Enter your transmittal number → X231415 (Transmittal Number)

Your unique Transmittal Number can be accessed online: http://mass.gov/dep/service/online/trasmfrm.shtml or call MassDEP's InfoLine at 617-338-2255 or 800-462-0444 (from 508, 781, and 978 area codes).

Massachusetts Department of Environmental Protection

Transmittal Form for Permit Application and Payment

1. Please type or print. A separate Transmittal Form must be completed for each permit application.

2. Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: DEP, P.O. Box 4062, Boston, MA 02211.

3. Three copies of this form will be needed.

Copy 1 - the original must accompany your permit application. **Copy 2** must accompany your fee payment. **Copy 3** should be retained for your records

4. Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

MassDEP
P.O. Box 4062
Boston, MA
02211

*** Note:** For BWSC Permits, enter the LSP.

A. Permit Information

1. Permit Code: 7 or 8 character code from permit instructions	2. Name of Permit Category
MAG640000	NPDES General Permit

3. Type of Project or Activity: Discharge Wastewater Potable Water Treatment

B. Applicant Information – Firm or Individual

1. Name of Firm - Or, if party needing this approval is an individual enter name below: City of Fitchburg

2. **Last Name** of Individual	3. **First Name** of Individual	4. MI
Meunier	Denis	R.

5. Street Address: 718 Main St

6. City/Town	7. State	8. Zip Code	9. Telephone #	10. Ext. #
Fitchburg	MA	01420	978-345-4614	7

11. Contact Person: Denis Meunier

12. e-mail address (optional): dmeunier@ci.fitchburg.ma.us

C. Facility, Site or Individual Requiring Approval

1. Name of Facility, Site Or Individual: Falulah Water Treatment Facility

2. Street Address: 1200 Rindge Rd

3. City/Town	4. State	5. Zip Code	6. Telephone #	7. Ext. #
Fitchburg	MA	01420	978-345-9616	7

8. DEP Facility Number (if Known)	9. Federal I.D. Number (if Known)	10. BWSC Tracking # (if Known)

D. Application Prepared by (if different from Section B)*

1. Name of Firm Or Individual

2. Address

3. City/Town	4. State	5. Zip Code	6. Telephone #	7. Ext. #

8. Contact Person	9. LSP Number (BWSC Permits only)

E. Permit - Project Coordination

1. Is this project subject to MEPA review? ☐ yes ☒ no
   If yes, enter the project's EOEA file number - assigned when an Environmental Notification Form is submitted to the MEPA unit:

EOEA File Number

F. Amount Due

DEP Use Only

Permit No:

Rec'd Date:

Reviewer:

Special Provisions:

1. ☒ **Fee** Exempt (city, town or municipal housing authority)(state agency if fee is $100 or less). *There are no fee exemptions for BWSC permits, regardless of applicant status.*
2. ☐ Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).
3. ☐ Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).
4. ☐ Homeowner (according to 310 CMR 4.02).

Check Number	Dollar Amount	Date

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
ONE CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

Request for General Permit Authorization to Discharge Wastewater (Notice of Intent to be covered by the General Permit (NOI))

Potable Water Treatment Facility (PWTF) NPDES General Permit No. MAG640000 and NHG640000

A. Facility Information

1. Facility Owner:
   Name City of Fitchburg e-mail dmeunier@ci.fitchburg.ma.us
   Street/PO Box 1200 Rindge Rd. City Fitchburg
   State MA Zip Code 01420
   Contact Person Denis Meunier Telephone Number 978 345 9616

2. Facility Operator (if different from above):
   Name _____ e-mail (optional) _____
   Street/PO Box _____ City _____
   State _____ Zip Code _____
   Contact Person _____ Telephone Number _____

3. Facility Data (attach topographic map or other map showing facility and discharge location(s)):
   Name Falulah Water Filtration Facility e-mail (optional) _____
   Street/PO Box 1200 Rindge Rd. City Fitchburg
   State MA Zip Code 01420
   Contact Person Denis Meunier Telephone Number 978 345 9616
   Facility Latitude 42 37' 00" Facility Longitude 71 49' 00"

