Town of Harwich

BOARD OF WATER/WASTEWATER COMMISSIONER'S MEETING AGENDA*

Friday, October 16, 2020, 1:00 pm

REMOTE PARTICIPATION ONLY
OPEN PUBLIC FORUM

For those members of the public wishing to make comment you may do so by a combination of email and phone by;

1. First, send an email to: **dpelletier@harwichwater.com**
   (Send emails at any time after the meeting agenda has been officially posted)
   a. In the subject line enter "request to speak Jane Doe"
   b. Replace Jane Doe with your name - No need to add any more detail to email
2. Please wait until the Chairman has opened this agenda item for Open Public Forum
3. **Dial: 1 (872) 240-3212**
4. **Enter Access Code: 580-075-549**
5. Please be patient and eliminate any background noise
6. Callers will be taken in the order the emails are received
7. When your name is called use *6 to unmute yourself

I. CALL TO ORDER

II. CONSENT AGENDA

A. Minutes
   1. August 28, 2020
   2. September 11, 2020
   3. September 24, 2020

III. ABATEMENTS

A. FY21 Q1 Water Department Usage
B. FY21 Q1 Internal Adjustments

IV. OLD/UNFINISHED BUSINESS

A. Wastewater

V. NEW BUSINESS

A. HTC Land Grant-Letter of Support- *Discussion & Possible Vote*
B. FY21 Q1 Billing Commitment(s)- *update*
C. FY21 Q1 Water Budget Report- *update*
D. FY21 Q1 Wastewater Budget Report- *update*
E. Sewer Rules & Regulations & Rates
F. EPA Cyber Security Assessment

VI. SUPERINTENDENT'S REPORT

VII. COMMISSIONER'S REPORT

VIII. CORRESPONDENCE/ANY OTHER BUSINESS

IX. NEXT MEETING: TBD

X. OPEN PUBLIC FORUM

A. See dial in instructions above

XII. ADJOURNMENT

**Per the Attorney General's Office: The Board of Water Commissioners may hold an open session for topics not reasonably anticipated by the Chair 48 hours in advance of the meeting following "New Business." *If you are deaf or hard of hearing or are a person with a disability who requires an accommodation, contact the Water Department Office at 508-432-0304 x.0 or by email at customerservice@harwichwater.com*

Authorized Posting Officer:

Tracey Alves

Tracey Alves, Board Secretary

Posted By: _____

Town Clerk

Date: _____

II. CONSENT AGENDA

A. Minutes

1. August 28, 2020
2. September 11, 2020
3. September 24, 2020

III. ABATEMENTS

A. FY21 Q1 Water Department Usage $1,941.69

B. FY21 Q1 Internal Adjustments $2,778.74

MUST BE FILED WITH THE HARWICH BOARD OF WATER/WASTEWATER COMMISSIONERS NO LATER THAN THE DUE DATE OF FIRST ACTUAL (NOT PRELIMINARY) TAX PAYMENT FOR FISCAL YEAR OF WHICH THE WATER CHARGE BECAME A PART

Billing Period: FY21 Q1

Amount: $1,941.69

THE COMMONWEALTH OF MASSACHUSETTS

TOWN OF HARWICH
APPLICATION FOR ABATEMENT

To the Board of Water/Wastewater Commissioners:

NAME OF APPLICANT: Harwich Water Department hereby applies for abatement.

MAILING ADDRESS: _____ **PHONE:** _____

EMAIL ADDRESS: _____ **MOBILE:** _____

PROPERTY OWNER: _____

PROPERTY LOCATION: _____

TOTAL BILL AMOUNT $ _____ **WATER BILL #** various

AMOUNT REQUESTED $ $1,941.69

REASON FOR ABATEMENT REQUEST (ATTACH ADDITIONAL SHEET IF NECESSARY)

Bill#	Amount	Bill#	Amount	Bill#	Amount
373241	38.87	382789	454.34	382796	254.14
373439	83.62	382790	36.29	382797	35.00
376031	40.16	382791	317.06	382802	35.00
381070	53.27	382792	55.92	383042	37.58
381402	35.00	382793	35.00	383242	0.00
382787	36.29	382794	150.77		
382788	35.00	382795	208.38		

SUBSCRIBED THIS DAY _____ **UNDER PENALTIES OF PERJURY**

SIGNATURE OF APPLICANT _____

THE FILING OF THIS APPLICATION DOES NOT STAY THE COLLECTION OF THE CHARGE. CHARGE SHOULD BE PAID AS ASSESSED. REFUND WILL FOLLOW IF ABATEMENT IS ALLOWED. SUBMIT THIS FORM TO THE HARWICH WATER DEPT. 196 CHATHAM ROAD, HARWICH, MA 02645 ATTN: BOWWC OR FAX TO (888) 774-3557.

NOTES:

RECOMMENDATION:

APPROVED ☐ **DENIED** ☐

BOARD OF WATER/WASTEWATER COMMISSIONERS

_____ _____

_____ _____

_____ _____

DATE SIGNATURE

Water Enterprise Fund

FY21 Q1 INTERNAL A/R ADJUSTMENTS

Total **($2,778.74)**

Meeting Date **10/16/20**

Allin Thompson, Vice Chair

Gary Carreiro, Chairman

Judith Underwood, Clerk

EFF DATE	ADJTYPE	PER	JOURNAL	SRC	REF1	AMOUNT
07/01/20	1WATER	1	10	UBM	1782	88.12
07/01/20	1WATER	1	10	UBM	1782	88.12
07/01/20	1WATER	1	10	UBM	1782	28.87
07/01/20	1WATER	1	10	UBM	1782	15.62
07/02/20	1WATER	1	18	UBM	4828	-390.60
07/17/20	1WATER	1	216	UBM	VARIOUS	-1,217.36
08/10/20	NSF	1	62	UBM	5482	25.00
08/18/20	NSF	1	179	UBM	104	25.00
07/06/20	3STIP	1	215	UBM	616	-17.00
07/06/20	3STIP	1	215	UBM	9482	-17.00
07/10/20	3STIP	1	215	UBM	8819	-17.00
07/10/20	3STIP	1	215	UBM	3356	-17.00
08/04/20	1WATER	1	348	UBM	941	-9.03
08/10/20	1WATER	1	348	UBM	8897	-7.90
07/17/20	NSF	1	138	UBM	3760	25.00
07/17/20	NSF	1	138	UBM	3760	25.00
07/23/20	3STIP	1	348	UBM	442	-17.00
07/28/20	3STIP	1	348	UBM	1739	-17.00
07/28/20	3STIP	1	348	UBM	1739	-17.00
07/27/20	BACKFL	1	348	UBM	113	-210.00
09/08/20	EMERG	1	47	UBM	99995	-150.00
09/29/20	1WATER	1	271	UBM	9238	-7.74
09/29/20	1WATER	1	275	UBM	137	-1.29
08/31/20	1WATER	1	348	UBM		-17.43
08/26/20	1WATER	1	349	UBM	1923	12.97
08/26/20	1WATER	1	349	UBM	1923	-12.97
09/29/20	1WATER	1	280	UBM	9400	-3.95
09/29/20	1WATER	1	280	UBM	9400	-36.93
09/29/20	1WATER	1	280	UBM	9400	-13.18
09/29/20	1WATER	1	280	UBM	9400	-153.77
09/29/20	1WATER	1	270	UBM	7207	-1.29
09/14/20	MKOUT	1	313	UBM	V139	-25.00
09/30/20	1WATER	1	312	UBM	2791	-35.00
TOTAL SERVICE ADJUSTEMENTS						**-2,078.74**

DATE	TYPE	ACCT	BILLNO	ADDRESS	AMOUNT
07/13/20	1XLFEE	7809	360191	23 CRANBERRY LN	-25.00
07/14/20	1XLFEE	2420	354822	63 SISSON RD	-25.00
07/15/20	LFEE ERR	3225	355623	10 RIVERSIDE TERRACE	-25.00
07/15/20	LFEE ERR	6280	358673	42 miles st	-25.00
07/17/20	1XLFEE	4181	356577	50 KELLEY RD	-25.00
07/17/20	1XLFEE	8046	360428	19 STANDISH WOODS CIR	-25.00
07/20/20	1XLFEE	2875	355274	403 PLEASANT LAKE AVE	-25.00
07/22/20	LFEE ERR	2907	362660	16 SOUNDVIEW RD	-25.00
07/22/20	1XLFEE	222	352630	17 ROUTE 28	-25.00
07/23/20	1XLFEE	5217	357613	21 MCGUERY RD	-25.00
07/23/20	1XLFEE	3079	355478	9 KIMBERLY WAY	-25.00
07/24/20	1XLFEE	5761	358157	25 QUAIL NEST RUN	-25.00
07/30/20	1XLFEE	628	362561	36 ZYLPHA RD	-25.00
08/03/20	1XLFEE	1919	354323	283 PLEASANT LAKE AVE	-25.00
08/06/20	1XLFEE	5965	358360	59 WHIP O WILL 124	-25.00
08/06/20	1XLFEE	1607	354012	15 MABEL CANTO WAY	-25.00
08/17/20	1XLFEE	1482	353887	47 NORTH RD	-25.00
08/18/20	LFEE ERR	104	362769	7 BRIARWOOD CLOSE	-25.00
08/21/20	1XLFEE	5611	358007	112 CLEARWATER DR	-25.00
08/27/20	1XLFEE	3371	355768	239 MAIN ST	-25.00
08/27/20	1XLFEE	4239	356635	50 DRIFTWOOD LN	-25.00
08/28/20	1XLFEE	8195	360575	20 CONNECTICUT AV	-25.00
08/28/20	1XLFEE	2916	355315	15 SHANNON RD	-25.00
09/09/20	1XLFEE	3107	355505	128 DEPOT RD WEST	-25.00
09/10/20	1XLFEE	797	353203	15 SHORE RD	-25.00
09/11/20	1XLFEE	7024	359417	2 ENGLEWOOD DR PIT	-25.00
09/16/20	1XLFEE	5923	368575	4 RIVER PINES CIR	-25.00
09/21/20	1XLFEE	9918	372552	12 MOSS HILL CIRCLE	-25.00
TOTAL LATE FEES					**-700.00**

IV. OLD/UNFINISHED BUSINESS

A. Wastewater

INTERMUNICIPAL AGREEMENT

For

Wastewater Collection and Treatment by and between

(CHATHAM/HARWICH)

This Intermunicipal Agreement ("Agreement") is entered into as of _____ (the "Effective Date") by and between the Town of CHATHAM, Massachusetts ("Chatham"), a municipal corporation, and the Town of HARWICH, Massachusetts ("Harwich"), a municipal corporation (collectively, with their successors and assigns, the "Parties").

RECITALS

WHEREAS, Chatham owns and operates a sewage collection, treatment and disposal system, including customer service operations for which the Commonwealth of Massachusetts Department of Environmental Protection ("DEP") has issued a Ground Water Discharge Permit (Permit No.: 44-1), located within the municipal corporate boundaries of Chatham; and

WHEREAS, Harwich plans to construct and operate a sanitary wastewater system within the boundaries of Harwich to service the East Harwich area but desires to deliver its wastewater from the East Harwich area to the Chatham System for treatment and recharge; and

WHEREAS, Chatham and Harwich deem it to be in the public interest to enter into an intermunicipal agreement whereby Chatham would receive and treat Harwich's wastewater and septage at the Chatham Water Pollution Control Facility (the "WPCF") in consideration of Harwich's contribution toward the capital and operational expenses generated by said connection and the other terms and conditions set forth herein, and

WHEREAS, in order to accommodate the additional flow of wastewater from East Harwich as set forth on Figure 13-1 attached hereto as Exhibit A, Chatham must allow construction of a connection with Harwich (the "Connection Point"). Costs associated with the Connection Point shall be borne by Harwich in accordance with Section 9.a herein. Costs associated with the collection system from the Connection Point to the WPCF shall be apportioned in accordance with the Harwich Project Share. The Chatham WPCF can accommodate the flow from East Harwich as set forth in Exhibit A while it continues to expand the Chatham collection system to other parts of Chatham not currently connected to the Chatham collection system. Chatham will continue to evaluate the need to design and build upgrades to the WPCF taking into account Chatham's needs, the Harwich flow, and water conservation efforts in both communities; and

WHEREAS, municipalities are authorized in accordance with G.L. c. 40 §§ 4 and 4A to enter into intermunicipal agreements for the purpose of aiding the prevention or abatement of water pollution; and

WHEREAS, Chatham and Harwich have been authorized to enter into this Agreement as evidenced by the execution of this Agreement by their respective Boards of Selectmen.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged and for the mutual covenants, promises, obligations and agreements contained herein, the Parties hereto, intending to be legally bound, agree as follows:

AGREEMENT

1. DEFINITIONS.

The below terms, as used in this Agreement, shall have the following meanings:

a. "Connection Point" means an underground sewage pipe at which the Chatham collection system is connected to the Harwich collection system and which Connection Point is in approximately the location indicated on the diagram attached hereto as Exhibit B.

b. "Harwich Flow" means the sum of metered flow, which is metered at the Connection Point, and Unmetered Flow.

c. "Harwich Project Share" means Harwich's proportionate share of Project Costs which shall be calculated on the ratio between the 300,000 gpd and the total treatment capacity of the WPCF at the time of the Project (1.3 mgd). With respect to PS6 and associated piping, the Harwich Project Share shall be a proportional share as mutually agreed to by the Parties prior to design and construction.

d. "East Harwich Flow" means the amount of wastewater flowing into Chatham from East Harwich Service Area via the Connection Point.

e. "East Harwich Service Area" means the areas in East Harwich, specifically sub-watersheds to Upper Muddy Creek, Lower Muddy Creek, Pleasant Bay, Round Cove, and potentially the Great Sand Lakes Area provided the combined flow does not exceed 300,000 gpd daily annual average, as described in the Harwich Comprehensive Wastewater Management Plan dated March 2016. (Figure 13-1, Exhibit A).

f. "Operation and Maintenance Expenses" (O&M Expense) includes the total annual expenses actually incurred by Chatham in the operation and maintenance of the System pursuant to a budget covering the categories of annual operating and maintenance expense listed on Exhibit C attached hereto, which budget shall be adopted prior to the commencement of each

Fiscal Year; provided, however, that O&M Expense (a) shall not exceed in the aggregate the total amount of the budget for such fiscal year, (b) shall not include any principal, interest or other charges in connection with any indebtedness incurred by Chatham, and (c) shall not include any Chatham expenses not directly attributable to and included in such annual budget of the System except for supplemental and/or emergency appropriations.

g. "O&M Share" means that portion of Harwich's Fixed and Flow Variable O&M Expenses determined quarterly as defined in Section 4.

h. "Project" means any future upgrades or capital improvements to the System required by regulatory or other legal authority, including without limitation by MassDEP, any future capital improvements to the System deemed necessary by Chatham to preserve the System's useful life, add/improve treatment quality or parameters treated, or maintain capacity to the System and any cost-saving capital modifications to the System. The term "Project" shall also include pumping station(s), gravity sewer, forcemain and any other wastewater infrastructure used to convey Harwich wastewater to the Chatham WPCF.

i. "Project Cost" means the total cost to be incurred in the execution of the Project, including, but not limited to, assessment/feasibility, architectural, permitting, and engineering services, and construction work and construction phase services, interest or other costs of borrowing.

j. "System" means the WPCF, including the effluent recharge beds, the Connection Point(s), pumping station(s), and the gravity sewer and forcemain to convey the collected wastewater from Harwich to the Chatham WPCF.

k. "Total Flow" means the sum of measured flow received at the WPCF including, but not limited to, wastewater from Chatham, East Harwich Service Area, septage, and grease. Flow shall be calculated on a 12 month rolling average. Exhibit D depicts the average daily Total Flow into the WPCF for the period July, 2015 through June, 2016.

l. "Unmetered Flow" means flow from Harwich which is not measured by Harwich metering devices at the Connection Point as a result of Harwich residential sewer users being connected directly to the Chatham collection system and billed directly by Harwich. Unmetered flow shall be calculated based upon water usage of those users as set forth in the regulations and shall be paid by Harwich directly to Chatham on a quarterly basis.

m. "WPCF" means the Chatham Water Pollution Control Facility and all components thereof, including improvements constructed and as may be amended from time to time.

2. EAST HARWICH SERVICE AREA.

2.1 Chatham agrees to receive and treat wastewater from Harwich users in the East Harwich Service Area at an annual average daily volume of up to 300,000 gpd at the Connection Point, and at such other mutually agreeable connection locations as may be designated by Chatham and Harwich. Notwithstanding the foregoing, Harwich may expand the East Harwich Service Area to serve the Great Sand Lakes Area, subject to the approval of Chatham, which approval shall not be unreasonably withheld, provided that Harwich shall not extend its sewer system beyond the East Harwich Service Area if the result of such an extension would cause Harwich to deliver wastewater to Chatham for treatment in excess of 300,000 gpd, unless this Agreement is amended.

2.2 Flow Management Plan. When the Harwich total annual flow metered at the Connection Point exceeds 80 percent of the purchased capacity for a three month period, then Harwich shall present, within 90 days, a plan to Chatham explaining how Harwich intends to manage the remaining 20 percent of the purchased capacity so that total flow exceedances do not occur on a 12-month rolling average. The plan shall 1.) define measures to be taken by Harwich to limit flow connection areas in the future; 2.) define measures to be taken by Harwich to reduce existing flows entering the system; 3.) discuss potential expansion options at the Chatham WPCF; or 4.), define other appropriate action as may be required to enforce the flow capacity allocation. Such Flow Management Plan measures shall be subject to Chatham's approval, which shall not be unreasonably withheld, and, upon written notification to Harwich of such approval, Harwich shall be bound to undertake such measures. Any failure of Harwich to satisfactorily complete such Flow Management Plan measures shall be deemed a material breach of this Agreement. Likewise, Chatham's failure or refusal to approve a Flow Management Plan without reasonable basis shall be deemed a material breach of this agreement.

3. CAPACITY PURCHASE FEE

Harwich will purchase 300,000 gpd average annual daily flow capacity of the Chatham WPCF, for the amount of $6,765,000. Harwich shall make an initial payment of $2,265,0000 upon execution of this Agreement; a second payment of $1,500,000 shall be made upon the commencement of flow from the East Harwich Service Area to the WPCF; a third payment of $1,500,000 shall be made upon an average daily flow of over 50,000 gpd or five (5) years from the date of signing of this Agreement, whichever occurs first; and, a fourth payment of $1,500,000 shall be made upon an average daily flow of over 150,000 gpd or seven (7) years from the date of signing this Agreement, whichever occurs first.

4. O&M EXPENSES

Terms for paying these costs will be defined into two categories: Fixed and Flow Variable.

A. WPCF

1) Given that Chatham will be reserving capacity for Harwich which will require ongoing O&M expenses to maintain the WPCF, Harwich shall pay Fixed O&M expenses (including but not limited to Contract Services, Plant Maintenance, 20% of Chatham DPW Director salary, SCADA contracts, etc.) based on the actual percentage (%) of wastewater flow capacity for East Harwich Service Area to Chatham WPCF Phase I design flow capacity (300,000 gpd/1,300,000 gpd = 23.08%). Fixed O&M payments shall begin at the time of Harwich connection.

2) Flow Variable O&M expenses for the WPCF (including but not limited to chemicals, electricity, natural gas, diesel, sludge removal/disposal, testing, etc.) shall be paid based on the actual percentage (%) of wastewater flow from the East Harwich Service Area as measured at the Connection Point(s) to Total Flow. Flow Variable O&M payments shall begin once flow is measured at the Connection Point.

B. Collection System

1) Harwich shall pay Fixed O&M costs in a ratio of Harwich design flow to Chatham design flow for that portion of the conveyance system from the Connection Point(s), through pumping station(s), to the WPCF and any off-site effluent recharge location within Chatham, if applicable. Fixed O&M payments shall begin at the time of Harwich connection.

2) Flow Variable O&M expenses for the collection system (including but not limited to chemicals, electricity, natural gas, diesel, testing, etc.) shall be paid based on the actual percentage (%) of wastewater flow from the East Harwich Service Area as measured at the Connection Point(s) to total flow measured at Pump Station 6 or other such pump station designation. Flow Variable O&M payments shall begin once flow is measured at the Connection Point.

3) For the avoidance of any doubt, Harwich shall not be responsible for the payment of any O&M expenses incurred by Chatham that relate solely and exclusively to the operation and maintenance of any portion of the Chatham sewer collection system or other components thereof that are not used by Harwich.

C. Within thirty (30) days after the end of each calendar quarter, Chatham will send a statement to Harwich showing, for the period since the beginning of the Fiscal Year to the end of such quarter, Total Flow, flow for that quarter as measured at the Connection Point and the total flow measured at Pump Station 6 or other such pump station designation.

5. EFFLUENT RECHARGE

Chatham shall recharge effluent originating from the East Harwich Service Area at the Chatham WPCF site during the initial years of the Agreement. While the existing recharge system was sized for the capacity of the Chatham WPCF, the Groundwater Discharge Permit (GDP) is limited to five (5) years. The discharge allowed by the current GDP is 1.0 MGD, below the WPCF's capacity of 1.3 MGD. The duration of the initial recharge of Harwich effluent at the Chatham WPCF would be at least until the Chatham facility reaches 80% of its permitted flow capacity. Upon being notified by MassDEP that Chatham must redirect effluent recharge, Chatham shall notify Harwich, in which case Harwich shall construct, maintain and repair the necessary infrastructure to redirect the Harwich flow to a suitable site in Harwich, in an amount necessary to meet the requirements of the MassDEP. In the event that Chatham notifies Harwich of the need to construct infrastructure required to redirect treated effluent back to Harwich for recharge, Harwich shall, at its sole cost and expense, complete the infrastructure construction within three years of said notice from Chatham. Thereafter, the Harwich share of O&M costs shall not include any costs incurred by Chatham for effluent recharge for the portion of effluent directed back to Harwich for recharge. Chatham shall provide any easements necessary at the Chatham WPCF to locate a treated effluent pumping station and appurtenances, including forcemain easements necessary on town-owned properties or within existing rights-of-way from the Chatham WPCF to Harwich. Chatham shall have the right to review and comment on the location of any proposed easements to ensure coordination with other Chatham infrastructure. Chatham shall not unreasonably deny, delay or condition the granting of such easements.

6. SEPTAGE

Chatham shall accept septage pumped from properties located in the East Harwich Service Area upon abandonment of the septic system as part of the connection to sewer process, subject to appropriate documentation, and at the prevailing rate of the Chatham WPCF.

7. FLOW BUY BACK PROVISION

Harwich shall notify Chatham upon completion of the sewering of the East Harwich Service Area in accordance with the Harwich Comprehensive Wastewater Management program. In the event Harwich does not use the entirety of the 300,000 gpd allocated to it at any time during the term of this Agreement, Chatham may buy back any unused flow at a price reflecting the ratio of the amount of gallons to be bought back to the total number of gallons purchased by Harwich at the commencement of this Agreement multiplied by $6,765,000 which amount shall be adjusted for inflation in accordance with the Consumer Price Index – Northeast Region or any other mutually accepted cost method. Harwich shall not transfer any portion of the 300,000 gpd allocation to any other entity. Harwich shall not divert any portion of the 300,000 gpd allocation to any area outside the East Harwich Service Area.

8. TERM.

This Agreement shall commence on Execution of the Agreement and shall continue, unless sooner terminated, for a Term of twenty five (25) years. This Agreement shall continue in full force and effect on the Expiration Date unless it is modified in writing by the Parties or notice is provided by one of the Parties to the other Party of the intent not to renew this Agreement. Such notice shall be provided no later than five (5) years prior to the Expiration Date. If this Agreement is not renewed, Harwich shall pay to Chatham any unpaid amounts owing hereunder. If this Agreement is extended beyond the original 25 year Term Harwich shall not be responsible for any additional Capacity Purchase Fee.

9. CONNECTION POINT.

a. Harwich may construct and connect the East Harwich Service Area portion of its wastewater system as set forth on Exhibit A in coordination with Chatham's infrastructure implementation schedule. Chatham will furnish to Harwich wastewater conveyance and treatment services. The connection of Harwich with the System shall take place by means of the Connection Point at or near the Chatham town line. The cost for initial design, construction, and any future expansion or additions to the Connection Point necessary to accommodate any increases in wastewater flow of the East Harwich Service Area shall be borne by Harwich at no cost to Chatham and shall be subject to approval by Chatham.

b. Harwich hereby grants Chatham and its agents and independent contractors the authority, right and license at all times to have access to such portion of the Connection Point located within Harwich for the purpose of improving, repairing, using and inspecting the same and will issue, promptly upon request therefor, such permits and licenses as shall be necessary to accomplish any of such purposes.

c. Harwich will pay its proportional share of System Project Costs to convey the collected wastewater from the Connection Point to the Chatham WPCF. The proportional share shall be based on the ratio of Harwich's design flow and Chatham's design flow for that segment of the collection system.

10. REGULATIONS.

a. Sewer Use Regulations. Harwich shall adopt local Sewer Use Regulations ("Harwich Regulations") for residential and commercial users of the Harwich System located in East Harwich, which is no less stringent and is as broad in scope as the sewer use regulations set forth in the Chatham Regulations, as amended. The Harwich Regulations shall include pollutant specific local limits which address at least the same pollutant parameters and are at least as stringent as the local limits enacted by Chatham. Harwich shall forward to Chatham for review a proposed draft of the Harwich Regulations within six (6) months, or such longer period of time as may be reasonably agreed upon by the parties, of the date of this Agreement, and shall adopt the Harwich Regulations within

sixty (60) days of receiving approval from Chatham of the content thereof or by any other time as reasonably agreed to by the parties..

b. Revisions by Chatham. Whenever Chatham proposes to adopt revisions to its sewer use Regulations it shall forward to Harwich for review the proposed revisions. Whenever Chatham adopts a revision to its sewer use Regulations, it shall forward a copy of the revisions to Harwich within ten (10) business days of enactment thereof. Harwich shall adopt revisions to the Harwich Regulations that are consistent with and at least as stringent as those adopted by Chatham. Harwich shall forward to Chatham for review its proposed revisions within thirty (30) days of receipt of Chatham's revisions. Harwich shall adopt its revisions within sixty (60) days of receiving approval from Chatham of the content thereof or by any time as reasonably agreed to by the parties.

c. Revisions by Harwich. Harwich shall forward a copy of any proposed revisions to the Harwich Regulations to Chatham for review and comment no later than forty-five (45) days prior to proposed adoption. Chatham shall provide comment to Harwich within fifteen (15) days of receipt. Harwich shall not enact any such revisions inconsistent with this Agreement.

d. Review. The Parties shall periodically review their respective sewer use Bylaw(s) and/or Regulations and jointly draft and adopt amendments (which are equivalent in scope and stringency) when deemed necessary for the effective administration and operation of Chatham's or Harwich's pretreatment program or may be responsive to requirements of MassDEP or address other matters which Chatham or Harwich deem appropriate to maintain the System. This review shall be conducted not less than once every five (5) years. However, either Party may request a joint review whenever such party believes that a review is necessary.

e. Compliance with Law. Each of the Parties shall comply with all applicable current and subsequent regulations of the U.S. E.P.A. and MassDEP relating to the administration, operation and control of the System during the term of this Agreement, and no party shall be liable for the act or neglect of the other. Chatham shall maintain compliance with the MassDEP permit requirements applicable to the WPCF and all federal, state, and local laws, water quality standards, orders and decrees of governmental authorities with jurisdiction over the treatment and discharge of wastewater. Chatham shall comply with any orders issued by governmental entities relating to the WPCF and shall pay any fines, penalties, or costs resulting from such enforcement actions without recourse to Harwich, except to the extent the violation is caused by flow entering the System from Harwich or other acts or omissions directly attributable to Harwich.

11. IMPLEMENTATION; ENFORCEMENT.

a. Agency. As holder of Groundwater Discharge Permit #44-1 Chatham is responsible for complying with all conditions in said Permit. In order to ensure that flow entering the Harwich collection system does not place Chatham in a potential Permit violation, Harwich designates Chatham as an agent of Harwich for the purposes of implementation and enforcement of Harwich's sewer use Regulations against all users located in the East Harwich Service Area. Chatham may take any action under Harwich's sewer use Regulations that could have been taken by Harwich, including the enforcement of the Regulations in courts of law. Chatham shall have concurrent authority with Harwich to enforce its sewer use Regulation in Harwich. The foregoing authorization is not an abdication of Harwich's obligations to in good faith enforce this Agreement but in addition thereto. Harwich's Regulations shall indicate said designation of Chatham as a supplemental implementation/ enforcement authority. Notwithstanding the foregoing, Harwich shall have the responsibility of all collections related to users of Unmetered Flow. Harwich shall be required, regardless of the users' collection status, to pay Chatham on a quarterly basis for all Unmetered Flow.

b. Duties. Chatham, on behalf of and as agent for Harwich, may, at its sole option , perform any and all technical and administrative duties necessary to implement and enforce Harwich's sewer use Regulations or its own sewer use Bylaw. Chatham may, at its sole option: (1) update the industrial waste survey; (2) issue permits to all industrial users required to obtain a permit; (3) conduct inspections, sampling, and analysis; (4) take all appropriate enforcement action; and (5) perform any other technical and administrative duties the Parties mutually deem appropriate.

c. Permitting. Under no circumstances may Harwich discharge any industrial waste or other waste requiring pretreatment into Chatham's wastewater treatment system until an industrial wastewater pretreatment permit (or modification to an existing permit) is issued by Chatham which allows such industrial waste discharges. Any future industrial user must apply for a permit in conformance with this Agreement and the controlling sewer use Bylaw. Chatham shall not unreasonably deny, delay or condition the granting of such an application.

d. Right of Access. Harwich grants to Chatham the authority to access all parts of Harwich's sewer system which flow to the Connection Point and, as permitted by applicable law, all parts of the facilities of industrial users located within Harwich that contribute to Chatham's System, including the right to review and copy all records compiled by Harwich and, as permitted by applicable law, industrial users in relation to discharge activities, to periodically verify compliance with all applicable permits, orders, rules, Regulations and Bylaws, including pretreatment standards and requirements. On-site inspections and monitoring may be conducted (i) during business hours without prior notice or (ii) during non-business

hours with notification to the Harwich Police Department or Public Works Department.

e. Restriction on Foreign Wastewater. Harwich shall not authorize the use of the Connection Point for the transmission of wastewater to the System generated by any source of wastewater that is not located in East Harwich Service Area.

f. Violations. Industrial users of the system in Harwich, if any, shall be subject to enforcement action by Chatham for any violation of Harwich's or Chatham 's sewer use Bylaw or Regulations, or any applicable federal, state or local pretreatment regulation or standard, including, but not limited to, administrative orders, fines and penalties (up to such limits as may be then applicable under state and federal law), injunctive relief, and/or termination of sewer service; provided, however, that Chatham shall be entitled to implement the remedy of termination of sewer services only if any such violation by the industrial user results in a discharge which, in Chatham's sole determination, reasonably appears to present a danger or threat as described in Section (11)((g) of this Agreement.

g. Emergencies. Notwithstanding anything to the contrary contained herein, Chatham shall have the immediate and effective authority, on its own behalf and as the agent of Harwich, to take emergency action to halt or prevent any discharge to the System which (i) presents or may present an imminent danger to the health or welfare of humans, (ii) reasonably appears to threaten the environment, (iii) threatens to cause to pass through sludge contamination or substantial interference with the appropriate operation of the System, or (iv) may result in a Permit violation.

h. Costs. All costs and expenses (including, but not limited to, labor, equipment, attorneys' fees, etc.) incurred by Chatham in implementing and enforcing Harwich's sewer use Regulations against users of the System located in East Harwich shall be paid by Harwich upon issuance of a quarterly invoice by Chatham itemizing the same.

i. Secondary Authority. If the authority of Chatham to act as agent for Harwich under this Agreement is questioned by an industrial or any other user, court of law, or otherwise, Harwich will take whatever action is necessary to ensure the implementation and enforcement of its sewer use Regulations against any of its users, including, but not limited to, implementing and enforcing its sewer use Regulations on its own behalf and/or amending this Agreement to clarify Chatham's authority.

j. Natural Disasters. In the event of floods or other natural disasters that cause water flows in the System to exceed capacity limits and/or that result in an unsafe condition, and/or that cause, or threaten to cause, harm to the public health, the Parties shall cooperate fully and reasonably to resolve such capacity, safety and public health concerns in accordance

with the broad objectives of this Agreement and applicable laws and regulations.

12. ALLOCATIONS OF MAXIMUM FLOWS; FLOW CHARACTERISTICS.

a. Maximum Flows. The annual average daily flow from the East Harwich Service Area shall be 300,000 gpd or less calculated on a 12 month rolling average. This represents 23.08% of the initial design average annual flow of the WPCF. Because the flow from Harwich will be pumped to the Chatham WPCF, Harwich is allowed 23.08% of other measured or calculated flows including, but not limited to, maximum 30 day average, peak day, and peak hour.

b. Flow Characteristics. Harwich will not authorize, and Chatham shall exclude, wastewater flows into the System in excess of the rates of flow specified above for the East Harwich Service Area; provided, however, that before excluding flow from the East Harwich Service Area hereunder, a determination based on actual data over a period of at least twelve (12) months shall have been made that the average flow from the East Harwich Service Area shall have exceeded the limitation applicable thereto and Harwich shall have been given at least ninety (90) days prior written notice thereof. Chatham and Harwich shall take all reasonable steps to preclude the introduction into the System of wastewater having characteristics, including, but not limited to, BOD, TSS, Total Nitrogen, Nitrate Nitrogen, Turbidity, TOC, Oil & Grease, Sodium, not in accordance with the local limits in place from time to time as established by Chatham.

Local Limits shall be defined as follows:

1. BOD, TSS, Total Nitrogen – Harwich shall be allowed a share of the influent load planned for the WPCF that is commensurate with the flow from the East Harwich Service Area. Preliminary Design Memo M-1B defines the Chatham WPCF loads (Exhibit E).

2. Turbidity, Oil & Grease, TOC, and Nitrate Nitrogen – are expected to be similar to Chatham's influent.

3. Harwich shall not discharge into the Harwich or Chatham system waste originating from marine pumpout facilities, or other non-standard sources, without the prior written approval of Chatham.

13. METHODS OF DETERMINING FLOWS.

a. East Harwich Service Area Flow, other than Unmetered Flow, shall be measured by a standard metering device to be located and installed at the Connection Point in the location indicated on Exhibit B. Unless replaced or changed pursuant to a future agreement between the parties, such standard metering device will consist of the following apparatus: One

Venturi Meter, a direct reading totalizer, indicator, and recorder-transmitter with instantaneous flow signal data transmitted to the Chatham Water Pollution Control Facility SCADA system on a continuous basis. Chatham shall be responsible for maintaining the SCADA system. Said apparatus shall be subject to the approval of Chatham, which shall not be unreasonably withheld.

b. Chatham will cause the flow of wastewater from East Harwich to be measured and recorded on a continuous basis in the same manner as set forth in Section 13(a) above, so that the Total Flow (other than Unmetered Flow) and flow from East Harwich shall at all times be known.

c. In the event any metering device fails to register or registers incorrectly the flow of wastewater, Chatham and Harwich will agree on an estimate (if an historic record is not available from earlier similar periods) of the period of time during which the metering device failed to register or registered incorrectly and the quantity of wastewater that would have been measured were the metering device operating correctly, and an appropriate adjustment based thereon shall be made in the wastewater flow to be used as the basis on which to determine Harwich's O&M Share.

d. For billing purposes, Chatham shall read the metering devices at intervals of approximately thirty (30) days. Harwich, at its expense, shall periodically, but not less than twice each year (spring and fall), inspect, test and calibrate the Venturi metering device referred to in Section 13(a) and within 48 hours after any failure of the meter.

e. Harwich recognizes that the System has a maximum permitted flow of One (1) MGD and that further there are portions of Chatham that still require connection to the System. Harwich, therefore, shall be entitled to no more than 300,000 gpd of permitted Flow into the System.

14. COLLECTION OF AMOUNTS PAYABLE.

a. O&M Share. Within thirty (30) days after the end of each calendar quarter, Chatham will send a statement to Harwich showing, for the period since the beginning of the Fiscal Year to the end of such quarter, (a) East Harwich Flow, (b) the Total Flow, (c) O&M Expense incurred, (d) Harwich's O&M Share thereof and (e) the amount, if any, previously paid by Harwich on account thereof. Harwich shall remit payment of the balance due to Chatham within thirty (30) days of receipt of such statement.

b. Harwich Project Share. Harwich shall pay the Harwich Project Share of the Project Costs. Such payments shall be based upon the payments actually made by Chatham pursuant to all financings and/or borrowings, including, without limitation, interest costs, in connection with the Project, but shall not include any amounts reimbursed to Chatham under

any federal or state grant program. Chatham will send a monthly statement to Harwich showing the amount actually paid to Chatham's lender. Harwich shall remit payment to Chatham within thirty (30) days of receipt of such statement.

c. Construction Costs Following Early Termination. In the event of any termination of this Agreement prior to the Expiration Date, Harwich shall pay to Chatham the full amount of (i) Harwich's Project Share of the Project Costs for work actually performed and invoiced to Chatham and which remains unpaid as of the date of termination, (ii) Harwich's Project Share of the Project Costs for all then-remaining work to be performed in connection with the Upgrades resulting from Harwich's use of the WPCF and (iii) any other amounts owing hereunder. Such payment shall be made to Chatham within thirty (30) days of the date of notice of termination or, for work not yet performed at the time of the notice of termination, within thirty (30) days of the date of invoicing for work when it is actually performed. In the event that any payment due under this Section 14 is not received by Chatham within forty-five (45) days of Harwich's receipt of Chatham's statement, interest on the amount overdue shall accrue at the rates and in the manner as is charged to Chatham ratepayers who have amounts owed and past due. The provisions of this Section 14 shall survive any termination of this Agreement.

d. Fees. Harwich shall be responsible for collecting, and Chatham shall be entitled to receive the proceeds from, the issuance and collection of sewer use and pretreatment fees and assessments, if any, as set forth in the controlling sewer use Bylaw or Regulations, as amended, from any and all contributing users located within Harwich. Harwich hereby covenants and agrees that East Harwich-based users of the System shall be subject to and responsible for the payment of such fees, including without limitation any special assessment or similar charge to the extent such fees, assessments or charges are also payable by Chatham-based users of the System, and that Harwich shall bill and collect said amounts and pay to Chatham, at no cost or expense to Chatham, all such amounts on a quarterly basis.

