sewage waste receptacle. It does not include any material which is hazardous waste.
Sewer	Shall mean a pipe or conduit that carries either wastewater or storm or surface water.
Sewer Commissioner	Shall mean a member of the Bourne Board of Sewer Commissioners
Sewer Extension	Shall mean the addition to a sewer system of a sewer pipe, together with appurtenant works which extend and increase the facilities used for collecting and conveying sewage.
Sewer User Discharge Permit	Shall mean the permit required and issued by the DPW to an industrial user for discharging wastewater to the Town's wastewater system.
Sludge	Shall mean waste containing varying amounts of solids that are removed from water and wastewater through treatment by physical, chemical, or biological processes.
Standard Methods	Shall mean the current edition of Standard Methods for the Examination of Water and Wastewater, as published by the American Public Health Association, American Water Works Association, and the WPCF.
Sump Pump	Shall mean a pump used to remove liquid from a sump or pit, especially water that has accumulated in a basement.

Surface Water	Shall mean all water appearing on the earth's surface exposed to the atmosphere, such as rivers, lakes, streams, and oceans.
Suspended Solids	Shall mean solids that either float on the surface or are in suspension in water, wastewater, or other liquids and are removable by laboratory filtering procedures as described in Standard Methods.
Town	Shall mean the Town of Bourne, Massachusetts.
Toxic Organics	Shall mean organics listed as toxic in Federal or Massachusetts regulations.
Toxic Pollutant	Shall mean any pollutant identified as such in Federal or Massachusetts regulations.
Uncommitted Reserve Capacity	That portion of the wastewater systems' treatment capacity remaining after subtracting the Preliminary Allocations, the Operational Allocations, existing residential flow and the Residential Reserve from the systems' designated treatment capacity. This determination shall begin by comparing all allocations, Preliminary and Operational, with actual flows for the previous fiscal year, on a parcel or project basis. Parcel /project owners with significant differences between allocations and flows shall be requested to explain the difference and describe any changes expected in the next 12 months. The Board reserves the right to reduce the allocation for projects more than three years old demonstrating a significant excess of allocation over flow. In that case, the difference between the new and old allocations shall revert to the Town and be counted in the Uncommitted Reserve Capacity. (See page 3 for parcels with paid betterments and unused flow capacity.) The Board shall determine the amount of the Uncommitted Reserve Capacity annually and designate such Uncommitted Reserve Capacity to be available for the next fiscal year.
Unpolluted Water	Shall mean the total available (permitted) capacity minus allocations granted by the Sewer Commissioners, existing residential flow, and the residential reserve (2% of residential flow).
User	Shall mean any person discharging wastewater directly or indirectly into the public sanitary sewers within the Town.
User Fees or Sewer User Fees	Annual fees established by vote of the Board.
Waiting List	a list of applications that are otherwise complete but have been held because the requested allocation is not available. The list is stored with the dated applications.
Waste	Shall mean wastewater and any and all other waste substances whether liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any production, manufacturing or processing operation.
Wastewater	Shall mean the spent water of a community, which may be a combination of the liquid and water-carried wastes from buildings. Groundwater and stormwater entering as infiltration and inflow may also be present.

Wastewater Retaining Tank
Shall mean ·a tank or a chamber for retaining wastewater for a specified period of lime prior to discharge to a wastewater system.

Wastewater System Shall mean the totality of the devices, equipment or works used in recycling, or reclamation of transportation, pumping, storage, treatment, wastewater or in the disposal of the effluent.

Wastewater Treatment Plant
Shall mean an arrangement of devices and structures for treating wastewater, septage and sludge in the Town of Bourne.

Wastewater Treatment Process
Shall mean the physical, chemical, and biological operations and processes, considered individually or in combination, that are applied at a wastewater treatment plant to remove, reduce, or alter the pollutant loading of wastewater.