4. Standard Industrial Classification (SIC Codes) and Descriptions of Processes:
   SIC Code(s) _____
   Description(s) Potable Water Treatment Facility

5. Current Permitting Status (please check yes or no):
   1. Has a prior NPDES permit been granted for the discharge? Yes ✓ (Permit Number: MAG640044) No ____
   2. Is the discharge a "new discharge" as defined by 40 CFR Section 122.22? Yes ____ No ✓
   3. Is the facility covered by an individual NPDES permit? Yes ____ (Permit Number _____) No ✓
   4. Is there a pending application on file with EPA for this discharge? Yes ____(Date of submittal: _____) No ✓

B. Discharge Information

1. Name of Receiving Waterbody Falulah Brook

2. Type of Receiving Waterbody (e.g. stream, lake, reservoir, estuary etc) stream

3. State Water Quality Classification: Class B Freshwater: X Marine Water: _____

4. Describe the discharge activities for which the owner/applicant is seeking coverage, including process discharges not specifically authorized in the PWTF GP which need to be authorized for discharge (and which attain the

effluent limits and other conditions of the general permit). This description should include all treatment methods used on the wastewater prior to discharge including lagoons, baffles, filter presses etc. If lagoons are used at the facility, please include the number and size of lagoons; the size and elevation of the entry pipe; the time of travel from the entry point of the discharge into the lagoon to the entry point to the receiving water; and the length of backwash cycle for any combination of number of filters. (attach extra sheets if necessary):

Residual flow generated by clarifier rinses and filter backwash is discharged initially to an equalization basin before being pumped to a solids settling tank. Residuals from the settling tank are discharged to the City sewer on an intermittent basis. Supernatant from the settling tank that cannot be discharged to the sewer on occasion may be discharged to the storm water detention pond via a sediment forebay and through the detention pond. Please see the attached drawings and description on the residuals handling process.

5. Please provide a diagram depicting the treatment methods, outfalls, and receiving water.

6. Number of outfalls: 1 Latitude and Longitude for each outfall (attach additional pages if necessary)
   OUTFALL # Latitude 42 36' 49.52" Longitude 71 49' 01.37"
   OUTFALL # Latitude _____ Longitude _____

For each outfall:

7. What is the proposed sampling location(s) and proposed consistent times of the month for collecting samples:
Samples shall be collected at the discharge of the residuals basin on Wednesday of any week that discharge from the outfall occurs.

C. Effluent Characteristics

1. List here and attach information on any water additives used at the facility (Including chemicals for pH adjustment, dechlorination, control of biological growth, and control of corrosion and scale in water pipes): Poly-aluminum chloride, Sodium Bicarbonate, Sodium Hydroxide, Chlorine, Soda Ash

2. Please report here any known remediation activities or water-quality issues in the vicinity of the discharge.

3. Are aluminum-containing coagulants used at this facility? Yes ✓ No ____

4. Does the discharge contain residual chlorine? Yes ✓ No ____

5. Does the facility provide treatment to remove arsenic from the raw water source? Yes ____ No ✓

6. Are phosphorus-containing chemicals added to the treated water at this facility? Yes ____ No ✓

7. All applicants must attach a separate sheet listing all laboratory results (minimum of five) for total recoverable aluminum (in micrograms per liter) taken within the last six months. Do not include dilution when recording your results. See Section 4.4.5 of General Permit for more information.

8. Please include the following effluent data for each outfall:

Characteristic (report if measured)	Average Monthly	Maximum Daily
Discharge Flow (gpd)	124,667	181,000
TSS (mg/l)	5.6	16
pH (s.u.)	(min) 6.62	(max) 7.35
Total Recoverable Aluminum (ug/l)	229	356
Total Residual Chlorine (ug/l)	.029	.15

(continued on next page)

8. Continued

Characteristic (report if measured)

Whole Effluent Toxicity (%) LC50 NA and/or C-NOEC NA

9. If the discharge contains aluminum and/or residual chlorine, please provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water, the dilution factor, and attach any calculations used to support stream flow and dilution calculations (See Appendix VII for dilution calculations and additional information):

7Q10 0.1315 cfs Dilution Factor _____ cfs

D. Endangered Species Act Eligibility

1. Using the instructions in Appendix I of the PWTF GP, under which criterion listed in Part II are you eligible for coverage under this general permit?

