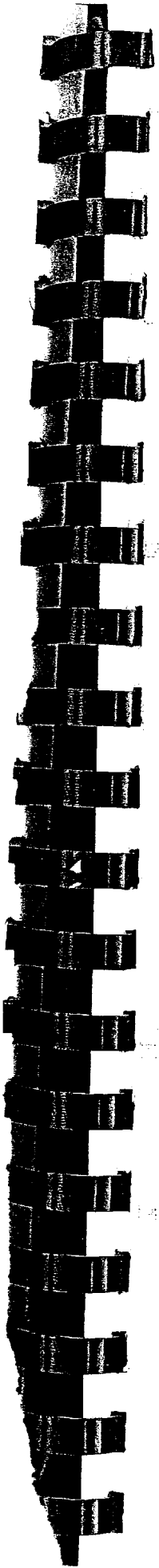


**A. Dry Detention Pond.** We understand that that total ponded depth and bottom of proposed detention area will be about 3 feet below existing grade, which corresponds to about elevation 114 feet. Groundwater was measured at a depth of 2.4 feet (approximately elevation 114.7 feet), which is about one foot above the proposed pond bottom. In order to prevent chronic pooled conditions within the pond between storm events, we recommend that either a low-level outlet be provided in the pond outfall structure or that an infiltration trench with pond underdrains be installed at the toe of the internal pond slope on the North Street side and south side of the pond. The infiltration trench would lower the groundwater table and provide pooled water drawdown. We recommend that the internal slopes of the above grade basin be no steeper than 3H:1V.

Soils encountered in the berm at boring B7 are similar to glacial till and fill soils encountered at other areas of the site. The bermed soil consisted of gravelly sand with silt and contained less silt than the underlying glacial till. We recommend that seepage control blanket be constructed on upstream face of the detention pond south slope to reduce lateral seepage and reduce the potential for seepage breakouts and erosion due to seepage on the downstream slopes.

The seepage control blanket should consist of a 12-inch thick liner of low permeability fine grained extending a minimum of 20 feet into the pond bottom and should extend around the east and west inside comers for a distance of 20 feet. Soil used to construct the seepage control blanket should classify as a SC, CL or CH soil in accordance the Unified Soil Classification System. Based on the results of the explorations, it appears that the onsite soils are not suitable for use in the seepage control blanket. A geocomposite clay liner (bentonite impregnated geotextile), or GCL, is an alternative to a compacted soil blanket. The GCL should be covered with a minimum of 6 inches of soil cover to protect the blanket from the elements and maintenance equipment.

Prior to placing fill within the basin, all topsoil, organics and other deleterious materials should be stripped and removed from proposed fill areas. The exposed subgrade should be wetted or dried, as necessary, proof-rolled and scarified to provide for bonding between the in-situ soil and new fill. Fill should be placed in placed in 9 to 12 inch thick lifts and compacted to 95 percent of



For the softball field, we recommend the use of topsoil over a sand drainage layer for the athletic field. The subsurface sand drainage layer will increase the rate at which water is removed from the soil and decrease the duration it takes to restore the field to playing conditions after precipitation.

The topsoil should consist of well-graded sand with between 8 and 11 percent silt and clay. A fineness modulus of 1.7 to 2.5 is recommended for the topsoil sand component. Higher silt and clay contents will result in lower infiltration capacity and lower silt and clay content could result in a **weak** turf root development and lower root zone water retention capacity. We recommend a topsoil thickness of 6 to 8 inches.

Based on the results of the topsoil gradation tests, the onsite topsoil does not meet the recommended silt and clay content criteria. Therefore to meet the recommended criteria, it will be necessary to import topsoil or amend the existing onsite topsoil by blending it with sand to achieve the desired gradation. Topsoil proposed for use **in** the ballfield construction should be evaluated for necessary required fertilization and **pH** amendment prior to installation. Fertilizer and amendment rates recommended by the Maine Soil Testing Service for the sampled topsoil are provided on the laboratory test sheets in Appendix C.

We recommend that the topsoil be underlain by minimum six-inch thick sand drainage layer supplemented with subsurface drainage panels or underdrains drainage to a free drainage outlet. The finish grade and subgrade should be **parallel**; we recommend a **minimum** slope of one percent for the softball field.

Excessive moisture content at placement and compaction can reduce water percolation capacity and we recommend that the topsoil **mix** should be placed a dry condition (approximately 5 percent moisture content). The topsoil should be protected **from** heavy vehicle traffic during an after construction, particularly when the soil is wet.

**SECTION 8**  
**CONSTRUCTION RECOMMENDATIONS**

Excavation of the existing soil at the site will be relatively easy. The near surface glacial till soil consists of compact to dense, silty sand with gravel and cobbles. We recommend that the banks of dry open cuts in the glacial till or **granular** silty soil deeper than 4 feet be sloped at a maximum of 1H: 1V. Excavations below the groundwater table should be sloped at a maximum of 1.5H: 1V. These recommendations are based on the current OSHA guidelines.

Excavated glacial till is suitable for use as Common Borrow, however the fines content (total silt and clay content) of the glacial till appears too **high** for other onsite uses. If reuse of the glacial till or other excavated soils is proposed for uses other than Common Borrow during construction, they should be tested for compatibility with their intended use.

We recommend that old foundations be removed in their entirety from beneath the building. At parking lots and driveway areas, a minimum cushion of 2 feet should be provided between existing foundation elements and the pavement surface. Existing bituminous concrete pavement should be removed or processed and reclaimed on site as Gravel or **Granular** Borrow.

After demolition and prior to placing fill, the area to be filled should be inspected to verify that all foundation elements and demolition debris have been removed. After verifying that demolition removal has been completed, the exposed soil should be proofrolled to identify soft or yielding soils and to densify loose soils disturbed during demolition. Soft or yielding areas identified during proof-rolling should be overexcavated and backfilled with Gravel Borrow prior to placing additional fill.

In order to reduce the potential for localized differential settlements and to allow for proper compaction of the fill material, we recommend that the sides of the demolition excavations be sloped at an average slope of 2 Horizontal to 1 Vertical. The sides should be "benched" to allow for proper bonding between the new fill and existing site soils. We recommend that the excavations be backfilled with compacted Gravel Borrow

Some changes in materials from those presented in this report can be anticipated. Should conditions be encountered which differ materially from those discussed, we should be notified so that we can re-evaluate our recommendations.