ATTACHMENTS & FORMS

Bourne Sewer Regulations

ATTACHMENT A

Schedule of Rates. Fees, & Fines

Sewer Rates (FY21- Effective July 1, 2020):

Sewer User Base Fee:

CERTIFICATE OF VOTE

At a meeting of the Bourne Sewer Commissioners of the Town of Bourne, held on July 28, 2020, a quorum being present and voting throughout, upon a motion duly made and seconded, it was

VOTED: Sewer User Fees of $1,051.00 are determined as follows:
Residential and Commercial

Semi-Annual billing from July 1, 2020 – December 31, 2020
$526.00 per unit

Semi-Annual billing from January 1, 2021 – June 30, 2021
$525.00 per unit

Rates effective for the Fiscal Year 2021

BOARD OF SEWER COMMISSIONERS

James L. Potter — Jared P. MacDonald — Judith MacLeod Froman

Peter J. Meier — George G. Slade, Jr.

RECEIVED
2020 AUG 28 AM 10:52
TOWN CLERK BOURNE

Fines:

Bourne Sewer Regulations

ATTACHMENT A

Schedule of Rates, Fees, & Fines

Sewer Rates (FY21- Effective July 1, 2020):

Sewer User Overage Fee:

CERTIFICATE OF VOTE

At a meeting of the Bourne Sewer Commissioners of the Town of Bourne, held on August 25, 2020, a quorum being present and voting throughout, upon a motion duly made and seconded, it was

VOTED: **Water Overage Fees determined as follows:**
Residential and Commercial

A fee of $0.01 per gallon for sewer overages in excess of 45,000 gallons per calendar year

Rates effective for the calendar year 2020

BOARD OF SEWER COMMISSIONERS

James L. Potter

Jared P. MacDonald

Judith MacLeod Froman

Peter J. Meier

George G. Slade, Jr.

RECEIVED
2020 AUG 28 AM 10:52
TOWN CLERK BOURNE

Bourne Sewer Regulations

ATTACHMENT A

Schedule of Rates. Fees, & Fines

CERTIFICATE OF VOTE

At a meeting of the Sewer Commissioners of the Town of Bourne, held on January 17, 2006, a quorum being present and voting throughout, upon a motion duly made and seconded, it was

VOTED: Sewer Use Charges as follows:

RECEIVED
TOWN OF BOURNE
2006 MAR -3 AM 11:35
TOWN CLERK'S OFFICE
BOURNE, MASS.

Design Review and Construction Inspection Fee: $1,500

Commercial Sewer Permit Fee:
$150 plus $.10 per square foot of building floor space

Sewer Connection Fee:
Annual sewer use fee times the number of business units

✓ Residential Sewer Permit Fee:
$100 for residential properties plus $100 for each addition unit

Sewer System Development Charge:
✓ $73.406 per foot of frontage plus $11,539.356 per acre

BOARD OF SEWER COMMISSIONERS

Linda M. Zuern Carol A. Cheli Richard E. LaFarge

Galon "Skip" Barlow W. Thomas Barlow

A True Record

Town Clerk

ATTACHMENT B

General Sewer Service Application Form

To the Town of Bourne, Massachusetts:

The undersigned, being the,_____(*Owner name, Owner's Agent)*

Of the property located at _____
(Number) (Street)

_____ *(Map)* _____ *(Lot)*

Does hereby request a permit to connect to a public sewer main to serve the

Residence *or* ***Commercial Building*** *at said location.*

1. Number of Residential Bedrooms: _____
2. The following indicated fixtures will be connected to the proposed sewer service pipe:

Number	Fixture Type	Number	Fixture Type
_____	Kitchen Sinks	_____	Water Closets
_____	Lavatories	_____	Bath Tubs
_____	Laundry Tubs	_____	Showers
_____	Urinals	_____	Garbage Grinders

Specify other fixtures_____

3. The maximum number of persons who will use the above fixtures is:_____
4. The name and address of person or firm who will perform the proposed work is:

Contact Info: _____

Drainlayer's or Master Plumbing License # _____

Dig Safe # _____ Water District/Dept Connection # _____

5. Plans and specifications for the proposed building sewer, as required, are attached hereto.

Bourne Sewer Regulations

ATTACHMENT B

General Sewer Service Application Form

Page 2 of 2

In consideration of the granting of this permit, the undersigned agrees:

