

PUMPING STATION DESIGN (Page 1 of 2)

Town: Old Lyme
Project Name: Shared Sewer Infrastructure Improvements

Storage volume from high water level in wetwell to overflow, low manhole, basement: 11,000 gallons

TYPE OF STATION: Built in place
x__Prefabricated/sections

Storage time from high water level in wetwell to overflow, low manhole, basement: 73 mins @ avg flow

LOCATION

FEMA designated flood zone: Yes or No (circle one)

STATION APPURTENANCES

Odor control system: X

If yes, does the design comply with current DEEP's Storm Resiliency Memorandum for Municipal Wastewater Infrastructure? Yes or No (circle one)

Type of Odor control system: Carbon Scrubber and compressed air

Ventilation: Passive

Heaters: Electric Unit Heaters

Dehumidifier: Y

Sump pump: N

Please explain if No:

Access: Stairs to building, hatches to subsurface structures

DESIGN PARAMETERS

Average design flow (gallons per day): 215,000 GPD

Water supply: None

Maximum Day flow (gallons per day): 430,000 GPD

Flow metering: Magmeter

Peak hourly flow (gallons per minute): 747 GPM

Valves: Air cushioned swing check, plug and surge relief

H₂S monitoring equipment: N

SEWAGE PUMPS

Submersible: X

X Gate valves on suction and discharge of each pump

Dry pit: NA

X Check valves on discharge of each pump

Other: NA

Pump Station _____

Number of pumps: 2

Superstructure material: Concrete w/composite fascia

Capacity: 760 GPM

Underground material: concrete

Total Dynamic Head: 190 feet

MOTORS

Type: X Centrifugal

Number: 2

_____ Non-clog

Horsepower: 70

_____ Vertical

Type: 3 phase / 4 pole /460V

_____ Positive Displacement

Nominal pump discharge diameter: 6-inch

DRIVES

Size of solids able to pass pump: 3-inch

Constant speed: _____

Type of seal: Tungsten Carbide

Variable speed: _____

Seal water source: NA

Variable frequency: X

Seal water controls: NA

STANDBY ARRANGEMENTS

On-site generator: X

CONTROLS

Number: One

Electrical connection for portable generator use: _____

Type: PLC

Bypass piping for portable pump use: X

Features:

Overflows are not allowed

X Auto/manual alternation of lead pump

_____ Auto start of second pump if water level in wetwell continues rising

ALARMS

Signifying:

X Backup high high wetwell level float

X Low water level in wetwell

_____ Backup low low wetwell level float

X High water level in wetwell

X Loss of power

X Loss of air pressure or level device

_____ Auxiliary generator fault

Other alarms: High-high water level in wet well

WETWELL DESIGN

Length: NA

Width: NA

Diameter: 10 ft.

Depth: 28.75 ft.

From surface to bottom: 26.75 ft.

From high wetwell water level to overflow: 18.75 ft.

Working depth: 10.5 ft.
Working volume: 2,348 gallons
Detention time at average flow: 15.72 minutes
Hopper slope (V:H): NA
Segregated wetwell: No
Access: Watertight lockable hatch
Ventilator: Passive vent
Screens: None

FORCE MAIN DESIGN

Method of installation (if applicable): open cut
Materials: C900 PVC
Length: 16,045 ft.
Diameter: 10-inch
Flow (gpm): 747
Velocity (fps): 3.2 ft./sec.
Velocity head (ft): _____
Friction loss: 72.5 ft.
Other losses: _____
Static head: 120.5 ft.
Total head: 193 ft.
Required hp at 70% efficiency: _____
Force main is designed with adequate number of clean outs and/or air release valves: yes or no

Comments (use the space below for additional comments):
Force main designed to convey Soundview and Hawk's Nest Associations. Average and Peak Hourly Flows include flows from Soundview and Hawk's Nest Associations. Superstructure equipped with breakaway walls below elevation 16.0 and critical equipment is located above elevation 16.5 for flood resiliency