A ✓ B ____ C ____ D ____ E ____ F ____

2. If you selected criteria D or F, has consultation with the federal services been completed? Yes____ No____

3. If consultation with U.S. Fish and Wildlife Service and/or NOAA Fisheries Service was completed, was a written concurrence finding that the discharge is "not likely to adversely affect" listed species or critical habitat received? Yes____ No ✓

4. Attach documentation of ESA eligibility as described below and required at Part 3.4.1 and Appendix I, Part III, Step 4, of the General Permit.

Criterion A - *No federally-listed threatened or endangered species or federally-designated critical habitat are present*: A copy of the most current county species list pages for the county(ies) where your site or facility and discharges are located. You must also include a statement on how you determined that no listed species or critical habitat are in proximity to your site or facility or discharge locations.

Criterion B – *Section 7 consultation completed with the Service(s) on a prior project*: A copy of the USFWS's and/or NMFS's, as appropriate, biological opinion or concurrence on a finding of "unlikely to adversely effect" regarding the ESA Section 7 consultation.

Criterion C – *Activities are covered by a Section 10 Permit*: A copy of the USFWS's and/or the NMFS's, as appropriate, letter transmitting the ESA Section 10 authorization.

Criterion D - *Concurrence from the Service(s) that the discharge is "not likely to adversely affect" federally-listed species or federally-designated critical habitat (not including the four species of concern identified in Section I of Appendix I):* A copy of the USFWS's and/or the NMFS's, as appropriate, letter or memorandum concluding that the discharge is consistent with the general permit's "not likely to adversely affect" determination.

Criterion E – *Activities are covered by certification of eligibility*: A copy of the documents originally used by the other operator of your site or facility (or area including your site) to satisfy the documentation requirement of Criteria A, B, C or D.

Criterion F - *Concurrence from the Service(s) that the discharge is "not likely to adversely affect" species of concern, as identified in Section I of Appendix I:* A copy of the USFWS and/or the NMFS, as appropriate, concurrence with the applicant's determination that the discharge is "not likely to adversely affect" listed species.

E. National Historic Properties Act Eligibility

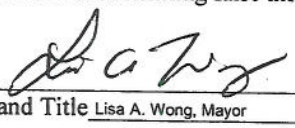
1. Using the instructions in Appendix III of the PWTF GP, under which criterion listed in Part III are you eligible for coverage under this general permit?

   1 ✓ 2 ___ 3 ___

2. Have any State or Tribal historic preservation officers been consulted in this determination? Yes___ No ✓
   If yes, attach the results of the consultation(s).

F. Certification

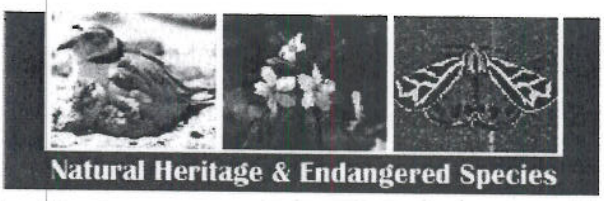
I certify that the discharge for which I am seeking coverage under the general permit consists solely of a surface water discharge from a potable water treatment facility. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature  Date 12/30/09

Printed Name and Title Lisa A. Wong, Mayor

Federal regulations require this application to be signed as follows:
1. For a corporation, by a principal executive officer of at least the level of vice president;
2. For partnership or sole proprietorship, by a general partner or the proprietor, respectively, or,
3. For a municipality, State, Federal or other public facility, by either a principal executive officer or ranking elected official.