1. To accept and abide by all provisions of the "Sewer Use Regulations" of the Town of Bourne, Massachusetts and of all other pertinent rules and regulations that may be adopted in the future.
2. That no person shall excavate, construct, effect, maintain, modify or use any sewer connection or extension without a currently valid permit from the Town of Bourne. The permit must be "in-hand" before work can commence.
3. To pay all the cost of said particular sewer and its connection with the public sewer in said street, including all labor and materials or any other expense incurred necessary for the proper construction of said particular sewer as determined by the Sewer Commission.
4. To maintain the building sewer at no expense to the Town.
5. For himself, his heirs, devisees and assigns, that the said Department of Public Works shall have access at all reasonable hours, to the said premises, to see that all the laws, rules and regulations relating to the sewer are complied with.
6. To notify the Superintendent when the building sewer is ready for inspection and connection to the public sewer, but before any portion of the work is covered. Notice of two (2) business days shall be provided to the Superintendent.
7. That construction of the sewer connection will be completed within ninety (90) days of issuance of this permit.

Signed: _____

Date: _____

DO NOTE WRITE BELOW THIS LINE – OFFICE USE ONLY

Total FEE PAID: _____

☐ Street Opening Permit ☐ Valid Bond and Insurance

☐ Approved ☐ Not Approved

Permit Number: _____ Expires: _____

Signed: _____ Title _____

Date: _____

Bourne Sewer Regulations

ATTACHMENT C

Wastewater Allocation Form

The Bourne Board of Sewer Commissioners require any property that is either changing business entities in an existing building (even if presently connected to sewer), or connecting to the sewer system for the first time, to fill out this form, to ensure wastewater allocation and connection.

Deleted: Commercial

Bourne Sewer Regulations

ATTACHMENT C

Wastewater Allocation Form

Deleted: Commercial

Page 2 of 2

Date submitted _____

Applicant name _____

Applicant contact address _____

Applicant e-mail and phone number _____

Is applicant the property owner? Yes ☐ No ☐

If no, who is owner? _____

If no, is applicant: leasing ☐ buying ☐ the property

If buying, attach copy of P&S If leasing, attach copy of lease agreement

Location of proposed project:

Street address _____

Map and parcel number(s) _____

Description of proposed project _____

_____

_____

_____

Financing:

Financing is in place - documentation to that effect is attached ☐ Documentation attached

OR Applicant has letter of intent to finance - copy is attached ☐ Letter of Intent attached

Date of Planning Board preliminary review _____

Allocation requested _____ gallons per day

Basis of request: _____

_____

Any unusual characteristics of projected flow? _____

Requested amount exceeds available allocation Yes ☐ No ☐ If yes, application is wait-listed

Application is Accepted ☐ Rejected ☐ Wait-listed ☐ and dated _____

Application Fee attached: Yes ☐ No ☐

Reviewed for completeness - Signed _____

Date Stamp when determined to be complete

Bourne Sewer Regulations

ATTACHMENT D

Financial Security Provisions for New Pump Stations

Introduction. The Town of Bourne requires prospective permittees of sewer system extensions or connections that include pump station(s) to demonstrate the ability to finance the operation, maintenance and repair of pump station(s) in the event of an emergency and on a long term basis.

The Town of Bourne has enacted these special conditions to provide for and assure compliance with the U.S. Clean Water Act and to specify additional permit requirements that it deems necessary to safeguard the quality of the environment or comply with pertinent provisions of state or federal law. The Town considers these financial security requirements a best management practice.

There are two components to the financial security requirements: 1) A financial security amount to fund the immediate repair of the facility, and 2) a dedicated capital reserve account capable of accumulating sufficient funds to replace the facility within twenty (20) years of initial operation. The immediate repair security amount is necessary to ensure that adequate funds are available to correct unanticipated problems at the facility immediately so that any disruption of the operation of the facility is minimized and no violation of the Clean Water Act is experienced. The capital reserve account will ensure that the facility can continue operation at the end of its useful life and remain in compliance with the Clean Water Act and sewer connection/extension permit at all times.