15. MATTERS SUBJECT TO CONFERENCE BETWEEN THE PARTIES.

Chatham and Harwich recognize and agree that they are both users of the System and contribute financially to the O&M Expense of the same, and that such use of the System and financial contribution to Chatham from Harwich shall be considered whenever such facts are pertinent to the observance and performance of this Agreement. Representatives of Harwich may be requested to attend any conference with Chatham where the matters discussed are or may be affected by such use and contribution or may affect such use and contribution. Further, Chatham and Harwich shall create an advisory board for the purpose of exchanging communication regarding the System. Such board shall consist of five (5) members, comprised of three (3) from Chatham and two (2) members from Harwich. The Chatham Town Manager shall serve as one of Chatham's

designated members and shall also act as chair. The board shall meet quarterly to discuss the status of the System and any major issues related thereto. The board shall be advisory in nature, and may make recommendations to Chatham with respect to proposed improvements or other modifications to the administration of the System, but shall not have the legal authority to require or direct that its recommendations be implemented. Each Town shall determine on their own, how to designate their remaining members of the board.

16. DISPUTE RESOLUTION.

Any disputes arising out of this Agreement shall be submitted to non-binding mediation performed by an independent mediator stipulated by Chatham and Harwich. A resolution reached in mediation shall in no way limit Chatham's power to enforce pretreatment standards and requirements directly against industrial users or other users located in Harwich, nor shall it preclude the parties from seeking other remedies against each other including without limitation proceedings in a court of competent jurisdiction. The cost of such mediation, except for the cost of each Party's direct representation, shall be shared equally between the Parties.

17. REMEDIES.

a. Legal and Equitable Relief. The Parties acknowledge and agree that money damages may not be a sufficient remedy for any breach of this Agreement, that either Chatham or Harwich may be entitled to equitable relief (including, without limitation, injunction, specific performance and termination of this Agreement) as a remedy for any such breach or threatened breach, and that neither Party shall oppose the granting of any such relief to Chatham. Such remedy shall not be deemed to be the exclusive remedy for a breach of this Agreement but shall be in addition to all other remedies available to either Party for all damages, costs and expenses, including reasonable attorneys' fees, incurred by it in this regard.

b. Waiver. No delay or failure to exercise a right resulting from breach of this Agreement shall impair such right or be construed as a waiver thereof, so that such right may be exercised from time to time and as may be deemed expedient. Any waiver shall be in writing and signed by the party granting such waiver. If any provision contained in this Agreement is breached by either Party and thereafter waived by the other Party, such waiver shall be limited to the particular breach so waived and shall not be deemed to waive any other breach under this Agreement.

18. TERMINATION.

18.1 Either party may terminate this Agreement for convenience by providing at least five (5) years advance written notice to the other party, provided that such notice is delivered to the other Party on or after the Tenth Anniversary of this Agreement All benefits and obligations under this Agreement will cease upon

the termination date set forth in such written notice. Upon the effective date of such termination, Chatham shall discontinue the services of its System, including collection and treatment of wastewater discharge, for any and all residential, industrial and other users located in Harwich. All users located in Harwich shall cease and desist discharging into Chatham's System upon Chatham's election to discontinue services. In the event of any termination of this Agreement prior to the Expiration Date, Harwich shall pay to Chatham the amount described in Section 14 hereof, in addition to any other amounts owing hereunder.

In the event that Chatham terminates this Agreement pursuant to this section, Chatham shall pay to Harwich the unamortized portion of the Capacity Purchase Fee remaining on the effective date of the termination in accordance with the following formula:

(((50 year WPCF Life) minus (Year from Date of original agreement that Termination takes effect)) times ($135,300)).

- Where $135,300 is the Capital Purchase Fee divided 50.
- Payment to Harwich shall be reduced by $135,300 per year up to the "Initiate Termination" year 44 from the execution date of the original Agreement following renewal of said Agreement.

Example:

- Chatham Initiates Termination in Year 10 (notice not allowed prior to Year 10 per Agreement)
- Termination takes effect in Year 15 (Agreement requires 5 years minimum Notice)
- Therefore, Payment to Harwich = (50 – 15)*$135,300 = $4,735,500

Table below shows full schedule estimated for 50 year WPCF system life.

Initiate Termination at year (years from original agreement date)	Year Termination takes effect (5 years after "Initiate Termination")	Years remaining in WPCF Life	Payment to Harwich
10	15	35	$ 4,735,500
11	16	34	$ 4,600,200
12	17	33	$ 4,464,900
13	18	32	$ 4,329,600

14	19	31	$ 4,194,300
15	20	30	$ 4,059,000
16	21	29	$ 3,923,700
17	22	28	$ 3,788,400
18	23	27	$ 3,653,100
19 [1]	24	26	$ 3,517,800
20	*25*	*25*	*$ 3,382,500*
21	*26*	*24*	*$ 3,247,200*
22	*27*	*23*	*$ 3,111,900*
23	*28*	*22*	*$ 2,976,600*
24	*29*	*21*	*$ 2,841,300*
25	*30*	*20*	*$ 2,706,000*
26	*31*	*19*	*$ 2,570,700*
27	*32*	*18*	*$ 2,435,400*
28	*33*	*17*	*$ 2,300,100*
29	*34*	*16*	*$ 2,164,800*
30	*35*	*15*	*$ 2,029,500*
31	*36*	*14*	*$ 1,894,200*
32	*37*	*13*	*$ 1,758,900*
33	*38*	*12*	*$ 1,623,600*
34	*39*	*11*	*$ 1,488,300*
35	*40*	*10*	*$ 1,353,000*
36	*41*	*9*	*$ 1,217,700*
37	*42*	*8*	*$ 1,082,400*
38	*43*	*7*	*$ 947,100*

39	*44*	*6*	*$ 811,800*
40	*45*	*5*	*$ 676,500*
41	*46*	*4*	*$ 541,200*
42	*47*	*3*	*$ 405,900*
43	*48*	*2*	*$ 270,600*
44	*49*	*1*	*$ 135,300*
45	*50*	*0*	*$ -*

Notes:

1. Termination for convenience per the Agreement may not be initiated after year 19 without the renewal or renegotiation of the Agreement between Chatham and Harwich.

18.2.

A. For any material breach of this Agreement, either party may terminate this Agreement by giving the other party written notice thereof with an effective termination date twelve (12) months after receipt of the notice to terminate and after providing an opportunity to cure such material breach. For purposes of this Agreement, a material Breach is defined as a substantial failure of a party to perform its duties or obligations hereunder which prevents the Agreement from being completed, alters the financial burdens of the Parties, or defeats the purpose of the Agreement.

B. No failure or delay in any performance hereunder shall be deemed to be a breach of this Agreement when such failure or delay is occasioned by or due to an Act of God, strike, lockout, war, riot, epidemic, explosion, sabotage, breakage, or accident to machinery or line or pipes or binding order of any court or governmental authority, or any other cause whether of the kind herein enumerated or otherwise not attributable to or within the control of the Party against whom the breach is alleged.

C. It shall be deemed a material breach of this Agreement if sixty (60) days passes after which Chatham has sent to Harwich a written notice of overdue payment of any undisputed amount and Harwich does not pay same within ten (10) days after receipt of said overdue notice. It shall further be deemed a material breach of this Agreement if Harwich fails to timely adopt/revise Sewer Use Regulations as required by Section 10 or fails to timely fund, construct, maintain and repair the necessary effluent recharge infrastructure to redirect the Harwich flow to a suitable site in Harwich as required by Section 5 as triggered by notification from DEP that Chatham must re-direct effluent recharge.

19. NOTICES.

Whenever notice shall be required to be given pursuant to the terms of this Agreement, it shall be in writing and shall be deemed given when mailed by United States registered or certified mail, postage prepaid, return receipt requested and addressed as follows:

To Chatham:

Town Manager
549 Main St.
Chatham, MA 02633
With copy to Board of Selectmen

To Harwich:

Town Administrator
732 Main St.
Harwich, MA 02645
With copy to Board of Selectmen

20. MISCELLANEOUS.

a. Entire Agreement. This Agreement constitutes the entire agreement between the Parties with respect to implementation and enforcement of a pretreatment program to control wastewater discharges from all industrial users of the System.

b. Periodic Review. The Parties will review and revise this Agreement to ensure compliance with the Federal Clean Water Act (33 U.S.C. § 1251 et seq.) and rules and regulations (see 40 C.F.R. Part 403) and the rules and regulations of the DEP, as necessary.

c. Further Assurances. Each of the Parties hereto shall execute and deliver any and all additional documents or instruments (including easements and other rights in land), in recordable form as appropriate, shall provide other assurances, shall make any necessary applications or filings and submit any records or data to any regulatory body, governmental entity or agency having jurisdiction as necessary to obtain any additional permits, licenses and approvals required, and shall do any and all acts and things reasonably necessary to carry out the intent of the Parties hereto and to confirm the continued effectiveness of this Agreement. Without limiting the foregoing, the Parties agree to amend their respective facilities plans as necessary in connection with any change in applicable industrial pretreatment requirements.

d. Industrial User Contracts. Nothing in this Agreement precludes Chatham from entering into direct contracts with users located in Harwich establishing wastewater discharge restrictions and pretreatment

requirements that are at least as stringent as those provided for in Harwich's sewer use Regulations.

e. Relationship. This Agreement does not create a fiduciary relationship between the Parties. Nothing in this Agreement is intended to constitute either Party an agent, legal representative, subsidiary, joint venture, partner, employee, or servant of the other for any purpose.

f. Modification. No modification, alternation, amendment or waiver of any provision of this Agreement shall be effective or binding on either party unless mutually agreed to in writing by the Parties.

g. Captions. The captions appearing in this Agreement are inserted only as a matter of convenience and for reference, and in no way define, limit construe or describe the scope or intent of any provisions of this Agreement nor in any way affect this Agreement.

h. Governing Law. This Agreement shall be governed by, construed and interpreted in accordance with the laws of the Commonwealth of Massachusetts, which shall also be determinative in any litigation in connection with, or enforcement of this Agreement.

i. Severability. If any term of this Agreement is held to be invalid in any judicial action, it shall be severed from this Agreement and the remaining terms will be unaffected.

j. Third Parties. Nothing contained in this Agreement shall create a contractual relationship with, or a cause of action in favor of, a third party against any or all of the Parties.

k. Binding Effect. The terms, covenants, and conditions contained in this Agreement shall be binding upon and inure to the benefit of the Parties hereto and their respective legal representatives, successors and assigns and any person or persons, natural or corporate, claiming through or under them, or any of them.

l. Assignment. No assignment of this Agreement or any Party's rights, interests or obligations hereunder may be made without the other Party's consent, which shall not be unreasonably denied, withheld, delayed or conditioned.

m. The obligation of Harwich to pay Chatham the Capacity Purchase Fee and its proportionate share of the improvements to the System required to deliver wastewater to the WPCF, including the construction of conveyance infrastructure, shall be subject to appropriation. Notwithstanding the legal requirement for an appropriation, any failure of Harwich to pay any sum due hereunder to Chatham in a timely basis shall constitute a material breach of the terms hereof for purposes of Article 18.2.

[Signature page follows]

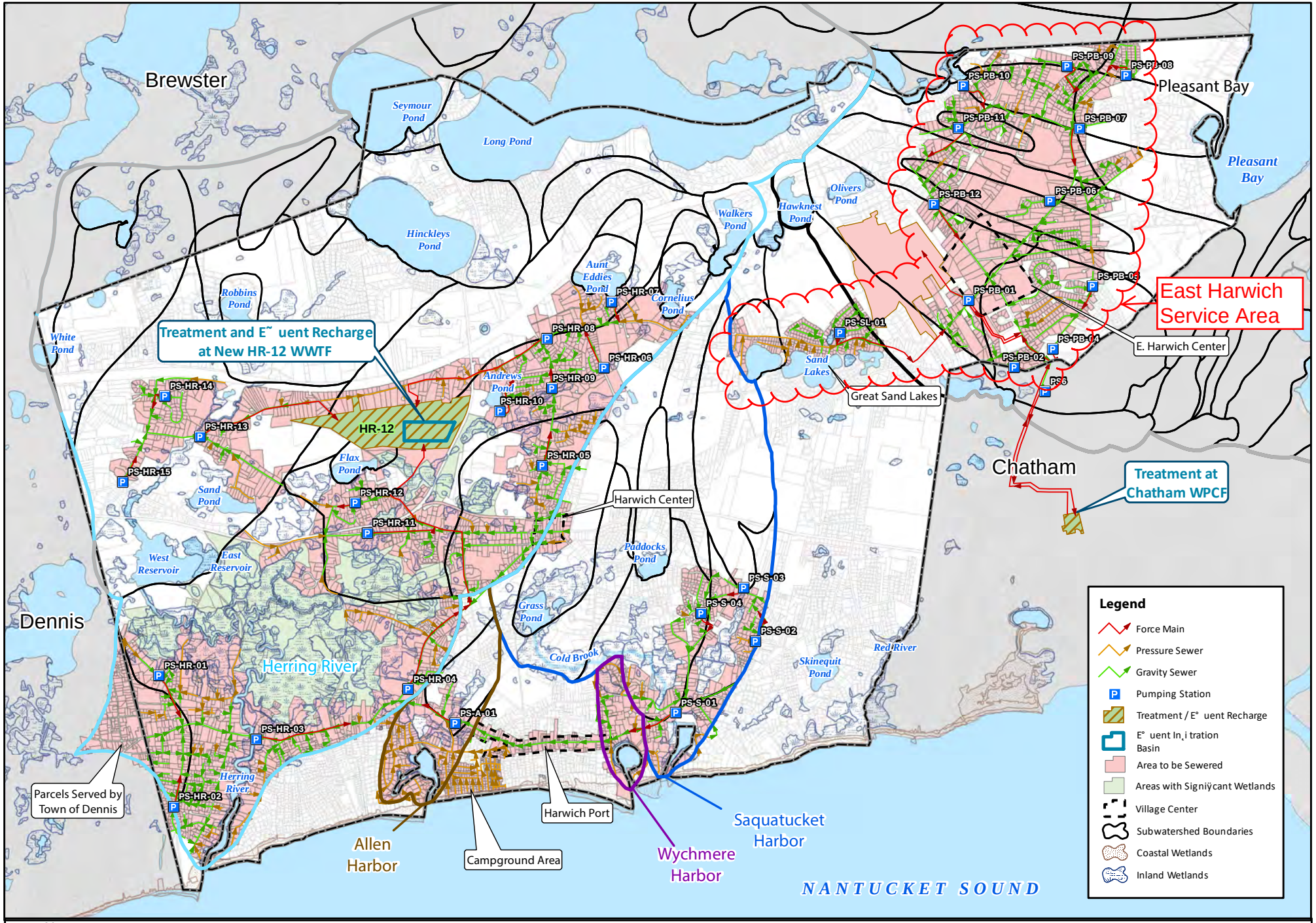
IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their duly authorized officers and their respective seals to be affixed as of the dates given below.

Board of Selectmen, Town of Chatham

Board of Selectmen, Town of Harwich

Exhibit A

East Harwich Service Area



N

Town of Harwich
Comprehensive Wastewater
Management Plan

1 inch = 4,000 feet

0 1,000 2,000 4,000 Feet

Figure 13-1
Recommended Areas to be Sewered

CDM Smith

Z:\Harwich\Harwich_cwmp\MXD\Section_13\Fig13-1Recommended_Plan_Overview.mxd NEWELLJD 12/5/2012

Exhibit B

Connection Point

Legend

Force Main	Gravity Sewer	Manholes
10"	8"	New Buildings
	12"	

0 250 500 1,000 Feet

Paper Size ANSI B

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane Massachusetts Mainland FIPS 2001 Feet

CDM Smith Inc.
Harwich Comprehensive Wastewater Management Plan

Site 6 Gravity and Force Main Extents

Job Number	86-14969
Revision	A
Date	11 Jun 2012

Figure 5

G:\86\14969\GIS\Fig 5 - Site 6.mxd
1545 Iyannough Rd Hyannis MA 02601 USA T 774-470-1630 F774-470-1631 E hyamail@ghd.com W www.ghd.com

Exhibit C

O&M Expenses

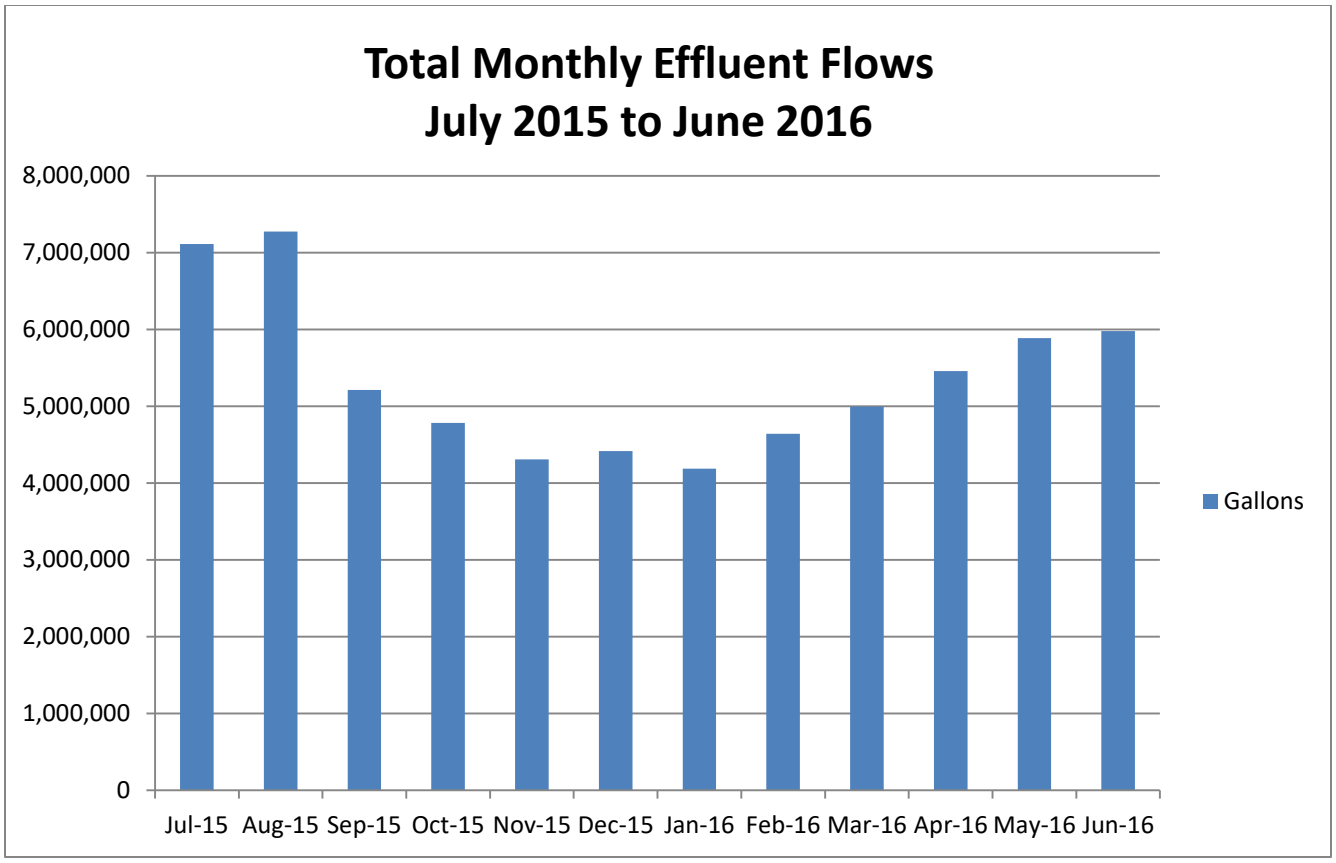
Department Detail

FY 2018 Budget	Dept - 443 Sewer	Department Detail

		FY 2015 Actual	FY 2016 Actual	FY 2017 Budget	FY 2017 YTD 12/31/16	FY 2018 Dept Req	Supplemental Request	FY 2018 Town Manager
5110	Regular Wages	22,884	27,021	22,753	10,971	23,910	-	23,910
5120	Temporary Wages	-	-	-	-	-	-	-
5130	Overtime	-	-	-	-	-	-	-
5141	Longevity	-	-	-	-	-	-	-
	Personnel Services	**22,884**	**27,021**	**22,753**	**10,971**	**23,910**	**0**	**23,910**
5200	Purchase of Services	-	8,083	500	-	500	-	500
5203	Testing	17,261	17,225	20,000	9,259	20,000	(1,500)	18,500
5209	Electric WWFT	106,099	116,207	140,000	69,713	140,000	(8,000)	132,000
5210	Electric-Pump Station	37,511	35,168	45,000	16,658	45,000	4,000	49,000
5212	Gas Heat	35,528	24,709	40,000	3,603	40,000	(2,700)	37,300
5249	Plant Maintenance	107,763	100,603	90,000	63,935	90,000	30,000	120,000
5289	Solid Waste Disposal	26,537	32,831	26,000	14,066	26,000	16,000	42,000
5307	Contract Services	487,630	497,410	507,190	252,780	516,970	-	516,970
5312	Traffic Control/Public Safety	6,584	7,958	5,000	5,786	5,000	5,400	10,400
5317	Professional/Legal/Consulting	7,630	3,652	5,000	1,874	5,000	-	5,000
5340	Telecommunications	-	-	500	-	500	(500)	-
5343	Advertising	129	185	500	-	500	-	500
5344	Printing	420	-	100	-	100	-	100
5345	Postage	183	47	100	-	100	-	100
5400	Operational Supplies	585	2,643	500	-	500	-	500
5420	Office Supplies	212	416	250	577	250	-	250
5430	Building & Grounds Maintenance	-	175	500	-	500	-	500
5432	Chemicals	36,696	34,308	30,000	19,287	30,000	6,000	36,000
5481	Vehicle & Equipment Maint	9,999	6,028	4,800	2,705	4,800	1,500	6,300
5705	Meetings/Dues & Travel	189	-	250	-	250	-	250
5800	Capital Outlay-Operating	-	-	200	-	200	(200)	-
5805	Ground Water Monitoring	23,806	20,850	24,000	-	24,000	-	24,000
	Expenses	**904,761**	**908,498**	**940,390**	**460,243**	**950,170**	**50,000**	**1,000,170**
	Total Sewer	**927,645**	**935,518**	**963,143**	**471,214**	**974,080**	**50,000**	**1,024,080**

Exhibit D

WPCF Flow


Total Monthly Effluent Flows
July 2015 to June 2016
8,000,000
7,000,000
6,000,000
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
0
Jul-15
Aug-15
Sep-15
Oct-15
Nov-15
Dec-15
Jan-16
Feb-16
Mar-16
Apr-16
May-16
Jun-16
Gallons

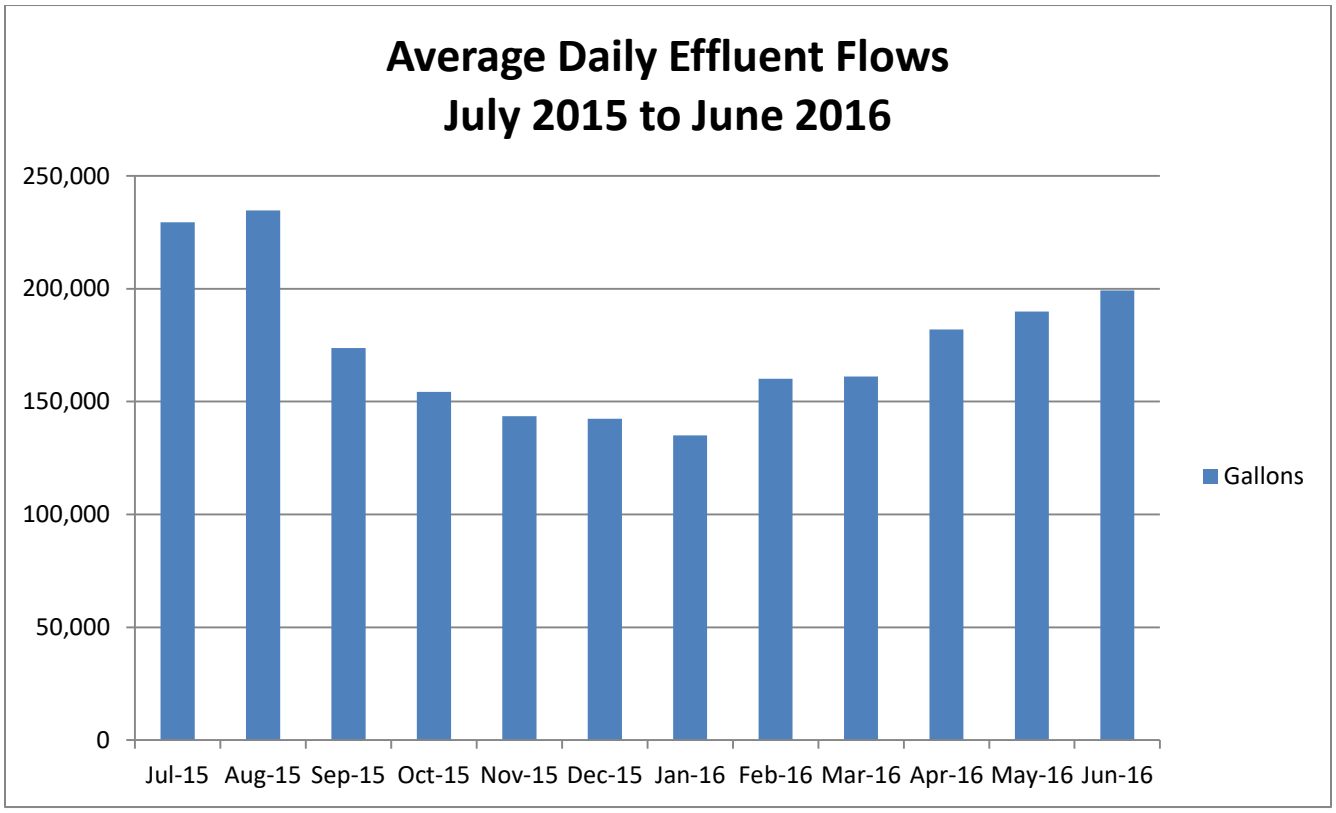

Average Daily Effluent Flows
July 2015 to June 2016
250,000
200,000
150,000
100,000
50,000
0
Jul-15
Aug-15
Sep-15
Oct-15
Nov-15
Dec-15
Jan-16
Feb-16
Mar-16
Apr-16
May-16
Jun-16
Gallons

Exhibit E

Draft Preliminary Design Memorandum M-1B Flows and Loadings

STEARNS & WHELER
Environmental Engineers & Scientists

DRAFT PRELIMINARY DESIGN MEMORANDUM M-1B

From: J. Jefferson Gregg, P.E.

Date: April 21, 2006

Re: Chatham, MA Preliminary Design
Flows and Loadings

Purpose of Memo

The purpose of this memorandum is to summarize the development of wastewater flows and loadings for the Town of Chatham (Town) to be used in the preliminary design of wastewater facilities.

Average Wastewater Flows Development

To remain consistent with the facilities planning process to date and the Massachusetts Estuaries Project Efforts, the Town's existing water consumption data has been used as the basis for the future Wastewater Treatment WWTF design flows and loadings.

The following is a summary of the Town's water data analysis and how it is being applied to this project:

1. 2002-2003 Water data (provided by the Town – summer to summer, and used as part of the Massachusetts Estuaries Project (MEP)). Currently approximately 90 percent of the Town is on public water.

2. Ninety percent reduction applied to convert water use to wastewater generation (facilities plan, and MEP). This 90% reduction is based on an analysis of the wastewater flows to the existing Chatham WWTF.

3. Calculated average water use per parcel for those parcels without known irrigation systems, as identified by Town.

4. Actual water data was used where available, if no water data was available the following approach was used:

    a. Average water use for single family home was estimated to be 120 gpd/parcel (rounded to two significant figures). Estimations based on the parcel by parcel analysis.
    b. For non-single family homes, estimated water use assigned to these parcels was based on the average water use of parcels with the same state class code (similar property type).
    c. Build-out parcels (future) were assigned 120 gpd/parcel.

5. Build-out projections based on the approach established as part of the facilities planning effort and accepted by the Town and Cape Cod Commission (CCC).

6. Existing developed-properties wastewater flow compared to projected build-out flow, and the higher of the two values used.

7. Additional build-out criteria used, as agreed upon with the Town:

- Residential properties are redeveloped to full extent based on current zoning.
- Commercial and Industrial, vacant-developable land is converted to residential.
- All other existing uses remain the same.
- Maps were reviewed with the Town and site specific modifications were made.

Wastewater Flows and Peaking Factors

Table 1 presents the average flows seen at the existing Chatham wastewater treatment facility, generated from the existing collection system.

TABLE 1

EXISTING WWTF FLOWS (2002-2005)

CONDITION	FLOW (MGD)
Average Flow	0.10
Minimum Month Flow	0.07
Maximum Month Flow	0.16

Water use and wastewater flow peaking factors were evaluated and compared to TR-16. The peaking factors considered for the preliminary design are presented in Table 2. As part of the evaluation, both the wastewater flows recorded at the existing WWTF and the drinking water well pumping records were evaluated for the following reasons:

- The limited size of the existing collection system may not be representative of the Town demographics.
- Existing WWTF peaking factors may represent a more year round population and might not be representative of the entire Town (if sewered).
- Town water supply well pumping records are more likely to show the seasonal impacts of the entire Town.
- Well pumping records also reflect higher peak pumping rates in the summer because of additional uses like car washing, lawn irrigation, etc, and therefore would require downward adjustments to the wastewater estimate.
- Well pumping does not equate to 100% wastewater generation, and therefore should not be considered as the sole means of estimating peaking factors.

Therefore, peaking factors falling between those seen at the WWTF and from the well pumping records were considered as a reasonable approximation of those for a Townwide system and were compared to estimated TR-16 values, for validation purposes. The peak day and peak hour estimates

were well within the range recommended by TR-16. TR-16 does not have estimates for summer average, minimum month or maximum month flows.

TABLE 2

PEAKING FACTORS

CONDITION	EXISTING WWTF [1]	TR-16 [5]	PROPOSED
Minimum Month	0.7		0.5
Summer Average [2]	1.3		1.6
Maximum Month [3]	1.6		1.9
Peak Day [4]	1.8	2.1	2.2
Peak Hour		3.4	3.4

Notes:
1. Based on 2002 through 2005 data
2. Three month average (June, July, and August) divided by average annual
3. Maximum month divided by average annual
4. Peak day divided by average annual
5. TR-16 estimates based on average annual flow of 1.5 mgd

Summer average flows during the years 2002 through 2005 were evaluated for June through August, June through September and July through September. The highest average summer flow occurred during the June through August period, although all three periods yielded similar results.

Table 3 presents the Townwide wastewater flow estimates. Existing average annual flow and build-out flows are based on the previously agreed upon approach. Peaking factors are then applied to calculate the remaining build-out flows. Build-out is considered the design conditions for this project.

TABLE 3

TOWN-WIDE FLOW ESTIMATES
(not including I/I)

CONDITION	FLOW (MGD)
Existing (2003) Average Annual Flow [1]	1.0
Build-out (BO) Average Annual Flow	1.3
BO Summer Average Flow	2.1
BO Minimum Month Flow	0.86
BO Maximum Month Flow	2.5
BO Peak Day Flow	2.9
BO Peak Hourly Flow	4.5

Note:
1. Calculated flow based on 2002-2003 water data and existing Town wide land use and units based on 2004 Town assessors data.

The future Chatham collection system will be a new system over very significant areas of Town. The new gravity PVC sewers and manhole joints and covers will be gasketed. Portions of the Town will be low pressure sewers. All new connections will be wye-connections with new laterals to the house, and no roof leaders or sump pumps and/or foundation drain connections will be allowed under any condition. In addition, public education programs should be employed to prevent illegal connections. Because of this, inflow is expected to be negligible.

Table 4 summarizes the projected Infiltration and Inflow (I/I) estimates for the collection system. The "startup" condition is based on the existing collection system and an infiltration rate of 500 gpd/in-mile (based on TR-16). I/I was calculated based on the preliminary sewer layouts developed at the time of this memorandum, and based on 8-inch diameter pipe, and using an I/I rate of 500 gpd/in-mile. I/I for laterals is based on 500 gpd/in-mile for approximately 5,100 4-inch connections each approximately 80 feet long. Estimated length based on Town-wide average distance of building to property line based on GIS information. Although 500 gpd/in-mile is on the high end of the TR-16 range for just infiltration, for this preliminary design it will be used to represent infiltration and inflow.

TABLE 4

INFILTRATION / INFLOW ESTIMATE

CONDITION	FLOW (GPD)
Existing Collection System	20,000
Preliminary Gravity Sewer Layout	350,000
Laterals (All Phases)	160,000
Total	530,000

The proposed sewer areas presented in Table 4 are based on future areas of Town to be sewered as presented in a memorandum to the Town dated June 7, 2005 and entitled Wastewater System Implementation Capital Improvement Planning Items.

Once the proposed sewer layouts are finalized, the estimated I/I values will be adjusted. At this time, the lengths of pressure sewers and gravity sewers have not been finalized. I/I values are not peaked and represent the condition of maximum I/I occurring under any flow condition.

Table 5 presents the proposed WWTF design flows, which are the total of the Townwide flows under build-out conditions presented in Table 3 and the I/I flows presented in Table 4.

TABLE 5

TOTAL PROPOSED WWTF DESIGN FLOWS [1]

CONDITION	FLOW (MGD)
Startup Minimum Month Flow	0.08
Average Annual Flow	1.9
Average Summer Design Flow	2.7
Minimum Month Design Flow	1.2
Maximum Month Design Flow	3.1
Peak Day Design Flow	3.5
Peak Hourly Design Flow	5.1
Note: 1. Includes I/I	

Maximum month flows and loadings will be critical for meeting any effluent nitrogen limit. Peak flows are also critical for process design and hydraulic considerations and effluent disposal. Also, with continued reconstruction of homes in Chatham, it is quite possible that a higher proportion of year-round residents may eventually reside in Town. However, such projections are not available at the time of this technical memorandum, so for planning purposes the present distribution of seasonal and year-round properties (outside of the projected growth due to Build-out) would remain the same in the future. To minimize the impact of future conversion of seasonal to year round homes, the facility will also consider a summer average flow rate and loading, which would account for the majority of the potential residential sewer users in the future. However the fact that the facility will be designed around maximum month and peak day conditions will address this increase in flow and loading.

Development of Loadings

Table 6 presents TR-16 factors for loading variability.

TABLE 6

TR-16 LOADING FACTORS

CONDITION	MAXIMUM MONTH	PEAK DAY
BOD	1.14	1.8
TSS	1.3	2.1

Table 7 presents the existing loadings for the Chatham WWTF (2002-2005).

TABLE 7

EXISTING WWTF FLOWS AND LOADINGS (2002-2005)

CONDITION	AVERAGE	MINIMUM MONTH	MAXIMUM MONTH
Flow, mgd	0.1	0.08	0.16
BOD_5, lb/day	180	70	420
TSS, lb/day	180	80	300
TKN, lb/day	30	10	60
Ammonia, lb/day	20	< 10	40

Note:
Flows and loadings represent a 4 year average (through October 2005)
Rounded to two significant figures

Table 8 presents the flows and loads for the entire WWTF (Phase 1 and 2). Loadings were based on concentrations currently seen at the existing WWTF, increased with build-out estimates, and TR-16 factors were applied for Maximum Month and Peak Day conditions for TSS, and BOD.

TABLE 8

WWTF DESIGN FLOWS AND LOADINGS

CONDITION	STARTUP (3)	AVERAGE ANNUAL	DESIGN SUMMER AVERAGE	MINIMUM MONTH	MAXIMUM MONTH	PEAK DAY	PEAK HOUR (2)
Flow, mgd	0.08	1.9	2.7	1.2	3.1	3.5	5.1
BOD_5, lb/day (1)	100	3,200	6,200	1,400	7,400	8,500	-
TSS, lb/day (1)	160	3,400	5,900	2,200	7,000	8,100	-
TKN, lb/day	20	600	900	200	1,100	1,300	-
Ammonia, lb/day	10	400	600	100	800	900	-

Notes:
1. BOD and TSS loadings for Maximum Month and Peak Day adjusted based on recommended Loading Factors listed in Table 8.
2. Peak Hour loadings not calculated.
3. Start-up loadings based on 2005 data.

For design purposes, seasonal correlations were developed showing under what temperature conditions the facility might see its maximum loading conditions. This impacts the sizing of the facility.

TABLE 9

SEASONAL CORRELATION OF FLOWS AND LOADS

SEASON	DESIGN FLOW	DESIGN LOAD	DESIGN AVERAGE MONTHLY TEMPERATURE (DEGREES C)
Dec-Feb	Use Min. Month	Use Min. Month	7
March-May	Use Average Design Flow	Use Average Design Flow	10
June-Aug	Use Max Month	Use Max Month	20
Sept-Nov	Use Average Design Flow	Use Average Design Flow	16

WWTF Phasing

Preliminary design of the WWTF is based on two phases, based on a preliminary division of the Town to address potential sewering options. Phase I flows would cover portions of the Town located generally south of Route 28, and Phase II would encompass the remaining areas of Town.

