



December 18, 2023

Alan Cathcart, Director  
Department of Public Works  
Town of Concord  
133 Keyes Road  
Concord, MA 01742

Via: Email: [acathcart@concordma.gov](mailto:acathcart@concordma.gov) & Hand Delivery

Reference: Sewer and Water Analysis  
NOVO Riverside Commons  
#292 & #294 Baker Avenue  
Concord, Massachusetts  
B+T Project No. 2063.27

Dear Mr. Cathcart:

We appreciate you taking the time to meet with us on November 27, 2023 and providing GIS-level information on the sewer pipe at the rear of the 300 Baker Avenue building extending westerly under the Assabet River. We will survey the sewer inverts in the manholes traversing from the parking lot west of 300 Baker Avenue to the river and the receiving manhole on the western side of the river by January 15, 2024. Once we have the surveyed inverts, we will provide an engineering calculation package analyzing the capacity of the sewer infrastructure. In the interim, we offer the following observations on the data received:

1. Based on the GIS inverts, the pipe under the river has a slope of 1.25%.
2. The sewer video provided by your office of the sewer pipe under the river confirms that slip lining was conducted and notes the pipe is 12-inch diameter cast iron pipe. The GIS plans note an 8-inch pipe. We will confirm the pipe size when we survey the inverts in the manhole.
3. The flow capacity of the pipe under the river is 1.45 cfs conservatively assuming the pipe is 8-inch diameter. The pipe leading down to the river has a slope of 0.8% resulting in a flow capacity of approximately 1.16 cfs for an 8-inch pipe.
4. Based on conservative Title 5 flow rates, we estimate that the design flows for the contributing buildings are:
  - Hotel = 15,730 gpd
  - Office Building - 38,000 gpd
  - Welches Groundwater Discharge Permit Allowance- 24,990 gpd
  - Novo Riverside - 37,950 gpd (proposed flow based on 345 bedrooms)

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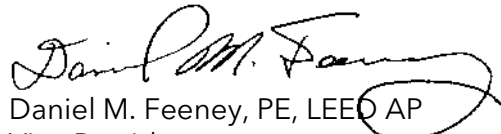
5. The total daily flow based on conservative Title 5 estimates is 116,670 gpd. This equates to 0.181 cfs. Applying a peaking factor of 4 yields 0.724 cfs which is well within the capacity of the pipes. We note that the peaking factor is mitigated by the fact that the contributing sewer flow to the sewer infrastructure under the river is lower than typical due to the proposed residential and office uses having peak flows occurring at different times of the day.
6. We understand that the Concord Department of Public Works will analyze the contributing sewer flow to the sewer pipe on the eastern (off-site) side of the river.

We have also looked into available water pressure at the site. We were able to locate in our project files a hydrant flow test that was conducted at the site in 2011 (see attachment). The results indicate that good water flow and pressure are available at the site. We understand that your office will investigate if there are more hydrant flow tests results in the site vicinity. We anticipate that based on the results of your research, a new hydrant flow test may be conducted to confirm the results of the 2011 test prior to a building permit submission if newer hydrant flow test results are not available from your office.

Feel free to contact our office at (508) 366-0560 with any questions.

Sincerely,

BEALS AND THOMAS, INC.

  
Daniel M. Feeney, PE, LEED AP  
Vice President

Enclosures: Hydrant Flow Test at 300 Baker Ave., prepared by AHA Consulting Engineer, dated May 26, 2011

cc: Giovanni Caceres, Concord Public Works Engineer - Water Systems  
Kevin Hurley, Hurley Associates, Inc.  
Allen Peacock, Taurus Investment Holdings, LLC

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## H Y D R A N T F L O W T E S T

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**To:** Superintendent Alan Cathcart, Concord Water Dept.

**From:** Dale Lincoln

**Date:** May 26, 2011

**Subject:** Hydrant Flow Test at 300 Baker Ave.

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A fire hydrant flow test was conducted on May 11, 2011 by AHA Consulting Engineers and the Concord Water Dept at 300 Baker Ave, Concord, MA. The test was witnessed by Dale Lincoln(AHA), Dave Rabaglia(AHA), Todd Manchuso(Concord Water Dept.), Pete Hardy(Concord Water Dept), and Charlie Hamilton(Normandy Realty).

The test was conducted at 10:00 am. The two hydrants at the front of the building were used for the test. The following are the results of the test.

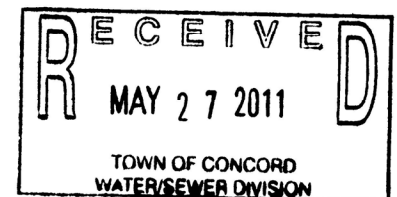
└ H E 0 9 - 0 0 5    Test (Read)  
  H E 0 9 - 0 0 6    Flow (Run)

Static Pressure: 100 PSI

Residual Pressure: 90 PSI

Flow: 1300 GPM

There were some issues initially with the hydrant flow test baffle; the flow gauge was not working properly. The clog in the pitot tube was cleared, and a satisfactory result was achieved. The test was concluded by 10:30 am.



\\FS3\G\_Drive\Projects\2011-Boston\A1016.001.01\Calculations\FP\flow test report.doc

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