Except as otherwise provided, all sewer extension and connection permits that include pump station(s) issued by the Town shall contain supplemental conditions requiring the establishment and maintenance of both an immediate repair and/or replacement security amount and capital reserve account as specified below.

Repair. The immediate repair security amount shall be determined in accordance with the following

formula: Estimated construction cost x 0.15 = Security Amount

The estimated construction cost includes the cost of the pump station and all mechanical, electrical, structural, and other equipment associated with the pump station, but does not include land or grounds.

A permittee may satisfy the above financial security condition by means of an escrow account or a letter of credit meeting the Town's requirements. A permittee proposing to satisfy the above financial security condition by means other than an escrow account or a letter of credit must demonstrate to the Town's satisfaction 1) why the use of one of these approved means is not appropriate or necessary, and 2) how the proposed alternative is as effective and protective as an escrow account or letter of credit.

Bourne Sewer Regulations

ATTACHMENT D
Financial Security Provisions for New Pump Stations

Capital Reserve Account. The capital reserve account shall accumulate sufficient capital to replace, as necessary, the pump station (or components thereof) and all other mechanical, electrical, structural, and other equipment components associated with the pump station, but not including land or grounds, within twenty (20) years from the commencement of pump station operation.

The minimum requirements and timing of funding the capital reserve account are as follows. All permittees shall set aside a minimum of 25% of the construction costs (not including lands and grounds) of the pump station. The 25% may be set aside by the permittee in equal portions during the first fifteen (15) years of operation of the pump station.

Example:
Pump station cost = $500,000
$500,000 X 0.25 = $125,000
$125,000/15 = $8,333/year

Accumulated Interest. All accumulated interest must be accrued to its respective account. However, if funds are withdrawn from the immediate repair security to perform the necessary work, then the fund only has to be replenished up to the original calculated security amount (not including interest).

Transfer of Ownership. Typically the project developer will establish and make the initial contributions to the financial security of the accounts. If ownership of the pump station is thereafter transferred to the town, a transfer agreement must be executed to provide for the financial security requirements to the satisfaction of the town.

Policy. The following permit conditions and the requirements of this Policy shall apply to all sewer extension/connection permits with pump stations issued by the Town.

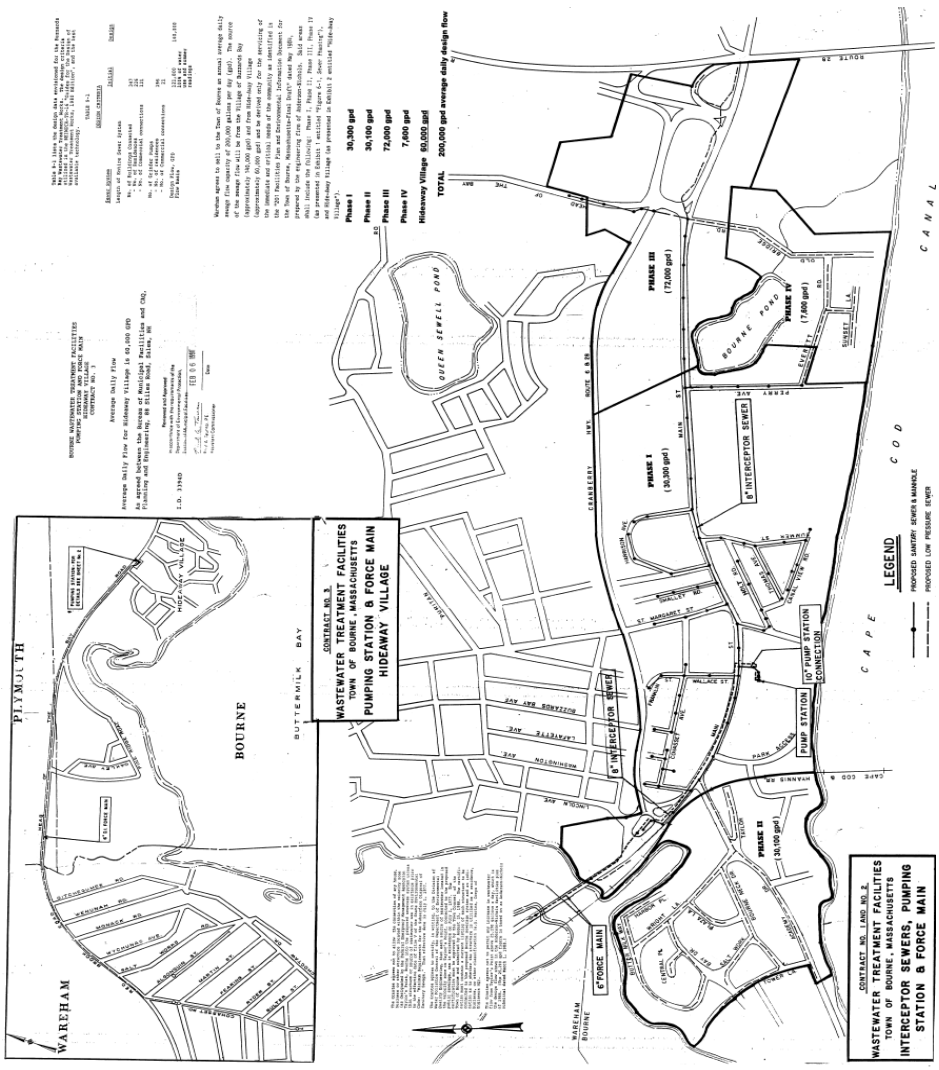
Permit Conditions.

