



**George J. Saraceno, Senior Civil Engineer**

**TO:** Don McCauley, Planning Director  
**RE:** Review of Adequacy (ROA)  
11 Caroline Street  
**DATE:** December 18, 2020

The Department of Public Works (DPW), Engineering Division received a copy of plans and design documents for a new project located at 11 Caroline Street. The Civil plans were prepared by Metro West Engineering, Inc. of Framingham, MA. We received a copy of the project submittal from the Planning Department with a transmittal sheet dated December 18, 2020. The hearing for the project is scheduled with the Planning Board on January 19, 2021. A project summary was provided in the Hydrologic Assessment Report. The property area is 17,506 square feet, which is in a Zoning SR10, Single Family Residential 10,000 square foot Zoning District and is not within the Town's Water Supply Protection District. The project site is located outside the 100-foot wetlands buffer zone.

The project consists of demolishing the existing single family home and detached garage, driveway, walkways and planting beds around the house and building a new single family home, attached garage, new driveway, utilities, walkways, on-site infiltration and landscaping. The existing shed and play area are proposed to remain. The Proposed Site Plan shows the site being filled-in around the new house, both rear and front yard.

Soil testing was performed on the site by Metro West Engineering, LLC on April 15, 2020. Three test pits, DTH-1, 2 & 3. DTH-1 was excavated to 6 feet, with weeping at 4.5' and standing water at 5' and no refusal. The soil is classified as fill down to 2.3' and loamy sand to the bottom. DTH-2 was excavated to a depth of 9', with mottling at 3.3' and no refusal. The soils were classified as sandy loam, silt loam and fine sand at the bottom of the test pit. DTH-3 was excavated to a depth of 8' with mottling at 3.3' and no refusal. The soil classification are sandy loam and medium to fine sand. All three test pits with a loam sand, sandy loam and sand are conducive to infiltration of stormwater runoff.

**Roadway**

- Caroline Street is an unaccepted way, 795 feet (0.15 miles) in length with a 40-foot right-of-way. The street is paved with bituminous concrete except for an approximately 300-foot long section that extends from the vicinity of house #11 to house #22. This section consists of densely packed gravel. Paved sections of the road range from 18'-20' in width, while the width of gravel sections is reduced to between 12'-18'. Curbing and sidewalk is provided along only the southern side of the street from Clovelly Road to just beyond house #25.

**Drainage**

- A closed drainage system consisting of three (3) deep-sump, hooded, catch basins and

one (1) drain manhole captures flows generated by the street. The system begins in front of house #11 and continues to an outfall at Caroline Brook, passing in front of the subject parcel. The catch basin located at Caroline Brook is in a gravel portion of the street. As there is no curbing on Caroline Street, portions of the street runoff flow unmitigated to the Brook. We note that several studies of the brook have noted this as a potential source of sediment.

The proposed project will introduce approximately 1,585 square feet of impervious cover for a total of 5,548 square feet. The Applicant's designer has prepared an on-site stormwater drainage system to mitigate for the increase of impervious cover for the site. The proposed drainage system consists of two infiltrating stormwater systems designed to infiltrate both the roof runoff and driveway runoff. Infiltration System #1 is a 5 unit Shea leaching galley system, which receives stormwater runoff from the roof through a series of 6" PVC drain pipes. Infiltration System #2 is a 3 unit Shea leaching galley system that receives stormwater runoff from a catch basin in the driveway from a 6" PVC pipe. On the Proposed Details Plan, sheet 6 of 6, the cross-section for the proposed infiltration system shows that there is a minimum of 2' separation to groundwater.

The Hydrologic Assessment showed a reduction in the peak flow and volume of stormwater runoff from the pre-development conditions versus the post development conditions for the 2-yr, 10-yr, 25-yr and 100-yr storm events. The NOAA atlas precipitation rates were used for this analysis. We recommend that Total Suspended Solids (TSS) calculations and Total Phosphorus (TP) calculations be provided with the hydrologic assessment for the two on-site infiltration systems.

### Water and Sewer

- The Superintendent of the Water and Sewer Division has reviewed the existing water and sewer in Caroline Street and determined that both are adequate for the proposed house. A six-inch water main and an eight-inch sewer main that connect between Abbott Road and Clovelly Road are located in the street. A fire hydrant is located within 100-feet of the subject parcel. A sewer manhole is located within the gravel portion of the road.