Table 10 summarizes the approximate flow split.

TABLE 10

PHASED WWTF DESIGN FLOWS (1)

CONDITION	PHASE I FLOWS (MGD)	PHASE II FLOWS (MGD)
Startup Minimum Month Flow	0.08	0.8
Average Annual Flow	1.3	1.9
Average Summer Design Flow	1.8	2.7
Minimum Month Design Flow	0.8	1.2
Maximum Month Design Flow	2.1	3.1
Peak Day Design Flow	2.3	3.5
Peak Hourly Design Flow	3.5	5.1

Note:
1. Includes I/I

Other Flow Considerations

1. Future Harwich Sewer Extensions:

The Town is currently in discussions with the Town of Harwich regarding the possible extension of any proposed collection system into Harwich. This would require an inter-municipal agreement between the two Towns establishing the quantity of flow and other requirements. No flow estimate is available at this time, and the ultimate ability of Chatham to extend sewers into Harwich will be dependant on the effluent disposal capacity of the Town of Chatham.

2. Septage:

As identified in the 1999 Needs Assessment Report (Table 5-8), "Septage and grease are treated in the sludge holding tanks and the decant liquid and belt filter press filtrate from these flows have minimal contributions to the wastewater treatment process." Therefore for this analysis concentrations from septage are considered to have minimal impact on the new WWTF. Also, the Town of Chatham only receives septage from the Town, therefore as more of the Town is sewered, an even smaller portion of the wastewater flow stream will originate from this source. However, the septage will be considered in the sludge processing and disposal calculations.

V. NEW BUSINESS

A. HTC Land Grant Letter of Support
B. FY21 Q1 Billing Commitments
C. FY21 Q1 Water Budget Report
D. FY21 Q1 Wastewater Budget Report
E. Sewer Rules & Regulations & Rates
F. EPA Cyber Security Assessment

Town of Harwich Water Department
Board of Water/Wastewater Commissioners
196 Chatham Road, Harwich, MA 02645 USA | www.harwichwater.com
P. 508-432-0304 | F. 888-774-3557 | commissioners@harwichwater.com

Date: October 15, 2020
From: Town of Harwich Board of Water/Wastewater Commissioners
To: Town of Harwich Community Preservation Committee
Subject: REOS Committee Application to Community Preservation Fund for Open Space Acquisition

The Town of Harwich Board of Water/Wastewater Commissioners would like to express its endorsement for the $360,000 Community Preservation Fund application by the Town Real Estate & Open Space (REOS) Committee in support of a priority watershed partnership acquisition of approx. 31 acres on Headwaters Drive and Pleasant Lake Avenue for conservation, passive recreation, and water quality protection purposes.

The approx. 31-acre property is located almost entirely within the watershed of Hinckleys Pond, which is an approx. 171-acre kettle pond located entirely within the Zone 2 Wellhead Protection Area of public water supply wells in both Harwich and Brewster. The attached map shows the approx. 31-acre subject property directly adjacent to and bordering more than 200 feet of Hinckley's Pond and therefore also borders the Zone 2 Wellhead Protection Area. Subdivision and development of the property's upland has the potential to negatively impact the water quality of Hinckley's Pond as well as the groundwater quality within the Zone 2 of the public water supply.

Preservation of the approx. 31-acre property offers great benefit from a public water supply perspective, but also in support of the Towns wastewater initiative as the subject property directly abuts Hinckleys pond which is classified as impaired in the Town's Comprehensive Wastewater Management Plan (CWMP). Furthermore, future preservation of this parcel would reinforce the towns recent (2019) investment of approx. $400,000 to reduce excessive phosphorus feeding algae blooms and fish kills. Preserving the subject property helps to limit future development in the watershed to Hinckleys Pond which will aid in protecting and subsequently reducing the need and frequency of future treatment.

As described in the REOS Committee's Community Preservation Act funding application, if the property is developed, at least six septic systems could send nutrients into the Hinckleys Pond/Herring River Watershed and Wellhead Protection Area. Protecting our natural resources now will help to ensure future generations will have access to clean drinking water and healthy natural resources. As such, the Water/Wastewater Commission would like to thank the Community Preservation Committee for your careful consideration and recommend your approval of this watershed land acquisition proposal.

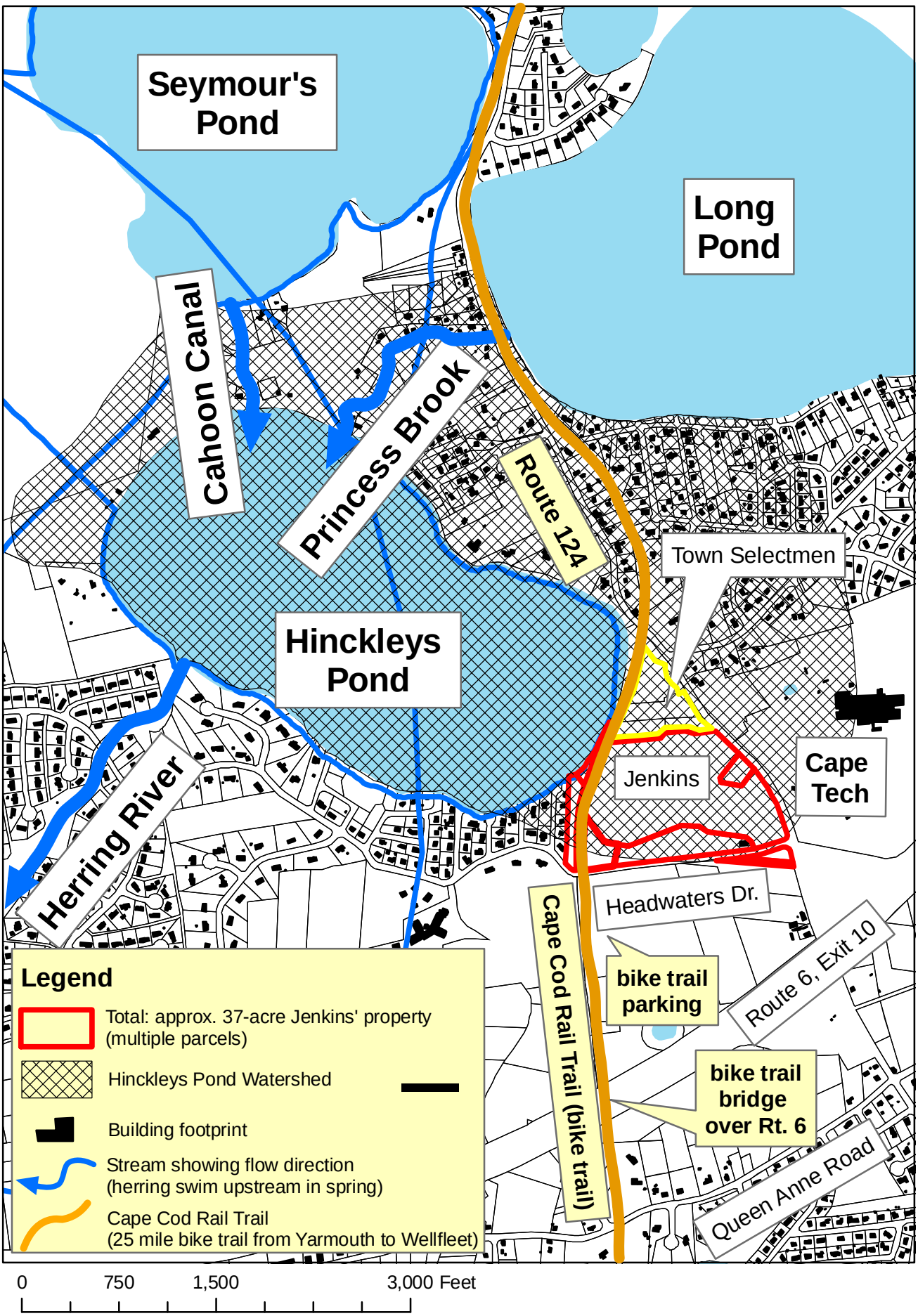
Sincerely,

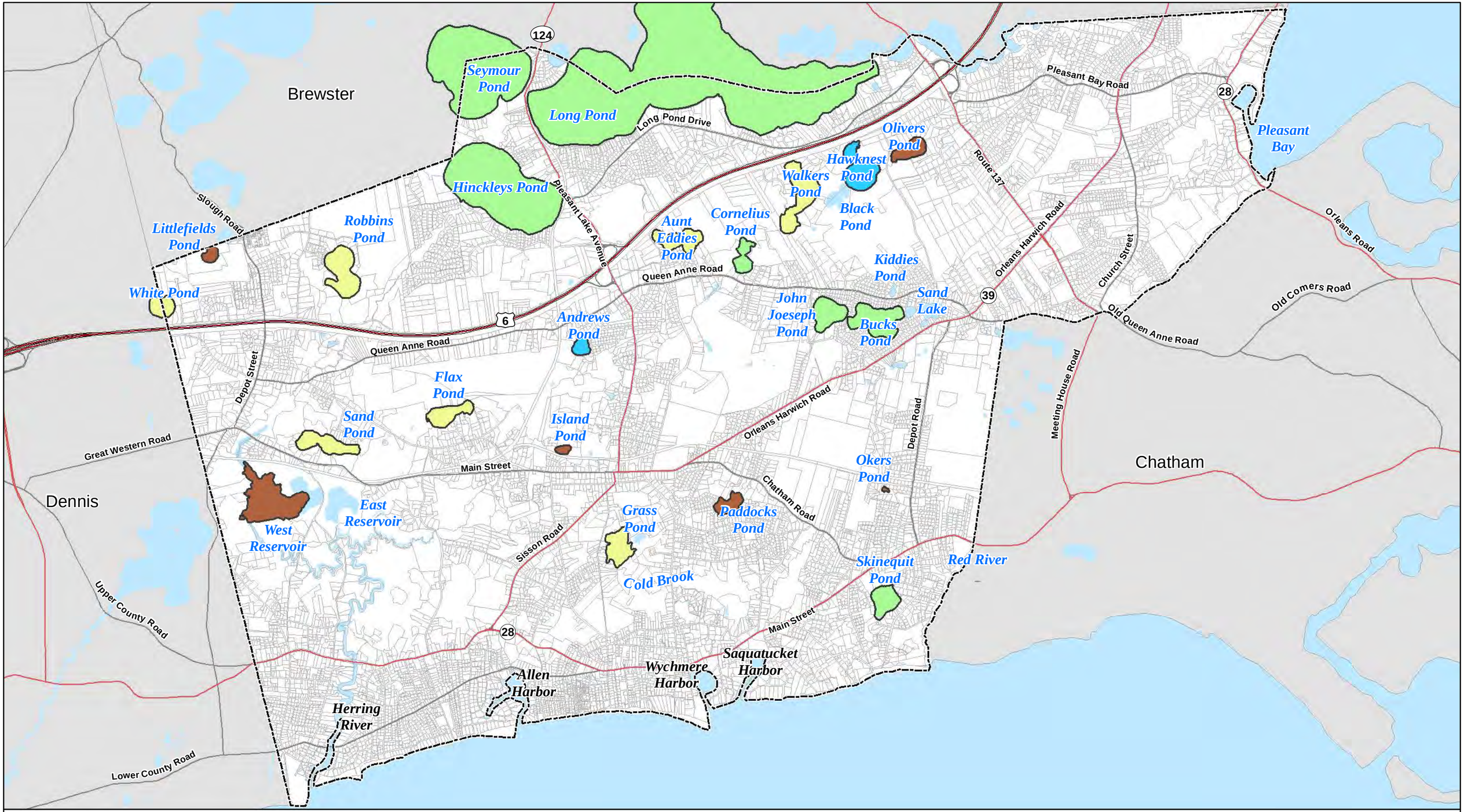
_____
Gary Carreiro, Chairman

_____
Allin Thompson, Vice-Chairman

_____
Judith Underwood, Clerk

Jenkins Project: Hinckleys Pond Watershed Map
Harwich MA





N

Legend

- Additional Data Required
- High Quality Pond
- Pond With Some Water Quality Impairment
- Impaired Pond Water Quality

Town of Harwich
Comprehensive Wastewater Management Plan

1 inch = 3,000 feet

0 1,500 3,000 6,000 Feet

Figure 5-2
Impairment Status of Fresh Water Ponds in Harwich

CDM Smith

\\camgissvr1\Projects\Harwich\Harwich_cwmp\MXD\03262012\Figure5-2_Pond_Impairment.mxd 2/22/2013 pescatoreec

FY2021 Q1 PROJECTIONS V ACTUALS

PROJECTION

	Gallons/Tier			Rates	Revenue/Tier		
Q1 TIER % ALLOCATION	FORECAST	LOW CONF	HI CONF		FORECAST	LOW CONF	HI CONF
BASE RATE				35	350,000.00	350,000.00	350,000.00
18.48%	66,460,282	61,998,945	70,921,619	1.29	85,733.76	79,978.64	91,488.89
12.16%	43,736,773	40,800,817	46,672,730	2.65	115,902.45	108,122.16	123,682.73
27.89%	100,298,235	93,565,428	107,031,042	4.25	396,178.03	369,583.44	422,772.62
41.47%	149,161,510	139,148,615	159,174,404	6.00	853,203.84	795,930.08	910,477.59
PROJ USAGE / REVENUE	359,656,800	335,513,805	383,799,795		1,801,018.08	1,703,614.32	1,898,421.83

ACTUAL

					INCLUDES BASE RATE		
Q1 TIER % ALLOCATION		Gallons/Tier		Rates		Revenue/Tier	
2.02%		9,005,000		1.29		76,144.03	
4.19%		18,681,000		2.65		87,848.95	
14.94%		66,637,000		4.25		276,455.66	
78.66%		350,758,000		6.00		1,759,648.34	
COMPOUND MTR VARIANCE		848,000				16,487.68	
ACTUAL USAGE / REVENUE		**445,929,000**				**2,216,584.66**	

DELTA(S)

	Gallons/Tier				Revenue/Tier		
	FORECAST	LOW CONF	HI CONF		FORECAST	LOW CONF	HI CONF
DELTA USAGE / REVENUE	86,272,200	110,415,195	62,129,205		415,566.58	512,970.34	318,162.83

RECURRING CHARGES

FIRE SPRINKLER				VAR			7,905.00
SERVICE TIGHT				17			22,270.00
SEASONAL OFF				50			23,150.00
BASE RATE / RECURRING CHGS							**53,325.00**
							2,269,909.66

FY21 Q1 WATER COMMITMENT

Run: 1 Commitment: 2010 Summary Begin: 06/26/2020 End: 09/30/2020
Charge Code: To: ZZZZZZ Bill: 09/30/2020 Due: 11/09/2020
Group Code : To: ZZZZ Sequence by ACCOUNT/CHARGE CODE Int/Penalty: 11/09/2020

	Cat	Base/Flat	Usage$/ Usage	Demand/ Usage	KVAR/ Usage	Rate Adj	Subject To	Net Total	Count
Summary by GROUP									
8002	60	3250.00	.00	.00	.00	.00		3250.00	50
			0	.0000	.0000				
90	60	6815.00	40483.49	.00	.00	.00		47298.49	205
			9,382,000	.0000	.0000				
Summary Totals ------->		380665.00	1866164.66	.00	.00	.00	.00	2246829.66	11477
			445,929,000	.0000	.0000				
Summary by CHARGE TYPE/CODE									
Service 1FSPRK FIRE SPRIN	60	6825.00	.00	.00	.00	.00		6825.00	105
			0	.0000	.0000				
Service 1TOWNS TOWN USAGE	60	.00	.00	.00	.00	.00		.00	1
			330,000	.0000	.0000				
Service 1WATER WATER USAG	60	350490.00	1866164.66	.00	.00	.00		2216654.66	10034
			445,599,000	.0000	.0000				
Service 2RESFR RESIDENTIA	60	1080.00	.00	.00	.00	.00		1080.00	27
			0	.0000	.0000				
Service 3STIP SERVICE TIG	60	22270.00	.00	.00	.00	.00		22270.00	1310
			0	.0000	.0000				
Summary Totals ------->		380665.00	1866164.66	.00	.00	.00	.00	2246829.66	11477
			445,929,000	.0000	.0000				

Total Active Accounts: 10147

** END OF REPORT - Generated by Wellesley Marsh **

BOARD OF WATER COMMISSIONERS, CHAIRMAN

Signature Date

X _____ 10-5-20

_____ _____

ORIGINAL: Treasurer
COPIES: Finance Director

Run: 1 Commitment: 2010 Summary Begin: 06/26/2020 End: 09/30/2020
Charge Code: To: ZZZZZZ Bill: 09/30/2020 Due: 11/09/2020
Group Code : To: ZZZZ Sequence by ACCOUNT/CHARGE CODE Int/Penalty: 11/09/2020

	Cat	Base/Flat	Usage$/ Usage	Demand/ Usage	KVAR/ Usage	Rate Adj	Subject To	Net Total	Count
Summary by CHARGE CODE									
1FSPRK FIRE SPRINKLER	60	6825.00	.00	.00	.00	.00		6825.00	105
			0	.0000	.0000				
1TOWNS TOWN USAGE	60	.00	.00	.00	.00	.00		.00	1
			330,000	.0000	.0000				
1WATER WATER USAGE	60	350490.00	1866164.66	.00	.00	.00		2216654.66	10034
			445,599,000	.0000	.0000				
2RESFR RESIDENTIAL FIRE S	60	1080.00	.00	.00	.00	.00		1080.00	27
			0	.0000	.0000				
3STIP SERVICE TIGHT RENEW	60	22270.00	.00	.00	.00	.00		22270.00	1310
			0	.0000	.0000				
Summary Totals ------->		380665.00	1866164.66	.00	.00	.00	.00	2246829.66	11477
			445,929,000	.0000	.0000				
Summary by DISTRICT									
1 CYCLE 1	60	380665.00	1866164.66	.00	.00	.00		2246829.66	11477
			445,929,000	.0000	.0000				
Summary Totals ------->		380665.00	1866164.66	.00	.00	.00	.00	2246829.66	11477
			445,929,000	.0000	.0000				
ummary by GROUP									
10	60	9474.00	77377.98	.00	.00	.00		86851.98	285
			16,645,000	.0000	.0000				
100	60	9629.00	52544.75	.00	.00	.00		62173.75	289
			11,930,000	.0000	.0000				
105	60	8945.00	28349.84	.00	.00	.00		37294.84	271
			7,302,000	.0000	.0000				
110	60	8901.00	42918.42	.00	.00	.00		51819.42	275
			10,257,000	.0000	.0000				
115	60	5229.00	11626.50	.00	.00	.00		16855.50	153
			3,157,000	.0000	.0000				
120	60	8078.00	32577.77	.00	.00	.00		40655.77	243
			8,080,000	.0000	.0000				
130	60	6321.00	62985.38	.00	.00	.00		69306.38	187
			13,266,000	.0000	.0000				
135	60	9860.00	88973.23	.00	.00	.00		98833.23	297
			19,198,000	.0000	.0000				
140	60	6303.00	41949.18	.00	.00	.00		48252.18	195
			9,518,000	.0000	.0000				
145	60	4280.00	13647.74	.00	.00	.00		17927.74	130
			3,714,000	.0000	.0000				
150	60	13811.00	57215.64	.00	.00	.00		71026.64	427
			14,286,000	.0000	.0000				
155	60	5064.00	28934.32	.00	.00	.00		33998.32	156
			6,752,000	.0000	.0000				
157	60	7491.00	35130.25	.00	.00	.00		42621.25	231
			8,620,000	.0000	.0000				
160	60	13676.00	57778.46	.00	.00	.00		71454.46	418
			14,316,000	.0000	.0000				
170	60	8059.00	37678.88	.00	.00	.00		45737.88	246
			9,040,000	.0000	.0000				
172	60	7592.00	33764.72	.00	.00	.00		41356.72	220

Run: 1 Commitment: 2010 Summary Begin: 06/26/2020 End: 09/30/2020
Charge Code: To: ZZZZZZ Bill: 09/30/2020 Due: 11/09/2020
Group Code : To: ZZZZ Sequence by ACCOUNT/CHARGE CODE Int/Penalty: 11/09/2020

Summary by GROUP

	Cat	Base/Flat	Usage$/ Usage	Demand/ Usage	KVAR/ Usage	Rate Adj	Subject To	Net Total	Count
			8,030,000	.0000	.0000				
175	60	9719.00	52586.71	.00	.00	.00		62305.71	289
			12,669,000	.0000	.0000				
176	60	6815.00	33035.62	.00	.00	.00		39850.62	205
			8,035,000	.0000	.0000				
180	60	5240.00	24304.53	.00	.00	.00		29544.53	161
			5,690,000	.0000	.0000				
182	60	17113.00	66991.46	.00	.00	.00		84104.46	528
			16,896,000	.0000	.0000				
184	60	11344.00	52319.26	.00	.00	.00		63663.26	357
			13,010,000	.0000	.0000				
187	60	17764.00	77402.22	.00	.00	.00		95166.22	542
			19,403,000	.0000	.0000				
189	60	5134.00	21551.34	.00	.00	.00		26685.34	158
			5,480,000	.0000	.0000				
190	60	19825.00	105605.43	.00	.00	.00		125430.43	606
			24,802,000	.0000	.0000				
194	60	13672.00	74771.89	.00	.00	.00		88443.89	422
			18,026,000	.0000	.0000				
198	60	12048.00	40358.42	.00	.00	.00		52406.42	372
			10,706,000	.0000	.0000				
20	60	9182.00	29651.17	.00	.00	.00		38833.17	271
			7,805,000	.0000	.0000				
200	60	9676.00	53991.07	.00	.00	.00		63667.07	296
			12,561,000	.0000	.0000				
205	60	7064.00	33980.71	.00	.00	.00		41044.71	208
			8,334,000	.0000	.0000				
210	60	10929.00	47518.40	.00	.00	.00		58447.40	339
			11,893,000	.0000	.0000				
30	60	8772.00	41917.49	.00	.00	.00		50689.49	269
			10,226,000	.0000	.0000				
35	60	6510.00	4126.19	.00	.00	.00		10636.19	186
			1,867,000	.0000	.0000				
365	60	9173.00	46473.23	.00	.00	.00		55646.23	282
			11,269,000	.0000	.0000				
40	60	6552.00	17619.41	.00	.00	.00		24171.41	203
			4,833,000	.0000	.0000				
45	60	4398.00	20501.75	.00	.00	.00		24899.75	138
			5,125,000	.0000	.0000				
50	60	7864.00	60357.71	.00	.00	.00		68221.71	236
			13,434,000	.0000	.0000				
55	60	4388.00	29526.49	.00	.00	.00		33914.49	130
			6,766,000	.0000	.0000				
60	60	5692.00	46923.47	.00	.00	.00		52615.47	176
			10,327,000	.0000	.0000				
65	60	4524.00	22620.85	.00	.00	.00		27144.85	138
			5,413,000	.0000	.0000				
70	60	5766.00	19833.60	.00	.00	.00		25599.60	174
			5,263,000	.0000	.0000				
75	60	6727.00	49664.99	.00	.00	.00		56391.99	203
			11,104,000	.0000	.0000				
80	60	8421.00	48594.70	.00	.00	.00		57015.70	255
			11,499,000	.0000	.0000				
8001	60	3575.00	.00	.00	.00	.00		3575.00	55
			0	.0000	.0000				

FY21 Q1-2 WATER COMMITMENT

Run: SB Commitment: SEAS Summary Begin: 09/30/2020 End: 09/30/2020
Charge Code: To: ZZZZZZ Bill: 09/30/2020 Due: 11/09/2020
Group Code : To: ZZZZ Sequence by ACCOUNT/CHARGE CODE Int/Penalty: 11/09/2020

	Cat	Base/Flat	Usage$/ Usage	Demand/ Usage	KVAR/ Usage	Rate Adj	Subject To	Net Total	Count
Summary by CHARGE CODE									
3SEASN SEASONAL	60	23150.00	.00	.00	.00	.00		23150.00	463
			0	.0000	.0000				
Summary Totals ------->		23150.00	.00	.00	.00	.00	.00	23150.00	463
			0	.0000	.0000				
Summary by DISTRICT									
1 CYCLE 1	60	23150.00	.00	.00	.00	.00		23150.00	463
			0	.0000	.0000				
Summary Totals ------->		23150.00	.00	.00	.00	.00	.00	23150.00	463
			0	.0000	.0000				
Summary by GROUP									
10	60	600.00	.00	.00	.00	.00		600.00	12
			0	.0000	.0000				
100	60	600.00	.00	.00	.00	.00		600.00	12
			0	.0000	.0000				
105	60	450.00	.00	.00	.00	.00		450.00	9
			0	.0000	.0000				
110	60	500.00	.00	.00	.00	.00		500.00	10
			0	.0000	.0000				
115	60	100.00	.00	.00	.00	.00		100.00	2
			0	.0000	.0000				
120	60	750.00	.00	.00	.00	.00		750.00	15
			0	.0000	.0000				
130	60	950.00	.00	.00	.00	.00		950.00	19
			0	.0000	.0000				
135	60	700.00	.00	.00	.00	.00		700.00	14
			0	.0000	.0000				
140	60	650.00	.00	.00	.00	.00		650.00	13
			0	.0000	.0000				
145	60	200.00	.00	.00	.00	.00		200.00	4
			0	.0000	.0000				
150	60	650.00	.00	.00	.00	.00		650.00	13
			0	.0000	.0000				
155	60	300.00	.00	.00	.00	.00		300.00	6
			0	.0000	.0000				
157	60	250.00	.00	.00	.00	.00		250.00	5
			0	.0000	.0000				
160	60	900.00	.00	.00	.00	.00		900.00	18
			0	.0000	.0000				
170	60	150.00	.00	.00	.00	.00		150.00	3
			0	.0000	.0000				
175	60	150.00	.00	.00	.00	.00		150.00	3
			0	.0000	.0000				
176	60	300.00	.00	.00	.00	.00		300.00	6
			0	.0000	.0000				
180	60	250.00	.00	.00	.00	.00		250.00	5
			0	.0000	.0000				
182	60	1050.00	.00	.00	.00	.00		1050.00	21
			0	.0000	.0000				
184	60	350.00	.00	.00	.00	.00		350.00	7

Run: SB Commitment: SEAS Summary Begin: 09/30/2020 End: 09/30/2020
Charge Code: To: ZZZZZZ Bill: 09/30/2020 Due: 11/09/2020
Group Code : To: ZZZZ Sequence by ACCOUNT/CHARGE CODE Int/Penalty: 11/09/2020

	Cat	Base/Flat	Usage$/ Usage	Demand/ Usage	KVAR/ Usage	Rate Adj	Subject To	Net Total	Count
Summary by GROUP									
			0	.0000	.0000				
187	60	500.00	.00	.00	.00	.00		500.00	10
			0	.0000	.0000				
189	60	150.00	.00	.00	.00	.00		150.00	3
			0	.0000	.0000				
190	60	400.00	.00	.00	.00	.00		400.00	8
			0	.0000	.0000				
194	60	150.00	.00	.00	.00	.00		150.00	3
			0	.0000	.0000				
198	60	150.00	.00	.00	.00	.00		150.00	3
			0	.0000	.0000				
20	60	350.00	.00	.00	.00	.00		350.00	7
			0	.0000	.0000				
200	60	350.00	.00	.00	.00	.00		350.00	7
			0	.0000	.0000				
210	60	550.00	.00	.00	.00	.00		550.00	11
			0	.0000	.0000				
30	60	850.00	.00	.00	.00	.00		850.00	17
			0	.0000	.0000				
35	60	200.00	.00	.00	.00	.00		200.00	4
			0	.0000	.0000				
365	60	350.00	.00	.00	.00	.00		350.00	7
			0	.0000	.0000				
40	60	600.00	.00	.00	.00	.00		600.00	12
			0	.0000	.0000				
45	60	650.00	.00	.00	.00	.00		650.00	13
			0	.0000	.0000				
50	60	450.00	.00	.00	.00	.00		450.00	9
			0	.0000	.0000				
55	60	300.00	.00	.00	.00	.00		300.00	6
			0	.0000	.0000				
60	60	400.00	.00	.00	.00	.00		400.00	8
			0	.0000	.0000				
65	60	850.00	.00	.00	.00	.00		850.00	17
			0	.0000	.0000				
70	60	1850.00	.00	.00	.00	.00		1850.00	37
			0	.0000	.0000				
75	60	850.00	.00	.00	.00	.00		850.00	17
			0	.0000	.0000				
80	60	1900.00	.00	.00	.00	.00		1900.00	38
			0	.0000	.0000				
90	60	1450.00	.00	.00	.00	.00		1450.00	29
			0	.0000	.0000				
Summary Totals ------->		23150.00	.00	.00	.00	.00	.00	23150.00	463
			0	.0000	.0000				

ımmary by CHARGE TYPE/CODE

Service 3SEASN SEASONAL	60	23150.00	.00	.00	.00	.00		23150.00	463
			0	.0000	.0000				
Summary Totals ------->		23150.00	.00	.00	.00	.00	.00	23150.00	463
			0	.0000	.0000				

Run: SB Commitment: SEAS Summary Begin: 09/30/2020 End: 09/30/2020
Charge Code: To: ZZZZZZ Bill: 09/30/2020 Due: 11/09/2020
Group Code : To: ZZZZ Sequence by ACCOUNT/CHARGE CODE Int/Penalty: 11/09/2020

	Cat	Base/Flat	Usage$/ Usage	Demand/ Usage	KVAR/ Usage	Rate Adj	Subject To	Net Total	Count

Summary by CHARGE TYPE/CODE

Total Active Accounts: 463

** END OF REPORT - Generated by Wellesley Marsh **

CLERK: wmarsh

YEAR PER JNL SRC ACCOUNT EFF DATE	JNL DESC	REF 1	REF 2	REF 3	ACCOUNT DESC LINE DESC	T	OB	DEBIT	CREDIT
2021 3 319									
JBB 1320-134000					ACCOUNT RECEIVABLE- WATER			23,150.00	
09/30/2020	U/B AR GEN SEAS	SB-SEAS		3SEASN					
JBB 1320-265400					DEFERRED REVENUE WATER				23,150.00
09/30/2020	U/B AR GEN SEAS	SB-SEAS		3SEASN					
					General Services JOURNAL 2021/03/319	TOTAL		23,150.00	23,150.00

FUND / ACCOUNT	YEAR	PER	JNL	EFF DATE	ACCOUNT DESCRIPTION	DEBIT	CREDIT
1320 WATER ENTERPRISE FUND	2021	3	319	09/30/2020			
1320-134000					ACCOUNT RECEIVABLE- WATER	23,150.00	
1320-265400					DEFERRED REVENUE WATER		23,150.00
					FUND TOTAL	23,150.00	23,150.00

** END OF REPORT - Generated by Wellesley Marsh **

FOR 2021 13

ACCOUNTS FOR: 1320 WATER ENTERPRISE FUND	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD ACTUAL	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
1320 WATER ENTERPRISE FUND							
1320 596000 OFUS	730,290	0	730,290	730,290.00	.00	.00	100.0%
TOTAL WATER ENTERPRISE FUND	730,290	0	730,290	730,290.00	.00	.00	100.0%
13204501 WATER ENTERP SALARIES & WAGES							
13204501 511100 S&WELECTED	3,000	0	3,000	750.09	.00	2,249.91	25.0%
13204501 511900 S&W	990,575	0	990,575	260,220.04	.00	730,355.03	26.3%
13204501 512000 SEAS S & W	45,696	0	45,696	12,241.25	.00	33,454.75	26.8%
13204501 513000 OVERTIME	211,282	0	211,282	54,177.15	.00	157,104.85	25.6%
13204501 513060 FLUSHING	31,919	0	31,919	.00	.00	31,919.00	.0%
13204501 514000 LONGEVITY	35,253	0	35,253	4,154.38	.00	31,098.62	11.8%
13204501 515007 SCKLVBONUS	3,325	0	3,325	1,675.00	.00	1,650.00	50.4%
TOTAL WATER ENTERP SALARIES & WAGES	1,321,050	0	1,321,050	333,217.91	.00	987,832.16	25.2%
13204502 WATER ENTERPRISE FUND EXP							
13204502 517200 UNEMPLOYPA	0	0	0	-684.00	.00	684.00	100.0%
13204502 517900 OTHER FRIN	8,250	0	8,250	2,267.37	.00	5,982.63	27.5%
13204502 521100 ELECTRIC	328,126	0	328,126	136,246.00	.00	191,880.00	41.5%
13204502 521200 GAS	9,535	0	9,535	211.69	.00	9,323.31	2.2%
13204502 524140 V&EMAINT	58,500	0	58,500	5,822.22	.00	52,677.78	10.0%
13204502 524160 B&GMAINT	45,000	0	45,000	7,479.96	.00	37,520.04	16.6%
13204502 525000 TECH SUP	27,240	0	27,240	18,005.10	.00	9,234.90	66.1%
13204502 526000 BLDG AGRMT	9,650	0	9,650	6,748.07	.00	2,901.93	69.9%
13204502 530800 LAB SVCS	22,500	0	22,500	2,537.00	.00	19,963.00	11.3%
13204502 530820 PROFSVCS	75,000	0	75,000	6,262.42	.00	68,737.58	8.3%
13204502 530875 PRINT SVC	23,000	0	23,000	2,103.00	.00	20,897.00	9.1%
13204502 534100 ADV	1,500	0	1,500	600.00	.00	900.00	40.0%
13204502 534300 POSTAGE	21,000	0	21,000	4,320.63	.00	16,679.37	20.6%
13204502 534400 TELEPHONE	7,700	0	7,700	2,496.67	.00	5,203.33	32.4%
13204502 534430 COMM SVCS	16,000	0	16,000	3,093.95	.00	12,906.05	19.3%
13204502 541100 PROPANE	18,944	0	18,944	964.76	.00	17,979.24	5.1%
13204502 542000 OFF SUPPLS	5,900	0	5,900	744.52	.00	5,155.48	12.6%
13204502 542013 HARD/SOFT	25,924	0	25,924	279.00	.00	25,645.00	1.1%

FOR 2021 13

ACCOUNTS FOR: 1320 WATER ENTERPRISE FUND	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD ACTUAL	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
1320 WATER ENTERPRISE FUND							
1320 596000 OFUS	730,290	0	730,290	730,290.00	.00	.00	100.0%
TOTAL WATER ENTERPRISE FUND	730,290	0	730,290	730,290.00	.00	.00	100.0%
13204501 WATER ENTERP SALARIES & WAGES							
13204501 511100 S&WELECTED	3,000	0	3,000	750.09	.00	2,249.91	25.0%
13204501 511900 S&W	990,575	0	990,575	260,220.04	.00	730,355.03	26.3%
13204501 512000 SEAS S & W	45,696	0	45,696	12,241.25	.00	33,454.75	26.8%
13204501 513000 OVERTIME	211,282	0	211,282	54,177.15	.00	157,104.85	25.6%
13204501 513060 FLUSHING	31,919	0	31,919	.00	.00	31,919.00	.0%
13204501 514000 LONGEVITY	35,253	0	35,253	4,154.38	.00	31,098.62	11.8%
13204501 515007 SCKLVBONUS	3,325	0	3,325	1,675.00	.00	1,650.00	50.4%
TOTAL WATER ENTERP SALARIES & WAGES	1,321,050	0	1,321,050	333,217.91	.00	987,832.16	25.2%
13204502 WATER ENTERPRISE FUND EXP							
13204502 517200 UNEMPLOYPA	0	0	0	-684.00	.00	684.00	100.0%
13204502 517900 OTHER FRIN	8,250	0	8,250	2,267.37	.00	5,982.63	27.5%
13204502 521100 ELECTRIC	328,126	0	328,126	136,246.00	.00	191,880.00	41.5%
13204502 521200 GAS	9,535	0	9,535	211.69	.00	9,323.31	2.2%
13204502 524140 V&EMAINT	58,500	0	58,500	5,822.22	.00	52,677.78	10.0%
13204502 524160 B&GMAINT	45,000	0	45,000	7,479.96	.00	37,520.04	16.6%
13204502 525000 TECH SUP	27,240	0	27,240	18,005.10	.00	9,234.90	66.1%
13204502 526000 BLDG AGRMT	9,650	0	9,650	6,748.07	.00	2,901.93	69.9%
13204502 530800 LAB SVCS	22,500	0	22,500	2,537.00	.00	19,963.00	11.3%
13204502 530820 PROFSVCS	75,000	0	75,000	6,262.42	.00	68,737.58	8.3%
13204502 530875 PRINT SVC	23,000	0	23,000	2,103.00	.00	20,897.00	9.1%
13204502 534100 ADV	1,500	0	1,500	600.00	.00	900.00	40.0%
13204502 534300 POSTAGE	21,000	0	21,000	4,320.63	.00	16,679.37	20.6%
13204502 534400 TELEPHONE	7,700	0	7,700	2,496.67	.00	5,203.33	32.4%
13204502 534430 COMM SVCS	16,000	0	16,000	3,093.95	.00	12,906.05	19.3%
13204502 541100 PROPANE	18,944	0	18,944	964.76	.00	17,979.24	5.1%
13204502 542000 OFF SUPPLS	5,900	0	5,900	744.52	.00	5,155.48	12.6%
13204502 542013 HARD/SOFT	25,924	0	25,924	279.00	.00	25,645.00	1.1%

