

CLA Engineers, Inc.

Civil • Structural • Survey

317 MAIN STREET

NORWICH, CT 06360

(860) 886-1966

(860) 886-9165 FAX

Sewer and Water Report

General Dynamics – Electric Boat

Crystal Mall Adaptive Reuse

850 Hartford Turnpike (CT Route 85)

CLA-8185

January 26, 2026

The proposed project is the adaptive reuse of the former Crystal Mall (Mall) complex located at 850 Hartford Turnpike (Route 85), Waterford, Connecticut for use by the General Dynamics Electric Boat Corporation. A location map and existing condition mapping is included on the Site Improvement Plans (Plans).

The Electric Boat adaptive reuse of the property will redevelop the existing Mall building to contain a mixture of office, research and development, and workforce development facilities with an anticipated final occupancy of 4,500 employees. The existing restaurant pad sites (currently Olive Garden and Longhorn Steakhouse) located along the Hartford Turnpike (CT Route 85) frontage will remain.

The facility is currently served by municipal sewer and water service. The following analysis will document that the current infrastructure has the capacity to accommodate the adaptive reuse of the Mall.

Domestic Water Service

Domestic water is supplied by two transmission mains located to the east and west of the property. One transmission main is located within Hartford Turnpike (Route 85). Two 12" DI water services feed the east side of the Mall; one service is located near the former JC Penney and one near the former Sears. The second 24" transmission main is located overland to the west of the property, and crosses through the Home Depot parking lot located to the south of the Mall. A 12" DI water service feed the west side of the Mall near the former JC Penney. A 10" DI water main was installed in a loop configuration around the Mall at the time of construction. The onsite water infrastructure is depicted on the Plans.

At the site inspection, the water pressure was observed at 125 PSI in the sprinkler room.

Considering the connections to the adjacent transmission mains, onsite loop configuration, onsite water main size, and available pressure in our opinion, the current water infrastructure will provide enough domestic water volume and pressure for the adaptive reuse of the Mall.

Sanitary Sewer

Onsite sanitary sewer mains are comprised of 8" and 10" PVC pipe, apparently installed at the time of the Mall construction. The sanitary sewer infrastructure is depicted on the Plans, and is primarily located along the west side of the building, running north to south. All of the sanitary sewer for

the Mall is discharged to the “Crystal Mall Pump Station” located at the southeast corner of the property at the Hartford Turnpike (Route 85) frontage. The pump station is owned and operated by the Waterford Utility Commission.

Onsite Infrastructure Condition

CCTV inspection of the sewer was performed on October 20, 21, and 22, 2025. The manholes and piping are generally in good condition. The following is a summary of the inspection findings:

1. A light build-up of grease and organic materials is present in most of the piping. Pipe cleaning (jetting) of the entire sewer main system and laterals is recommended.
2. SMH -3 from the Olive Garden is completely clogged. It should be cleared with a vacuum truck and reinspected.
3. A horizontal crack is present along the PVC pipe approximately 12’ upstream of SMH 12. The crack has not offset, and the pipe has not deformed. The pipe appears structurally sound. It appears that typical flow is below the crack elevation. There are no sink holes or other surface deformation at the surface. No immediate actions appear necessary. Replacement of that pipe section should be considered.

Call-outs have been included on the Plans to perform the SMH -3 cleaning and repair, and pipe replacement prior to pavement rehabilitation.

A grease trap is present outside of the former food court as shown on the plans. This grease trap will remain in place for the time being.

Onsite Infrastructure Capacity Analysis

The onsite sewer main piping is 8” and 10” PVC pipe. Invert data indicates a minimum slope of approximately 0.7%. Based on this data, the existing sanitary sewer piping could accommodate approximately 800 GPM flowing full.

Health Code Based Analysis:

The Connecticut Public Health Code recommends a design flow of 20 GPD per employee for office use. Full build-out of the facility will have 4,500 employees

$$4,500 \text{ employees} \times 20 \text{ GPD/employee} = \underline{90,000 \text{ GPD}}$$

Peak flow rate: Assume 12-hour work day and peaking factor of 5

$$90,000 \text{ GPD} / 12 \text{ Hrs} / 60 \text{ min/hr} = 125 \text{ GPM} \times 5 \text{ peak factor} = 625 \text{ GPM peak}$$

625 GPM can be accommodated within the existing 800 GPM pipe capacity

Drainage Fixture Analysis (assumed fixtures):

Drainage fixture units	Fixture DFU	# of Units	DFU
Water Closet (Private)	3	300	900
Urinal, 1 gal	2	100	200
Lavatory	1	200	200

Total = 1,300 DFU

1 GPM = 2 DFU (IPC 709.3): 1,300 DFU x 1 GPM/2 DFU = 650 GPM peak

650 GPM can be accommodated within the existing 800 GPM pipe capacity

Pump Station Analysis

All of the sanitary sewer for the Mall is discharged to a pump station located at the southeast corner of the property designated as the “Crystal Mall Pump Station”. The pump station is owned and operated by the Waterford Utility Commission. The pump station consists of a 10’ diameter, 32’ deep wet well and a dry pit for the pumps. The pumps are two Gorman-Rupp constant speed pumps capable of 1,000 GPM each. Discharge is through an 8” PVC force main southerly along Route 85. Emergency standby power generation is provided by the Crystal Mall.

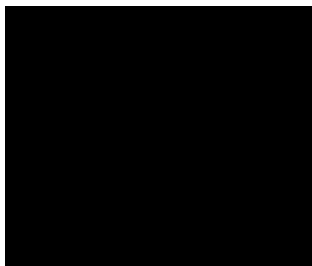
The Waterford Utility Commission prepared a townwide comprehensive study of their sanitary sewer pump stations in 2011. The study indicated that the Crystal Mall Pump Station has a design capacity of 1,440,000 GPD. At the time average flow was 247,100 GPD; maximum flow was on a weekend at 426,000 GPD. In flow and infiltration from surface or groundwater was negligible. At the peak weekend flow rate, the station was operating at about 30% capacity.

The contributing sewer-shed area to the Crystal Mall Pump Station is primarily the Mall facility, Home Depot, and two commercial properties east of Route 85. As a conservative estimate 50% of the pump station capacity could be set aside for the Mall facility which amounts to 720,000 GPD.

Based on the analysis noted above, the total anticipated daily flow from the Mall is approximately 90,000 GPD with a maximum peak flow rate of 650 GPM. In our opinion the existing Crystal Mall Pump Station with an available 720,000 GPD capacity and pumps capable of 1,000 GPM can accommodate the daily flow volume and peak flow rate from the fully redeveloped Mall.

Conclusion

In our opinion, the existing sewer and water infrastructure has the capacity to accommodate the full redevelopment of the Mall, as outlined herein.



CLA Engineers, Inc.

Kyle Haubert, P.E.