### DPW Comments

- On the Existing Conditions Site Plan, sheet 1 of 6, the plan indicated that a gas line passes through a buried SMH in Caroline Street. This should be field verified and determine if corrective action is required.
- The Proposed Site Plan, sheet 5 of 6 shows a proposed retaining wall along the easterly side of the property. A detail for the proposed wall should be provided on the plans.
- Provide a detail for the proposed driveway that shows the dimensions for the driveway off Caroline Street.
- The plans show a drainage system, two catch basins and a drain manhole and one sewer manhole near a dry stream bed, which are located beyond the subject property. The dry stream bed should be labeled Caroline Brook. We recommend that the designer add existing conditions linework such as the roadway layout, parcel lines, utilities and house locations to the plan.

- We recommend that any fill brought to the site be inspected by an engineer prior to unloading onto the site.
- Provide the cut and fill calculations for the project. How many trucks will be required to deliver fill to the site?
- The private way, Caroline Street, is in poor condition in front of this property with large potholes throughout. Photographs are provided, see enclosure 1. We recommend paving the road along the entire frontage of the lot, edge of road to edge of road. Any paving work would require new sub-base material and paving the binder and top course with a centerline and cross slope grade at 2% on either side.
- Provide a note on the Erosion and Sediment Control Plan, sheet 2 of 6, that silt sacks should be provided for the two catch basins in front of the site on Caroline Street. Provide a detail of the silt sacks on the Erosion and Sediment Control Plan.

### Conclusion

The existing gravel road in front of the property is in poor condition with an uneven surface and deep potholes throughout. We recommend paving the roadway to a roadway width of 18' along the entire frontage of the lot. The approximate cost for a full depth reconstruction of the 94' long section with an average of 18' wide travel way is \$19,242, see enclosure 2. We recommend that the designer consider biological treatment of the on-site stormwater runoff in addition to the infiltration systems. We recommend that the project be conditioned to fill-in the remaining potholes on Caroline Street, post construction, due to heavy equipment from the construction site traveling through Caroline Street.

Please let us know if you have any questions or comments.

Sincerely,



George J. Saraceno  
Senior Civil Engineer

Enc. (1): Photographs  
Enc. (2): Cost Estimate

Cc: David Cohen, David Hickey  
Douglas Stewart, William Shaughnessy  
Michael Quinn, Gerry Bruno  
Jason Tobin, Scott Showstead  
Michael Grant, Lenny Izzo  
Julie Meyer, Brian Nelson





**ENCLOSURE (2)**

2 Municipal Way  
Wellesley, MA 02481  
781-235-7600  
781-237-0047 (fax)

Project: Adequacy of Way  
Date: 12/18/2020

**TOWN OF WELLESLEY**  
**Department of Public Works**

**Proposed House, #11 Caroline Street**

**PROPOSED ESTIMATE FOR FULL DEPTH CONSTRUCTION**  
**(94 FEET OF ROADWAY)**

| <u>Item No.</u> | <u>Description of Item</u>                                      | <u>Unit</u> | <u>Quantity</u> | <u>Unit Price</u> | <u>Total</u>    |
|-----------------|-----------------------------------------------------------------|-------------|-----------------|-------------------|-----------------|
| 1               | 1.5" HMA, Type I-1 Top Course                                   | TON         | 15              | \$125             | \$1,875         |
| 2               | 2.5" HMA, Type I-1 Binder Course                                | TON         | 26              | \$125             | \$3,250         |
| 3               | 9" Bank Run Gravel Base                                         | CY          | 150             | \$37              | \$5,550         |
| 4               | Unclassified Excavation of Existing Material                    | CY          | 62              | \$20              | \$1,240         |
| 5               | Drainage Structure Adjusted                                     | EA          | 3               | \$300             | \$900           |
| 6               | Sanitary Sewer Structure Adjusted                               | EA          | 1               | \$300             | \$300           |
| 7               | Special Duty Police                                             | SHIFTS      | 8               | \$237             | \$1,896         |
| 8               | Safety Controls for Construction Operations (cones and signage) | LS          | 1               | \$200             | \$200           |
|                 |                                                                 |             |                 | Subtotal          | \$15,211        |
|                 |                                                                 |             |                 | Engineering @ 10% | \$1,521         |
|                 |                                                                 |             |                 | Subtotal          | \$16,732        |
|                 |                                                                 |             |                 | Contingency @ 15% | \$2,510         |
|                 |                                                                 |             |                 | <b>Total</b>      | <b>\$19,242</b> |