FOR 2021 13

ACCOUNTS FOR: 1320 WATER ENTERPRISE FUND		ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD ACTUAL	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
13204502 548100	BULK FUEL	28,371	0	28,371	4,589.62	.00	23,781.38	16.2%
13204502 548200	TREAT SUPP	27,500	0	27,500	5,947.01	.00	21,552.99	21.6%
13204502 548250	TREAT CHEM	145,000	0	145,000	76,831.95	93,638.69	-25,470.64	117.6%*
13204502 553000	P.W. SUPPL	26,250	0	26,250	2,684.76	.00	23,565.24	10.2%
13204502 553100	METERS	180,000	0	180,000	21,339.86	.00	158,660.14	11.9%
13204502 553200	INSTALLSUP	43,000	0	43,000	11,803.69	22,064.26	9,132.05	78.8%
13204502 553300	PIPESETC	90,000	0	90,000	12,170.07	58,668.00	19,161.93	78.7%
13204502 553350	MAINREPL	35,000	0	35,000	.00	.00	35,000.00	.0%
13204502 553500	DETAILS	60,000	0	60,000	1,424.00	.00	58,576.00	2.4%
13204502 553600	RDREP	33,000	0	33,000	14,823.00	.00	18,177.00	44.9%
13204502 553900	MECHTANK	10,000	0	10,000	1,980.00	.00	8,020.00	19.8%
13204502 554200	GENERMAINT	12,500	0	12,500	6,784.95	.00	5,715.05	54.3%
13204502 554300	WELLREHAB	45,000	0	45,000	.00	.00	45,000.00	.0%
13204502 558100	UNIFORMS	6,500	0	6,500	163.10	.00	6,336.90	2.5%
13204502 573000	DUE,SB,TRV	14,000	0	14,000	1,241.16	.00	12,758.84	8.9%
13204502 573200	WATPERMIT	8,500	0	8,500	.00	.00	8,500.00	.0%
13204502 575070	OPEB	50,000	0	50,000	50,000.00	.00	.00	100.0%
13204502 591000	MAT.LT.DBT	547,800	0	547,800	300,618.34	.00	247,181.66	54.9%
13204502 591500	INT LT DBT	171,199	0	171,199	62,437.25	.00	108,761.75	36.5%
13204502 591550	ADM FEE LT	2,346	0	2,346	1,171.38	.00	1,174.62	49.9%
TOTAL WATER ENTERPRISE FUND EXP		2,239,735	0	2,239,735	775,508.50	174,370.95	1,289,855.55	42.4%
13204504 WATER REVENUE ENTERP FUND								
13204504 414600	WATER LIEN	-20,241	0	-20,241	-1,972.48	.00	-18,268.52	9.7%*
13204504 417008	P&I WATER	-2,211	0	-2,211	-140.04	.00	-2,070.96	6.3%*
13204504 421100	WATER R&S	-4,384,189	0	-4,384,189	-935,857.44	.00	-3,448,331.56	21.3%*
13204504 421200	METERS	-10,834	0	-10,834	-1,599.70	.00	-9,234.30	14.8%*
13204504 421300	SVCAPPL	-2,168	0	-2,168	.00	.00	-2,168.00	.0%*
13204504 421400	SVINSTALL	-168,982	0	-168,982	-63,223.86	.00	-105,758.14	37.4%*
13204504 421450	MKOUTSVC	-3,241	0	-3,241	-20,627.42	.00	17,386.42	636.5%
13204504 421550	PROPTRAN	-10,903	0	-10,903	-6,966.13	.00	-3,936.87	63.9%*
13204504 421600	WIRELESS	-128,341	0	-128,341	-89,846.92	.00	-38,494.08	70.0%*
13204504 421650	SOLREV	-70,562	0	-70,562	-23,324.45	.00	-47,237.55	33.1%*
13204504 431100	SVC TIGHT	-82,076	0	-82,076	-22,480.44	.00	-59,595.56	27.4%*
13204504 433007	LATE FEE	-48,771	0	-48,771	-18,454.16	.00	-30,316.84	37.8%*
13204504 441100	ELECT SVC	0	0	0	-1,200.00	.00	1,200.00	100.0%
13204504 451100	BACKFLOW	-20,366	0	-20,366	-4,280.00	.00	-16,086.00	21.0%*
13204504 482001	INVEST REV	-21,200	0	-21,200	-4,677.44	.00	-16,522.56	22.1%*
13204504 484099	WATER MISC	-54,331	0	-54,331	-20,064.20	.00	-34,266.80	36.9%*
TOTAL WATER REVENUE ENTERP FUND		-5,028,416	0	-5,028,416	-1,214,714.68	.00	-3,813,701.32	24.2%

FOR 2021 13

ACCOUNTS FOR: 1320 WATER ENTERPRISE FUND	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD ACTUAL	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
132045A2 WATER ENTERPRISE ARTICLES EXP							
132045A2 619015 ATM 19 #15	0	27,047	27,047	.00	.00	27,047.00	.0%
132045A2 619016 ATM 19 #16	0	300,000	300,000	.00	.00	300,000.00	.0%
132045A2 619017 ATM 19 #17	0	65,000	65,000	.00	.00	65,000.00	.0%
132045A2 620039 PRIOR YEAR	0	3,750	3,750	3,750.00	.00	.00	100.0%
TOTAL WATER ENTERPRISE ARTICLES EXP	0	395,797	395,797	3,750.00	.00	392,047.00	.9%
TOTAL WATER ENTERPRISE FUND	-737,341	395,797	-341,544	628,051.73	174,370.95	-1,143,966.61	-234.9%
TOTAL REVENUES	-5,028,416	0	-5,028,416	-1,214,714.68	.00	-3,813,701.32	
TOTAL EXPENSES	4,291,075	395,797	4,686,872	1,842,766.41	174,370.95	2,669,734.71	

PRIOR FUND BALANCE	1,429,733.27
CHANGE IN FUND BALANCE - NET OF REVENUES/EXPENSES	-628,051.73
REVISED FUND BALANCE	801,681.54

FOR 2021 13

	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD ACTUAL	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
GRAND TOTAL	-737,341	395,797	-341,544	628,051.73	174,370.95	-1,143,966.61	-234.9%

** END OF REPORT - Generated by Sandy Cummings **

FOR 2021 13

ACCOUNTS FOR: 0470 WATER CAPITAL PROJECTS	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD ACTUAL	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
0470 WATER CAPITAL PROJECTS							
0470 617024 ATM 17 # 2	0	35,757	35,757	.00	.00	35,757.43	.0%
0470 617024 1724 ATM 17 # 2	0	110,543	110,543	71,140.00	39,403.00	.00	100.0%
0470 618017 1817 ATM 18 #17	0	71,290	71,290	.00	.00	71,289.58	.0%
TOTAL WATER CAPITAL PROJECTS	0	217,590	217,590	71,140.00	39,403.00	107,047.01	50.8%
TOTAL WATER CAPITAL PROJECTS	0	217,590	217,590	71,140.00	39,403.00	107,047.01	50.8%
TOTAL EXPENSES	0	217,590	217,590	71,140.00	39,403.00	107,047.01	

FOR 2021 13

JOURNAL DETAIL 2021 1 TO 2021 13

ACCOUNTS FOR: 1330 WASTEWATER ENTERPRISE		ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD ACTUAL	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
1330 WASTEWATER FUND								
1330 497000 TRANSFR IN		-200,000	0	-200,000	-200,000.00	.00	.00	100.0%
2021/01/000400	07/01/2020 BUC -200,000.00 REF					ORIGINAL BUDGET 2021		
2021/03/000251	09/28/2020 GEN -200,000.00 REF					GF SUPPORT OF SEWER BUDGET		
TOTAL WASTEWATER FUND		-200,000	0	-200,000	-200,000.00	.00	.00	100.0%
13304401 SEWER SALARIES & WAGES								
13304401 511900 S&W		80,489	0	80,489	.00	.00	80,489.00	.0%
2021/01/000400	07/01/2020 BUC 80,489.00 REF					ORIGINAL BUDGET 2021		
TOTAL SEWER SALARIES & WAGES		80,489	0	80,489	.00	.00	80,489.00	.0%
13304402 WASTEWATER EXPENSES								
13304402 530820 PROFSVCS		192,443	0	192,443	.00	.00	192,443.00	.0%
2021/01/000400	07/01/2020 BUC 192,443.00 REF					ORIGINAL BUDGET 2021		
13304402 530825 PROF SVCS		0	75,358	75,358	12,827.50	75,357.92	-12,827.50	117.0%*
2021/01/000396	07/01/2020 BUA 75,357.92 REF					ENCUMBRANCE CARRY FORWARD 2021		
2021/02/000387	08/31/2020 APM 2,827.50 VND 018889 IN 145735				GHD INC.	INV#145735-ACCT#22	219912	
2021/02/000388	08/31/2020 APM 10,000.00 VND 018889 IN 147518				GHD INC.	CLIENT#860264-PROJ	220259	
TOTAL WASTEWATER EXPENSES		192,443	75,358	267,801	12,827.50	75,357.92	179,615.50	32.9%
13304404 WASTEWATER REVENUE								
13304404 482001 INVEST REV		0	0	0	-543.31	.00	543.31	100.0%
2021/02/000407	08/31/2020 GEN -449.19 REF					July Water & Sewer Inv Rev		
2021/02/000407	08/31/2020 GEN -94.12 REF					Aug Water & Sewer Inv Rev		

FOR 2021 13

JOURNAL DETAIL 2021 1 TO 2021 13

ACCOUNTS FOR: 1330 WASTEWATER ENTERPRISE	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD ACTUAL	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
TOTAL WASTEWATER REVENUE	0	0	0	-543.31	.00	543.31	100.0%
TOTAL WASTEWATER ENTERPRISE	72,932	75,358	148,290	-187,715.81	75,357.92	260,647.81	-75.8%
TOTAL REVENUES	-200,000	0	-200,000	-200,543.31	.00	543.31	
TOTAL EXPENSES	272,932	75,358	348,290	12,827.50	75,357.92	260,104.50	
PRIOR FUND BALANCE				171,912.84			
CHANGE IN FUND BALANCE - NET OF REVENUES/EXPENSES				187,715.81			
REVISED FUND BALANCE				359,628.65			

FOR 2021 13

ACCOUNTS FOR: 0400 CAPITAL FUND	ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENCUMBRANCES	AVAILABLE BUDGET	PCT USED
04440A8 ATM17 WASTEWATER MGMT.							
04440A8 607017 ATM17WASTE	0	52,034	52,034	.00	.00	52,034.17	.0%
04440A8 617011 1711 ATM 17 # 1	0	4,883,017	4,883,017	.00	.00	4,883,016.99	.0%
04440A8 617012 1712 ATM 17 # 1	0	1,942,559	1,942,559	3,664.79	167,241.09	1,771,653.54	8.8%
04440A8 618014 1814 ATM 18 #14	0	14,786,930	14,786,930	2,689,886.93	9,242,483.01	2,854,560.41	80.7%
TOTAL ATM17 WASTEWATER MGMT.	0	21,664,541	21,664,541	2,693,551.72	9,409,724.10	9,561,265.11	55.9%
TOTAL CAPITAL FUND	0	21,664,541	21,664,541	2,693,551.72	9,409,724.10	9,561,265.11	55.9%
TOTAL EXPENSES	0	21,664,541	21,664,541	2,693,551.72	9,409,724.10	9,561,265.11	

Town Of Harwich, Massachusetts
SEWER USE RULES AND REGULATIONS
December, 2015

Pursuant to provisions of Massachusetts General Laws Chapter 83, Section 10, the Town of Harwich hereby establishes the following sewer use rules and regulations (Regulations) governing the use of the wastewater collection system in Harwich, County of Barnstable, Commonwealth of Massachusetts.

While these Regulations will apply to the wastewater collection system throughout the town they have been specifically developed herein for the wastewater collection system to be implemented in the Pleasant Bay Watershed area of Harwich. Wastewater collected in this area will be conveyed to the Town of Chatham wastewater treatment facility. It is anticipated that these Regulations will be modified accordingly for systems to be implemented in other watersheds.

Purpose

The purpose of these Rules and Regulations are:

a) To establish the technical and administrative procedures for making connections to the sanitary sewer system including standards of materials and design;
b) To establish requirements, restrictions, and controls on the quantities and quality of what may be discharged to the sanitary sewer system; such as discharges that may:

    1. Interfere with the operation of the sewer system, pumping station or publicly owned treatment works (POTW) in any way;
    2. Pass through the POTW, to the groundwaters, inadequately treated effluent that may cause contravention of standards for these waters or surface waters or cause violation of the POTW's Groundwater Discharge Permit (GWDP) or negatively impact the watershed into which treated effluent is discharged;
    3. Reduce the opportunity to reclaim or recycle treated wastewater and/or sludge from the system;
    4. Increase the cost or otherwise hamper or limit the disposal of sludges and other residuals;
    5. Endanger municipal employees or the public;
    6. Cause, directly or indirectly, any public nuisance condition;

c) To prevent new sources of inflow and infiltration (I/I) and eliminate private source inflow;
d) To provide for equitable distribution to all users of the POTW, all costs associated with the collection, transmission, treatment, and residuals disposal, and to provide for the collection of such costs; and
e) To provide for the orderly planning of sewer systems' and treatment systems'

components to improve the health and environmental quality of the Town of Harwich and its people and resources while discharging wastewater into the Chatham Sewer System.

The following rules and regulations are a part of the contract with every person who discharges wastewater into the Town of Chatham Sewer System from the East Harwich area, and governs the relationship between the Town of Harwich and its consumers, contractors and/or developers, and all other persons who install sewers, discharges wastewater, is connected into the sewer system or applies for a connection to the sewer system.

Modifications

Modifications, additions to or rescinding of these Rules and Regulations may take place from time to time as authorized by a Town Meeting as required by Massachusetts General Laws, Chapter 83, Section 10.

Notwithstanding anything to the contrary which may be contained therein, all amendments, changes, modifications, revisions, additions, or rescission of Articles I to XX of the Rules and Regulations shall not be valid without the approval and authorization of a majority vote of Town Meeting.
For items contained in the Appendix, modifications will be authorized by actions of the Harwich Wastewater Commissioners.

TOWN OF HARWICH
SEWER USE RULES AND REGULATIONS

TABLE OF CONTENTS

ARTICLE I
DEFINITIONS

Unless the context specifically indicates otherwise, the meaning of terms used in this ordinance shall be as follows:

Section 1. Act„ or "the "Act„ shall mean the Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, 33 U.S.C. 1251, et seq, and the regulations promulgated thereunder, as amended from time to time.

Section 2. "Board„ shall mean the Board of Wastewater Commissioners of the Town of Harwich.

Section 3. "BOD„ (Biochemical Oxygen Demand) shall mean the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedures in five (5) days at 20 degrees centigrade, expressed in milligrams per liter (mg/l).

Section 4. "Building Drain„ shall mean that part of the lowest horizontal piping of a drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of the building and conveys it to the building sewer. The building drain ends at the building sewer which begins five (5) feet or (1.5) meters outside the inner face of the building's wall.

Section 5. "Building Sewer„ shall mean the extension from the building drain, five feet (5') or one and one half (1.5) meters outside the inner face of the building's wall, to the public sewer or other place of disposal.

Section 6. "Combined Sewer„ shall mean a sewer receiving both surface runoff water and sanitary sewage.

Section 7. "Department of Environmental Protection„„ or "DEP„ shall mean the Massachusetts Department of Environmental Protection, established pursuant to M.G.L. Chapter 21, Section 26 or, where appropriate, the Administrator, Director or other duly authorized official of said agency.

Section 8. "Director„ (or Superintendent) shall mean the person appointed by the Town of Harwich as the Superintendent of the Wastewater (or Sewer) Department of the Town of Harwich, who is vested with the authority and responsibility for the implementation and enforcement of these rules and regulations or his authorized deputy, agent, or representative.

Section 9. "Environmental Protection Agency,,, or "EPA,, shall mean the United States Environmental Protection Agency, or, where appropriate, the Administrator or other duly authorized official of said Agency.

Section 10. "Garbage,, shall mean solid wastes from the domestic or commercial handling, storage, preparation, cooking, and dispensing or sale of produce.

Section 11. "Industrial Wastes,, shall mean any water carried or liquid wastes resulting from any process or industrial manufacturing processes, trade, business, or activity listed in 310 CMR 15.004.

Section 12. "Licensed Utility Installer,, or "L.U.I.,, shall mean a person, as defined in Section 15, who upon submitting a License and Permit Bond, Certificate of Insurance, and pays the Utility Installer's License fee, all of which are approved by the Director of the Sewer Department, is permitted to perform the installation of sanitary sewers or building sewers.

Section 13. "Natural Outlet,, shall mean any outlet into a watercourse, pond, lake, or other body of surface ground water.

Section 14. "NPDES,, shall mean National Pollutant Discharge Elimination System.

Section 15. "Person,, shall mean any individual, partnership, co-partnership, firm, company, corporation, association, joint venture, joint stock company, trust, estate, governmental entity, or their legal representatives, agents or assigns. The masculine gender shall include the feminine, the singular shall include the plural where indicated by the context.

Section 16. "pH,, shall mean the logarithm (base 10) of the reciprocal of the concentration of hydrogen ions expressed in grams per liter of solution.

Section 17. "Private Wastewater Collection, Treatment, and Disposal Facilities,, shall mean any system, not owned and/or controlled by a municipal (town) sewer department, used for the collection, treatment, and disposal of wastewater from one or more properties.

Section 18. "Properly Shredded Garbage,, shall mean the wastes from the preparation, cooking, and dispensing and sale of food that has been shredded to such a degree that all particles will be carried freely under the conditions normally prevailing in public sewers, with no particle greater than one-half (1/2) inch (1.27 centimeters) in any dimension.

Section 19. "Public property,, shall mean land, right-of way, or easement owned or controlled by the Town, or other Town, the Commonwealth of Massachusetts, United States government, or any department, political subdivision, or governmental entity.

Section 20. "Public Sewer,, shall mean a sewer in which all owners of abutting properties have equal rights and is controlled by a municipal sewer department.

Section 21. "Sanitary Sewer,, shall mean a sewer which carries wastewater from residential dwellings or commercial facilities without industrial waters or waste and to which stormwaters, surface waters, and groundwaters are not intentionally admitted.

Section 22. "Sewage,, shall mean a combination of the water-carrying wastes from residences, business buildings, institutions, and industrial establishments, together with such materials, surface waters, and storm waters as may be present. The preferred term is wastewater.

Section 23. "Sewage Treatment Facility,, shall mean any arrangement of devices and structures used for treating wastewater. The preferred phrase is wastewater treatment facility.

Section 24. "Sewage Works,, shall mean all facilities for collecting, pumping, treating, and disposing of wastewater. The preferred phrase is wastewater facilities.

Section 25. "Sewer,, shall mean a pipe or conduit for carrying wastewater.

Section 26. "Sewer Department,, shall mean the Town of Harwich's wastewater collection, treatment, and disposal system(s) owned and operated by the Town of Harwich.

Section 27. "Shall,, is mandatory; "May,, is permissive.

Section 28. "Slug,, shall mean any discharge of water, sewage, or industrial waste which in concentration of any given constituent or in quantity of flow exceeds, for any period of duration, longer than fifteen (15) minutes, more than five (5) times the average twenty-four (24) hour concentration or flows during normal operation.

Section 29. "Storm Drain,, (sometimes termed "Storm Sewer,,) shall mean a sewer which carries storm, surface, and drainage waters, but excludes wastewater and industrial wastes, other than unpolluted cooling water.

Section 30. "Suspended Solids,, shall mean solids that either float on the surface of, or are in suspension in water, wastewater, or other liquids, and which are removable by laboratory filtering.

Section 31. "Town,, shall mean the Town of Harwich, Massachusetts or its legal representative, agent, or assign.

Section 32. "Town Administrator,, shall mean the Town of Harwich Board of Selectmen's appointed Town Administrator.

Section 33. "Watercourse,, shall mean a channel in which a flow of water occurs, either continuously or intermittently.

Section 34. "Wastewater,, shall mean the liquid and water-carried industrial, non-domestic or domestic wastes, including sewage, industrial wastes, other wastes, or any combination thereof,

from dwellings, commercial buildings, industrial facilities, and institutions, together with any groundwater, surface water and stormwater that may be present.

Section 34. Abbreviations:

ANSI	American National Standards Institute
ASTM	American Society for testing and Materials
AWWA	American Water Works Association
BOD	Biochemical Oxygen Demand
CFR	Code of Federal Regulations
COD	Carbonaceous Oxygen Demand
EPA	Environmental Protection Agency
TSS	Total Suspended Solids

ARTICLE II
REGULATION OF SEWER FLOW

Section 1. Existing Structures.

Any structure in existence on July 1, 2016, regardless of its flow, may maintain that flow. No person shall modify an existing structure or change its use so as to increase its wastewater flow. Design criteria contained in 310 CMR 15.203, and any Board of Health Regulation modifying such, shall be used to determine whether a proposed modification or change in use shall constitute an increase in wastewater flow. Expansion or modification of existing structures, which may result in increased flow, shall not be allowed unless the increase is in compliance with the Board of Health's Regulations in effect on July 1, 2016.

Section 2. Determination of Present Wastewater Flow.

Wastewater flow to the municipal sewer shall be determined using provisions set forth in 310 CMR 15.203: System Sewage Flow Design Criteria, and any local Board of Health Regulation modifying such in effect on July 1, 2016. The owner of any property shall, upon reasonable notice and request, allow an inspection of a property for a determination of flow by an agent of the Board of Health, except that in lieu of this inspection, the owner of the property may submit a floor plan with sufficient detail to account for all outside structure dimensions. This floor plan must bear the signature of approval of a Certified Septic System Inspector.

Section 3. Undeveloped Parcels.

For the purpose of determining wastewater flow, any existing lot, otherwise qualified, may be permitted for that wastewater flow as determined under the Board of Health's Regulations in effect on July 1, 2016, or 310 CMR 15,000 et. Seq, whichever is less.

Section 4. Rebuilding because of fire, flood, storm or other acts of nature.

A property owner may rebuild a structure destroyed by fire, flood, storm or other acts of nature as a matter of right provided that the new structure does not exceed the wastewater flow of the structure being replaced.

Section 5. Variances.

In the case of unusual and substantial hardship, not the result of acts or omissions of the landowner, the Board of Wastewater Commissioners, after a public hearing of which notice has been given by publication and posting for a minimum of two weeks, may grant a variance to this part of the regulation, provided that sufficient capacity exists and such relief may be granted without substantially derogating from the intent or purpose of this regulation or the latest version of the Town of Harwich Comprehensive Wastewater Management Plan (CWMP).

ARTICLE III
BUILDING SEWERS AND CONNECTIONS

Section 1. No unauthorized person shall uncover, make any connections with or opening into, use, alter or disturb any public sewer or appurtenance thereof without first obtaining a written permit from the Superintendent. Any person proposing a new discharge into the system or a substantial change in the volume or character of pollutants that are being discharged into the /system shall notify the Superintendent in writing, and receive the Superintendents' written approval at least ninety (90) days prior to the proposed change in discharge or sewer connection.

No person shall construct, uncover, make any connections with or opening into, use, alter or disturb any public wastewater collection, treatment, and disposal facilities or appurtenance thereof without first obtaining a written permit from the Superintendent working on behalf of the Wastewater Commission.

Section 2. There shall be two (2) classes of building sewer permits for: (a) residential and commercial service and (b) service to establishments producing industrial wastes. In either case, the owner or his agent shall make application on a special form furnished by the Town of Harwich. The permit application shall be supplemented by any plans, specifications, or other information considered pertinent in the judgment of the Superintendent and Director of the Health Department. A permit and inspection fees connection charges, and inspection fee shall be paid at the time the application is filed.

Section 3. All costs and expenses incident to the installation and connection of the building sewer to the sewer works shall be borne by the owner. The owner shall indemnify the Town from any loss or damage that may occur either directly or indirectly or occasioned by the installation or repair of the building sewer. Construction of all building sewers shall be performed only by a Licensed Utility Installer.

Section 4. A separate and independent building sewer shall be provided for every building; except where one building stands at the rear of another on an interior lot and no private or public sewer is available or can be constructed to the rear building through either: an adjoining alley,

courtyard, driveway, or easement. If these conditions exist, the building sewer from the front building may be extended to the rear building and the whole considered as one building sewer.

Section 5. Old building sewers may be used to connect new buildings only when they are found, on examination and test, to meet all requirements of these rules and regulations and are approved by the Superintendent.

Properties with building sewers that will be connected to the sewer system from a septic system, a portion of the existing pipe may be used as part of the building lateral to a public sewer or to a pumping system only if it meets the requirements in the previous paragraph.

Section 6. A property that is generating wastewater, where a common sewer is available for connection, shall be connected to the common sewer, within one year (365) days of written notification from the Board of Health, unless the Board determines a different connection schedule following a public hearing. For new construction, connection to the common sewer, where a common sewer is available for connection, shall be completed prior to the issuance of a Certificate of Occupancy.

In the case of construction of new common sewers, or extensions of existing common sewers, said Board of Health written notification shall follow notice from the Board of Water & Sewer Commissioners that said common sewer(s) are complete.

ARTICLE IV
USE OF THE PUBLIC SEWER

Section 1. No person shall discharge or cause to be discharged any stormwater, surface water, ground water, roof runoff water, subsurface drainage water, uncontaminated cooling water or unpolluted industrial waters to any sanitary sewer.

Section 2. Stormwater and all other unpolluted drainage waters shall be discharged to such systems as are specifically designated as storm sewers or to a natural outlet as approved by the Town Conservation Commission, Town Surveyor of Highways (or equivalent), and/or the Commonwealth of Massachusetts DEP or EPA. Any such discharge may be subject also to an NPDES permit. It shall be the responsibility of the originator of the discharge to obtain all required permits.

Section 3. Cleaning, maintaining, and repairing of building sewers, from the building to the property line at the street, shall be done at the expense of the owner, provided there is a manhole or cleanout at the property line. If there is no manhole or cleanout at the property line, the owner shall be responsible for the building sewer from the building to the public sewer.

Section 4. No person shall discharge or cause to be discharged any of the following described waters or wastes to any public sewer or wastewater works.

A. Any liquids, solids or gases which, by reason of their nature or quantity, are or may

be sufficient, either alone or by interaction with other substances, to cause fire or an explosion or be injurious, in any way to the sewage works, or to the operation of the sewage works, or to the safety and welfare of the workers and the public at large shall be prohibited from discharge to the wastewater works. Prohibited materials include, but are not limited to, gasoline, kerosene, naptha, benzene, toluene, xylene, ethers, alcohols, carbides, hydrides, and sulfides, and any other substance which the Director, the Town of Chatham (for Harwich wastewater collected and treated in Chatham), the State, or EPA has determined to be a fire hazard to the sewer works.

B. Any waters or wastes containing toxic or poisonous solids, liquids or gases in sufficient quantity, either singly or by interaction with other wastes, to injure or interfere with any sewage collection or treatment process, constitute a hazard to humans or animals and/or create a public hazard in the receiving waters of the sewage treatment facility.

C. Any water or wastes having a pH less than 5.5 or greater than 9.5 or having any other corrosive property capable of causing damage or hazard to structure, equipment, and/or personnel of the sewage works.

D. Solid or viscous substances in quantities or of such size capable of causing obstruction to the flow in sewers, or other interference with the proper operation of the sewage works, such as, but not limited to: fish scales, fish gurry, ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, diapers, feathers, plastics, wood, unground garbage, whole blood, paunch manure, hair and fleshings, entrails, and paper dishes, towels, cups, milk containers, and etc. .

E. Due to the special nature and environmental needs of the Town and the surface and groundwaters of the Town, no person shall discharge or cause to be discharged wastewater containing nitrogen and/or phosphorus compounds in a concentration greater than 50mg/L. Any non-domestic discharges having concentration greater than 50mg/L shall require a special permit from the Director. Said permit may include sampling, flow measurement, pretreatment, and/or special fees as a condition of permit issuance.

Any non-domestic discharge having a BOD or TSS concentration greater than 300 mg/L shall require a special permit from the Director. Said permit may include sampling, flow measurement, pretreatment, and/or special fees as a condition of permit issuance.

F. Any wastewater which will cause interference or pass through.

Section 5. No person shall discharge or cause to be discharged the following described substances, materials, water, or waste if it appears likely in the opinion of the **Director** that such waste can harm the wastewater treatment process, or equipment, have an adverse effect on the receiving stream or can otherwise endanger life, limb, public or private property or cause a nuisance.

Informing his opinion as to the acceptability of these substances, the Director will give consideration to such factors as: the quantities of subject substance in relation to flows and

velocities in the sewers; material use in the construction of the wastewater collection and treatment facilities; nature of the wastewater treatment process; capacity of the wastewater collection and treatment facilities; and other factors which in his judgment are pertinent.

The limitations on wastewater strength or mass discharge contained herein may be supplemented with more stringent limitations when, in the opinion of the Director they are warranted:

(1) The limitations in this set of regulations are not sufficient to protect the POTW and the sewage works;
(2) The limitations herein are not sufficient to enable the POTW to comply with applicable water quality standards, the effluent limitations specified in the POTW's groundwater discharge permit, or effluent reuse;
(3) The POTW sludge or other residuals will be rendered unacceptable for disposal or reuse at the Town of Chatham treatment facility desires as the result of discharge of wastewaters at the above prescribed limitations;
(4) Municipal employees or the public will be endangered or otherwise affected by nuisance conditions;or
(5) Air or ground water impacts will be caused.

The restricted substances are as follows:

A. Any solid, liquid, vapor, or gas having temperature higher than 65 degrees C (150)degrees F): however, such materials shall not cause the POTW influent temperature to be greater than 40 degrees C (104 degrees F). The Director reserves the right to prohibit or limit the discharge of wastes whose maximum temperatures are lower than 65 degrees C.

B. Any water or waste containing fats, wax, grease or oils, whether emulsified or not, in excess of one hundred (100) mg/l or containing substances which may solidify or become viscous at temperatures between thirty two (32) and one hundred and four (104) degrees F (0 and 40 degrees C).

C. Any garbage that has not been properly shredded to a maximum of one half of an inch (1/2„), 1.27 centimeters, in any dimension. The installation and operation of any garbage grinder equipped with a motor of three-fourths (3/4) horsepower (0.76 hp metric) or greater shall be subject to the review and approval of the Director.

D. Any waters or wastes containing strong acid iron pickling wastes, or concentrated plating solutions whether neutralized or not.

E. 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 works exceeds any limits established by EPA or DEP for such material.

F. Any waters or wastes containing phenols or other taste or odor producing substances in concentration exceeding limits, established by the Director, as necessary, after treatment of the composite sewage to meet the requirements of the State, Federal, or other public agencies having jurisdiction over sewage treatment facilities' discharge to receiving waters.

G. Any radioactive wastes or isotopes of such half-life or in concentration as may exceed limits, established by the Director and not in compliance with applicable State or Federal regulations.

H. Any water or wastes having a ph in excess of 9.5.

I. Materials 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 solids, such as, but not limited to: sodium chloride and sodium sulphate.

2. Excessive discoloration (such as, but not limited to: dye wastes and vegetable-tanning solutions).

3. Unusual BOD, chemical oxygen demand, or chlorine requirements in such quantities as to constitute a significant load on the sewage works.

4. Unusual volume of flow or concentration of wastes constituting "slugs,, as defined herein under Article 1, Definitions.

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

K. Concentration and/or mass-based limits-No person shall discharge, directly or indirectly, into the sewer works, wastewater containing any of the following substances in concentrations exceeding those specified below on either a daily basis or an instantaneous basis, except by permit. Limits are applicable at the point of exit from a property to the public sewer.

POLLUTANT	CONCENTRATION: PARTS PER MILLION (mg/L
Arsenic as As	0.05
Barium as Ba	5.0
Boron as B	5.0
Cyanides as Cn (amenable)	0.1
Fluroide as F	20
Chromium (total)	1.0

Chromium (Cr+6)	0.1
Magnesium as Mg	100
Manganese as Mn	5.0
Copper as Cu	1.0
Zinc as Zn	1.0
Cadmium	0.07
Lead	0.1
Tin	2.0
Silver	0.1
Mercury	0.01
Nickel	1.0

Note: All metals are to be measured as total metals.

Section 6. If any waters or wastes are discharged, or are proposed to be discharged to the public sewers, which contain the substances or posses the characteristics enumerated in Section 5 of this Article, and which in the judgment of the Director may have a deleterious effect upon the sewage works, processes, equipment, or receiving waters or which otherwise create a hazard to life or constitute a public nuisance, the Director may:

A. Reject the wastes.

B. Require pretreatment to an acceptable condition before discharge to the public sewers.

C. Require control over the quantities and rates of discharge and/or

D. Require payment to cover the added cost of handling and treating the wastes not covered by existing taxes or sewer charges.

If the Director permits the pretreatment or equalization of waste flows, the design and installation of the pretreatment facility and equipment shall be subject to the review and approval of the Director and subject to the requirements of all applicable codes, ordinances, and laws.

Section 7. Grease, oil, and sand interceptors shall be provided when, in the opinion of the Director they are necessary for the proper handling of liquid wastes containing grease in excessive amounts, or any flammable wastes, sand, or other harmful ingredients; Except such interceptors shall not be required for private living quarters or dwelling units. All interceptors shall be of the type and capacity approved by the Director, and shall be located as to be readily and easily accessible for cleaning and inspection. MDC Grease Interceptors shall be installed in the building sewer serving restaurants or hotels, boarding houses that prepare and serve food or business of a similar nature. Maintenance, operation, and repair of all installed interceptors shall be at the expense of the owner and subject to the inspection by the Director or his authorized representative.

1. Grease traps shall be inspected monthly, for the months in use, by a duly appointed representative of the Town and shall be cleaned by a licensed septage

hauler whenever the level of grease is 25% of the effective depth of the trap or at least every three months whichever is sooner. Facility owners/operators shall be responsible for notifying the Wastewater Department of extended periods of time (one [1] month or more) when the grease trap is not in use (i.e. the facility will be closed) to avoid being inspected and billed for those months.

2. Following pumping of a grease trap the grease trap shall be filled with treated water from the WPCF to a point above the discharge pipe.

Section 8. The owner of any property serviced by a building sewer carrying industrial wastes shall install a suitable control manhole together with such necessary meters and other appurtenances, as determined by the Director, in the building sewer to facilitate observation, sampling, and measurement of wastes. Such manhole shall be accessible and safely located, and shall be constructed in accordance with plans approved by the Director. The manhole shall be installed by the owner at the owner's expense and shall be maintained by owner so as to be safe and accessible at all times.

Section 9. All measurements, tests, and analyses of the characteristics of waters and wastes to which reference is made in this ordinance shall be determined in accordance with the latest edition of " Standard Methods for the Examination of Water and Wastewater,,, published by the American Public Health Association and 40CFR, Part 136, and shall be determined from suitable samples taken at the control manholes provided. In the event that no special manhole has been provided, the control manhole shall be determined by the Director. (Normally the control manhole will be the nearest downstream manhole in the public sewer to the point at which the building sewer is connected). Sampling shall be carried out by customarily accepted methods to reflect the effect of constituents upon the sewer works and to determine the existence of hazards to life, limb, and property. (The particular analyses involved will determine whether a twenty-four (24) hour composite of all outfalls of a premise is appropriate or whether a grab sample for samples should be taken. Normally, but not always, BOD and suspended solids analyses are obtained from 24 hour composites of all outfalls, whereas pH's are determined from periodic grab samples or continuous monitors).

Section 10. No statement contained in this Article shall be construed as preventing any special agreement or arrangement between the Town and any industrial concern whereby any waste of unusual strength or character may be accepted by the Town for treatment, subject to payment therefore, provided that such agreements do not contravene any requirements of existing federal, state, or local laws and are compatible with any user charge and industrial cost recovery system in effect.

ARTICLE V
PROTECTION FROM DAMAGE

Section 1. No person shall maliciously, willfully or negligently break damage, destroy, uncover, deface, or tamper with any structure, appurtenance or equipment which is a part of the

sewage works. Any person violating this provision shall be subject to immediate arrest under charge of disorderly conduct.

ARTICLE VI
POWER AND AUTHORITY OF INSPECTION

Section 1. The Director and other duly authorized employees of the Town of Harwich Wastewater Department, bearing proper credentials and identification, shall be permitted to enter all properties for the purpose of inspection, observation, measuring, sampling, and testing in accordance with the provisions of this ordinance. The Director, or his representatives, shall have no authority to inquire into any processes including metallurgical, chemical, oil refining, ceramic, paper, or other industries beyond that point having a direct bearing on the kind and source of discharge to the sewers or waterways or facilities for wastes treatment.

Section 2. While performing the necessary work on private properties, referred to in Article VII, Section 1., above, the Director, or duly authorized representative of the Director shall observe all safety rules applicable to the premises established by the owner or occupant person and the owner and/or occupant person shall be held harmless for injury or death to the Director's representative and the Town shall indemnify the owner and/or occupant person against loss or damage to its property by Director's representatives and against liability claims and demands for personal injury or property damage asserted against the and owner /or occupant person and growing out of the gauging and sampling operation, except as such may be caused by negligence or failure of the owner and/or occupant person to maintain safe conditions as required in Article V Section 9.

Section 3. The Director, and other duly authorized representative of the Wastewater Department, bearing proper credentials and identification shall be permitted to enter all private properties through which the Town holds a duly negotiated easement for the purpose of, but not limited to: operation, inspection, observation, measuring, sampling, repairing, and maintenance of any portion of the sewage works lying within said easement. All entry and subsequent work, if any in said easement, shall be done in full accordance with the terms of the duly negotiated easement pertaining to the private property involved.