1. The permittee shall maintain a financial security amount in the sum of $_____. This source of funding shall be used by the permittee solely for the immediate repair of any failing pump station(s). Such security shall be provided by means of an interest-bearing escrow account and/or letter of credit from a financial institution having place of business in Massachusetts and be in a form satisfactory to the town. The permittee and its successors shall replenish and maintain the required dollar amount thereof in full within ninety days of any disbursement.
2. The permittee shall establish and maintain a capital reserve account in order to accumulate sufficient capital to make any necessary modifications to the pump stations(s) and other related equipment changes within 20 years from the date of commencement of plant operations. The permittee shall make annual contributions in equal installments of $_____ to accumulate the necessary funds prior to the expiration of the 20-year period. Such funding shall be provided by means of an interest bearing account and/or letter of credit from a financial institution having a place of business in Massachusetts and be in a form satisfactory to the town.
3. Permittees shall submit an annual financial report in accordance with generally accepted accounting principles to the town on January 31 of each year. The report shall, at a minimum, identify the initial and current balances of both the security amount and the capital reserve account and confirm the continuing availability of the funds for the purposes described in the Permit.
4. The permittee shall be required to enter into an annual operation and maintenance service contract for emergency services after the commencement of operation of the pump station.

Bourne Sewer Regulations

ATTACHMENT E

Sewer Area Map



Bourne Sewer Regulations

ATTACHMENT F

Sewer Bill Abatement Form

Page 1 of 2

Application for Abatement

Name of Applicant:_____

Property Location: _____

Mailing Address (if different) :_____

Map:_____ Lot:_____ Total Amount of Sewer Bill: _____

Amount requested to be abated: _____ Account number:_____

Reason for request: _____

_____

_____

Documentation supporting request is attached? Yes _____ No _____
(such as letter from Water Dept. as to when they shut off water/removed meter and/or letter from Board of Health giving a date as to when they deemed the property uninhabitable, when fire/flood or other disaster destroyed property)

Signature of Applicant: _____

Date: _____

Phone Number: _____

Bourne Sewer Regulations

ATTACHMENT F

Sewer Bill Abatement Form

Criteria for Requesting an Abatement/Adjustment

A request for an adjustment must be in writing and must contain sufficient information to determine why the value should be changed. For example, the building housed one type of business two years ago and there is an entirely different type of business in the current year.

