ADDRESS

Section 1: Existing ConditionsThe project site is combination of two existing parcels, located at (intersection, etc.). Out of the two lots, one has an existing single family historic home built in 1720 with a barn and paved driveway, and the other is vacant. The vacant lot is primarily wooded with an existing gravel turnaround by the street. The total project site is approximately 10.8 acres with wetlands on the vacant lot. Currently the site is accessed via a single paved driveway coming off of Main Street which leads to the existing single-family home. Based on the NRCS Web Soil Survey (NRCS WSS), there are three primary soil types located in the area of analysis. On site soils are classified as 49A (Norwell Mucky fine sandy Loam), 315B (Scituate gravelly sandy loam), and 430B (Barnstable loamy sand) with Hydrologic soil groups classified as D, C/D and B, respectively. The various test pits performed onsite show a layer of approx. 4’ of fill atop two C-horizons, the first being a medium sand, and the second being a silt loam for test pits #1 and #2 at 0 Main St. Test pits conducted in March 2022 at the rear of 0 Main Street reveal a loamy sand layer atop a sandy loam layer. Appendix C-2 has the soils map from the NRCS WSS, and the test pit locations and logs have been shown on the site plans.

Section 2: Proposed DevelopmentThe project involves the construction of a two-story office/retail building, with associated  
improvements such as driveways, parking areas, and underground septic and drainage systems.  
The proposed parking area for the office/retail building will be split up between the 2 existing  
parcels. In total, 29 standard spaces, 2 standard and 1 van ADA accessible spaces are required.  
5 standard parking spaces with 2 handicapped spaces will be on the same parcel as the proposed  
building. 26 standard parking spaces will be on the adjacent parcel of 0 Main Street. Each  
parking lot will have one entrance to serve each lot respectively, one entrance being along  
Plymouth Street, and the other being along Carver Street. The parking lot on 0 Main Street.  
will consist of gravel parking while the parking at 0 Main St. will be paved. Sewage  
from the proposed office/retail building will be collected via internal plumbing and directed to  
the proposed on-site sewage disposal system located adjacent to the entrance off Main  
Street. The existing septic leach pits for #0 Main Street be removed per Title V and the  
system will be upgraded to a 5-bedroom design using quick 4 infiltrator chambers. Water for the  
proposed office/retail building will be from Main Street and will provide a domestic line and  
fire suppression line as required. All connections shall conform to the Town of Halifax Water  
Department Regulations. Telephone, electricity, and cable will be provided from underground  
utilities from an existing utility pole on Main Street in front of the proposed office/retail  
building.

The drainage system has been designed to have all runoff from the paved parking area to be  
directed toward two infiltration BMP’s. Runoff from the paved parking area at 0 Main St.  
will be directed along gutter lines to deep sump hooded catch basins then stored and infiltrated in  
the BMP’s. The BMPs require 44% pretreatment due to their discharge in a soil with rapid  
infiltration (2.41 in/hr.). The required 44% pretreatment prior to the BMP’s is achieved via the  
use of Stormceptor structures which allows runoff to enter the structure, then directs the runoff to  
a lower non-turbulent chamber which allows oils and debris to rise, and sediments to settle.  
These BMP’s have been outlined in the treatment train (Appendix D-3). Via the treatment trains  
as outlined herein, the stormwater created from the development of the site will be for the most  
part be entirely management on site, with the exception of the roof area for the proposed  
office/retail building. There will be no increase in the runoff flow rates or volumes offsite to the  
abutting properties or wetlands for the 2, 10, and 100-year storm events (see Section 4). The  
infiltration BMP’s have been designed to accommodate the 100-year storm event. In accordance  
with section 4 of the Town of Halifax Stormwater management regulations, no Stormwater  
Management Permit will be required since the project will disturb less than 1 acre per. All  
drainage calculations are in conformance with the Department of Environmental Protection’s  
Stormwater Management Policy for the treatment of runoff.

Section 3: Drainage Design MethodologyRunoff calculations were performed using HydroCAD computer software. The program closely  
models the USDA Soil Conservation Service (SCS) TR-20 method to calculate runoff.  
Hydrologic soil groups were determined using the NRCS Web Soil Survey (NRCS WSS) tool.  
Rainfall data from the Northeast Regional Climate Center “Atlas of Precipitation Extremes for  
Northeastern United States and Southeastern Canada” for the 2, 10 and 100-year storm events  
was used for pre-development and post-development conditions. The calculations were  
performed to determine changes in discharge rates and volumes offsite. No increase in runoff  
rate or volume has been calculated for any storm event.

The drainage system discharges to two BMP’s comprised of underground infiltration areas which  
will recharge runoff to the groundwater. The following pages contain detailed calculations for  
the drainage area as well as pre- development and post-development drainage maps. The drainage maps were developed using site topography and hydrologic soil groups as shown in the SCS soil survey.