Note: Permits No. MAG640000 and NHG640000 may be found at www.epa.gov/region1/npdes/pwtfgp.html



Heritage Home

Rare Species by Town

MESA (Massachusetts Endangered Species Act) and Federal Status

Quick Links

» Town Index
» MESA List
» Contact Us

E = Endangered T = Threatened SC = Special Concern

Most Recent Observation

This field represents the most recent observation of that species in a town. However, because they are rare, many MESA-listed species are difficult to detect even when they are present. Natural Heritage does not have the resources to be able to conduct methodical species surveys in each town on a regular basis. Therefore, the fact that the 'Most Recent Observation' recorded for a species may be several years old should not be interpreted as meaning that the species no longer occurs in a town. However, Natural Heritage regards records older than twenty-five years historic.

Click on a town below to view MESA-listed species for that town. To print the species for a particular town, highlight the species using your mouse, go to Print under the File Menu, click on 'Selection' under 'Print Range' and click OK.

For more information about a particular species, view the list of Natural Heritage Fact Sheets.

These data were extracted from the database of the Natural Heritage and Endangered Species Program in September 2009.

Fairhaven | Fall River | Falmouth | Fitchburg | Florida | Foxborough | Framingham | Franklin | Freetown

Town	Taxonomic Group	Scientific Name	Common Name	MESA Status	Federal Status	Most Recent Observation
FAIRHAVEN	Bird	Botaurus lentiginosus	American Bittern	E		1993
FAIRHAVEN	Bird	Charadrius melodus	Piping Plover	T	T	2006
FAIRHAVEN	Bird	Sterna dougallii	Roseate Tern	E	E	2008
FAIRHAVEN	Bird	Sterna hirundo	Common Tern	SC		2008
FAIRHAVEN	Bird	Sternula antillarum	Least Tern	SC		2007
FAIRHAVEN	Reptile	Malaclemys terrapin	Diamond-backed Terrapin	T		1988
FAIRHAVEN	Reptile	Terrapene carolina	Eastern Box Turtle	SC		2005
FAIRHAVEN	Vascular Plant	Dichanthelium dichotomum ssp. mattamuskeetense	Mattamuskeet Panic-grass	E		1990
FAIRHAVEN	Vascular Plant	Polygonum glaucum	Sea-beach Knotweed	SC		2004

FALMOUTH	Vascular Plant	Lipocarpha micrantha	Dwarf Bulrush	T	1990
FALMOUTH	Vascular Plant	Malaxis bayardii	Bayard's Green Adder's-mouth	E	1911
FALMOUTH	Vascular Plant	Myriophyllum pinnatum	Pinnate Water-milfoil	SC	1919
FALMOUTH	Vascular Plant	Ophioglossum pusillum	Adder's-tongue Fern	T	1971
FALMOUTH	Vascular Plant	Opuntia humifusa	Prickly Pear	E	2007
FALMOUTH	Vascular Plant	Polygonum glaucum	Sea-beach Knotweed	SC	1901
FALMOUTH	Vascular Plant	Polygonum puritanorum	Pondshore Knotweed	SC	1997
FALMOUTH	Vascular Plant	Rhynchospora nitens	Short-beaked Bald-sedge	T	2002
FALMOUTH	Vascular Plant	Rhynchospora scirpoides	Long-beaked Bald-sedge	SC	1995
FALMOUTH	Vascular Plant	Sabatia kennedyana	Plymouth Gentian	SC	2008
FALMOUTH	Vascular Plant	Sagittaria teres	Terete Arrowhead	SC	2002
FALMOUTH	Vascular Plant	Scleria pauciflora	Papillose Nut Sedge	E	2005
FALMOUTH	Vascular Plant	Setaria parviflora	Bristly Foxtail	SC	1990
FALMOUTH	Vascular Plant	Utricularia resupinata	Resupinate Bladderwort	T	2002

Town	Taxonomic Group	Scientific Name	Common Name	MESA Status	Federal Status	Most Recent Observation
FITCHBURG	Reptile	Emydoidea blandingii	Blanding's Turtle	T		2007
FITCHBURG	Vascular Plant	Adlumia fungosa	Climbing Fumitory	SC		1879