Request for abatement due to water being shutoff must meet the following criteria:

1. The water has been shut off by the Water Department/District at the street for at least (12) consecutive months. After the year has passed, if the water is still shutoff, the owner can request abatement and ask that the account be put on hold until the water is turned back on, and it must be verified by an accompanying letter from the Water Department/District. Abatements are not granted when the water is shutoff within a building by an owner.
2. The building/dwelling shall not have been occupied for the same time period.

Owner's request for abatements on buildings that have been rendered un-inhabitable through fire, floor, or hurricane, must also request a letter from the Town's Inspectional Services Department stating the condition of the structure, and this letter shall accompany this information.

All abatement requests and accompanying information must be received by the Bourne Selectmen/Sewer Commissioner Office not later than (30) thirty calendar days after the final due date shown on the sewer bill.

Abatements and adjustment requests are reviewed by the DPW Sewer Division staff who will make recommendations to the Sewer Commissioners for a decision.

It is recommended that the current sewer bill is paid, and then the applicant should wait for the abatement process is pursued through the Board of Sewer Commissioners, because interest and demand fees cannot be abated.

Sewer Commissioner's Correspondence

September 28, 2021

A. Letter from S. Barlow requesting article for Special Town Meeting in the fall.
B. Letter from M. Tirrell regarding development opportunities
C. Email from M. Bairos re sewer bill
D. Notes from call from 9F Hideaway re sewer bill
E. Notes from conversation with 20 Bay re sewer bill
F. Notes from phone call with Mr. Zahner re sewer bill
G. Notes from 9 Wright Lane re sewer bill

August 26, 2021

Mr. Anthony Schiavi
Town Administrator
Town of Bourne
24 Perry Ave
Buzzards Bay, MA 02532

Dear Mr. Schiavi,

We request that town council and town moderator review the proposed language for an article for the November Special Town Meeting prior to seeking signatures.

To see if the Town of Bourne will prohibit the use of Town ways, Town layouts, Town property, and Town waters for the purpose of a pipe from the Wareham Wastewater Pollution Control Facility to the Massachusetts Maritime Academy. Oppose any state or federal permit that is needed to discharge wastewater from that pipe into the Cape Cod Canal.

Thank you in advance for your assistance and cooperation.

Sincerely,

Skip Barlow
President
Save The Cape Cod Canal Committee

CC:
Peter Meier, Chairman Board of Selectmen
Mary Jane Mastrangelo, Chairwoman Bourne Sewer Commissioners
Amy Kullar, Town Moderator
Robert Troy, Town Council – couldn't deliver by email (bounced back-blocke

BOURNE BD OF SELECTMEN
RCVD 2021 AUG 26 PM1:39

Mark A. Tirrell
16 Alderberry Road
Buzzards Bay, MA 02532
508.759.2118 tirrellmark@gmail.com

September 9, 2021

The Honorable Board of Sewer Commissioners
Town of Bourne
24 Perry Avenue
Buzzards Bay, MA 02532

Dear Friends,

I was pleased to recently read reports that the new wastewater treatment facility is finished and operating. I'm glad for the patience and persistence that got it done and looking forward to the development and redevelopment opportunities coming soon.

There was a moment of concern. It was reported that there was a voice suggesting tying in more residential customers. That would really be counter to the intent of the investment.

The only way wastewater treatment *in* Queen Sewell Park makes sense is if it opens downtown development possibilities. There wasn't objection to placement of the "small package plant" because it was judged that our downtown was worth the risk. There'll be more patience required while the developers move forward.

I know that this facility does not address the large wastewater needs of our community. It's unfortunate that we needed so much space and dollars for this step…they came from the complete solution. I hope for the sake of our bays and estuaries that steady progress will be made.

I thank you for your diligent service.

Sincerely,

Mark A Tirrell

P.S. I hope that the ballfield will be finish graded and planted *very* soon so that it can be used in the spring.

P.P.S. Construction done. Time to install the replacement playground already appropriated.

MAT

Thut, Kathleen

From:	mbairos@aol.com
Sent:	Thursday, September 23, 2021 10:40
To:	Thut, Kathleen
Subject:	Re: [Bourne MA] Question (Sent by Michael Bairos, mbairos@aol.com)

Hi Kathleen,

Thanks for explaining about the sewer billing.

