January 17, 2017

Town of Chebeague Island
Attn: Marjorie E. Stratton, Town Administrator
192 North Road
Chebeague Island, ME 04017

Subject: Gravel Pit Evaluation

1.0 INTRODUCTION

This letter report presents Sevee & Maher Engineers, Inc.'s (SME) evaluation of a potential gravel source for the Town Chebeague. Prior to detailed evaluation of the property discussed herein, SME conducted a paper evaluation of other Town-owned properties. This was the property best suited for further analysis.

Eight test pits were excavated on December 20, 2016 by Wayne Dyer of Chebeague. SME monitored the excavation of the test pits, logged the soil profiles, took photographs, and obtained samples. All of the test pits were backfilled immediately after completion. Laboratory analysis of selected soil samples obtained from the test pits was performed by SME.

2.0 SITE DESCRIPTION

The potential gravel pit is located east of the Town's Public Safety building on North Road and is bounded to the northwest by Division Point Road and to the east by Curit Farm Road (see Figure 1). A strip of privately-owned land bisects the property. The Town is negotiating with the owner to take ownership of this strip of land. The site slopes downward from east to west from 3 to 18 percent. The site is heavily forested and littered with many large blowdowns. The potential gravel pit property encompasses approximately 13.6 acres. Applying 100-foot setbacks from the site's property line reduces the potential pit area to about 7.1 acres.

2.1 Site Geology

The soils are predominantly well-drained glaciofluvial deposits (i.e., outwash, sands and gravel). The National Cooperative Soil Survey Conservation Service (NCSSCS) has mapped two soil types within the site, one belonging to the Hinckley Series and the other the Walpole
Series. About 89 percent of the pit area is overlain by Hinckley soils and the remaining percent is Walpole soils. NCSSSCS descriptions of the soils are attached to this letter (see Attachment A). The test pit locations and identification numbers are shown on Figure 1 and descriptive logs of the conditions encountered in each test pit are presented as in Attachment B. Water seepage was observed in three of the test pits (TP16-01, 02, and 08) along the eastern edge of the potential gravel pit area. No seepage was observed in the remainder of the test pits. The water table was observed in the test pits at a time when the National Weather Service delineated the region as being in a moderate drought. It is likely that the seasonal-high water table elevation is higher than that observed in the test pits.

2.2 Soils Evaluation

Nine grain size analyses were performed by SME (Attachment C). Eight of the samples were compared to MEDOT Standard Specifications of Bridges and Highways Section 703.06c, Subbase Gravel. The other sample was compared to the MEDOT winter sand specification. Of the eight subbase gravel samples compared to the MEDOT specifications, six met the specification and the other two were close to the specification. These tests missed the specifications by a few percentage points for one or more sieves. For example, the sample taken from TP16-103 had the highest fines content at 8.7 percent. The MEDOT specification for Type E subbase gravel states more than 7 percent shall pass the #200 sieve. The soil sample from TP16-05 at 4 to 5 feet below the ground surface was compared to the MEDOT winter sand specification. It failed the specifications for two sieve sizes, the #50 and the 3/8 inch. Attached is the MEDOT recommended winter sand grain size specification. At the bottom of the page, the MEDOT indicates that a "looser" specification is optional. The sandy soils (i.e., Walpole series) could likely be used out of the bank for winter sand (i.e., no processing).

SME also looked at the USDA suitability and limitations ratings (Attachment D) for the mapped on-site soils within the possible pit boundaries with respect to construction materials. The ratings were as follows:

- **Gravel**: poor (both soils)
- **Road Source**: good (Hinckley good, Walpole not rated)
- **Sand**: fair (both soils)

These ratings are in agreement with the grain size analyses performed by SME. MEDOT specifications for base and subbase materials and a typical winter sand specification are included in Attachment E.
2.3 Soil Volumes

A conceptual excavation grading plan shown on Figure 1. Based on the conceptual grading, the site contains about 59,000 cubic yards of subbase gravel. The soil volume was calculated based on a 5-foot separation from the observed water table surface and 12 inches of soil removed during grubbing. The grubbings, topsoil, and roots could be stockpiled and used for pit reclamation. Excavation to or below the water table could significantly increase the volume of gravelly soil available.

3.0 PERMITTING

3.1 State of Maine Permitting

The Maine Department of Environmental Protection (MEDEP) does not require that a gravel pit less than 5 acres be licensed by the State as long as:

1. Properly installed erosion control measures are in-place prior to start of the excavation;
2. The excavation is reclaimed in phases and the working pit is no larger than 2 acres; and
3. Vegetative cover is placed within seven days of final grading.

A strategy may be to operate an area less than 5 acres for a period of time and then to make a decision regarding further expansion.

3.2 Town of Chebeague Island Permitting

The Town of Chebeague Island regulates the Extraction of Earthen Materials in Chapter 17, Article II, Section 412 of the Town of Chebeague Island Code. As the Ordinance is currently written, it would be impossible to locate a gravel extraction operation on the parcel of land discussed herein. Several standards in the Ordinance may need to be changed. Most of the changes that would be necessary have to do with buffers and setbacks.

4.0 COSTS TO PERMIT AND DEVELOP A GRAVEL PIT

The costs associated with permitting and construction of a new gravel pit would vary depending on the size of the pit to be licensed/constructed and the level of effort required to change the existing Town Code. At a minimum, 2 or 3 acres of land would need to be cleared and grubbed and erosion control measures would need to be constructed. Access roads and staging areas would need to be constructed. We would expect that a range of costs for
permitting at the Town only level and development of the first phase of operations would be approximately $35,000 to $50,000.

Thank you for the opportunity to provide this information to the Town. Should you have any questions regarding the information contained herein, please do not hesitate to contact me.

Sincerely,

SEVEE & MAHER ENGINEERS, INC.

[Signature]

Peter M. Maher, P.E.
Vice President
Morning Herb,
I updated the spreadsheet. For some reason I only used a 3/8" (thick) shim on John Small and Barr Point, not sure how I did that.
Sorry for the confusion.
Thank you,
Shawn

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**Shawn Bennett**  
Sales and Marketing Representative  
All States Materials Group  
(207) 515-5331 Mobile  
www.asmg.com

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**2017 Budget Estimate**

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For planning and budget purposes only, prepared for Road Comm. planning meeting