Town	Taxonomic Group	Scientific Name	Common Name	MESA Status	Federal Status	Most Recent Observation
FLORIDA	Beetle	Cicindela duodecimguttata	Twelve-spotted Tiger Beetle	SC		1916
FLORIDA	Bird	Accipiter striatus	Sharp-shinned Hawk	SC		1990
FLORIDA	Bird	Haliaeetus leucocephalus	Bald Eagle	E		Historic
FLORIDA	Bird	Oporornis philadelphia	Mourning Warbler	SC		1990
FLORIDA	Butterfly/Moth	Erora laeta	Early Hairstreak	T		1988
FLORIDA	Butterfly/Moth	Rhodoecia aurantiago	Orange Sallow Moth	T		1987
FLORIDA	Dragonfly/Damselfly	Somatochlora elongata	Ski-tipped Emerald	SC		2005
FLORIDA	Fish	Catostomus catostomus	Longnose Sucker	SC		1984
FLORIDA	Reptile	Glyptemys insculpta	Wood Turtle	SC		Historic
FLORIDA	Vascular Plant	Alnus viridis ssp. crispa	Mountain Alder	T		2006

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MASSACHUSETTS

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Barnstable	Piping Plover	Threatened	Coastal Beaches	All Towns
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Chatham
	Sandplain gerardia	Endangered	Open areas with sandy soils.	Sandwich and Falmouth.
	Northern Red-bellied cooter	Endangered	Inland Ponds and Rivers	Bourne (north of the Cape Cod Canal)
Berkshire	Bog Turtle	Threatened	Wetlands	Egremont and Sheffield
Bristol	Piping Plover	Threatened	Coastal Beaches	Fairhaven, Dartmouth, Westport
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Fairhaven, New Bedford, Dartmouth, Westport
	Northern Red-bellied cooter	Endangered	Inland Ponds and Rivers	Raynham and Taunton
Dukes	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	All Towns
	Piping Plover	Threatened	Coastal Beaches	All Towns
	Northeastern beach tiger beetle	Threatened	Coastal Beaches	Aquinnah and Chilmark
	Sandplain gerardia	Endangered	Open areas with sandy soils.	West Tisbury
Essex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Gloucester, Essex and Manchester
	Piping Plover	Threatened	Coastal Beaches	Glocester, Essex, Ipswich, Rowley, Revere, Newbury, Newburyport and Salisbury
Franklin	Northeastern bulrush	Endangered	Wetlands	Montague
	Dwarf wedgemussel	Endangered	Mill River	Whately
Hampshire	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Hadley
	Puritan tiger beetle	Threatened	Sandy beaches along the Connecticut River	Northampton and Hadley
	Dwarf wedgemussel	Endangered	Rivers and Streams.	Hadley, Hatfield, Amherst and Northampton
Hampden	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Southwick
Middlesex	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Groton
Nantucket	Piping Plover	Threatened	Coastal Beaches	Nantucket
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Nantucket
	American burying beetle	Endangered	Upland grassy meadows	Nantucket
Plymouth	Piping Plover	Threatened	Coastal Beaches	Scituate, Marshfield, Duxbury, Plymouth, Wareham and Mattapoisett
	Northern Red-bellied cooter	Endangered	Inland Ponds and Rivers	Kingston, Middleborough, Carver, Plymouth, Bourne, and Wareham
	Roseate Tern	Endangered	Coastal beaches and the Atlantic Ocean	Plymouth, Marion, Wareham, and Mattapoisett.
Suffolk	Piping Plover	Threatened	Coastal Beaches	Winthrop
Worcester	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Leominster

-Eastern cougar and gray wolf are considered extirpated in Massachusetts.
-Endangered gray wolves are not known to be present in Massachusetts, but dispersing individuals from source populations in Canada may occur statewide.
-Critical habitat for the Northern Red-bellied cooter is present in Plymouth County.

7/31/2008

D. Endangered Species Act Eligibility

4. Criterion A. No federally listed threatened or endangered species or federally-designated critical habitat is present: We believe that this facility is eligible for coverage under the general permit per this criterion. Attached is the most recent listing of threatened and endangered species in Massachusetts listed by Town. Blanding's Turtle is the only species listed for Fitchburg. As part of an environmental review of City owned watershed land completed in 2009 by MA Division of Fish and Wildlife in conjunction with a sale of a conservation restriction, on the subject property and discharge location no endangered species habitat were identified in the area affected by the proposed outfall.