ARTICLE VII
PENALTIES

Section 1. Any person found to be violating any provisions of these Rules and Regulations except Article IV shall be served by the Town with written notice stating the nature of violation and the offender shall permanently cease all violations. The Director may immediately halt or prevent any discharge of pollutants which reasonably appears to present an imminent endangerment to the health or welfare of persons. In the event that the Director determines that a discharge of pollutants reasonably appears to present an imminent endangerment to the health or

welfare of persons, the Director may provide informal (oral or written) notice of such determination to the discharger. The offender shall, within the period of time stated in such notice, permanently cease all violations by immediately stopping or eliminating such discharge and shall submit written proof of the elimination of the discharge to the Director within forty-eight (48) hours of receipt of notice of the Director's determination. If said person fails to voluntary halt such discharge, the Director will take such actions as deems necessary to prevent or minimize endangerment to the health or welfare of persons. Such actions may include, but are not limited to: seeking temporary injunctive relief, entry onto private property to halt such discharge, severance of the sewer connection, suspension of wastewater disposal service, suspension or revocation of a discharge permit, and/or implementation of legal action. After such discharge has been halted, the Director may take such other and further actions as may be necessary to ensure elimination of said discharge and to ensure compliance with the terms of these Rules and Regulation and any discharge permits issued hereunder.

Section 2. Any person who shall continue any violation beyond the time limit provided for in Article VIII, Section1 shall be guilty of a misdemeanor, and on conviction thereof, shall be fined an amount not exceeding five thousand dollars ($5,000) for each day for each violation of any provisions of these Rules and Regulations. Each day in which any such violation shall continue shall be deemed a separate offense. These penalties are stated in the Massachusetts General Laws, Chapter 83, as amended by Chapter 174 of the Acts of 1987. Enforcement action shall be considered to begin immediately upon discovery of the violation for the purpose of calculating penalties, etc.

Section 3. Any person violating any of the provisions of this ordinance shall become liable to the Town for any expense, loss or damage occasioned by the Town by reason of such violation.

Section 4. Neither the Town nor any of its employees shall be liable for damages arising out of a malfunction of the system including, but not limited to, backups.

ARTICLE VIII
VALIDITY

Section 1. All ordinances or parts of ordinances in conflict with these Rules and Regulations of the Sewer Department are hereby repealed.

Section 2. The invalidity of any section, clause, sentence, or provision of this ordinance shall not affect the validity determined by the Board as to which of any other part of this ordinance which can be given effect without such invalid part or parts.

ARTICLE IX
COLLECTION OF SEWER AND SERVICE CHARGES:

Sewer bills are due payable within thirty (30) days from the date of issuance. All sewer bills that are outstanding after 30 days will be mailed a demand notice which shall be due within fourteen (14) days. The demand notice shall include a demand charge and interest on the outstanding balance. Interest shall accrue at the statutory rate applicable to property taxes as stated in Massachusetts General Law Chapter 59, Section 57. If the charges are still unpaid after the due date of the demand notice, a hand delivered notice will be posted on the premises being served one week before sewer service is turned off or plugged. In order to turn off or plug a sewer service without causing a health problem the water service shall also be turned off. If the water service shall be turned off for non-payment of the sewer service charges, the water service will not be turned on until all past charges are paid in full, including all expenses associated with collection of such sewer charges and the shut off of water service. Such shut off of water charges shall be as approved by the Water Commissioners as water rates and charges of the Water Department.

ARTICLE X
GRIEVANCE AND VARIANCE PROCEDURE:

A person who seeks a variance or feels aggravated due to the interpretation of these Rules and Regulations as it affects them shall have recourse, without prejudice or retribution, to seek a response to the alleged situation, condition, problem or misunderstanding in the following manner:

Step 1. The person shall present the issue to the Director in writing using the forms available at the Wastewater Departments' office, documenting the time and/or dates of the circumstances and reasons for a variance request or said grievance. The person may expect a reply to the request for variance or grievance within thirty (30) days from the date of filing with the Director.

Step 2. Should the issue not be resolved with the response from the Director or not received within thirty (30) days, the person may take the issue to the Wastewater Commission. Such submission shall include copies of all written documentation of the variance request or said grievance, with all sequence of actions or inactions taken to date.

The Wastewater Commission will use its best effort to hold a hearing within forty-five (45) days of receipt of an application for a abatement, variance or grievance request, and shall render a decision within forty-five (45) days after holding such hearing on the application for a abatement, variance or grievance request.

Step 3. Should the issue not be resolved with the response from the Wastewater Commission or not received within forty-five (45) days after the Wastewater Commission closes the hearing on a person's application for abatement, variance or grievance request, the person may take the issue to the Board of Selectmen. Such submission shall include copies of all written documentation of the variance request or said grievance, with all sequence of actions or inactions taken to date. The Board of Selectmen will use their best effort to hold a hearing within sixty (60) days of receipt of an application for an abatement, variance or grievance request and shall render a decision within forty-five (45) days from date of the hearing.

ARTICLE XI
ORDINANCE IN FORCE

Section 1. This ordinance shall be in full force and effect from and after its passage, approval, recording, and publication as provided by law.

APPENDICES

Appendix A: Design of Sewers
Appendix B: Construction Technical Specifications

APPENDIX A
DESIGN OF SEWERS

Section 1. General

Wastewater collection systems shall be designed separately from stormwater systems. Wastewater collection systems shall not allow for the introduction of rain water, noncontract cooling water, and groundwater from foundation drains, sump pumps, surface drainage or any other source of inflow. Overflows from wastewater collection systems shall also not be permitted.

New sanitary sewers and all extensions to sanitary sewers owned and operated by the Town of Harwich shall be either gravity sewers or low pressure sewers in accordance with the Town's approved wastewater treatment facility plan, and shall be designed by a professional engineer licensed to practice in the Commonwealth of Massachusetts, in accordance with the Guides for the Design of Wastewater Treatment Works (TR-16), and in strict accordance with appropriate Massachusetts codes and the Town of Chatham Rules and Regulations of the Sewer Department. Plans and specifications shall be submitted to and approved by the Director before initiating any construction. The design shall anticipate and allow for flows from all possible future extensions or development within the immediate drainage area in conformance with Town planning documents.

Section 2. Building sewers shall be constructed of such materials and shall be a minimum four (4„) inch diameter pipe for single family residential connections and six (6„) inch diameter pipe for multi-family, commercial or industrial connections or as the Superintendent may determine. Sewer pipe shall be made from: ductile iron with the outside coated with extra heavy bituminous coating approved for buried utilities and the inside cement lined, minimum schedule 35 P.V.C. or acceptable substitute approved by the Superintendent. The building sewer shall be laid straight in line and grade.

Single family residential building sewers must have watertight wye cleanouts, with H-20 rated valve frame and cover box, with the word "SEWER,, in raised lettering, at all locations where pipe size, slope or direction changes and at the property line. Additional cleanouts may be required for runs of 100 feet or more, or at the discretion of the Director. The cleanout shall be brought to within four (4,,) inches below final grade, except for paved surfaces, (bituminous concrete, concrete, paving blocks, etc.) the cover shall be flush with the finished surface. Cleanouts in pressure sewers shall be located and constructed per the manufacturer's recommendation.

For multi-family, commercial or industrial sewer connections manholes shall be used at all locations where pipe size, slope or directions changes. Commercial or industrial sewer connections shall include a sampling station, to be used for discharge sampling, located in the road layout at the property line. The sampling station shall consist of a precast manhole with approved frame & cover.

Pressure Sewer Laterals:

If building is to be connected to a low pressure sewer or requires a pump to lift sewage to a gravity sewer, the gravity portion of the installation shall meet the requirements of the previous paragraph. The pressure pipe shall be minimum 1-1/4 inch diameter if a grinder pump is used and 2-inch diameter if a grinder pump is not used or other such larger size if the sewage flow and characteristics differ from a single-family residence.

Materials

Polyethylene for 1-1/4 –inch pipe through 4 inch pressure pipe with material conforming to ASTM D3350, Type PE-4710 HDPE pressure Class PC 200, SDR-11. Fittings for use with polyethylene pipe and tubing shall be manufactured and furnished by the pipe supplier and in conformance with AWWA C901 requirements. Joints for polyethylene pipe shall be jointed by the butt fusion method in a manner recommended by the pipe manufacturer.

Polyvinyl Chloride (PVC) Pipe- ASTM D2241 PVC pressure pipe material conforming to ASTM D1784, minimum class SDR 21 for pipe 1-1/4-inch through 4-inch, push-on joint conforming to ASTM D3139 with flexible elastomeric gaskets conforming to ASTM F477.

A ball valve with curb stop and check valve shall be installed on all low pressure and force mains, as close as feasible to a property line. Ball valves for low pressure sewers shall be true union type constructed from PVC Type I cell classification with EPDM O-rings. All valve components shall be replaceable. Ball valves 2 inch and smaller shall be pressure rated to 235 psi, while valves larger than 2 inches shall be rated to 150 psi. Ball valves shall have a Safe-T-Block seal carrier to stop flow in either direction, allowing safe removal of the downstream union nut for system service or modification. Ball valves shall be true union ball valves as manufactured by Spears Manufacturing Company, or equal. Check valves for low pressure sewer laterals shall be made of stainless steel or fabric-reinforced synthetic elastomer to allow for a positive seal with minimum backpressure. Check valves shall be true union ball check valves.

Curb stop valves shall be of brass or bronze construction and two rubberized O-ring seals to provide pressure-tight seal. Curb stop valves shall be figure H-15204 as manufactured by Mueller-Oriseal, B22 as manufactured by Ford Meter Box Company, Hayes, Nueseal, or equal. Curb boxes shall be 2-1/2 inch shaft size two-piece screw type. They shall be adjustable from 48-inch to 72-inch. Curb boxes shall be constructed of cast iron and thoroughly coated with two coats of asphaltum varnish. Curb box shall be stainless steel supplied with a hole in the "U„ portion for the insertion of a stainless steel pin. Pins shall be supplied and shall be made of stainless steel. Curb boxes shall be as manufactured by Ford Meter Box Company, Mueller Company, or equal.

Gravity or low pressure pipe shall have magnetic marking tape 2 inches wide with the words "SANITARY SEWER BELOW„, installed not more than two (2') feet below finished grade on all mainline and service laterals.

Section 3. Whenever possible, the building sewer shall be brought to the building at an elevation below the basement floor. All buildings in which any building drain is too low to permit gravity flow to the public sewer, sanitary sewage carried by such building drain shall be lifted by an approved means and discharged to the building sewer or public sanitary sewer, as specified by the Director.

Low Pressure Grinder Pumps or Lift Pumps:

Each property serviced by a low pressure sewer shall have a dedicated pre-manufactured pump station suitable for the flow, pressure and other conditions defined by the property and the public sanitary sewer. The station shall include an in-ground self contained unit with submersible motor, level controls, sensors, alarms, and an emergency generator pulg-in connection. Properties whose sewage quantities and characteristics are equivalent to four or more families shall install a duplex pump. Refer to further requirements in Article IV-Design of Sewers, Section 11- Grinder Pump Systems.

Section 4. No person shall make connection of roof downspouts, exterior foundation drains, areaway drains, or other sources of surface runoff or ground water to a building sewer or building drain which is connected directly or indirectly to a public sanitary sewer.

Section 5. Exhaust from engines, blowoff from boilers, drainage of gasoline or any explosive liquor, liquids, or other flammable substances shall not be permitted to be discharged into any building sewer which is connected directly or indirectly to a public sanitary sewer. At the time a connection is made to the Town's sanitary sewer system, the interior plumbing shall be inspected to ensure that no connections to roof drains, yard drains, foundation drains, sump pumps, or other sources of drainage water is connected to the sanitary sewer.

Section 6. The connection of the building drain into the building sewer shall conform to the requirements of the building and plumbing code or other applicable rules and regulations of the Town.

Section 7. The Licensed Utility Installer, listed on the approved sewer connection permit, shall notify the Water and Sewer Departments, a minimum of 72 hours, before the building sewer will be ready for connection to the public sewer. The Director will schedule the time and date when he or his representative will be available to perform an inspection of the building sewer's connection to the public sewer, connection shall be made only under the supervision of the Director or his representative.

Section 8. All excavations for building sewer installation shall be adequately guarded with barricades and lights so as to protect the public from hazard. Streets, sidewalks, parkways, and other public property and/or private property disturbed in the course of the work shall be restored in a manner satisfactory to the Director.

Section 9a. Plumbers and private contractors, of established reputation and experience, who have paid the required filing fees, as stated in Section 13b, and have provided the required license and permit bonds, as stated in Section 13c, and have submitted a Certificate of Insurance with required coverage, as stated in Section 13d, may be approved by the Director as a Licensed Utility Installer (L.U.I.).

Applicants for licenses for installing sewer main and sewer services shall attend a training seminar on the installation of low pressure pumps that is conducted by the manufacturer, and the applicant shall show evidence of course completion.

Note: The installation of grinder pumps may require other permits such as, but not limited to: electrical and plumbing.

Section 9b. Applicants for licenses as sewer main and sewer service installers (Licensed Utility Installer) are required to pay a filing fee. As set by the Board (see rates and fees schedule).

Section 9c. Applicants for licenses as sanitary sewer and building sewer installers (Licensed Utility Installer) shall obtain a License and Permit Bond in the amount of Five Thousand ($5,000.00) Dollars or an amount equal to
100% of the construction cost of any proposed sewer connection located within or on public property or an amount approved by the Director, whichever is greater. Said license and permit bond shall remain in full force and effect for a period of one (1) year from date of acceptance by the Town of the L.U.I.'s last sewer connection. This bond will guarantee that the Licensed Utility Installers (L.U.I.) will comply with the statutes, regulations, or ordinances of the Town of Chatham. The license and permit bond shall be duly executed by the Principal of the L.U.I. and by a Surety Company qualified to do business under the laws of the Commonwealth of Massachusetts and satisfactory to the Director.

Section 9d. Before any Licensed Utility Installer performs any work in, on, under or around streets, sidewalks and property belonging to the Town of Chatham, it will be necessary for him to furnish, simultaneously with the submittal of the License and Permit Bond, a Certificate of Insurance showing that the contractor has the following coverage:

1.	General Liability -	$500,000 $500,000-$1,000,000	Property Damage Bodily Injury
2.	Automotive Liability-	$500,000 $500,000-$1,000,000	Property Damage Bodily Injury

3. Workmen's Compensation and Employer's Liability as required under Massachusetts General Laws.

4. Insurance shall include coverage for collapse of underground structures.

5. Insurance shall include coverage for projects completed operations.

All above insurance coverage shall remain in full force and effect for a period of at least one (1) year from the date of acceptance by the Town of the last sewer connection installed by the L.U.I. The L.U.I. shall take all responsibility for the work, and take all precaution for preventing injuries to persons and property in or about the work.

Section 9e. The L.U.I. shall pay all debts for labor and materials contracted for or by him on account of the work and shall assume the defense of and indemnify and save harmless the Town of Chatham and its Officers and Agents from all claims relating to labor and or alleged infringement of inventions, patents, or from injuries to any person or corporation caused by the acts of negligence of the L.U.I. any of his agents or employees, or any subcontractor, in doing the work or in consequence of any improper materials, implements, or labor used therein.

Section 9f. Before the L.U.I.'s License and Permit Bond or any coverage listed in the L.U.I.'s Certificate of Insurance expires, the L.U.I.'s shall send a revised License and Permit Bond or Certificate of Insurance to the Water and Sewer Department showing that the bond or insurance coverage, is still in place. The Licensed Utility Installer shall NOT perform any work in, on, under or around streets, sidewalks and property belonging to the Town of Chatham or any other public property if their License and Permit Bond or any coverage listed in their Certificate of Insurance has elapsed.

Section 9g. Approved Licensed Utility Installers will renew their Utility Installers Licenses by submitting a revised License and Permit Bond, Certificate of Insurance, and License Fee by January 1st of each year. All Utility Installers' Licenses expire at Midnight, December 31st of each year.

Section 10. All sanitary sewer extensions shall require inspection by a qualified inspector or the Director may determine that a building sewer installation or repair will require full time inspection by a qualified inspector. In either case the Director will designate a private inspector as Town Inspector who shall represent the interest of the Town of Chatham during construction of any sanitary sewer extension or building sewer installation or repair, and will monitor and inspect the ongoing progress of the work, full-time observation is required. The costs for the

services performed by said Town Inspector shall be paid by the developer or owner, through the Water and Sewer Departments. Flows will not be permitted to be discharged from any service connection until a Certificate of Compliance is submitted by the Town Inspector and the report is approved by the Director.

Section 11. After the completion of any building sewer's repairs or connection to the municipal sewer, the L.U.I. shall fill out a sewer connection tie card, on the forms provided at the Water and Sewer Departments' office, for each building sewer the L.U.I. has performed work on. The tie-card shall be completed before the inspection of the L.U.I.'s work, and before the L.U.I. backfills the building sewer and connection to the municipal sewer.

Section 12. After completion and before the final inspection of any sanitary sewer connection or building sewer connection for residential dwellings with four (4) or more dwelling units, industrial connections, commercial connections with five (5) or more water closets, commercial connection with industrial water or waste, connections of private sewer system or whenever the Director requires, the Licensed Utility Installer, developer or owner will furnish a reproducible mylar "as-built,, drawing (1,, = 20') to the Director. The as-built drawing(s) shall contain a plot plan(s) with building(s) and highway layouts, sewer layouts with profiles, force mains, force main gates, pump station(s), pump station(s) details, and descriptions of each building sewer showing the depth of all connections, pipes, and manholes, using buildings or other permanent markers as reference points. The as-built drawing (s) shall contain any other information deemed necessary by the Director.

Section 13. Alternative Sewer Collection Systems**:**

Sewer collection systems not stated in these Rules and Regulations of the Sewer Department shall only be permitted with the Director's conditional approval.

Section 14. Design Capacity and Design Flow

Design Factors:

Peak hourly sewage flow

Additional peak flows of industrial and commercial wastes

Maximum groundwater infiltration

Topography of the immediate area

Difficulty of installation

Design Period:

Sewage collection systems shall be designed for a life span

of 50 years, and interceptor sewers shall be designed to handle the maximum capacity of uses in the drainage area as determined by the Director.

Design Flow:

Submit a detailed description of the procedures used for calculating sewer design flow to the Director.

The Massachusetts 310 CMR 15.000, the State Environmental Code, Title 5, shall be used for calculating the design flow for sewers. If the Massachusetts 310 CMR 15.000, the State Environmental Code, Title 5, does not have a flow rate for the proposed use, the following methods may be used with the approval of the Director:

Flow Related to Water Consumption;

When available, use existing sewage flow and/or consumption data as a basis for sewer design. If such data are not available, using flow data from a similar community or users;

Per Capita Flow;

Where actual flow data cannot be obtained, base residential flows from new collection systems on an average daily per capita flow of not less than 70 gallons per day (0.27 m3/day). Add an appropriate allowance for infiltration to this flow;

In all cases, add a minimum allowance of 250-500 gpd/in. diam/mile of sewer (0.24-0.48 m3/cm of pipe diam/km/day) for infiltration to the water consumption, per capita flow or any other calculation method required by the Director.

Section 15. Details of Gravity Sewer Pipe Design and Construction

Minimum Sewer Pipe Size:

No gravity sewer shall be less than 8 inches in diameter (20 cm).

Depth:

In general, sewers shall be deep enough to drain basement fixtures
and to prevent freezing. Water tight insulation shall be provided for sewers that cannot be placed deep enough to prevent freezing.
For house connections chimneys (vertical pipe) preformed block units shall be used when the sewer main is greater than or equal to 12 feet deep.

Buoyancy:

Where high groundwater conditions are anticipated, the buoyancy of sewers shall be considered, and the floatation of pipe shall be prevented with appropriate design and construction of the sewer.

Slope:

Minimum Slopes:

All sewers shall be designed and constructed to give a velocity (when flowing full) of not less than 2.0 feet per second (0.61 m/s) based on Manning's formula using an "n„ value of 0.013. The Director may permit the use of other "n„ values if deemed justified on the basis of research or field data. The following minimum slopes shall only be used if absolutely necessary because of grade restrictions; however, greater slopes are desirable.

Sewer Size	Mimimum Slope in Feet per 100 Feet (m/100m)
8 inches (203 mm)	0.40
10 inches (254 mm)	0.28
12 inches (305 mm)	0.22
14 inches (356 mm)	0.17
15 inches (381 mm)	0.15
16 inches (406 mm)	0.14
18 inches (457 mm)	0.12
21 inches (533 mm)	0.10
24 inches (610 mm)	0.08
27 inches (686 mm)	0.067
30 inches (762 mm)	0.058
36 inches (914 mm)	0.046
42 inches (1067 mm)	0.037

The use of oversized sewers in order to justify flatter slopes is not permitted.

Slope Between Manholes:

Sewers shall be laid out with uniform slope between manholes.

High Velocity Protection:

Velocities greater than 12 feet per second (3.7 m/s) shall not be permitted under any flow conditions, unless the Director approves special provisions that will protect against pipe erosion and impact.

Steep Slope Protection:

Securely anchor sewers on 15 percent slopes, or greater, to prevent displacement.

Impervious Dams:

Impervious dams shall be installed every 300 feet to control the flow of groundwater within the pipe bedding material, when:

The surrounding native material is considerably less impervious than the pipe bedding material;

The pipe bedding could produce a hydraulic head of 25 feet on the pipe gaskets and joints during periods of high groundwater flow; and/or

The sewer is constructed downstream of a waterway or wetland crossings.

Alignment:

Sewers shall be laid out in a straight line and alignment, and shall be checked with a laser beam.

Sewer Pipe Material:

Sewer pipe material shall be as specified in Article V, Construction Technical Specifications, Section 12:

Sewer Pipe Inspection and Testing:

The specifications shall include deflection and leakage testing of sewer pipes, as stated in Article V, Construction Technical Specifications, Sections 17. and 18

Section 15. Details of Sewer Manhole and Cleanout Design and Construction

Manholes and cleanouts shall be as specified in Article V, Construction, Technical Specifications, Section 13:

Manhole Inspection And Testing:

The specifications shall include a requirement for the inspection and testing of manholes for leaks or damage as specified in Article V, Construction Technical Specifications, Section 21.

Section 16. Inverted Siphons (Depressed Sewers)

Inverted siphons shall only be allowed if there is no other option and it is approved by the Director. Depressed sewers shall have no less than two barrels with a minimum pipe size of 6 inches (15 cm) and shall be provided with necessary appurtenances for convenient flushing and maintenance. Manholes shall have adequate clearances for cleaning equipment and for inspection and flushing. The design shall provide for sufficient heads and pipe sizes to secure velocities of at least 3.0 feet per second (0.92 m/s) for average flows under initial conditions. The inlet and outlet details shall be arranged so that the normal flow is diverted to one barrel and so that either barrel may be taken out of service for maintenance. A hose connection shall be provided to the siphon for flushing purposes.

Section 17. Aerial Crossings

Aerial crossings shall only be allowed if there is no other option, and it is approved by the Director. All aerial crossings shall provide appropriate support for all joints and pipes used for aerial crossing. The supports shall withstand frost heaves as well as overturning, settlement, flooding, thermal expansion, vibrations, and other loads that may act against the piping. Precautions against freezing shall be provided (e.g., insulation and increased slope). Expansion joints between above-ground and below-ground sewers shall be provided. Where buried sewers change to aerial sewers, special construction techniques to minimize damage from frost heaves shall be used. Ductile iron pipe with restrained mechanical joints are required. The bottom of the pipe shall be no lower than one (1') foot above the 100 year flood elevation level.

Section 18. Location of Sewers in Streams

Sewers shall be designed to minimize the number of stream crossings.

Cover Depth:

The top of all sewers entering or crossing a stream shall be sufficiently below the natural bottom of the stream bed to protect the sewer line. The following cover requirements shall be met:

- 1 foot (305 mm) of cover where the sewer is located in rock.
- 3 feet (914 mm) of cover in other material. In major streams, more than 3 feet (914 mm) of cover shall be required.
- In paved stream channels, the top of the sewer line shall be at least 1 foot (305 mm) below the channel pavement.

Horizontal Location:

Sewers located along streams shall be located sufficiently outside of the stream bed to allow for stream widening in the future and for the prevention of siltation during construction.

Structures:

Locate sewer manholes or other structures outside of streams whenever possible. Where structures must be located in a stream, they shall not interfere with the free discharge of flood flows or navigation in the stream. The manholes' covers shall be no lower than one (1') above the 100 year flood elevation level.

Alignment:

Sewers shall cross streams perpendicular to the flow without a change in grade.

Materials:

Sewers entering or crossing streams shall be watertight and free from changes in alignment or grade. Joints shall be restrained in order to prevent movement from stream forces. Ball-and-socket or restrained joints designed for hard service applications shall be provided.

Backfill materials shall be stone, coarse aggregate, washed gravel, or other materials that will not readily erode, cause siltation, damage pipe during backfill, or corrode the pipe and shall be approved by the Director. In large stream crossings, where required by the Director, place riprap over the sewer pipe for stability and to prevent erosion.

Siltation and Erosion:

The design engineer or L.U.I. shall include construction methods that will minimize siltation and erosion in the project specifications the construction methods for sewers in or near streams. Such methods shall control siltation and erosion by limiting unnecessary excavation, including disturbing or uprooting of trees and vegetation, dumping of soil or debris, or pumping silt-laden water into the stream. Specifications shall require cleanup, grading, planting, and restoration of all work areas to begin immediately.

Section 19. Protection of Water Supplies

Cross Connections:

No physical connection shall exist between a public or private potable water supply system and a sewer or any appurtenance that would permit the passage of wastewater or polluted water into the potable supply. No sewer shall come into contact with a water pipe and no water pipe shall pass through any part of a sewer manhole or any part of the sewer system.

Relation To Water Works Structures:

Sewers shall be located as far as possible from public water supply wells or other potable water supply sources and structures.

Engineering plans shall show all existing waterworks units, such as treatment facilities, basins, pipes, wells, or other waterworks units that are within 50 feet of the proposed sewer or to within the minimum distances required by the Director.

Water Mains' Relation:

Horizontal Separation:

Whenever possible, lay out sewers at least 10 feet (3.0 m) from any existing or proposed water main. If local conditions prevent a lateral Separation of 10 feet, the Director may make an exception on a case-by-case basis when supported by data from the design engineer. Such an exception may allow the sewer to be installed closer than 10 feet to a water main, provided that it is laid out in a separate trench with the top (crown) of the sewer at least 18 inches (46 cm) below the bottom (invert) of the water main or is encased in a water tight sleeve.

Vertical Separation:

Whenever sewers must cross water mains, lay out the sewer so that the top of the sewer is at least 18 inches (46 cm) below the bottom of the water main. The sewer joints should be equidistant and located as far away as possible from the water main joints. When the sewer cannot meet the above requirements, relocate the water main to provide for this separation or reconstruct it with mechanical-joint pipe for a distance of 10 feet (3.0 m) on each side of the sewer. One full-length (twenty feet) water main pipe shall be centered over the sewer so that both joints will be as far from the sewer as possible.

Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade.

When it is impossible to achieve horizontal and/or vertical separation as stipulated above, both the water main and sewer shall be constructed of mechanical-joint cement-lined ductile iron pipe or another equivalent that is watertight and structurally sound. Both pipes shall be pressure tested to 150 psi to ensure that they are watertight, and one of the pipes shall be installed in a water tight sleeve for a horizontal perpendicular distance of 10 feet (3.0) on each side of the other pipe. Any joints in the watertight sleeve shall be as far as possible from the water main's intersection with the sewer.

Section 20. Details of Low Pressure Sewer Design and Construction

Layout: The branched configuration of a pressure sewer is required. Looped piping shall not be permitted. Pipe routing shall include long radius sweeps no less than those recommended by the pipe manufacturer.

Pressure pipes shall be designed and installed so that a minimum of five (5) feet of cover material exists over the crown of the pipe at all times. Appurtenances such as isolation valves, air release valves, and clean-outs shall be provided as required by the Director.

Pipe Size: The diameter of the pressure sewer shall be calculated so that it provides a cleansing velocity based on the average daily flow of the system. Force Mains shall have a minimum velocity of three feet per second, 3ft/sec.

Minimum low pressure sewer pipe sizes shall be as follows (unless there is a significant change in grade):

NUMBER OF HOMES OR EQUIVALENT	MINIMUM PIPE SIZE
1-3	1.5
4-9	2
10-18	2.5
19-30	3 (model recommended)
>30	Must be modeled

Isolation Valves:

Isolation valves shall be required to allow isolation of individual girder units, system expansion, and at key locations such as at the property line.

Ball valves for low pressure sewer manholes shall be true union type constructed from PVC Type I cell CLASSIFICATION WITH EPDM O-RINGS. All valve components shall be replaceable. Ball valves 2 inches and smaller shall be pressure rated to 235 psi, while valves larger than 2 inches shall be rated to 150 psi. Ball valves shall have a Safe-T-Block seal carrier to stop flow in either direction, allowing safe removal of the downstream union nut for system service or modification. Ball valve ends shall be as needed to connect to Schedule 430 PVC pipe in low pressure sewer manholes. Ball valves shall be true union ball valves as manufactured by Spears Manufacturing.

Curb Stop Valve:

Curb stop valves shall be located at the property line of the street or easement of the sewer main. Curb stop valves shall be of brass or bronze construction and two rubberized O-ring seals to provide pressure-tight seal. Curb stop valves shall be figure H-15204 as manufactured by Mueller-Oriseal, B22 as manufactured by Ford Meter Box Company, Hayes, Nuseal, or equal. Curb boxes shall be 2-1/2-inch shaft size two-piece screw type. They shall be adjustable from 48-inch to 72-inch. Curb boxes shall be constructed of cast
iron and thoroughly coated with two coats of asphaltum varnish. Curb box rods shall be stainless steel supplied with a hole in the "U„ portion for the insertion of a stainless steel pin. Pins shall be supplied and shall be made of stainless steel. Curb boxes shall be as manufactured by Ford Meter Box Company, Mueller Company, or equal.

Air Release Valves:

Air and vacuum valves shall be installed on low pressure mains. The air and vacuum valves shall be designed to release air from the main when the main is being filled and/or air becomes entrapped in the main, and to admit air into the sewer main when pumps are stopped and the main is being drained by gravity. The body and cover of air and vacuum valve shall be cast iron, floats of stainless steel, protective hood of steel, seats of Buna-N, and miscellaneous internal parts of stainless steel, Manufacturer-Crispin, or equal. Air and vacuum valves shall be located in a manhole or structure with a diameter of 60 inches to allow access for repairs and maintenance.

Cleanout Connectious:

Cleanouts shall be installed on the pressure mains at sags and other locations where debris can accumulate and clog the lines, and proper valving to conduct required maintenance shall be provided.

Miscellaneons.

Magnetic marking tape two (2) inches wide with the words "SANITARY SEWER BELOW,,, shall be installed not more than 2 feet below finished grade on all mainline and service laterals.

Section 21. Force Mains

Minimum Size:

Force mains shall have a minimum velocity of three feet per second, 3ft/sec.

Force Main Pipe Material:

Force main pipe material shall as specified in Article IV, Construction Technical Specification, Section 14:

Velocity:

At design average flow, velocity in excess of 3 feet per second (0.91m/s) shall be maintained.

When the daily average design detention time, in the force main, exceeds 20 minutes, the manhole and sewer line receiving the force main discharge or the sewage shall be treated so that corrosion of the manhole and the exiting line are prevented. The corrosion is caused by sulfuric acid biochemically produced from hydrogen sulfide anaerobically produced in the force main.

Variable Terrain:

As far as possible, the alignment and depth of a force main should provide a constant upgrade profile. All force mains shall be designed and installed so that a minimum of five (5') feet of cover material is over the crown (top) of the pipe at all times.

Air Relief Valve:

An automatic air relief valve shall be placed at all relative high points in the force main and at 400 feet intervals on level force main runs. All air relief valves shall be protected from freezing.

Drain Valves:

Drain valves at all relative low points in the force main shall be provided. These valves shall be connected to gravity sewers or provided with connections for vacuum pumper trucks. All drain valves shall be protected from freezing.

Termination:

Force mains shall enter the gravity sewer at a point not more than 2 feet (0.61 m) above the flow line of the receiving manhole.

Testing:

Leakage Testing shall be as specified in Article V, Construction Technical Specifications, Sections 17 and 18:

Section 22. Grinder Pump Systems:

Pumping equipment shall include an integral grinder capable of handling a reasonable quantity of foreign objects that may find their way into a building's sewerage system. The grinder pump shall be capable of processing foreign objects without jamming, stalling, or overloading, and without making undue noise. The grinder shall provide a positive flow of solids into the grinding zone. Grinder pump stations shall be of the wetwell type.

A list of suitable manufacturers will be available from the Director. Properties whose sewage quantities and characteristics are equivalent to four or more dwelling units shall install a duplex pump.

Design of Pump Station:

Access: Outside installation shall be designed with the service manhole constructed of the same material, and at least as thick as the tank. The manhole shall have an opening at the surface with a minimum inside diameter of 30 inches (76 cm); its cover shall be securely lockable. The size of the manhole shall allow for the performance of maintenance and repair functions.

Tank: Construct each tank of concrete or custom-molded, fiberglass reinforced polyester resin using a filament wound process, layup and spray technique, or other approved process that will ensure a smooth and resin rich interior surface that is designed for two times the maximum loading.

The basin shall be concrete, fiberglass-reinforced polyester resin, or other material meeting the minimum strength specifications herein. The basin shall be furnished with one PVC closet flange or one flexible inlet flange suitable for connection to the household gravity line. At a minimum, the basin wall and bottom shall withstand two times the anticipated maximum pressure exerted on the basin, either from soil loadings or buoyancy forces. All station components must function normally when exposed to these loadings. All seals and joints shall pass factory tests to ensure that they are water tight.

Electrical Equipment: Wiring and electrical connections shall be NEMA rated for the environment in which they are to be placed. System shall include an emergency generator plug-in connection.

Pumps:

Pump Removal: The grinder pump shall be readily removable without the need for manual disconnection of piping.

Grinder: The grinder shall be positioned immediately below the pumping elements, securely fastened to the pump motor shaft, and driven directly by the same motor. The grinder shall be a rotating type with a stationary hardened and ground stainless steel shredding ring that carries stainless steel cutter bars. This assembly shall be dynamically balanced and run without objectionable noises or vibrations over the entire range of recommended operating pressures.

Pump Opening: The grinder shall be capable of reducing all components in normal domestic sewage or the sewage to be discharged from the building drain, including a reasonable amount of foreign objects (e.g., paper, wood, plastic, glass, and rubber). Objects shall be reduced to finely divided particles that will pass through the passages of the pump and a minimum 1.25 inch (3.2 cm) diameter discharging pipe.

Intake: The grinder shall be positioned so that solids are fed into it from the bottom in an upward flow, reducing the possibility of overloading or jamming. In addition, sufficient turbulence shall be created to keep the tank bottom free of permanent deposits or sludge banks.

Check Valve:

The grinder pump shall be equipped with a check valve that is installed in a horizontal position on the discharge pipe. This valve shall provide a full- ported passageway when open.

Ventilation:

Adequate ventilation shall be provided in accordance with local and national codes.

Controls:

Sensing devices to detect wastewater levels for initiating pump operation and to detect high water levels shall be installed. Level sensing devices shall only be used and shall not be located near flows entering the well.

Section 23. Pumping Station:

Design Capacity:

A sewage pumping station shall handle the projected peak sewage flows of its tributary sewer collection system. As recommended by TR-16, Guides for the Design of Wastewater Treatment Works (Technical Report #16) and the Hydraulic Institute's Recommended Standards for Pumping Stations. This information may be included in the Comprehensive Management Plan or other engineering report and any applicable updates or amendments. Pumping stations shall accommodate future expansion, when in the opinion of the Director it is appropriate.

Site Layout:

Stations shall be readily accessible to personnel and service vehicles during all weather conditions.

Flood Protection:

Wastewater pumping stations shall be protected from physical damage by the 100-year flood elevation and shall remain fully operational and accessible during the 100-year flood. All entrances and/or unsealable openings of the station shall be a minimum of one (1') foot above the 100-year flood elevation. These flood elevations shall be determined from the Federal Emergency Management Agency, and U.S. Army Corps of Engineers, and from the local regulations and ordinances.

Environmental Considerations:

Wastewater pumping stations shall be sensitive to the environmental conditions of the site. Visual impacts, architectural style, security, noise levels, odor control, and landscaping shall be considered carefully in station design and shall be reviewed and approved by the Director.

Types of Stations:

Wastewater pumping stations fall into three categories: wetwell/drywell, submersible, or suction lift. The preferred type of station is the Suction Lift type. The Director may approve other types under certain circumstances.

Structural Design:

Earthquake Loads and Uplift Forces:

Stations shall withstand earthquake loads and uplift forces from high groundwater conditions.

Separation:

Wet and drywells, including their superstructure, shall be completely separated. Common walls shall be sealed against gas leaks.

Equipment Removal;

Provisions shall be made for removing all equipment (i.e., pumps, motors, mechanical screens, motor control centers, etc.) from the station. Access openings, hatches, and/or skylights shall be sized accordingly. Permanent hoisting devices shall be provided as necessary.

Substructure:

Station substructures shall be constructed of reinforced concrete, either cast-inplace or precast. Small, prefabricated stations may be constructed of steel plate or fiberglass with the approval of the Director.

Access:

The designer shall minimize the confined spaces and shall indicate which spaces meet the definition of confined space on the drawings. Suitable, safe, and separate means of access shall be provided for dry and wetwells. Stairways and/or steps are required for drywells and wetwells containing either bar screens or mechanical equipment that requires inspection or maintenance. A landing with railings shall be provided for stairways or ladders for every 10 vertical feet. Local, state and federal safety codes shall govern in all cases.