I was curious to know if you know why the yearly sewer rate is high ($1183 per year) regardless of sewer usage compared to other municipalities?

Thanks,
Michael

On Friday, September 17, 2021, 01:53:34 PM EDT, Thut, Kathleen <kthut@townofbourne.com> wrote:

Mr. Bairos:

Thank you for your questions.

Yes, the yearly sewer rate is set by the Board of Sewer Commissioners in August for the fiscal year. All users are charged the same amount in two installments: the one you just received covering 7/1-12/31/21 and a second billing usually in February covering 1/1/22-6/3/22. If a property changes owners then the bill can be prorated by the closing attorney or seller ($1183 FY22 sewer rate /365 days = $3.24 day).

Please let us know if you would like further information.

Kathleen Thut

Selectmen's Office

508-759-0600 x1307

kthut@townofbourne.com

From: Dangelo, Karen
Sent: Friday, September 17, 2021 11:42
To: mbairos@aol.com
Cc: Thut, Kathleen <kthut@townofbourne.com>
Subject: RE: [Bourne MA] Question (Sent by Michael Bairos, mbairos@aol.com)

Good Morning,

I have forwarded your message to Kathleen Thut at the Selectmen's Office. She handles all of the sewer billing and will be able to help you.

If you need to contact her, her phone number is (508)759-0600 ext. 1307 Email: KThut@townofbourne.com

Have a great weekend.

Karen

From: Contact form at Bourne MA [mailto:cmsmailer@civicplus.com]
Sent: Friday, September 17, 2021 11:29 AM
To: Dangelo, Karen <KDangelo@townofbourne.com>
Subject: [Bourne MA] Question (Sent by Michael Bairos, mbairos@aol.com)

Hello KDangelo,

Michael Bairos (mbairos@aol.com) has sent you a message via your contact form (https://www.townofbourne.com/users/kdangelo/contact) at Bourne MA.

If you don't want to receive such e-mails, you can change your settings at https://www.townofbourne.com/user/251/edit.

Message:

Good Morning Karen,

I don't know if the DPW can answer our questions. My wife and I recently bought our 2nd (Summer) home at 16 Summer St on August 6, 2021. We received a Sewer bill for $591.50 which we are very surprised of the high rate because we didn't use water (sewer) much since we only stopped by the home a few times (hours) to drop off furniture and preparing home. We noticed further that the bill is from 7/1/2021 to 12/31/2021 which is a month before we owned the home and the bill end date is in the future.

In our primary home also uses public sewer and the sewer rate is based on the water usage. We understand that in Bourne, the water and sewer departments are separate. It looks like the sewer rate is a flat rate regardless of sewer usage.

We had some questions concerning the sewer rate.

Is the sewer rate the same for all residents?

Being our second home (summer) which we will not be living there all year around, does this rate apply?

9/17/21 to BoSc

Call from owner of
9F-Hideway (1 bed / 1 bath)
Ms. Zigouras
508-923-9861
Upset by sewer bill

She suggests that the rates be "adjusted for seasonal residents" and that "an exception be made." Her water is turned off Nov.-May each year so she can't be using sewer.

She also suggested we base billing on water usage.

Kathleen Thut

9/22/2021

Renters from 20 Bay
came to window to
ask about $200
increase in bill:
why we will going
forward
7/1/21 - 12/31/21
in Sept.

9/16/21

Rec'd call from
Mr. Zahner
"We are 2 74 years olds
on a fixed income. Living
on social security
it is very difficult
to come up with
$591.50."

also,

"what good does it
do for one person
to complain?"

K. Thust

9/24/21

Homeowner from
9 Wright Lane
came to window seeking
information/relief
from the recently
mailed sewer bill.

She said that they
only "occupy the house
3 mos. out of the year."
And that "I bought it
last year but it would
have been cheaper
to stay in a hotel
than pay these
huge bills." "Waltham charges
I told her I would ½ of this."
pass on her comments.