FALULAH WATER FILTRATION FACILITY
1200 RINDGE ROAD
FITCHBURG, MA

NPDES PERMIT # MAG640044

TOTAL RECOVERABLE ALUMINUM

DATE		RESULTS ug/l
Sep-09		no discharge
Aug-09		324
Jul-09		356
Jun-09		260
May-09		121
Apr-09		310
Mar-09		330
Feb-09		330
Jan-09		8

point for fluoridation and disinfection. The common 18-inch diameter filter effluent/ clearwell influent pipe divides within the clearwell to two separate 18-inch diameter valved pipes, which convey water to the beginning of the two clearwells. Refer to Figure 2 – 19.

Sodium hydroxide, for pH adjustment, is not typically injected at this location, because disinfection is more effective at lower pH values.

2.5 SLUDGE HANDLING AND DISPOSAL OPERATIONS

2.5.1 General

When either a clarifier rinse cycle or a filter backwash cycle occur, the entire residuals flow (alum sludge), including residuals flow from the filter-to-waste sequence is initially sent to the equalization basins. Periodically the equalization basin pumps transfer residuals to the settling basins for solids settling and supernatant overflow. The supernatant overflows into the recycle pumping wet well, where recycle pumps transfer this water back to the raw water pipeline. The settled sludge is transferred by gravity to the sludge blowdown wet well, where it flows by gravity to the residuals pumping station wet well. Using the residuals pumping station the operator can dispose of the residuals three different ways. Option #1 – residuals are pumped directly to the City's sewer system. Option #2 – residuals are pumped to the residuals lagoon for temporary storage and later pumped to the City's sewer system. Option #3 – residuals are pumped to the sludge holding basin for temporary storage and later pumped to the City's sewer system. The operator will utilize Option #1 when the flow in the City's sewer system is normal and low. The operator will utilize either Option #2 or #3 when the flow in the City's sewer system is experiencing high infiltration/inflow and temporary storage is required until normal flow conditions return.

NOTE: The residuals discharge system was designed to receive water treatment residuals from normal operating process flow only. Do not divert any other flow through this discharge piping system.

2.5.2 Operation of the Residuals Handling and Disposal

Normally the settling basin settled sludge flows by gravity to the residuals pumping station, which discharges the residuals sludge directly to the 8-inch gravity sewer during low flow periods. During periods of high infiltration/inflow in the City's gravity sewer system, the sludge is pumped to either the residuals lagoon or the sludge holding basin for temporary storage. When the high sewer flows subside, the operator utilizes the residuals pumping station to re-pump the residuals sludge to the 8-inch gravity sewer, which discharges to Fitchburg's East Wastewater Treatment Facility (WWTF). The operational details of the three options summarized above are explained in detail as follows:

Option #1. (No I/I Problems)

Residuals from the settling basins flow by gravity through 3-inch blowdown pipes to the attached blowdown wet wells. The blowdown pipe plug valves in the blowdown wet wells are normally left open, unless maintenance is being performed on the basins. The settled sludge exits the blowdown wet well and flows by gravity through an 8- inch sludge pipeline, which discharges into the residuals pumping station wet well. The residuals pumping station wet well contains two, 3 horsepower, 75 gpm, submersible pumps that operate automatically on a lead/lag sequence based on the wet well sludge level.

The two submersible pump discharges are manifolded together forming one 3-inch force main that exits the pump station and flows below ground South of the WFF. The sludge discharge is measured by a magnetic flow meter (FE-605F) in the flow meter vault located on the 3-inch force main. The 3-inch force main discharges into sewer Manhole #10 where the sludge enters an 8-inch gravity sewer and flows to the WWTF.