Pumps:

Number of Pumps:

As a minimum, two pumps shall be provided, with each pump being capable of handling peak design flows. Where three or more pumps are provided, the overall station capacity shall be capable of handling peak design flow when any one pump is out of service.

Design:

Pumps shall be designed specifically for wastewater use and shall be non-clogging and as allowed by the Director.

Incoming Wastewater and Rate Discharge:

Pumping stations shall balance the rate of incoming wastewater with the rate discharged.

Each pump shall have an individual intake valve.

Pump suction and discharge openings shall be a minimum of 4 inches in diameter.

Centrifugal Pumps:

Centrifugal pumps shall be used in the drywell/wetwell pumping stations. The pump casing and suction elbow shall be provided with a clean-out access port. Impellers shall be enclosed or semi-open. To ensure primed pump conditions, the wetwell level shall not drop below the centerline of the pump impeller under normal operating conditions.

Submersible Pumps:

Submersible pumping stations may be used when, in the opinion of the Director, circumstances warrant. It shall be possible to remove and replace the submersible pumps without dewatering the wetwell or disconnecting the piping. Pumps shall be of the pull-up design, using a lifting cable and guides for pump removal. The pump shall be connected to the fixed discharge piping with a self-locking coupling. Shaft seal failure or potential seal failure detection alarms shall be provided. Submersible pumps may also be used in a wetwell/drywell configuration, with the Director's approval.

Suction Lift Pumps:

Suction pumps shall be self- or vacuum-priming.

Location: The pump equipment compartment shall be above grade or offset, and shall be isolated from the wetwell to prevent humid and
corrosive sewer atmospheres form entering the equipment
compartment. Access to the wetwell shall not be located in the equipment compartment. Valves shall not be located in the wetwell.

Self-priming Pumps: Self –priming pumps shall be capable of rapid priming at the lead pump-on elevation. Such self-priming and repriming shall be accomplished automatically under design operating conditions. Suction piping shall not exceed the size of the pump suction and shall not exceed 25 feet (7.6 meters) in total length. Priming lift at the lead pump on elevation shall include a safety factor of at least 4 feet (1.2 meters) from the maximum allowable priming lift for the specific equipment at design operating conditions. The combined total of dynamic suction lift at the pump-off elevation and

required net positive suction head at design operating conditions shall not exceed 22 feet (6.7meters).

Vacuum-priming Pumps: Vacuum-priming pump stations shall be equipped with dual vacuum pumps capable of automatically removing all air from the suction lift pump. The vacuum pumps shall be adequately protected from sewage damage. The combined total of dynamic suction lift at the pump-off elevation and required net positive suction head at design operating conditions shall not exceed 22 feet (6.7 meters).

Wetwells:

Divided Wells:

The wetwell shall be divided into two sections that are properly interconnected and gated to facilitate repair and cleaning.

Storage Capacity:

The effective storage capacity of the wetwell shall be based upon the recommended number of pump starts per hour and the design filling time. The effective volume of the wetwell shall be based on a filling time of 30 minutes under design average-daily-flow rates. To determine the frequency of starts used for design, refer to the pump manufacturer's warranty.

Where tributary wastewater flows are anticipated to be significantly less than the design average flow, provisions should be made so that the filling time under initial conditions does not exceed 30 minutes
(i.e., providing a divided wetwell or shortening the wetwell operation range) and the duration of storage in the pump station and force main does not result in septic conditions in the system or the release of objectionable odors to the environment.

Pump Protection:

Pumps shall be protected from large solids by readily accessible mechanically cleaned bar racks (screen) or combination device located at the wetwell influent. Bar racks should have clear opening not exceeding 1.25 inches (3.1 cm) unless pneumatic ejectors are used or special devices are installed to protect the pumps from clogging or damage.

Floor Slope:

The wetwell floor shall have a minimum slope of 1-to-1 to the hopper bottom. The horizontal area of the hopper bottom shall be no greater than is needed for proper installation and function of the wetwell inlet.

Vortexes:

The wetwell and suction inlets of dry-pit pumps shall eliminate the possibility of vortexes. The required submergence of the intake valves shall be determined for the day-pit pump's location. Intake valves should be flared, with the inlet opening facing down. Every effort shall be made to minimize flow rotation in the wetwell.

Sewage Channels:

Sewage channels located in wetwells shall be covered with nonskid, corrosion-resistant grating. They shall be installed flush with a floor, and capable of supporting anticipated loads. All channels shall be drained when not in use. Where the side meets the floor of the channel, fillets shall be provided.

Inlet Sewers:

Sewer piping entering the wetwell shall not have air in the pump suction line.

Drywells:

Automatic heating and dehumidification equipment shall be provided in all drywells. The electrical requirements shall meet those outlined in subsequent paragraphs of this section.

A sump pump shall be provided in the drywell to remove extraneous water. The discharge pipe of the sump pump shall be equipped with dual check valves and shall be pumped from the drywell into the wetwell above the high water level. Water ejectors connected to a potable water supply shall not be permitted. All floor and walkway surfaces shall slope to a point of drainage. Pump seal leakage shall be piped or channeled directly to the sump.

Valves:

Suitable shutoff valves shall be placed on the suction lines and on the discharge lines of each pump (except on submersible and vacuum-primed pumps). A suitable check valve shall be placed on a horizontal section of each discharge line between the shutoff valve and the pump.

Unless adequate space is available in a dry pit pump room, valves on the discharge piping (including flow meters, if required) shall be in a separate underground precast concrete vault.;

Every pump station shall include appropriate valves and quick disconnects to allow the Town to bypass the existing pumping equipment and valves. The piping shall allow the Town to install temporary piping into the wet well, and discharge to a location downstream of the check and shutoff valves.

Valves shall not be located in wetwells.

Section 24. Controls:

All pump stations, grinder pump stations, vacuum sewer stations, and other sewer handling facilities required by the Director shall be connected to the Water and Sewer Departments' Supervisory Control and Data Acquisition (SCADA) System.

All sensing, alarm, and SCADA system devices shall be of the same type, configuration, and function as that used by the Water and Sewer Departments. Each pumping station shall have its own screen display, processor logic controller (PLC), and communications equipment for the SCADA system and shall also display the required monitoring controls and alarm on the all SCADA system screens of the water and/or sewer systems.

Level Sensing Devices:

Level sensing devices shall not be affected by flows entering the wetwell or by the suction of the pumps. All wall penetrations between the wet and drywells shall withstand gas leaks and be located as high as possible to prevent overflow from the wetwell to the drywell. The pumps shall be automatically alternated. Running-time meters shall be installed at all pumping stations for each pump.

Alarm Systems:

Alarm systems shall be provided for all pumping stations. At a minimum, the alarm system shall be activated in any one of the following cases:

* High water in the wetwell;
* Low water in the wetwell;
* Loss of one or more phases of power supply;
* High water level in the pump room sump;
* Loss of the alarm transmission or communications;
* Loss of air pressure in the bubbler tube system/level sensing trouble or failure;
* Standby power failure or malfunction of the pump;
* Flooding of building or drywell;

* Smoke/fire alarms;
* Low temperature;
* Surge suppressor failure;
* PLC processor failed;
* PLC low battery;
* Intrusion; and
* Three spare connections

Section 25. Pump Station Ventilation

General:

Adequate ventilation shall be provided for all pumping stations. Where the pump pit is below the ground surface, mechanical ventilation is required, especially when screens or mechanical equipment requiring maintenance or inspection are located in the wetwell. The wet and dry well ventilation systems shall not be connected. In pits more than 15 feet (4.6 m) deep, multiple inlets and outlets shall be installed. Switches for the operation of ventilation equipment shall be marked and located conveniently. If odors are a problem, an odor control system shall be installed.

Wetwells:

Ventilation may be either continuous or intermittent. For continuous ventilation, at least 12 air changes per hour shall be provided. For intermittent ventilation, at least 30 air changed per hour shall be provided. Heating shall be installed where needed.

Drywells:

Ventilation shall be continuous. Heating and dehumidification is required. At least 6 complete air changes per hour shall be provided.

Section 26. Flow Measurement:

Suitable devices, as approved by the director, for measuring wastewater flow and power consumption shall be installed in all pump stations.

Section 27. Pump Station Water Supply:

Water under pressure shall be provided for cleanup at the pumping station. If a public water supply is used, a Reduced Pressure Zone (RPZ) backflow preventer or other approved device shall be installed on the water service entering the station. No other potable water supply and other piping systems or fixtures shall be connected to the systems supplied by the public water supply.

Section 28. Electrical:

Electric Equipment

Electrical systems shall be designed and installed in strict conformance with the latest edition of the National Electrical Code. Electrical equipment in enclosed places where gas may accumulate shall be noncorrosive and in compliance with the National Electrical Code requirements for Class I Group D, Division I locations.

Submersible Pump Motors

Electrical supply and control circuits shall allow disconnection at a junction box located at or accessible from outside the wetwell. Terminals and connectors shall have watertight seals located outside of the wetwell and shall be protected by separate strain relief.

The motor control center shall be located outside of the wetwell and protected by a conduit seal or other appropriate sealing method meeting the requirements of the National Electrical Code for Class 1. Division 2 locations.

The pump motor shall meet the requirements or the National Electrical Code for Class 1. Division 2 locations.

Submersible pump motors that are totally submerged during the pumping cycle are not required to protect against explosions.

Power cords for pump motor shall be flexible and serviceable under conditions of extra hard use. Ground fault interruption protection shall deenergize the circuit in the event of any failure in the electrical integrity of the cable.

Power cord terminal fittings shall be provided with strain relief appurtenances, and shall facilitate field connecting.

Section 29. Emergency Operations:

When the Director deems it is necessary, an independent natural gas or propane engine-generator type source of electric power shall be provided for electrically driven pumps. This source shall be automatically activated when or if any phase of the power supply fails or upon any fluctuation in voltage. Installation shall comply with all applicable requirements of the National Electrical Code.

Small Pumping Stations: When the Director agrees that a small pump station does not require a permanent alternative power supply, electrical connections for portable standby generator or pneumatic connection for portable air compressor shall be installed as approved by the Director.

Controls:

Provisions shall be made for automatic and manual startup and cut-in. The controls shall be such that upon automatic startup under emergency conditions, shutdown can be accomplished only manually, except in conditions that would damage the generator or engine.

Size:

Unit size shall be sufficient to start up and run all pumps needed to handle peak flows as well as lighting, ventilation, pump controls, and the sump pump.

Exerciser:

The engine controls shall be equipped with an automatic exerciser that may be set on any selected schedule to start the generator, to run it under no-load conditions, and to shut it off without activating the alarm system.

Noise Attenuation:

Noise attenuation components must be incorporated in the design to produce no more than 60 decibles (db) of noise at the property line.

Section 30. Safety

Adequate provisions shall be made to protect the operator and visitors from hazards. The design and construction of pumping stations shall meet all prescribed local, state, and federal safety laws and codes. Safety provisions shall include the following:

- Handrails at openings, stairways, and other hazardous areas;
- Guards around the belt drives, gears, rotating shafts, and moving equipment;
- Warning signs as appropriate;
- Provisions for power lockout controls at all pumps and equipment;
- Eye wash stations where chemicals are used;
- Adequate lighting in all areas of the pumping station;

- Provisions for confined space entry in accordance with OSHA and regulatory agency requirements;
- First aid equipment; and
- Fire extinguisher.

Section 31. Overflows and Bypasses

Overflows and bypasses shall not be allowed on pumping stations serving sanitary sewage collection systems.

Section 32. Site Protection and Aesthetics:

The Director will review the design and location of the pump stations and may determine that fencing, aesthetics vegetation plantings, intrusion alarms, and aesthetics superstructures style or any other site conditions may warrant site protection and/or aesthetics.

Section 33. Odor Control:

Odor control equipment may be required by the Director, depending on the sitting of the pumping station and force main discharge point.

Appendix B
CONSTRUCTION TECHNICAL SPECIFICATIONS

The owner of the property, the developer, and/or Licensed Utility Installer, shall construct and install all sanitary sewers and all building sewers in accordance with the following rules and regulations:

Section 1. The owner, developer, or LUI shall submit to the Director (for his approval) plans and profiles of the proposed public sewer extensions and/or building sewer connections.

Section 2. The owner, developer or L.U.I. of a subdivision shall submit to the Director, a subdivision plan approved by the Chatham Planning Board along with the plans and profiles of the proposed public sewer extension.

Section 3. The Contractor doing all the work shall be approved by the Director as a Licensed Utility Installer (L.U.I.) as described in Article II-Building Sewers and Connections, Sections 13a through 13g.

Section 4. All materials, including pipe and manhole structures, shall be of the same make and quality used by the Chatham Sewer Department and approved by the Director.

Section 5. Public sewers and building sewers shall be laid using a transit or laser level. All sewer pipes shall be laid on a bed of crushed stone of at least six inches (6„) in depth under the pipe and crushed stone shall extend at least halfway up the side of the pipe. Approved gravel, with no stones larger than two inches (2„) in any dimension, shall be used to cover pipe to one foot above pipe. The rest of the backfill material must be approved by the Director, Massachusetts Highway Department or Town of Chatham Surveyor of Highways. The approved backfill material shall be placed in mechanically compacted lifts of no more than six inches (6„) deep or as specified by the Chatham Surveyor of Highways, Massachusetts Highway Department, or other specifications more stringent than the above. The approved backfill material above the gravel shall contain no stones greater than 6 inches in any dimension.

Section 6. Impervious dams shall be considered every 300 feet to control the flow of groundwater within the pipe bedding material when:

- The surrounding native material is considerably less impervious than the pipe bedding material;
- The pipe bedding could produce a hydraulic head of 25 feet on the pipe gaskets and joints during periods of high groundwater flow; and/or
- The sewer being constructed is downstream of any waterway and wetland crossings.

Section 7. Sewers may be deep enough to drain basement fixtures, and shall be deep enough to prevent freezing. Watertight insulation shall be provided for sewers that cannot be placed deep enough to prevent freezing.

House connections chimneys (vertical pipe) preformed block shall be used when the sewer main is greater than or equal to 12 feet deep.

Section 8. Where high groundwater conditions are anticipated, the buoyancy of sewers shall be considered, and the floatation pipe of pipe shall be prevented with appropriate design and construction of the sewer.

Section 9. No mud, gravel or debris shall be allowed to enter the sewer pipes at any time. All pipes shall be capped at end of day's laying and water shall be pumped out of excavation prior to removing the cap.

Section 10. Building sewer connection to the public sewer shall have a wye branch fitting, as approved by the Director, made of the same type of materials as the sewer main being tapped.

Section 11. Minimum size of gravity public sewer pipe diameter shall be eight (8„) inches and building sewer pipes shall not be less than four (4„) inches in diameter. Minimum sizes of low pressure sewer mains shall be in accordance with Article IV-Design of Sewers, Section 9. Details of Low Pressure Sewer Design and Construction.

Section 12. Sewer pipe and building sewer pipe material shall be:

(a) Reinforced Concrete Pipe shall meet the following specification:

Portland cement shall conform to ASTM C-150 Type II;
The pipe and its appurtenances shall conform to ASTM Specification C-76;
The reinforcing wire cage shall conform to ASTM Specification A 15, A 82, or A 185, as appropriate;
Entrained air shall be 5.0% to 9.0% by ASTM C-890;
Water absorption and three-edge bearing tests shall conform to ASTM Specification C-497; and
Gaskets shall conform to Sections 3.3 and 3.4 of AWWA Specification C-302.

Note: non-reinforced concrete pipe shall not be used.

(b) Extra Heavy Cast Iron Pipe shall meet the following specifications:

Pipe, fittings, and appurtenances shall conform to the requirements of ASTM Specification A-74 or ANSI A-21.11 and gaskets shall conform to ASTM Specification C-564.

(c) Heavy Wall Polyvinyl Chloride (PVC) Pipe shall meet the following specifications:

Pipe shall be made from Class 12454-B materials or better in accordance with ANSI/ASTM Specification D-1784, and shall ultraviolet light (UV) protected.

The pipe and accessories shall conform to the requirements of the following, with a minimum pipe stiffness of 46 PSI at a maximum deflection of five percent (5%):

ANSI/ASTM	**D 3034**	**(4" – 15")**
ASTM	**F 679 Type I**	**(18" – 27").**

(d) Ductile Iron Pipe shall meet the following specifications:

Pipe, fittings, and appurtenances shall be manufactured in accordance with ASTM Specification A-746;
Pipe shall have a minimum thickness of Class 50;
Fittings shall conform to ANSI Specification A-21.11 and have a minimum pressure class rating of 150 PSI;

All pipe and fittings shall be cement mortar lined in accordance with ANSI Specification A-21.4 at twice the specified thickness, and have an internal and

external bituminous seal coating and closure pieces shall be jointed by means of a mechanical coupling of the cast sleeve type.

(e) Extra Strength Vitrified Clay Pipe shall meet the following specifications:

Pipe shall conform to the current requirements of NCPI Specification ER 3300 – 67 and meet the requirements of ASTM Specification C 700.

Note: standard strength vitrified clay pipe shall not be used).

(f) Acrylonitrile – Butadiene – Styrnee (ABS) Pipe shall meet the following specifications:

Pipe and fittings shall conform to the requirements of ASTM Specification D 2661.

(g) Plastic Pipe, sizes 4 inches through 12 inches, shall be ANSI/ASTM D3034, SDR-35 Type PSM Poly (Vinyl Chloride) (PVC) material; minimum pipe stiffness (F/^Y) is 46 psi; bell and spigot style and rubber gasket conforming to ASTM F477.

(h) Low Pressure Mains and Services for 1-1/4-inch pipe through 4-inch pressure pipe shall be polyethylene pipe with material conforming to ASTM D3350, Type PE-3408 pressure Class PC 160, SDR-11. Fittings for use with polyethylene pipe and tubing shall be manufactured and furnished by the pipe supplier and in conformance with AWWA C901 requirements. Joints for polyethylene pipe shall be jointed by the butt fusion method in a manner recommended by the pipe manufacturer.

Pipe sizes 1-1/4 inches through 4 inches shall be Polyvinyl Chloride (PVC) pipe ASTM D2241 PVC pressure pipe material conforming to ASTM D1784, minimum class SDR 21 for pipe 1-1/4-inch, push-on joint conforming to ASTM D3139 with flexible elastomeric gaskets conforming to ASTM F477.

Fittings for use on PVC pressure pipe of 4-inch nominal inside diameter or greater shall be ductile iron with mechanical joints as described in ANSI 21.10/AWWAC110. The coatings and linings of the fittings shall be as specified for ductile iron pipe.

(i) Other pipe materials:

Other pipe materials shall requires prior written approval of the Director before being installed.

Materials for sewer construction shall be appropriate for local conditions, including the character of industrial wastes, septicity, soil characteristics, external loadings, and problems such as abrasion and corrosion.
All sewers shall be able to withstand damage from superimposed loads. Proper allowances for soil and potential groundwater conditions, as well as the width and depth of the trench shall be used. Where necessary, special bedding, haunching and initial backfill, concrete cradles, or other special construction elements shall be used.

The minimum internal pipe diameter shall be eight (8) inches for gravity sewers.

Joints for the selected pipe shall be designed and manufactured such that "O„ ring gaskets of the "snap-on„ type are used.

Gaskets shall be continuous, solid, natural or synthetic rubber, and shall provide a positive compression seal in the assembled joint.

Joint preparation and assembly shall be in accordance with the manufacturer's recommendations.

Wye branch fittings, as approved by the Director, shall be installed for connection of laterals.

Bedding, Haunching, and Initial Backfill:

Based on the bedding support of the type of soil and potential groundwater conditions, use the following for the anticipated loads:

Bedding classes A, B, and C, or crushed stone as described in the American Society of Testing Materials standard ASTM C 12, should be used for all rigid pipe, or

Materials for bedding, haunching, and initial backfill, or classes I, II, or III as described in ASTM D 2321, should be used for all flexible pipe.

Safety and Load Factors:

Selection of pipe class shall be predicated on the following criteria:

Safety factor	-	1.5
Load factor	-	1.7
Weight of soil	-	120 lbs/cu.ft.
Wheel loading	-	H-20

Section 13. Manholes and Cleanonts:

Manhole and Cleanout Size:

Cleanouts. Cleanouts shall be constructed of the same material as the building sewer. The size of the cleanout shall be the same size as the building sewer up to six (6„) inches in diameter, for building sewers larger than six (6„) inches in diameter manholes shall be used. Cleanouts shall be sealed with removable, re-useable threaded screw-in plug or screw-on cap.

Manholes. Manholes shall be minimum of four (4') feet in diameter with a minimum access diameter of 30 inches (76 cm). Larger diameter manholes may be required by the Director. A minimum drop of 0.10 foot shall be used between entrance and exit inverts.

Location:

Manholes and cleanouts shall be installed at the end of each line; at all changes in grade, size, or alignment; and at all intersections. Distances shall not be greater than 300 feet for sewers measuring 15 inches (38 cm) or less in diameter, or 400 feet for sewers 18-30 inches (46-76 cm) in diameter. Greater distances may be permitted for larger sewers or for those carrying a settled effluent, but only with prior approval of the Director. The top of the manhole cover shall be no lower than one (1') foot above the 100 year flood elevation level. Junction manholes on low pressure sewers shall be installed at all intersections

Drop Type:

A drop pipe for a sewer pipe with an invert entering a manhole of more than 24 inches (61 cm) above the manhole invert shall be provided. Where the difference in elevation between the incoming sewer and the manhole invert is less than 24 inches (61 cm), the invert shall be filleted to prevent solids deposition.

Drop manholes shall be constructed with an outside drop connection. Outside drop connections shall be encased in concrete, and shall provide access for cleaning as the sewer enters the manhole at the top of the drop connection.

Inside drop connections may be used provided the manhole has the area to facilitate safe access into the manhole with the inside drop in place, and shall be approved by the Director. The inside drop connection shall be secured to the interior wall of the manhole, and shall provide access for cleaning as it enters the manhole at the top. Internal drop pipes and fittings shall be PVC plastic sewer pipe in compliance with ASTM D2241. Corrosion resistant anchors shall be used to attach the drop pipe to the inside surface of the manhole barrel.

Structural Base:

Manhole bases shall be constructed or placed on a minimum of twelve (12) inches of crusher run with a maximum stone diameter in all directions of one half ½ inch and free of organic materials.

Diameter:

The manhole's minimum diameter shall be 48 inches (122 cm) for standard manholes and 60 inches (153 cm) for inside drop manholes. A minimum access diameter of 30 inches (76 cm) shall be provided. Larger openings shall be provided for manholes that house equipment, as specified by the Director.

Materials:

Manholes shall be precast concrete with barrel sections, cones, and bases, manufactured in compliance with ASTM C 478, and shall have an O-ring or bituminous-based gasketed joints. "Precast concrete walls shall be made up using straight, circular barrel sections and eccentric cone sections if manhole steps are required, and concentric cone sections where no steps are require. Manholes can also be poured-in-place concrete. Other types are allowed subject to the approval of the Director.

All tongue-and-grove (or male and female joints in the precast wall, including the joint at the top of the base, shall be made up using the "Snap-On,, type O-ring gasket, and shall conform to ASTM C443; except that joint taper shall not exceed 3-1/2 degrees. The precast sections shall be provided with a special groove (cast into the male end) to receive and hold the gasket in position during joint assembly. After joint assembly, the gap between sections shall be packed on the inside and outside with Anti-Hydro "Azpandcretes,,, Masterflow 713 by Master Builders; or Five Star Grout by U.S. Grout Corp., and shall be troweled smooth so that no projections remain on the inside.

Manhole bases shall be constructed of 4,000 psi (28 day) concrete 8 inches thick, or shall be precast bases properly bedded in the excavation. Field constructed bases shall be monolithic, properly reinforced, and extend at least 6 inches beyond the outside walls of lower manhole sections. Precast manhole bases shall extend at least 6 inches beyond the outside walls of lower manhole sections.

Manholes shall be constructed using minimum 4 foot diameter, precast concrete manhole barrel sections, and an eccentric top section, conforming to ASTM Specification C-478, with the following exceptions on wall thickness:

Manhole Diameter Feet	Wall Thickness Inches
4	5
5	6
6	7
6-1/2	7-1/2
7.	8
8.	9

All Sections shall be cast solid, without lifting holes. Flat top slabs shall be a minimum of 8 inches thick and shall be capable of supporting a H-20 wheel loading.

All joints between sections shall be sealed with "O,, ring rubber gasket, meeting the same specifications as pipe joint gaskets, or butyl joint sealant completely filling the joint.

All joints shall be sealed against infiltration. All metal parts shall be thickly coated with bitumastic or elastomeric compound to prevent corrosion.

No holes shall be cut into the manhole sections closer than 6 inches from joint surfaces.

Manholes which extend above grade shall not have an eccentric top section. The top plate shall be large enough to accommodate the cover lifting device and the cover.

Manhole Covers:

The elevation of the top section shall be such that the cover frame top elevation is one (1) foot above the 100-year flood elevation (in a field), 0.5 foot above a lawn elevation, or at finished road or sidewalk grade.

When located in a traveled area (road or sidewalk), the manhole frame and cover shall be heavy duty cast iron. When located in a lawn or in a field, the manhole frame and cover may be light duty cast iron. The cover shall provide a minimum access diameter of 30 inches (76 cm). The mating surfaces shall be machined, and painted with tar pitch varnish. The cover shall not rock in the frame. Infiltration between the cover and frame shall be prevented by proper design and construction. Covers shall have "Sewer,, cast into them. Covers shall be designed so that infiltration is prevented.

Manhole frames, installed at grade, shall be set in a full bed of mortar with no less than two nor more than four courses of brick underneath to allow for later elevation adjustment. In lieu of brick, grade rings may be used for elevation adjustment. Grade rings shall not exceed 6 inches in depth. The total number of grade rings shall not exceed 12 inches in height, however, in no event shall more than 3 grade rings be used.

Manholes which extend above grade, shall have the frames cast into the manhole top plate. The top plate shall be securely anchored to the manhole barrel, by a minimum of six, ½ inch diameter, corrosion resistant anchor bolts, to prevent overturning when the cover is removed. The anchor bolts shall be electrically isolated from the manhole frame and cover.

Ladders:

Manhole steps are to be provided in manholes. Steps are to be cast in or grouted solid into the precast units at intervals of 12 inches. Steps shall be in conformance with OSHA requirements having drop front or equivalent. Bolted-on type is not acceptable. Manhole steps to be M.A. Industries, Inc. copylymer polypropylene reinforced with ½-inch steel rod or equal.

Flow Channel or Invert:

The flow channel through the manholes shall conform in shape and slope to that of the sewers entering and leaving the manholes. Construct the top of the flow channel so that the flow will remain in the channel under peak conditions. Form or shape the channel walls to the full height of the crown of the outlet sewer and so as not to obstruct maintenance, inspection, or flow in the sewers. When curved flow channels are required, including branch inlets, increase minimum slopes to maintain acceptable velocities. Provide a minimum 0.1-foot drop through the manhole.

Bench or Shelf:

Provide a bench on each side of every manhole channel. The bench should have a slope of no less than 0.1 inch per foot or no greater than 0.5 inch per foot. No lateral sewer, service connection, or drop manhole pipe should discharge onto the surface of the bench.

Manhole Inverts:

Manhole inverts shall be constructed by laying sewer bricks on their long side with their water structured face up, in straight line or sweeping arch to from the bottom of the invert, from pipe to pipe. Additional sewer bricks will fan out with their water structure facing towards the center of the invert from the invert brick. The invert's width will be the same diameter of the effluent pipe of the manhole. The minimum height of the shelf shall be equal to the crown of the manhole's effluent pipe and it shall be constructed from sewer brick with their water structured face up.

Buoyancy:

Where high groundwater conditions are anticipated, the manholes shall be designed and constructed to prevent floatation.

Watertightness:

Solid or watertight manhole covers shall be used in areas subject to flooding. All manhole lift holes and grade adjustment rings shall be sealed with a nonshrinking mortar or other material approved by the Director. A bituminous coating shall also be used on the exterior. Inlet and outlet pipes shall be joined to the manhole with a gasketed, flexible watertight connection or with another watertight connection arrangement that allows for differential settlement of the pipe and the manhole.

The Contractor shall furnish manholes waterproofed over the entire exterior surface that will be below finished grade. The water proofing shall not mar or interfere with the specified exterior finish for these structures. Waterproofing shall be accomplished prior to structure installation for precast sections, and shall be applied to dry surfaces under proper weather conditions.

Waterproofing shall consist of a two-coat application of coal tar compound as manufactured by Koppers Bitumastic Super Service Black; Tnemec Heavy Duty Black 46-449; Preco Nitroproof

600; or equal, and shall be applied according to manufacturer's specification. Total thickness of the two-coat application shall no be less than 16 mils.

Pipe Connections:

Pipes being connected to new manholes shall be connected to the manhole with cast-in-place rubber boot with clamp around gasket. Pipes being connected to existing manholes shall be core drill opening and seal with link seal water stop between pipe and manhole wall.

Section 14. Force main pipe shall be either:

(a) Ductile Iron Pipe:

Pipe shall conform to ANSI A21.51;
The minimum wall thickness shall be Class 52 (ANSI A21.50);
The pipe shall be clearly marked with either "D„ or "DUCTILE„;
Fittings shall conform to ANSI A21.10;
Pipe shall be furnished with push-on joints and fittings shall be furnished with mechanical joints. Both conforming to ANSI A21.11; and
Pipe and fittings shall be cement mortar lined and have an internal and external bituminous seal coating.

(b) Polyvinyl Chloride (PVC) Plastic Pipe:

Pipe shall conform to ASTM D2241;
Materials used in the manufacturer of PVC pipe shall meet ASTM C1784; and be ultraviolet light (UV) protected;
The minimum wall thickness shall be SDR-21;
Fittings shall conform to ASTM D2241; and
Joints and gaskets shall conform to ASTM D2241, D1869, and F477.

(c) Other pipe materials:

Other pipe materials shall require prior written approval of the Director before being installed.

Trenching, bedding, and backfilling shall be as approved by the authority having jurisdiction over the property, such as but not limited to: the Massachusetts Highway Department, Town of Chatham Surveyor of Highways or Harwich Wastewater Superintendent.

Joint preparation and assembly shall be in accordance with the manufacturer's written instructions.

Anchorages, concrete blocking, and/or mechanical restraint shall be provided when there is a change of direction of 7-1/2 degrees or greater.

When the daily average design detention time, in the force main, exceeds 20 minutes, the manhole and sewer line receiving the force main discharge or the sewage shall be treated so that corrosion of the manhole and the exiting line are prevented. The corrosion is caused by sulfuric acid biochemically produced from hydrogen sulfide anaerobically produced in the force main.

The force main shall terminate, in the receiving manhole, at a PVC plastic sewer pipe "T„. The vertical arms of the "T„ shall be twice the diameter of the force main. The upper arm shall be at least 4 feet long; the lower arm shall terminate in a PVC plastic sewer pipe 90 degree elbow in a flow channel directed to the manhole exit pipe. The "T„ and its arms shall be securely fastened to the inside surface of the manhole wall using corrosion resistant anchors.

Force mains shall have a minimum velocity of three feet per second, 3ft/Sec.

Section 15. No sanitary sewer pipe shall be left open into an unfinished house or cellar hole. All pipes must be capped to prevent the flow of surface water or debris from entering the sanitary sewer.

Section 16. All sewer works located in the flood plain district area, established under the zoning by-law, shall require that new and replacement sewer works be designed and constructed to minimize or eliminate infiltration of flood waters into the system or discharge sewerage from the system into the floodwater.

Section 17. Sewer Pipe Testing:

A. General

The L.U.I. shall test the first section of pipeline as soon as it is installed to demonstrate that the work conforms to these specifications. The initial section shall not be less than five hundred (500) feet and not more than one thousand (1000) feet of pipeline. Testing of pipe shall closely follow pipe laying.

For all sewer pipe tests, the L.U.I. shall furnish an air or water test pump, an air or water meter, and suitable pressure gauge. The L.U.I. shall also furnish all labor and materials required to install suitable temporary testing plugs or caps for the pipeline and perform the test. The meter and gauge shall be installed by the L.U.I. in such a manner that all air or water entering the section under the test will be measured and the pressure in the section indicated and they shall be kept in use throughout all tests.

The scheduling of deflection and pressure and leakage tests shall be as approved and attended by the Town of Chatham's Sewer Department or Town Inspector.

Before accepting any sewer segment, the L.U.I. shall provide a television tape of the entire sewer including point of connection an existing sewer or pumping station. Television inspection shall be performed by a firm specializing in this work and shall produce the following information:

2. A continuous videotape recording of the entire length of pipe being inspected. The tape shall include location of each section, direction of camera travel, a commentary of the pipe's condition, and various irregularities found and lateral connections.

3. The section of pipe being televised shall be identified at least once every 50 ft.

4. Documentation on television logs and voice recorded on tape shall consist of the following information:

    a. Distance from the numbered manhole point of beginning on each sewer section to the location of the specific condition being inspected.
    b. Angular orientation of all above conditions inside pipe (i.e., leak at 10:00, service connection at 3:00).
    c. Sewer size, material, and joint spacing.

B. Deflection

Deflection tests shall be performed on all flexible pipes. The tests shall be conducted after the final backfill has been in place at least 30 days to permit stabilization of the pipe system.

No pipe shall exceed a deflection of 5 percent. If deflection exceeds 5 percent , the pipe shall be replaced.

The rigid ball or mandrel used for the deflection test shall have a diameter of not less than 95 percent of the base inside diameter or the average inside diameter of the pipe as specified by ASTM D 2122 Standard Test Method of Determining Dimensions of Thermoplastic Pipe and Fittings. The tests shall be performed without mechanical pulling devices.

C. Air Testing:

The Town requires air testing in lieu of the exfiltration or infiltration tests. The L.U.I. shall submit his proposed method of air testing to the Director for approval. All air testing shall be performed in accordance with the procedures described in ASTM C828-86 for Clay Pipe or ASTM C924 for or Concrete Pipe or those procedures approved by the Director, and shall be specifically designed and manufactured for testing pipelines with low-pressure air and shall be provided with an air regulator valve or air safety valve set to prevent the air pressure in the pipeline from exceeding ten (10) psi. If the results of the air test are unsatisfactory, the L.U.I. shall repair the sewer pipe and perform the air tests until the sewer pipe passes the air test. If site conditions are not conducive to air test, as determined by the Director, the L.U.I. will be required to perform an exfiltration and/or an infiltration test as outlined below.

Low pressure air tests shall conform to ASTM Specification C 828. All sections to be tested shall be cleaned and flushed, and shall have been backfilled, prior to testing.

Air shall be added until the internal pressure of the test section is raised to approximately 4.0 PSIG. The air pressure test shall be based on the time, measured in seconds, for the air pressure to drop from 3.5 PSIG. Acceptance is based on limits tabulated in the "Specification Time Required for a 1.0 PSIG Pressure Drop,, in the Uni-Bell PVC Pipe Association "Recommended Practice For Low-Pressure Air Testing of Installed Sewer Pipe,,.

Before pressure is applied to the line all connections shall be firmly plugged. Before the test period starts, the air shall be given sufficient time to cool to ambient temperature in the test section.

If the test section is below groundwater, the test pressure shall be increased by an amount sufficient to compensate for groundwater hydrostatic pressure, however, the test pressure shall not exceed 10 PSI.

The pressure test gauge shall have been recently calibrated, and a copy of the calibration results shall be made available to the Director prior to testing.

Exfiltration Test:

If for any reason, approved by the Director, air testing cannot be performed, the Director shall require exfiltration testing. Leakage tests by exfiltration shall be made before or after backfilling at the discretion and under the supervision of the Town Inspector. The length of pipe to be tested shall not exceed 1,000 feet and be such that the head over the crown at the upstream pipe is not less than two (2) feet and the head over the downstream pipe crown is not more than six (6) feet. The pipe shall be plugged, by pneumatic bags or mechanical plugs, in such a manner that the air can be released from the pipe while it is being filled with water. Before any measurements are made, the pipe shall be kept full of water long enough to allow absorption of water and the escape of any trapped air. Following this, a test period of at least two hours shall begin. Provisions shall be made for measuring the amount of water required to maintain the water at a constant level during the minimum two (2) hours test period. If any joint shows an appreciable amount of leakage, the joining material shall be removed and replaced. If the water required to maintain a constant level in the pipe does not exceed twenty-five (25) gallons per nominal diameter, in inches, per 24 hours per mile of pipe and if all leakage is not confined to a few joints, workmanship shall be considered satisfactory. If the amount of leakage indicates defective joints or broken pipes, they shall be corrected or replaced.

Infiltration Test:

If for any reason, approved by the Director, air testing and exfiltration testing cannot be performed, the Director shall require infiltration testing be performed. Pipe shall be tested for infiltration after backfill has been placed and the ground water allowed to return to normal elevation. Infiltration tests shall be made only under the supervision of the Town Inspector, and the length of line to be tested shall be not less

than the length between adjacent manholes and not more than the total length or each size pipe and shall not exceed 1000 feet. The allowable infiltration shall be twenty-five (25) gallons per nominal diameter, in inches, per 24 hours per mile of pipe in each section tested as determined by means of V-Notch weirs, pipe spigots, or by plugs in the end of the pipe to be furnished and installed by the L.U.I., in an approved manner, and at such times and locations as may be directed by the Town Inspector.

There shall be no gushing or spurting leaks. If an inspection of the completed sewer or any part thereof shows pipes or joints which allow noticeable infiltration of water, the defective work or material shall be replaced or repaired.