Option #2. (Yes - I/I Problems)

The residual system between the settling basin and the residuals pumping station operate in the same way as Option #1. The residuals pumping station and the inlet and outlet also operate in the same way as Option #1. However, the pump station outlet pipelines and associated gate valves are reset to direct the discharge to the same 3-inch force main up to the 3-inch cross tee, where the flow direction reverses and the sludge discharges into the residuals lagoon for temporary storage. Refer to Figure 2 – 20.

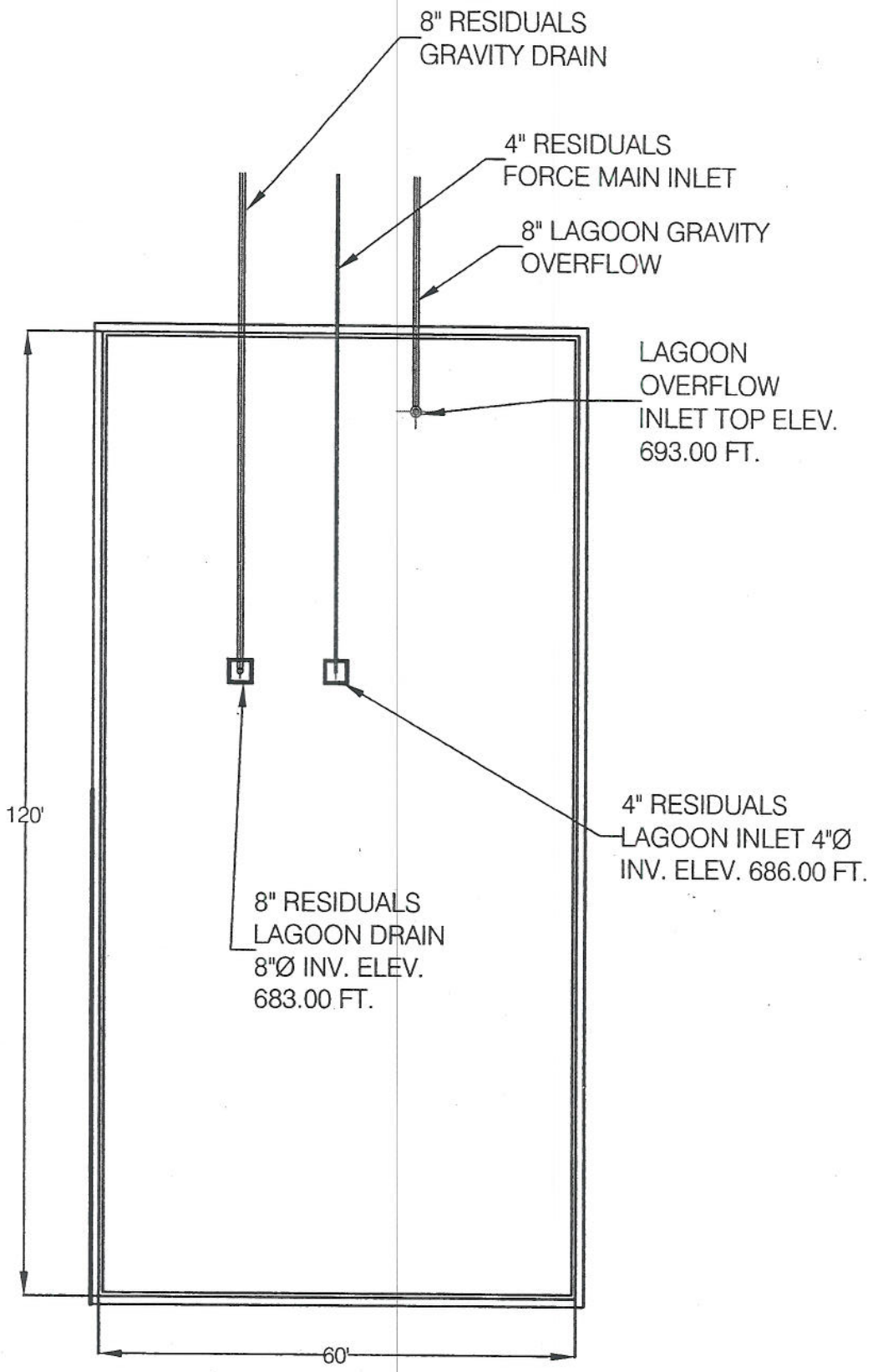


FIGURE NO. 2-20
RESIDUALS LAGOON PLAN
FALULAH WATER TREATMENT FILTRATION FACILITY

When the City's high sewer flows subside, the Pump Station's associated gate valves are reset by the operator to allow the sludge in the Lagoon to flow by gravity back into the residuals pump station wet well. The submersible pumps then transfer the sludge through the 3-inch residuals force main, into Manhole #10, and into the 8-inch gravity sewer.

Option #3. (Yes – I/I Problems)

The residual system between the settling basin and the residuals pumping station operate in the same way as Option #1. The residuals pumping station and the inlet and outlet also operate in the same way as Option #1. However, the pump station outlet pipelines and associated gate valves are reset to direct the discharge to the same 3-inch force main up to the 3-inch cross tee, where the flow is directed back to the sludge holding basins in the lower level of the WFF for temporary storage.

When the City's high sewer flows subside, the pump station's associated gate valves are reset by the operator to allow the sludge in the sludge holding basin to flow by gravity back into the pump station wet well. The submersible pumps then transfer the sludge through the 3-inch residuals force main, into Manhole #10, and into the 8-inch gravity sewer.

The major components of the residuals system include the associated piping, valves, and structures; the two equalization basins and pumps; two settling basins with supernatant overflow weirs and settled sludge withdrawal system; two recycle pumps and wet well; two sludge transfer pumps and wet well; residuals lagoon and associated Parshall Flume (FE-510); settled sludge holding basin and associated blowdown wet wells; and three-inch force main and associated magnetic flow meter.