Section 18. Sewer Force Main Testing:

The sewer force main pipe shall be given pressure and leakage tests in sections of approved length as approved by the Director. For these tests, the L.U.I. shall furnish a water test pump, water meter, and a pressure gauge. The L.U.I. shall also furnish all labor and equipment to install suitable temporary testing plugs or caps for the pipeline and to perform the tests. The meter and gauge shall be installed by the L.U.I. in such a manner that all water entering the section under the test will be measured and the pressure in the section indicated and they shall be kept in use throughout all tests.

The scheduling of pressure and leakage tests shall be as approved and attended by the Town Inspector.

The section of pipe to be tested shall be filled with water by pumping water into it and opening the air release valves and expelling all air from the pipe. If air release assemblies are not available at high points for releasing air, the L.U.I. shall perform: all excavation(s); make the necessary tap(s) at such highpoint(s); plug said holes of the tapping saddles after completion of the test with brass or bronze plug(s); and backfill the excavation(s).

The L.U.I. shall make a leakage test by metering the flow of water into the pipe while maintaining (in the section being tested) a pressure equal to 1.5 times the highest pressure to which the pipe will be subjected under normal conditions of service or 150 psi, whichever is greater. This shall be done by placing the section under pressure by pumping.

The lengths of joint to be used in determining the allowable leakage shall be based on the nominal diameter of the pipe. The allowable leakage shall be less than 11.65 gallons per inch diameter per day per mile of force main tested, maintaining a pressure within 5 psi for a minimum of two (2) hours duration. If the section shall fail to pass the pressure test, the L.U.I. shall locate and repair or replace the defective pipe, fitting, or joint, at the L.U.i.'s own expense.

If, in the judgment of the Director, it is impracticable to follow the foregoing procedure exactly, modifications in the procedures may be made if approved by the Director, but in any event the L.U.I. shall be responsible for the ultimate tightness of the line within the above leakage requirements with no allowances for leakage from valves.

Section 19. Low Pressure Sewer Testing:

The sewer low pressure pipe shall be given pressure and leakage tests in sections of approved length as approved by the Director. For these tests, the L.U.I. shall furnish a water test pump, water meter, and suitable pressure gage. The L.U.I. shall also furnish all labor and equipment required to install suitable temporary testing plugs or caps for the pipeline and perform the test. The meter and gage shall be installed by the L.U.I. in such a manner that all water entering the section under the test will be measured and the pressure in the section indicated and they shall be kept in use throughout all tests.

The scheduling of pressure and leakage tests shall be as approved and attended by the Town Inspector.

The section of pipe to be tested shall be filled with water by pumping water into it and opening the air release valves and expelling all air from the pipe. If air release assemblies are not available at high points for releasing air, the L.U.I. shall perform: all excavation(s); make necessary tap(s) at such highpoint(s); plug said holes of the tapping saddles after completion of the test with brass or bronze plug(s); and backfill the excavation(s).

The L.U.I. shall make a leakage test by metering the flow of water into the pipe while maintaining (in the section being tested) a pressure equal to 1.5 times the highest pressure to which the pipe will be subjected under normal conditions of service or 150 psi whichever is greater. This shall be done by placing the section under pressure by pumping.

The lengths of joint to be used in determining the allowable leakage shall be based on the nominal diameter or the pipe. The allowable leakage shall be less than 11.65 gallons per inch diameter per day per mile of pipe tested, maintaining a pressure within 5 psi for a minimum of two (2) hours duration. If the section shall fail to pass the pressure test, the L.U.I. shall locate and repair or replace the defective pipe, fitting, or joint at the L.U.I.'s own expense.

If, in the judgment of the Director, it is impracticable to follow the foregoing procedure exactly, modifications in the procedures may be made if approved by the Director, but in any event the L.U.I. shall be responsible for the ultimate tightness of the line within the above leakage requirements with no allowances for leakage from valves.

Section 20. Cleaning Sewer Lines:

At the conclusion of the work, the L.U.I. shall thoroughly clean all pipelines by washing with water or other means to remove all dirt, stones, pieces of wood, or other material which may have entered the pipes during the construction period. Debris cleaned from the lines shall be removed from the low end of the pipeline by installing a screening device that will prevent any debris from entering the public sewer system or a section of the sewer works already approved. If after this cleaning, obstructions remain, they shall be removed. After the pipelines are cleaned and if the groundwater level is above the pipe or following a heavy rain, the Town Inspector will examine the pipes for leaks. If any defective pipes or joints are discovered, they shall be repaired or replaced as directed by the Town Inspector.

Section 21. Sewer Manhole Leakage Tests:

Leakage tests shall be made and observed by the Town Inspector on each manhole. The test shall be the exfiltration test or vacuum test as described below:

For these tests, the L.U.I. shall furnish an air or water test pump, an air or water meter, and suitable pressure gage. The L.U.I. shall also furnish all labor and materials required to install suitable temporary testing plugs or caps for the pipeline, and perform the test. The meter and gage shall be installed by the L.U.I. in such a manner that all air or water entering the manhole under the test will be measured and the pressure in the manhole indicated and they shall be kept in use throughout all tests.

After the manhole has been assembled in place, all lifting holes and exterior joints surface shall be filled and pointed with an approved non-shrinking mortar. The test shall be made prior to placing the shelf and invert and before filling and pointing the interior horizontal joints. If the groundwater table has been allowed to rise above the bottom of the manhole, it shall be lowered for the duration of the test. All pipes and other openings into the manhole shall be suitable plugged and the plugs braced to prevent blow out.

Exfiltration Testing:

The manhole shall then be filled with water to the top of the cone section. If the excavation has not been backfilled and observation indicates no visible leakage that is, no water visible moving down the outside surface of the manhole, the manhole may be considered to be satisfactory water-tight. If the test, as described is unsatisfactory, as determined by the Town Inspector or if the manhole excavation has been backfilled, the test shall be continued. A period of time may be permitted, if the Contractor so wishes, to allow for absorption. At the end of this period the manhole shall be refilled to the top of the cone and the measuring time of at least two (2) hours shall begin. This amount shall be extrapolated to a 24 hour rate and the leakage determined on the basis of depth. The leakage for each manhole shall not exceed one (1) gallon per vertical foot per day, a twenty-four (24) hour period shall equal one day. If the manhole fails this requirement, but the leakage does not exceed three (3) gallons per vertical foot per day, repairs by approved methods may be directed by the Town Inspector to bring the leakage within the allowable rate of one (1) gallon per foot per day. Leakage due to a defective section or joint or exceeding the three (3) gallon vertical foot per day, shall be the cause for the rejection of the manhole. It shall be the L.U.I.'s responsibility to uncover the manhole, as necessary, and to disassemble, reconstruct, or replace it as directed by the Town Inspector. The manhole shall then be retested and, if satisfactory, interior joints shall be filled and pointed and the invert constructed.

No adjustment in the leakage allowance will be made for unknown causes such as leaking plugs, absorptions, etc., it will be assumed that all loss of water during the test is a result of leaks through the joints or through the concrete. Furthermore, the L.U.I. shall take any steps necessary to assure the Town Inspector that the water table is below the bottom of the manhole throughout the test.

If the groundwater table is above the highest joint in the manhole, and there is no leakage into the manhole, as determined by the Town Inspector, such a test can be used to evaluate the water-tightness of the manhole. However, if the Town Inspector is not satisfied, the Contractor shall lower the water table and carry out the test as described hereinbefore.

Vacuum Testing:

The vacuum test shall be based on the time, measured in seconds, for the vacuum to decrease from 10 inches of mercury to 9 inches of mercury for manholes.

Acceptance of manholes is based on the following:

Manhole	Manhole Diameter	Time to Drop 1„ Hg (10„ to 9„)
10 ft or less	4 ft	120 seconds
10 ft to 15 ft	4 ft	150 seconds
15 ft to 25 ft	4 ft	180 seconds

NOTE: For 5 ft diameter manholes, add 30 seconds to the times above.
For 6ft diameter manholes, add 60 seconds to the times above.

The vacuum test gauge shall have been recently calibrated, and a copy of the calibration results shall be made available to the Director prior to testing.

If the test on the manhole fails (the allowable gallons or the time is less than that tabulated above), necessary repairs shall be made and the vacuum test repeated, until the manhole passes the test.

Section 22. Manhole Cleaning

All new manholes shall be thoroughly cleaned of all silt, debris and foreign matter of any kind, prior to final inspection.

SEWER USE REGULATIONS

Harwich, MA

Article XII

Land Use Controls – Wastewater Flow Management

4-16-2018

Preamble:

The Town of Harwich Board of Selectmen being responsible for the design and construction of the town sewer systems and for the implementation of the Comprehensive Wastewater Management Plan (CWMP) adopt the following Land Use Control – Wastewater Flow Management regulation to achieve Flow Neutral requirements. Sewer Service Areas (SSAs) to be implemented over eight phases during a 40-year period and wastewater flow projections for those areas have been defined after completing a comprehensive and deliberate study of the existing and projected wastewater needs of the Town. Reference is hereby made to the Final CWMP accepted by the Secretary of the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA) in 2016. The intent of this regulation is to manage the wastewater flows in Town to those projected in the approved CWMP.

Background:

Any owner of a house, building, or other structure used for human habitation, occupancy, employment, or recreation shall install sanitary facilities thereon in order to connect at his or her own expense to a public sanitary sewer of the Town based on the following sections.

All Connection and Extension Permits for sanitary sewers shall be issued at the sole discretion of the Harwich Board of Health in accordance with the Harwich Board of Selectmen policies and working in conjunction with the Harwich Water and Sewer Commissioners who are responsible for administration, maintenance and operation of the sewer system. Furthermore, the Town of Harwich completed a CWMP in 2016 prepared by CDM Smith Inc., to provide a comprehensive wastewater management plan that outlines the existing and future wastewater needs of the Town in order to protect and restore water quality.

To analyze existing wastewater flows and estimate future wastewater needs, the Town was divided into eight Sewer Service Areas primarily by watershed, with the Campground Area, Great Sand Lakes area, and the Route 28 area outside of the Massachusetts Estuaries Project (MEP) designation, which includes Harwichport, being grouped separately. Figure 13-4 from the CWMP shows the watersheds and SSAs. Existing and future wastewater flows were also calculated for each of the five watersheds. The approved March, 2016 CWMP, used water use data from 2004 through 2007 to estimate existing and future wastewater needs, identifying a future need of 1,259,000 (including infiltration and inflow estimates) gallons per day (gpd) as referenced in Table 13-11 of the CWMP. Existing and future flows are summarized in Table 1-1 attached.

The Harwich Board of Selectmen will use information and recommendations included in the CWMP as a guide when considering applications for new connection and extension permits and thereby manage the capacity within the sewer system to serve the needs of the Town for the 40-year planning period.

Regulation: Land Use Control – Wastewater Flow Management

The Harwich Board of Selectmen acting are adopting this new Sewer Use Regulation article that will ensure managed smart growth and prevent excessive growth based on availability of municipal sewer service.

General Land Use Controls

The Sewer Use Regulation as adopted by the Board of Selectmen delineates and designates eight SSAs and the wastewater flow to be allocated to those individual areas. The areas are shown on Figure 1-1 and the flows are shown on Table 1-1, both attached and made a part of this sewer use regulation Article XII. Those flows shall be utilized as a guide by the Town in allocating flows for new connections within the individual SSA during the noted 40-year planning period (2017-2057). Flows are based on actual flows.

Wastewater Flow Management

The Board of Selectmen reserve the right to reallocate flows within all SSAs provided that the following provisions are met:

1. An applicant seeking to alter the SSA or flow within an area shall be responsible for all costs associated with that change including potential for filing a Notice of Project Change with the Massachusetts Environmental Policy Act (MEPA) Office as well as burden of proof to demonstrate the public health need or water quality need, and public benefit;

2. A re-allocation of flows within the SSA shall not exceed the total project flow increase for Harwich in the projected 40-year planning period as presented in the March, 2016 CWMP and shown in Table 1-1;

3. A re-allocation of flow from one SSA to another SSA without exceeding the total flow increase shall be subject to a simple majority vote of the Board of Selectmen; and

4. A re-allocation of flows outside an existing sewer SSA shall only be allowed under the following circumstances:

    a. For non-public health emergencies or water quality benefits, by unanimous vote of the Board of Selectmen and if applicable, any zoning or other Town funding approved by vote of a legally convened town meeting, provided the total flow increase is not exceeded.

    b. For public health emergencies, by unanimous vote of the Board of Selectmen and by recommendation of the Harwich Board of Health, provided the total flow is not exceeded.

Abandonment of Systems

Existing on-site septic systems that are connected to the Town's sewer system shall comply with Commonwealth of Massachusetts – Department of Environmental Protection Regulations 310 CMR 15.354 – Abandonment of Systems and any local Harwich Board of Health regulations.

Adopted

The Board of Selectmen for the Town of Harwich, MA, do hereby adopt the following Land Use Control – Wastewater Flow Management regulation. The sewer service areas and projected wastewater flows have been designated following comprehensive and deliberate study of the existing and projected wastewater needs of the Town. Reference is hereby made to the Final Comprehensive Wastewater Management Plan (CWMP) accepted by the MEPA Office in 2016.

Approved:

Date: _____

Board of Selectmen:

_____

_____

_____

_____

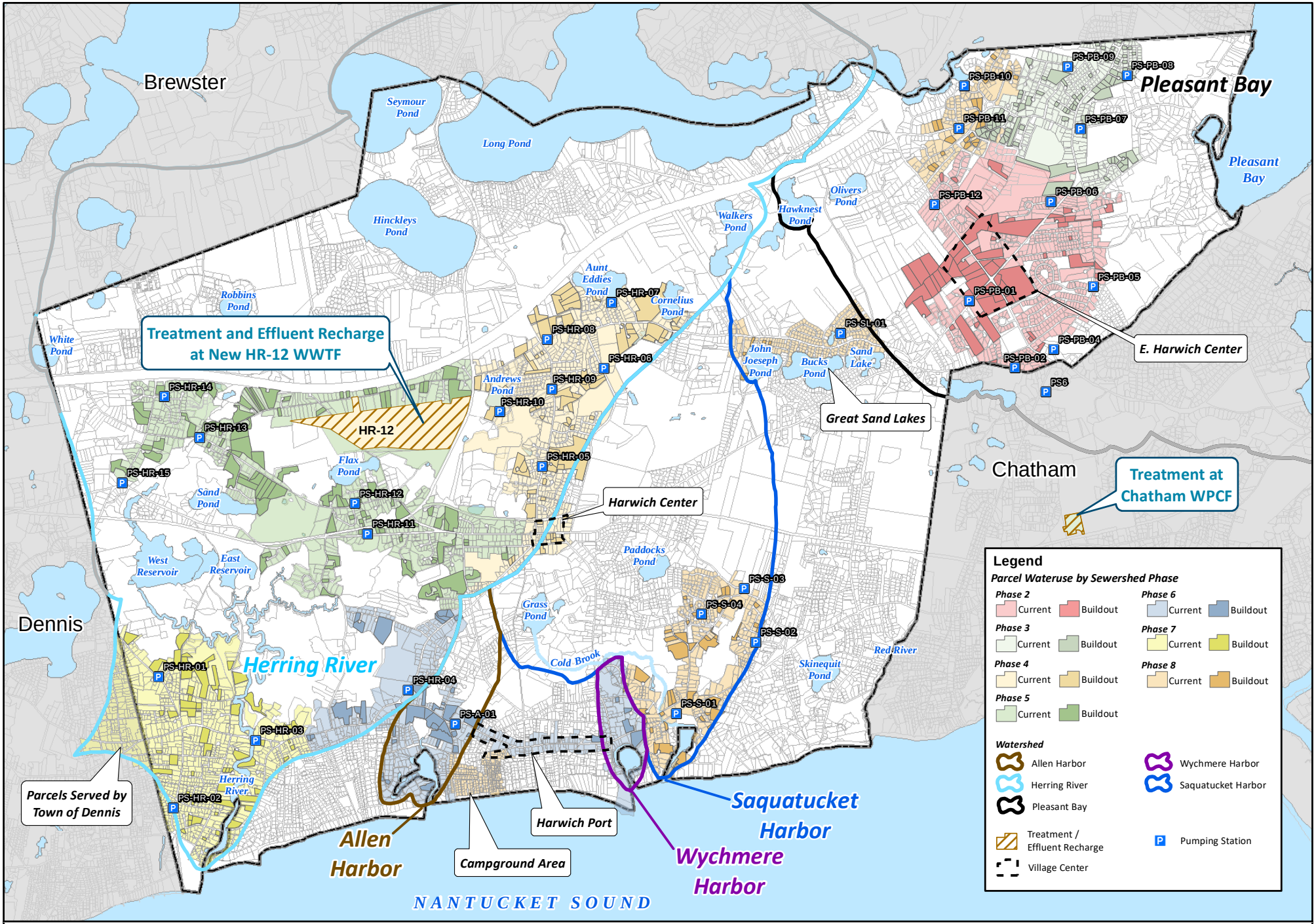
_____

Table 1-1
Buildout and Total Harwich Wastewater Flows
40-year Planning Period by Sewer Service Area

Sewer Service Area (SSA)	CWMP Buildout Wastewater Flow (gpd)[1]	CWMP Infiltration and Inflow (I/I) (gpd)	CWMP Total Wastewater Flow (gpd)
Allen Harbor	57,000	4,500	62,000
Herring River	516,000	112,000	628,000
Route 28 Outside of MEP	26,000	1,600	27,000
Pleasant Bay[2] *(Includes 55,000 gpd allowance)*	291,000	35,000	326,000
Saquatucket Harbor	95,000	18,000	113,000
Wychmere Harbor	29,000	2,900	32,000
Campground	33,000	1,600	35,000
Great Sand Lake[2]	34,000	1,600	36,000
Total Flows	**1,081,000**	**177,200**	**1,259,000**

1. Flows shown in the table are taken from Table 13-11 of the March 2016 CWMP.

2. Areas included in Inter-Municipal Agreement (IMA) with Chatham, MA.



Sewer Service Area by Phase
Existing and Buildout Parcels

Figure 1-1
Sewer Service Areas (SSAs)

CDM Smith

F:\Harwich\Harwich\Harwich_cwmp\MXD\Fig13-4_Recommended_Phasing_Plan_Buildout_20171215.mxd NEWELLJD 12/15/2017

VII. CORRESPONDENCE

2020 CPA Project Funding Application
September 2019 & 2020 Pumpage
Rainfall History; July, August, September
August 2020 Activity Report - Water

Application #_____

For Administrative Use Only

TOWN OF HARWICH - COMMUNITY PRESERVATION COMMITTEE
2020 CPA PROJECT FUNDING REQUEST APPLICATION
FISCAL YEAR 2021-2022

Submission Date: October 28, 2020

APPLICANT INFORMATION

Applicant: Town of Harwich Real Estate & Open Space Committee

Town Committee, Board or Organization: _____

Legal Mailing Address: Town Hall, 732 Main Street, Harwich, MA 02645

Phone: 908-839-6147 Email Address: elaine90ru@gmail.com

Project Manager: Elaine Shovlin, Chair, Town Real Estate & Open Space Committee

Legal Mailing Address: 35 Wales Road, Harwich, MA 02645

Phone: 908-839-6147 Email Address: elaine90ru@gmail.com

Second Contact Person: Kathy Green

Legal Mailing Address: 2261 Head of the Bay Road, Harwich, MA 02645

Phone: 617-901-0030 Email Address: ksgr58@gmail.com

PROJECT INFORMATION

PROJECT TITLE: Hinckleys Pond Watershed Preservation Project

PROJECT AMOUNT REQUESTED: $360,000 in open space acquisition funds

PROJECT DESCRIPTION: Through partnership between the Town of Harwich and nonprofit Harwich Conservation Trust (HCT), acquire an approximately 31-acre property next to the Cape Cod Rail Trail and fronting Pleasant Lake Avenue as well as Headwaters Drive for conservation and passive recreation purposes. The acquisition structure and natural resource protection benefits are described in this CPA funding application.

ESTIMATED START DATE: July 2021

ESTIMATED COMPLETION DATE: June 2023

Three years from the release of funds (July 2021) funds may be rescinded automatically; waivers may be sought.

CPA CATEGORY

APPLICANTS PLEASE TAKE NOTE **please check boxes for all that apply**

☒ **Open Space:** This application is for the **"acquisition, preservation, rehabilitation and/or preservation of open space".**

☐ **Historic:** This application is for **the "acquisition, preservation, rehabilitation and/or restoration of historic resources". Please provide the date on which the HDHC reviewed and endorsed this application.**

☐ **Community Housing:** This application is for the **"acquisition, creation, preservation and/or support of community housing".**

☐ **Recreation:** This application is for the **"acquisition, creation, preservation, rehabilitation and/or restoration of land for recreational use".**

Project summary:

The goal of this Hinckleys Pond Watershed Preservation Project is to support a funding partnership between the Town and nonprofit Harwich Conservation Trust (HCT) that will result in the preservation of approximately 31 acres in the Hinckleys Pond/Herring River Watershed to protect water quality, walking trails, land bordering the Cape Cod Rail Trail bike path, and wildlife habitat. The land has an appraised fair market value of $732,500.

The Real Estate and Open Space Committee seeks $360,000 in Town Community Preservation Act (CPA) open space funding toward the land purchase, which is comprised of the following parcels located off Headwaters Drive and Pleasant Lake Avenue opposite the Cape Cod Regional Technical High School:

Assessor Map 81, Lot G1:	1.17 acres
Assessor Map 81, Lot G2-1:	0.15 acre
Assessor Map 81, Lot G2-2:	22.4 acres
Assessor Map 81, Lot G2-3:	0.96 acre
Assessor Map 81, Lot G2-4-1:	3.75 acres
Assessor Map 81, Lot G2-4-2:	1.38 acres
Assessor Map 81, Lot G3:	0.66 acre
Assessor Map 81, Lot G3-1:	0.54 acre

The acquisitions will be completed over a two-year installment approach as shown in the attached map, which will result in:

a. acquisition of Lot G1 by the Town of Harwich Board of Selectmen to be managed by the Conservation Commission for passive recreation and conservation purposes subject to a conservation restriction held by HCT; and,
b. acquisition of a conservation restriction held by the Town of Harwich Conservation Commission on the additional seven parcels, which will be acquired by HCT.

The total project cost is $800,000 when including expenses for due diligence, legal, conveyancing, and land stewardship steps to create a parking area and trailhead on Headwaters Drive. If the Community Preservation Committee (CPC) approves this $360,000 CPA funding proposal and Town Meeting voters approve the warrant article, then an anonymous HCT donor has pledged $220,000 in challenge funds to encourage HCT to raise the remaining $220,000 in matching funds needed for the total $800,000 project goal. See attached project budget for more detail.

Cranberry farming will be discontinued on the property owing to economic market pressures including an over supply of cranberries from the Midwest which drives down prices and lack of available labor, both of which are contributing to local growers exiting the industry by selling their farmlands for development or conservation.

How does this project fit into Harwich's Local Comprehensive Plan and/or other Plan?

Preservation of this property is consistent with the following town and regional open space planning goals and objectives:

1. Town of Harwich 2017 Open Space and Recreation Plan

- ✓ *Page 64, Goal VI: Preserve and Enhance the Following Natural Resources: Groundwater and Surface Water; Coastal Water and Adjacent Shoreline Areas; Inland and Coastal Wetlands; and Wildlife and Plant Habitats*
- ✓ *Page 64, Objective 1. Maintain the overall quality and quantity of Harwich's ground water to ensure a sustainable supply of high quality, minimally treated drinking water.*
- ✓ *Page 65, Objective 2. Preserve and improve the ecological integrity of marine and fresh surface waters.*
- ✓ *Page 66, Objective 8. Preserve, protect and enhance the quality and quantity of inland and coastal wetlands in Harwich.*
- ✓ *Page 67, Objective 9. Continue to prevent the loss or degradation of critical wildlife and plant habitats, minimize the impact of new development on wildlife and plant habitats, and maintain existing populations and species diversity.*

2. Barnstable County 2018 Regional Policy Plan

In July 1991, the Barnstable Assembly of Delegates, pursuant to the Cape Cod Commission Act (Chapter 716 of the Acts of 1989), adopted a Regional Policy Plan (RPP), amended in 1996, 2002 and 2009, and 2018 which states (references are to the 2018 Plan):

- ✓ *Goals organized around three systems, one of which is Natural Systems: water resources, wetland resources, wildlife and plant habitat, and open space. These goals serve "to protect and restore the quality and function of the region's natural environment that provides the clean water and healthy ecosystems upon which life depends" (RPP, 2018, pp. 60);*
- ✓ *Water Resources Goal: "(t)o maintain a sustainable supply of high quality untreated drinking water and protect, preserve, or restore the ecological integrity of Cape Cod's fresh and marine surface water resources;*
- ✓ *Wildlife and Plant Habitat Goal: "(t)o protect, preserve, or restore wildlife and plant habitat to maintain the region's natural diversity. And objectives include: to (m)aintain existing plant and wildlife populations and species diversity;"*
- ✓ *Wetland Resource Goal: "(t)o protect, preserve, or restore the quality and natural values*

and functions of inland and coastal wetlands and their buffers;"

- ✓ *Open Space Goal: "(t)o conserve, preserve, or enhance a network of open space that contributes to the region's natural and community resources and systems" (RPP, 2018, pp. 61); and,*

How does this project benefit the citizens of Harwich? If appropriate, has the application sought public opinion or input? If not, why?

This property stands out as an important conservation and passive recreation (walking trail) acquisition for the following reasons:

1. The property is adjacent to a Zone 2 of Contribution to our public water supply (see letter of support from the Harwich Board of Water Commissioners attached).
2. The property contains approx. 31 acres, which is substantial acreage that can provide a new walking trail destination with scenic views for residents and visitors.
3. The property borders both sides of the Cape Cod Rail Trail with each side buffering more than 1,000 feet of the scenic regional bike path that spans from Yarmouth to Wellfleet. This bike path section in Harwich offers panoramic scenic views of the property and Hinckleys Pond.
4. The property is almost entirely within the watershed to Hinckleys Pond, the primary surface water source for the Herring River. River herring spawn in Hinckleys Pond and also transit Hinckleys Pond through herring runs to additional spawning ponds of Long Pond and Seymours Pond. **If the land is developed, then at least six houses would occupy the site, which would negatively impact the scenic views as well as add six septic systems to the Hinckleys Pond/Herring River watershed.**

The property borders both sides of the Cape Cod Rail Trail, offering panoramic scenic views. If the property is developed, then at least six lots would negatively impact the scenic views and six septic systems would be added to the Hinckleys Pond/Herring River watershed.

5. Preserving the property will help reduce septic system nutrient loading in the Herring River watershed, which is included in Phase 8 for sewering in the Town of Harwich Comprehensive Wastewater Management Plan. Preserving the property will result in less sewer infrastructure, which also saves taxpayer money.
6. The property includes approx. 233 feet of pond shore that connects to another approx. 600 feet of Town-owned pond shore within state-designated BioMap 2 Core Habitat defined as *"critical for the long-term persistence of rare species and other Species of Conservation Concern, as well as a wide diversity of natural communities and intact ecosystems across the Commonwealth,"* which is also state-designated Priority Habitats of Rare Species defined as *"the geographical extent of habitat for all state-listed rare species, both plants and animals, and is codified under the Massachusetts Endangered*

Species Act (MESA).” (see letter of support from the Town Conservation Commission attached)

7. The property includes extensive public road frontage including approx. 1,200 feet on Pleasant Lake Avenue (Route 124) and approx. 1,500 feet of frontage on Headwaters Drive with both roadways offering motorists and travelers scenic views of the property.
8. The property is adjacent to approx. 6.5 acres of Town-owned land under jurisdiction of the Selectmen and shares a common border of approx. 844 feet.
9. The property is directly opposite the new state-of-the-art $120 million Cape Cod Regional Technical High School. With the simple addition of a crosswalk between the school and the land to allow students and faculty pedestrian access, this unique proximity to a regionally important educational center could offer “outdoor classroom” learning opportunities for students.
10. Because of the property’s overall relatively flat topography with slight slopes and wide trails, a future aspiration could include creating a wheelchair accessible trail loop compatible with Americans with Disabilities Act (ADA) standards.
11. This acquisition is consistent with the Town of Harwich Open Space and Recreation planning goals, including protecting Landscape Character, Water Resources, Wetlands, Fisheries and Wildlife, and Scenic Resources.
12. This acquisition is responsive to the results of the 2015 Community Survey, which was part of the 2017 Town Open Space & Recreation Plan drafting process. A vast majority of survey respondents replied that it is “very important” for the Town to continue to acquire and preserve open space and natural areas (see excerpted key survey results below).

PUBLIC OPINION SURVEY RESULTS
(excerpted from Appendix G of the 2017 Town Open Space & Recreation Plan):

As part of the Town Planning Department’s effort to update the Town Open Space & Recreation Plan, a public survey was conducted in 2015 with both hard copy and on-line versions available to the general public. A total of 379 survey responses were received with the large majority returned electronically.

70% of responses were from full-time residents, and 12% were from part-time residents. The latter was a considerable increase from 1.7% in the previous survey five years earlier. 17% of respondents identified themselves as visitors or “other”.

85% of respondents said it is “very important” for the Town to continue to acquire and preserve open space and natural areas in Harwich. An additional 10% responded that it is “important”. 5% responded that continued acquisition and preservation is “neutral” or “not important”.

99% of respondents said it is “important” to acquire land for protection of groundwater, drinking water and watersheds and 96% of respondents said it is “important” to acquire wildlife habitat areas, such as woodland, wetlands and rare species habitat.

ESTIMATED START DATE:
July 1, 2021

ESTIMATED COMPLETION DATE:
June 30, 2023

PLEASE LIST OTHER COMMISSIONS/BOARDS/COMMITTEES/ORGANIZATIONS that may have involvement, jurisdiction, partnering, etc:

Commissions/Boards/Committees/Organizations	Please have them initial here after their review
Conservation Commission	
Board of Water/Wastewater Commissioners	
Natural Resources Department	
Harwich Conservation Trust	

Describe their response, or provided written comments/input:
Harwich Conservation Trust is very supportive and leading an effort to raise the additional $440,000 in funds needed to complete the project.
Conservation Commission and Board of Water/Wastewater Commissioners are also very supportive.

PROJECT BUDGET: Attach a dated and detailed line item project budget estimate for your funding request. If the request involves a Town-owned asset, provide the project's projected operating expenses, including maintenance.

COST ESTIMATE(S): Attach cost estimates or firm quotes (if available) for all projects.

LAND and/or BUILDING ACQUISITION PROJECTS:
The following **must** also be submitted, as applicable:

☐ Surveys and/or plot plans for the property
☐ Appraisals and agreements, if available.
☐ Name of present owner and attach copy of deed conveying property unto present owner.
☐ Property address, Harwich Assessor's property identification (Map#, Parcel #).
☐ For proposed Open Space land purchases, be prepared to discuss public access with the Committee.

****

By signing below, the Applicant represents and warrants that all the information included is true and correct to the best of the signer's knowledge and belief. Further, the Applicant acknowledges in the event that the Community Preservation Committee agrees to grant funds to Applicant (and subject to Town Meeting approval), this application together with any Terms and Conditions shall constitute a binding agreement, between the Applicant and the Community Preservation Committee. Further, Applicant acknowledges and agrees to execute any additional grant agreements should the Community Preservation Committee so request.

ATTESTATION: I HEREBY ATTEST THAT THE INFORMATION CONTAINED IN THIS APPLICATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE.

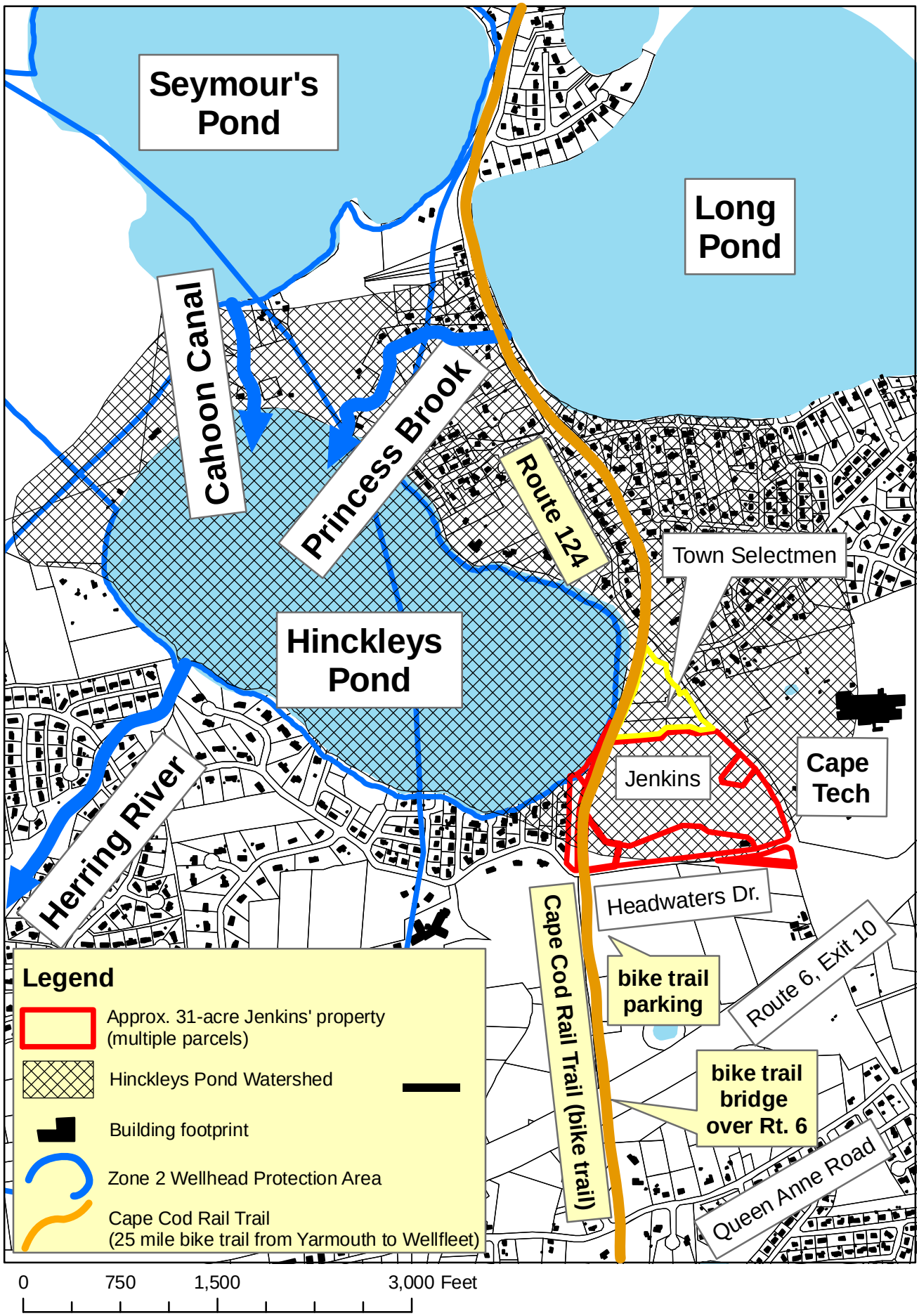
_____

Signature - Chief Executive Officer or Chief Administrative Officer or Board Chair Title

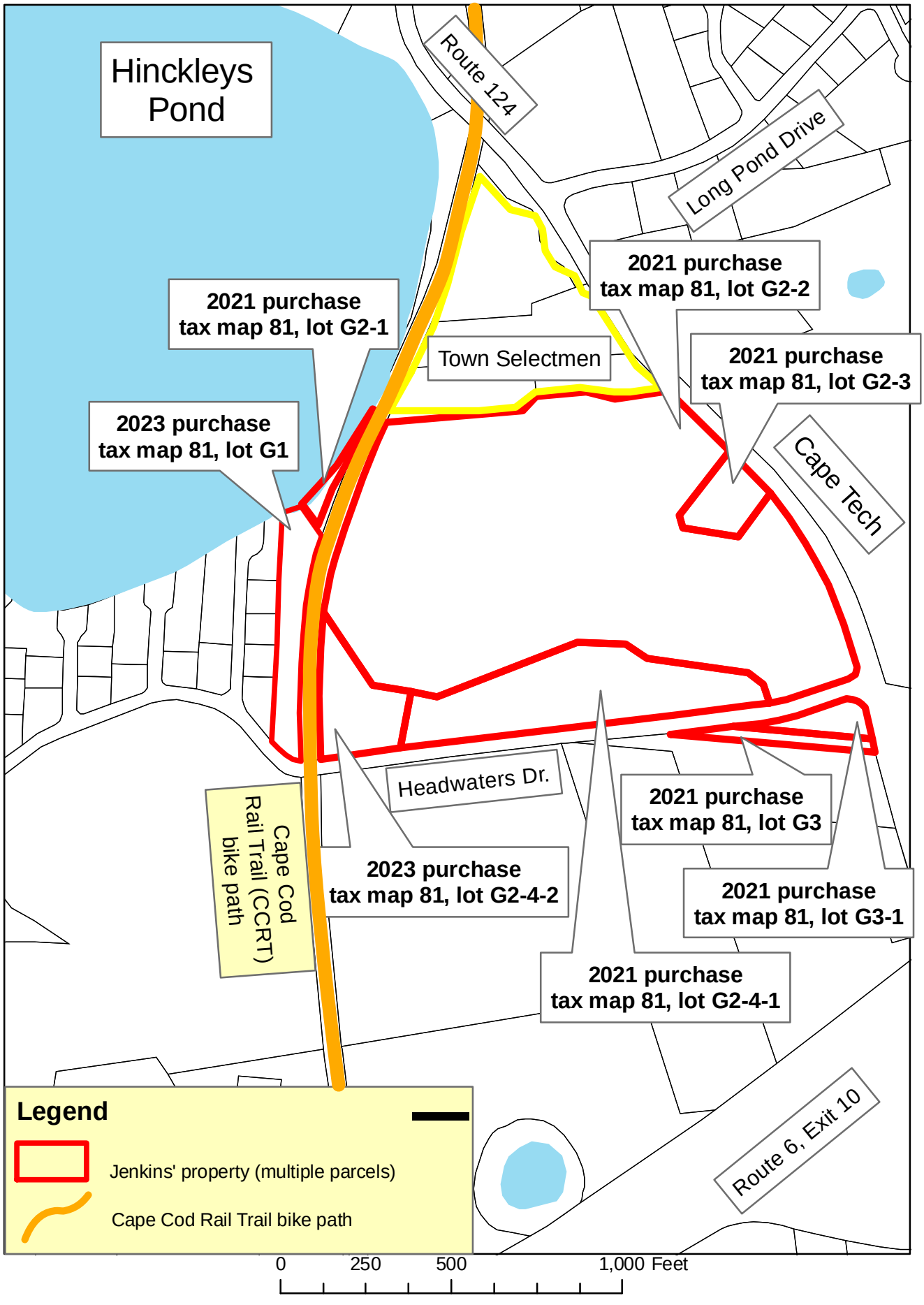
Printed Name_____ Date _____

APPLICATIONS MUST BE RECEIVED BY OCTOBER 30, 2020 NO LATER THAN 4 PM
Must submit eight (8) paper copies and if possible, a thumb drive (USB memory stick) containing a digital copy of the Application in a PDF file format.

Zone 2 Wellhead Protection Area Map
Hinckleys Pond Watershed Preservation Project
Harwich MA



Jenkins Project: Installment Purchase Parcel Map
Harwich MA



DRAFT Budget as of 14.Oct.2020: Hinckley Pond Watershed Preservation Project

- **PROJECT COSTS:**

31-acre purchase price	$	732,500
Appraisal	$	3,000
Attorney fees	$	6,000
Fundraising costs	$	5,000
Property taxes until exempt	$	3,500
Closing costs	$	4,500
Technical assistance (Compact)	$	5,000
Due diligence, other	$	5,000
Undevelopment stewardship	$	20,000
Parking area design, construction	$	10,000
Trail mapping	$	1,000
Trailhead kiosk, materials	$	3,000
Signage	$	1,500
TOTAL COSTS:	**$**	**800,000**

- **FUNDING SOURCES:**

Town CPA Funds	$	360,000
HCT Challenge donor	$	220,000
HCT to raise matching funds	$	220,000
***TOTAL FUNDING*:**	**$**	**800,000**

#0 Pleasant Lake Ave
Assess Map 81
Parcel G2–2
Plan: Bk 122, Pg 1
North Portion of Lot D

#10 Headwaters Drive
Assess Map 81
Parcel G2–4–1
Plan: Bk 455, Pg 43
Existing Lot D–1–2
Proposed Lots 1,2,3,4
Total Area = 163,210 SF
3.7 Acres

Cape Cod Rail (Bike) Trail

S 36°35'11" E
169.39'

S 68°39'19" E
150.00'

S 76°29'58" W
201.43'

S 62°12'38" W
91.61'

S 70°51'06" W
119.54'

N 81°48'57" W
107.74'

N 54°49'34" W
67.63'

N 86°41'50" W
269.85'

N 63°38'14" W
76.29'

N 05°48'46" W
57.86'

347.00'

S 83°28'15" W

1014.14'

198.00'

202.00'

N 83°28'15" E
267.14'

S 79°15'10" W
47.24'

N 79°15'10" E
252.00'

60245.1 Sq. Feet
1.4 Acres

#0 Headwaters Drive
Assess Map 81
Parcel G2–4–2
Plan: Bk 455, Pg 43
Lot D–1–1

Existing Lot

EXISTING LOT LINE
S 02°21'41" W
141.78'

40808.2 Sq. Feet
0.9 Acres
P= 923.33'
Shape Factor= 20.9

New Lot 1

61.20'
152.81'
S 06°31'45" E
164.53'

40050.7 Sq. Feet
0.9 Acres
P= 801.55'
Shape Factor= 16.0

New Lot 2

S 06°31'45" E
223.86'

42091.0 Sq. Feet
1.0 Acres
P= 802.81'
Shape Factor= 15.3

New Lot 3

N 06°31'45" W
161.20'

44.37'
23.81'
91.44'

40260.3 Sq. Feet
0.9 Acres
P= 936.01'
Shape Factor= 21.8

Existing Building

New Lot 4

HEADWATERS DRIVE

Preliminary Subdivision Of Lot D–1–2
Shown On Plan Bk 455 Pg 43
(Assess. Map 81, Parcel G2–4–1)

PREPARED FOR
HARWICH CONSERVATION TRUST

PLAN PREPARED BY:

MORAN ENGINEERING ASSOC.,LLC
508–432–2878 941 MAIN STREET (RTE 28), HARWICH, MA

SCALE: 1"= 60' *DATE:* 1/18/20

0' 60' 120' 180'

Bk:10817-273 35040
06-24-1997 @ 01:53

QUITCLAIM DEED

OFF PLEASANT LAKE AVE, HARWICH MAKE

MELLO-WILSON CRANBERRY CORP., a corporation duly organized under the Laws of the Commonwealth of Massachusetts with its usual place of business at P. O. Box 183, Rochester, MA 02770, for consideration paid, and in consideration of **Seven Hundred Fifty Thousand and No/100 ($750,000.00) Dollars**, grant to **JAMES A. JENKINS, as Trustee of JENKINS NOMINEE TRUST** under Declaration of Trust dated December 29, 1995, and recorded in the Barnstable County Registry of Deeds at Book 9994, Page 92, of 227 Pine Street, West Barnstable, MA 02668, with *QUITCLAIM COVENANTS*,

PARCEL ONE:

Three (3) parcels of land located in Harwich, Barnstable County, Massachusetts, bounded and described as follows:

Parcel D

Beginning at the northeast corner of the parcel herein described on the westerly side of Pleasant Lake Avenue;

thence 29.62 feet by a curve bowing inward, having a radius of 1073.74 feet by the westerly side line of Pleasant Lake Avenue to a point;

thence S. 46° 59' 02" E., 215.13 feet by the westerly side line of Pleasant Lake Avenue to a point;

thence S. 33° 38' 23" W., 246.66 feet by the land now or formerly of Pleasant Lake Cranberries, Inc. to a point;

thence S. 10° 01' 38" E., 41.74 feet by the land of said Pleasant Lake Cranberries, Inc. to a point;

thence S. 83° 12' 05" E., 169.34 feet by the land of said Pleasant Lake Cranberries, Inc. to a point;

thence N. 38° 00' 43" E., 161.00 feet by the land of said Pleasant Lake Cranberries, Inc. to a point on the westerly side line of Pleasant Lake Avenue;

thence 557.93 feet by a curve bowing outward having a radius of 1200.00 feet by the westerly side line of Pleasant Lake Avenue to a point;

thence 44.93 feet by a curve bowing outward having a radius of 29.58 feet to a point in the northerly sideline of Headwaters Drive;

thence 81.23 feet by a curve bowing inward having a radius of 425.00 feet by the northerly side line of Headwaters Drive to a point;

thence 167.18 feet by a curve bowing outward having a radius of 453.60 feet by the northerly side line of Headwaters Drive to a point;

thence N. 5° 49' 01" W., 57.86 feet by the land of said Pleasant Lake Cranberries, Inc. to a point;

thence N. 63° 38' 14" W. 76.29 feet by the land of said Pleasant Lake Cranberries, Inc. to a point;

thence N. 86° 41' 50" W., 269.85 feet by the land of said Pleasant Lake Cranberries, Inc. to a point;

thence N. 54° 49' 34" W., 91.44 feet by the land of said Pleasant Lake Cranberries, Inc. to a point;

thence N. 81° 48' 57" W., 107.74 feet by the land of said Pleasant Lake Cranberries, Inc. to a point;

thence S. 70° 51' 06" W., 163.88 feet by the land of said Pleasant Lake Cranberries, Inc. to a point;

thence S. 62° 12' 38" W., 152.81 feet by the land of said Pleasant Lake Cranberries, Inc. to a point;

thence S. 76° 29' 58" W., 201.43 feet by the land of said Pleasant Lake Cranberries, Inc. to a point;

thence N. 68° 39' 19" W., 190.01 feet by the land of said Pleasant Lake Cranberries, Inc. to a point;

thence N. 38° 35' 11" W., 169.39 feet by the land of said Pleasant Lake Cranberries, Inc. to a point on the easterly side line of a right of way now or formerly of the New York, New Haven and Hartford Railroad Co.;

thence 120.90 feet by a curve bowing outward having a radius of 1868.83 feet by said Railroad Right of Way to a point;

thence N. 22° 02' 49" W., 29.73 feet by said Railroad Right of Way to a point;

thence 380.00 feet by a curve bowing outward having a radius of 1885.08 feet by said Railroad Right of Way to a point;

thence N. 43° 46' 14" E., 47.34 feet by said Railroad Right of Way to a point;

thence 36.24 feet by a curve bowing outward having a radius of 1868.83 feet to a point;

thence N. 25° 29' 04" E., 47.49 feet by said Railroad Right of Way to a point;

thence N. 87° 01' 04" E., 384.55 feet by the land now or formerly of Eliza E. Cahoon to a point;

thence N. 2° 59' 34" E., 53.57 feet by the land now or formerly of said Eliza E. Cahoon to a point;

thence N. 86° 29' 54" E., 159.07 feet by the land now or formerly of said Eliza E. Cahoon to a point;

thence S. 84° 24' 06" E. 103.41 feet by the land now or formerly of said Eliza E. Cahoon to a point;

thence N. 83° 05' 54" E., 143.91 feet by the land now or formerly of said Eliza E. Cahoon to the point of beginning.

The above described parcel of land contains 22.42 acres.

Parcel D-1

Beginning at the southeast corner of the parcel herein described at a concrete bound on the northerly side line of Headwaters Drive;

thence S. 83° 28' 15" W., 545.22 feet by the northerly side line of Headwaters Drive;

thence S. 83° 28' 15" W., 468.92 feet by the northerly side line of Headwaters Drive;

thence S. 79° 15' 10" W., 299.24 feet by the northerly side line of Headwaters Drive to a point in the easterly side line of a right of way now or formerly of the New York, New Haven and Hartford Railroad Company;

thence 376.40 feet by a curve bowing outward having a radius of 1868.83 feet to a point;

thence S. 38° 35' 11" E., 169.39 feet by land now or formerly of Pleasant Lake Cranberries, Inc. to a point;

thence S. 68° 39' 19" E., 190.01 feet by land of said Pleasant Lake Cranberries, Inc. to a point;

thence N. 76° 29' 58" E., 201.43 feet by land of said Pleasant Lake Cranberries, Inc. to a point;

thence N. 62° 12' 38' E., 152.81 feet by land of said Pleasant Lake Cranberries, Inc. to a point;

thence N. 70° 51' 06" E., 163.88 feet by land of said Pleasant Lake Cranberries, Inc. to a point;

thence S. 81° 48' 57" E., 107.74 feet by land of said Pleasant Lake Cranberries, Inc. to a point;

thence S. 54° 49' 34" E., 91.44 feet by land of said Pleasant Lake Cranberries, Inc. to a point;

thence S. 86° 41' 50' E., 269.85 feet by land of said Pleasant Lake Cranberries, Inc. to a point;

thence S. 63° 38' 14" E., 76.29 feet by land of said Pleasant Lake Cranberries, Inc. to a point;

thence S. 5° 49' 01" E., 57.86 feet by land of said Pleasant Lake Cranberries, Inc. to the point of beginning.

The above parcel of land contains 5.13 acres.

INCLUDING in Parcel D-1, that certain parcel or tract of land on the northerly side of Headwater Drive, shown and delineated as Lot D-1-1 on a plan of land entitled, "Plan of Land for Edgewood Trust in Harwich, Mass., Scale 1" = 50', Nov. 17, 1988, G.A.F. Engineering, Inc." recorded with Barnstable County Registry of Deeds at Plan Book 455, Page 43. Containing, according to said plan, 60,246 square feet of land. This parcel was conveyed to Mello-Wilson Cranberry Corp. by deed of Edgewood Trust dated January 6, 1993, and recorded in the Barnstable County Registry of Deeds at Book 8460, Page 234.

Parcel D-2

Beginning at the northeast corner of the parcel herein described on the westerly side line of Pleasant Lake Avenue;

thence S. 46° 59' 02" E., 57.60 feet by the westerly side line of Pleasant Lake Avenue to a point;

thence 138.82 feet by a curve bowing outward having a radius of 1200.00 feet by the westerly side line of Pleasant Lake Avenue to a point;

thence S. 38° 00' 43" W., 161.00 feet by the land now or formerly of Pleasant Lake Cranberries, Inc. to a point;

thence N. 83° 12' 05" W., 169.34 feet by the land of said Pleasant Lake Cranberries, Inc. to a point;

thence N. 10° 01' 38" W., 41.74 feet by the land of said Pleasant Lake Cranberries, Inc. to a point;

thence N. 33° 38' 23" E., 246.66 feet by the land of said Pleasant Lake Cranberries, Inc. to the point of beginning.

The above described parcel of land contains 41,657.2 square feet.

Being shown and designated on a plan of land entitled: "Plan of Land for Ravenbrook Farms, Inc. in Harwich, MA., Scale: 1" = 50', March 2, 1984, Gilmore Associates, P. O. Box 617, South Carver, MA 02366" which plan is duly recorded in the Barnstable County Registry of Deeds.

PARCEL TWO:

A parcel of unregistered land situated on Route 124 in Harwich (Pleasant Lake), Barnstable County, Massachusetts, consisting of cranberry bog and upland and bounded and described as follows:

Beginning at the northeast corner of the premises at a point in the westerly sideline of Pleasant Lake Avenue and at Parcel 3 hereinafter described;

thence in a general southwesterly direction by parcel 3 hereinafter described by a curved line having a radius of 40.00 feet, a distance of sixty-two and 83/100 (62.83) feet to a point;

thence South 78° 21' 13" West, Ninety-seven and 53/100 (97.53) feet to a point;

thence continuing in a general southwesterly direction by a curved line having a radius of 300.00 feet, a distance of Sixty-six and 51/100 (66.51) feet to a point;

thence North 88° 56' 39" West by the third parcel herein described, three hundred forty-five and 38/100 (345.38) feet to a right of way as shown on said plan;

thence South 83° 28' 15" West by said right of way, two hundred (200) feet, more or less, to land now or formerly of James G. Marceline, later of Dimensions Unlimited, Inc.;

thence southeasterly by "Old Road" as shown on said plan, one hundred seventy (170) feet, more or less, to a concrete bound;]

thence continuing south 86° 59' 30" East, five hundred ninety-one and 90/100 (591.90) feet to Pleasant Lake Avenue aforesaid;

thence northerly by Pleasant Lake Avenue by a curved line having a radius of 3160.00 feet, a distance of sixteen and 56/100 (16.56) feet to a Massachusetts Highway bound as shown on said plan;

thence North 11° 38' 47" West by the line of Pleasant Lake Avenue as shown on said plan, one hundred thirteen and 23/100 (113.23) feet to the point of beginning.

Containing an area of 28,780 square feet, more or less, according to said plan being shown as "Dimensions Unlimited Inc., P. O. Box 151, West Barnstable, Mass." on a plan entitled "Relocation of a Portion of Headwater Drive, Harwich, Mass. Prepared for A. D. Makepeace Company Scale: As Noted December 11, 1972 Walter E. Rowley & Associates, Inc. Civil Engineers & Surveyors West Wareham, Mass." and said plan is recorded in the Barnstable County Registry of Deeds in Plan Book 267, Page 89.

PARCEL THREE:

Situated in Harwich on Route 124 (Pleasant Lake) bounded and described as follows:

Beginning at the northeast corner on the premises at a concrete bound in the westerly sideline of Pleasant Lake Avenue, a town way (Route 124);

thence South 11° 38' 47" East, thirty-four and 43/100 (34.43) feet to a point;

thence in a general southwesterly direction by a curved line having a radius of 40.00 feet, a distance of sixty-two and 83/100 (62.83) feet to a point;

thence South 78° 21' 13" West, ninety-seven and 53/100 (97.53) feet to a point;

thence continuing in a general westerly direction by a curved line having a radius of 300.00 feet, a distance of sixty-six and 51/100 (66.51) feet to a point;

thence North 88° 56' 39" West, three hundred forty-five and 38/100 (345.38) feet to a right of way as shown on said plan;

thence North 83° 28' 15" East, two hundred sixty-three and 69/100 (263.69) feet by said right of way to a concrete bound;

thence continuing in a general northeasterly direction by a curved line having a radius of 503.60 feet, a distance of one hundred eighty-five and 61/100 (185.61) feet to a concrete bound;

thence continuing in a general northeasterly direction by a curved line having a radius of 375.00 feet, a distance of 71.99 feet to a point;

thence North 73° 21' 13" East, five and 49/100 (5.49) feet to a concrete bound;

thence continuing in a general southeasterly direction by a curved line having a radius of 16.48 feet, a distance of twenty-seven and 32/100 (27.32) feet to a concrete bound being a Massachusetts Highway Bound at the point of beginning.

Said premises are shown as "A. D. Makepeace Co., Main Street Wareham, Mass." on the plan by Walter E. Rowley dated December 11, 1972, and recorded in said Registry in Plan Book 267, Page 89.

PARCEL FOUR:

Situated in Harwich off Route 124 (Pleasant Lake) aforesaid and bounded and described as follows:

Beginning at the northeast corner of the premises at a point in the southeasterly shore of Hinckleys Pond (a great pond) at land now or formerly of New York, New Haven and Hartford Railroad Company;

thence in a general southerly direction by a curved line having a radius of 1951.33 feet, a distance of one hundred thirty-six (136) feet, more or less, to a corner;

thence North 44° 39' 05" East, thirty-eight and 62/100 (38.62) feet to a corner;

thence in a general southerly direction by a curved line having a radius of 1935.08 feet, a distance of 167.00 feet to a corner;

thence North 07° 13' 10" West, forty-one and 38/100 (41.38) feet to a corner;

thence in a general southerly direction by a curved line having a radius of 1951.33 feet, a distance of six hundred ninety-seven and 96/100 (697.96) feet to a concrete bound all by land of New York, New Haven and Hartford Railroad as shown on the plan hereinafter referred to;

thence North 45° 45' 20" West, ninety-nine and 91/100 (99.91) feet to a concrete bound at land of Wallace Bassett et al as shown on said plan;

thence North 04° 35' 10" East by land of Wallace Bassett et al as shown on said plan, six hundred eighty-four (684) feet, more or less, to the waters of Hinckleys Pond (a great pond) as shown on said plan;

thence northeasterly by the waters of Hinckleys Pond, two hundred thirty-three (233) feet, more or less, to the point of beginning.

Said premises are shown as Parcels A and B on a plan entitled: "Plan of Land in Pleasant Lake, Harwich, Massachusetts, for A. D. Makepeace Co. Scale 1" = 40' June 11, 1955, Kelly & Sweetser Engineers, Dennisport, Mass." and said plan is duly recorded in the Barnstable County Registry of Deeds in Plan Book 122, Page 1.

Said premises are conveyed subject to any rights or easements that lawfully exist in the "vehicular tracks" over Parcel A and Parcel B on said plan.

Property: Pleasant Lake Avenue and Headwaters Drive
Harwich, Massachusetts 02645

IN WITNESS WHEREOF, the said **MELLO-WILSON CRANBERRY CORP.,** has caused its corporate name and these presents to be signed, acknowledged, and delivered in its name and behalf by **Steven Wilson and Raymond Mello,** its **President and Treasurer,** respectively, hereto duly authorized, this 20th day of June, 1997.

MELLO-WILSON CRANBERRY CORP.,

By: _____
Steven Wilson, President

By: _____
Raymond Mello, Treasurer

COMMONWEALTH OF MASSACHUSETTS

Plymouth, SS: June 20, 1997

Then personally appeared the above-named **Steven Wilson and Raymond Mello, President and Treasurer,** as aforesaid, and acknowledged the foregoing instrument to be the free act and deed of the said **MELLO-WILSON CRANBERRY CORP.,** and also their free act and deed, before me,

_____
Robert E. Allen, Jr., Notary Public
My Commission Expires: August 11, 2000

Month/Year September 2019

PWS No. 4126000

Monthly Pumpage Report
Harwich Water Department

	T1							T2			T3		T10	T11
Date	Main 1	Main 2	Main 3	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 8	Well 9	Pump 10	Pump 11
1	172,901	173,089	125,374	302,461	194,303	247,201	379,687	347,179	366,272	347,624	364,020	369,460	416,771	382,077
2	189,432	189,748	137,360	328,206	213,049	271,339	417,141	381,152	402,248	381,732	399,843	406,710	457,517	419,206
3	137,032	137,431	99,778	234,175	151,283	190,688	301,686	276,155	291,320	276,421	289,386	292,362	351,026	303,995
4	166,656	166,962	121,105	281,751	184,118	231,473	367,724	336,092	354,606	336,394	351,957	356,884	421,179	369,885
5	143,125	143,411	103,681	245,625	158,598	200,023	313,605	271,394	286,185	271,660	305,220	307,922	325,791	298,625
6	145,815	146,251	105,868	251,131	163,901	207,281	321,055	293,798	309,691	293,967	308,038	311,928	352,787	323,506
7	100,299	100,373	72,689	171,192	110,546	138,747	219,845	201,811	212,662	202,032	211,325	212,449	242,400	222,107
8	125,093	125,600	91,275	209,524	136,448	170,154	274,830	252,379	266,035	252,887	265,082	264,489	303,203	278,180
9	151,705	152,464	110,600	256,660	168,002	210,654	334,519	305,411	321,755	305,596	315,945	318,613	368,345	337,657
10	120,581	120,652	87,742	202,584	131,746	164,759	265,224	243,103	256,388	243,443	254,779	256,916	291,879	267,400
11	159,433	159,673	116,266	266,587	174,744	218,359	351,872	321,809	339,342	322,202	337,665	342,310	386,144	354,321
12	115,657	115,786	84,070	194,902	126,571	158,279	253,996	232,777	245,404	232,960	244,360	245,756	279,539	256,394
13	124,396	124,414	90,302	213,763	137,825	173,447	272,705	248,920	262,307	249,245	262,296	264,194	299,906	274,902
14	124,432	124,747	90,181	214,165	138,135	173,888	273,166	250,280	263,899	250,414	262,927	264,467	300,411	275,525
15	132,887	133,098	96,841	222,067	144,783	180,792	291,978	268,080	282,638	268,458	281,061	281,528	321,876	295,181
16	147,604	147,914	107,312	249,560	162,418	203,606	324,944	297,261	313,389	297,478	312,540	315,155	356,763	327,161
17	126,245	127,033	91,996	211,175	137,965	172,053	278,592	255,030	268,913	255,320	267,689	269,852	306,162	280,645
18	146,382	146,730	106,688	241,227	158,311	197,418	321,249	299,000	315,401	299,288	313,991	317,284	379,114	329,209
19	123,678	123,945	89,680	211,009	136,565	171,525	271,528	248,623	262,222	248,865	261,180	263,003	298,594	273,838
20	149,498	149,747	108,176	257,267	167,048	210,927	327,867	299,892	316,366	300,420	315,121	318,137	360,028	330,399
21	140,511	140,832	101,907	241,500	156,081	196,595	308,689	282,398	297,815	282,745	296,577	299,303	339,127	310,865
22	154,267	154,771	112,348	257,542	167,976	210,117	338,806	310,784	327,504	311,118	325,923	326,978	372,885	341,773
23	160,160	160,267	116,637	258,436	177,085	212,376	352,865	309,719	326,589	310,108	324,754	329,331	371,811	340,595
24	93,404	93,543	68,403	152,526	100,743	124,719	205,913	206,886	217,491	207,544	198,481	199,057	227,313	208,354
25	134,230	134,498	97,448	228,723	148,485	186,475	294,587	248,628	261,868	248,909	282,779	286,000	375,454	322,130
26	107,788	108,187	78,192	185,752	119,941	151,140	236,961	217,365	229,078	217,574	228,107	229,342	260,952	239,029
27	119,832	119,960	86,811	204,957	132,803	167,099	262,891	234,098	246,857	234,666	252,546	254,485	288,998	265,069
28	126,746	126,949	92,444	210,155	137,544	171,735	277,962	255,601	269,382	255,846	268,662	267,773	306,779	281,318
29	123,845	124,128	90,063	208,544	135,814	170,083	272,347	249,243	262,877	249,555	261,529	263,776	299,338	274,626
30	143,984	144,014	104,344	245,247	159,091	200,340	315,921	289,031	304,779	289,433	303,356	305,933	347,004	318,163
31														
Pumps :	4,107,616	4,116,215	2,985,581	6,958,417	4,531,922	5,683,291	9,030,157	8,233,900	8,681,282	8,243,904	8,667,139	8,741,397	10,009,096	9,102,135
MIN :	93,404	93,543	68,403	152,526	100,743	124,719	205,913	201,811	212,662	202,032	198,481	199,057	227,313	208,354
MAX :	189,432	189,748	137,360	328,206	213,049	271,339	417,141	381,152	402,248	381,732	399,843	406,710	457,517	419,206
STATIONS :	37,413,198							25,159,085			17,408,536		10,009,096	9,102,135
TOTAL:	99,092,051													

Month/Year September 2020

PWS No. 4126000

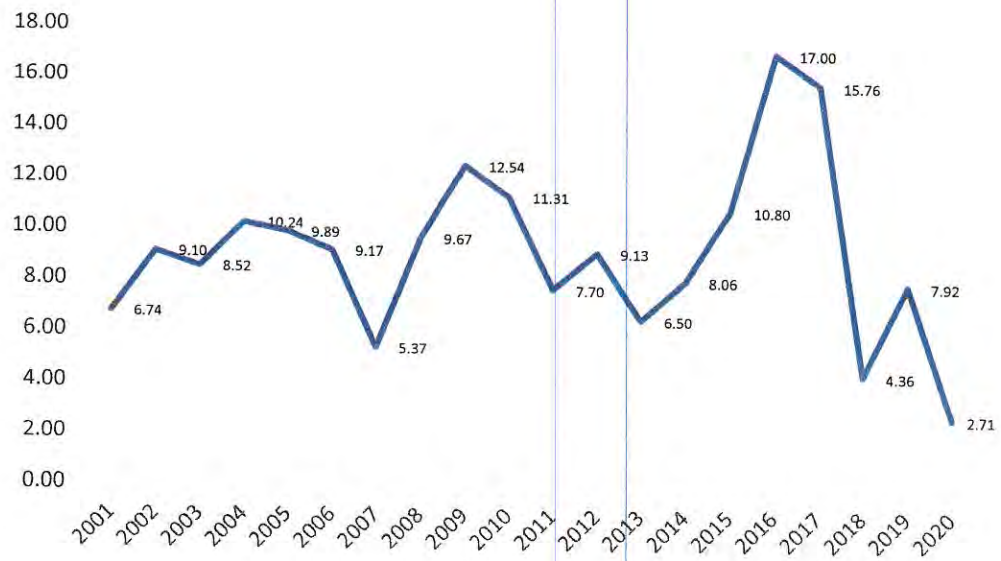
Monthly Pumpage Report
Harwich Water Department

	T1							T2			T3		T10	T11
Date	Main 1	Main 2	Main 3	Well 1	Well 2	Well 3	Well 4	Well 5	Well 6	Well 7	Well 8	Well 9	Pump 10	Pump 11
1	205,178	204,149	149,150	345,216	234,580	281,400	449,460	412,382	434,720	413,022	433,221	442,289	495,162	452,744
2	185,905	185,354	134,706	320,220	215,732	264,501	407,540	372,246	392,830	372,632	390,749	402,192	446,969	409,923
3	147,426	147,280	106,859	249,340	168,931	201,935	322,784	296,175	312,268	296,456	311,317	315,436	355,489	326,007
4	157,575	154,938	112,526	262,932	178,525	213,342	340,546	312,127	329,253	312,060	358,880	368,400	370,413	379,027
5	199,544	200,180	146,625	329,212	226,285	268,437	442,110	405,588	427,487	406,505	394,150	398,504	491,553	411,012
6	198,565	198,191	144,332	337,622	228,471	274,360	435,978	398,875	420,871	399,277	418,703	428,991	478,848	439,166
7	224,168	223,590	162,714	385,882	260,537	318,027	492,441	450,243	474,969	450,451	472,035	486,525	540,657	495,646
8	162,084	161,725	117,532	277,579	187,619	226,450	356,159	325,545	343,529	326,046	341,309	350,558	390,675	358,921
9	194,585	193,951	141,323	330,569	223,875	270,673	427,287	390,913	412,203	391,332	410,150	420,646	469,682	429,540
10	164,085	162,720	118,154	275,455	186,703	223,286	356,622	326,872	344,655	326,860	346,328	351,445	388,060	362,694
11	144,468	145,589	105,772	251,427	169,528	205,295	320,265	292,874	308,782	293,708	304,050	312,320	355,769	322,568
12	176,645	174,155	126,751	294,189	199,720	238,730	382,562	351,202	370,109	351,305	377,021	383,376	417,473	391,884
13	165,067	164,384	119,841	277,698	188,785	226,453	362,034	331,745	349,956	332,257	371,374	381,667	398,453	396,534
14	197,827	199,024	145,030	340,384	230,326	279,012	439,129	401,037	423,159	402,014	389,872	398,521	485,570	401,338
15	174,403	172,026	124,996	294,326	198,926	239,765	377,716	346,028	364,815	345,888	373,979	380,736	451,939	392,044
16	170,488	172,284	125,107	295,339	199,663	243,138	379,675	346,940	366,011	347,914	353,579	363,626	420,615	370,450
17	167,218	164,231	119,789	275,071	187,470	223,782	361,039	331,939	349,820	331,839	379,142	388,322	394,370	404,904
18	153,677	155,405	112,768	266,565	179,900	216,736	341,885	312,499	329,696	313,477	314,584	321,430	379,681	330,431
19	151,136	151,369	109,757	257,569	174,017	208,715	331,182	304,722	321,042	305,288	302,014	304,816	366,040	309,412
20	175,954	173,504	126,434	294,642	199,548	238,890	381,210	350,066	368,960	350,121	377,172	383,635	415,743	395,404
21	170,925	172,229	125,401	293,554	199,067	240,853	380,491	347,721	366,836	348,432	354,634	365,185	421,616	372,402
22	157,982	154,729	113,484	256,609	175,956	208,985	342,335	314,490	331,559	314,473	355,411	361,284	373,653	393,394
23	179,882	181,420	132,012	311,171	210,188	253,923	400,005	365,473	385,426	366,465	357,966	368,315	459,850	375,422
24	164,535	164,043	119,647	278,699	188,973	226,308	360,542	331,396	349,358	331,874	356,664	364,103	397,864	397,142
25	194,156	193,212	140,856	331,714	224,287	271,463	426,095	365,797	385,379	366,158	401,378	409,084	468,206	413,130
26	174,437	173,033	127,016	288,377	197,579	235,469	383,321	351,770	370,735	352,237	369,249	375,404	422,703	387,518
27	172,401	170,864	125,506	285,958	195,663	233,217	378,390	346,780	365,667	347,257	380,800	389,627	416,337	406,799
28	161,825	161,167	117,736	275,605	186,666	224,837	355,593	325,766	343,355	326,137	325,222	330,107	391,091	333,346
29	113,405	112,849	82,618	189,835	128,993	153,826	247,548	228,886	241,019	229,358	240,270	242,672	274,821	251,909
30	125,340	124,532	91,070	209,052	142,430	169,388	274,166	253,123	266,523	253,407	265,477	269,023	304,107	278,564
31														
Pumps :	5,130,886	5,112,126	3,725,513	8,681,808	5,888,945	7,081,195	11,256,111	10,291,220	10,850,991	10,304,249	10,826,700	11,058,239	12,443,409	11,389,275
MIN :	113,405	112,849	82,618	189,835	128,993	153,826	247,548	228,886	241,019	229,358	240,270	242,672	274,821	251,909
MAX :	224,168	223,590	162,714	385,882	260,537	318,027	492,441	450,243	474,969	450,451	472,035	486,525	540,657	495,646
STATIONS :	46,876,584							31,446,460			21,884,939		12,443,409	11,389,275
TOTAL:	124,040,667													

Rainfall in Inches - July, August & September

FY21 Q1

Month	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
July	3.15	0.64	1.24	2.28	2.67	7.12	2.29	3.33	6.28	2.02	3.15	2.72	3.49	3.46	2.30	5.40	1.75	0.75	2.65	0.47
August	3.07	3.05	4.83	5.25	1.81	1.75	1.14	1.52	4.13	4.72	2.84	1.94	1.45	3.34	3.80	7.60	7.33	1.14	1.47	1.23
September	0.52	5.41	2.45	2.71	5.41	0.30	1.94	4.82	2.13	4.57	1.71	4.47	1.56	1.26	4.70	4.00	6.68	2.47	3.80	1.50
	6.74	**9.10**	**8.52**	**10.24**	**9.89**	**9.17**	**5.37**	**9.67**	**12.54**	**11.31**	**7.70**	**9.13**	**6.50**	**8.06**	**10.80**	**17.00**	**15.76**	**4.36**	**7.92**	**2.71**

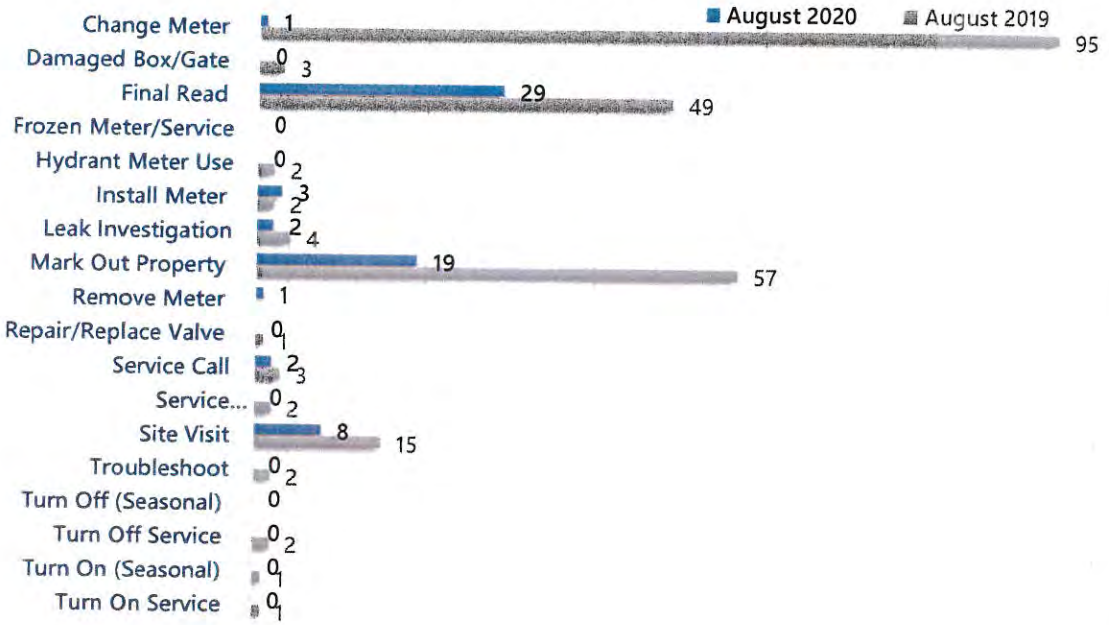


Town of Harwich

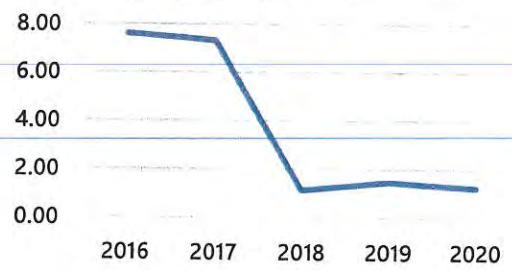
Water Department
MONTHLY ACTIVITY REPORT FOR AUGUST 2020

Dan Pelletier
Superintendent

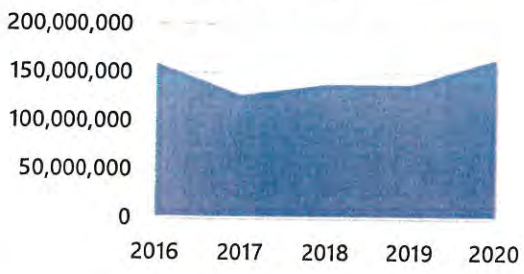
Service Activity



Rainfall in Inches



Pumpage in Gallons



Monthly Pumping Change	YTD Pumping Change
0.02%	24.26%

Calendar Activity

Crossover Project HWD
BOWC change to BOWWC
BOWWC Chair Mtgs; 8/3, 8/17, 8/26
WW Mtgs-Weekly; 8/4
P.Lake Tank Mtg w/Biszko 8/5
Cold Brook Mtg 8/5
DHY Mtg 8/6
GHD Modeling Review 8/7
DP/CSL Renewal Class 8/13-8/14
Mtg w/JP & BOWWC Chair 8/11
WW/P2C1 Progress Mtg 8/11
WW/P2C2 Progress Mtg 8/11
BOWWC Mtgs 8/12, 8/28
Seasonal Workers last week; 8/17-8/21
N&M Excavating Mtg 8/20
HWD Meters Mtg 8/20
John Chorey Mtg 8/24
P.Lake Tank Mtg w/GHD 8/25
WW/P2C1 Pavement Adj/Mtg 8/25
WW GHD Mtg 8/26
Pleasant Bay Alliance Mtg 8/27
TCM SE End User Training 8/28

Water Samples Taken
72