As stated above, the lagoon influent includes process residuals from the clarifier rinse, filter backwash, and filter to waste operations. All of these flows are intermittent and usually automatically initiated by the clarifier/filter unit instrumentation and control system. The flow rates vary depending on the their point of origin.

After each use and annually, the operator should schedule a cleaning of the lagoon. This should be scheduled during a period of expected low flow in the City's sewer system. The cleaning must be completed after taking the lagoon out of service. The cleaning operation involves the following steps:

1. If necessary, manually activate the residuals pumping station and pump out any remaining sludge in the lagoon to the City sewer system.

2. Connect a fire hose with nozzle to the nearest hydrant, rinse down any remaining sludge from the sides and bottom of the lagoon, and completely pump out all wastewater generated from this cleaning.

3. To make sure the gravity pipeline from the lagoon drain to the pump station wet well is clear of sludge, provide a continuous rinse into the drain fitting for at least 5 minutes while running the submersible pumps.

4. At this point, the lagoon has been cleaned. Reconfigure the residuals pumping station inlet and outlet valves to the desired settings for continued operation.

2.5.3 NPDES Discharge Permit Requirements

A National Pollutant Discharge Elimination System (NPDES) Permit (Refer to Appendix E) has been issued for the Falulah WFF for discharging clarification/filtration rinse, waste and backwash water overflow from the lagoons to the surface water discharge, during an emergency. Under the terms of the permit, the operational staff will be required to measure and record the flow and collect and analyze samples from the lagoon overflow line whenever it is utilized. The permit lists the effluent characteristics, which must be monitored.

2.6 CLEARWELL AND FINISHED WATER FLOW

2.6.1 General

The filter effluent water leaves the pipe gallery in an 18-inch combined filtered water pipeline. After passing through an inverted pipe trap, the 18-inch line drops to the bottom of Clearwell No. 1 and splits into two 18-inch Clearwell No. 1 and 2 influent lines that discharge vertically through a bell mouth end pieces. The two clearwells were sized to provide sufficient finished water for two complete filter backwashes. Thus, the total combined capacity of the clearwell is about 92,000 gallons at a water depth of 10.0 feet. See Figure 2-21 and 2-22. The combined filtered water flows the length of the clearwells and the finished water enters the two 16-inch vertical bell mouth end effluent pipelines.