Minimum Soil Infiltration Testing Requirements

PROJECT NAME AND NUMBER:

PROPOSAL DUE DATE:

REPORT DUE DATE:

DESIGN ENGINEER / ARCHITECT:

BACKGROUND INFORMATION:

Proposed infiltration locations are as indicated on attached site drawing. Allowable access routes to infiltration locations are also indicated on attached drawing if infiltration locations are not easily accessible or require designated routes.

GEOTECHNICAL WORK REQUIREMENTS:

1. Geotechnical work is to be performed by qualified personnel under the supervision of a registered professional engineer.

2. The geotechnical engineer is to call Miss Dig (811) and to obtain information regarding existing buried utilities in the area of soil borings/infiltration tests, and is to take necessary precautions to ensure safety and to prevent damage to property.

3. Before commencing work, the geotechnical engineer is to coordinate the date and time of drilling with the Owner.

4. The boring depths will extend past the bottom elevation of the proposed infiltration area noted on the location drawing*. Perform continuous sampling from the ground surface to depth of boring. Record groundwater levels in the borings during and immediately after drilling.

   *If infiltration testing is to be performed through a borehole, a preliminary bore should be performed adjacent to the anticipated infiltration bore. This preliminary bore should extend to at least 3ft below the anticipated testing depth. The infiltration testing borehole shall be to the depth of the proposed bottom elevation of the infiltration system.

5. At least 2 bores (more on large sites or sites with complex stormwater management systems) shall extend to at least 10 feet beyond proposed infiltration bottom elevation in and near the infiltration area to verify soil strata below the infiltration area and depth to water table.

6. If suitable infiltrating soils are not found at potential infiltrating depths indicated in the graphic but are identified at other depths during soil boring operations, consult U-M Design Manager on adjusting soil infiltration testing depths based on actual soil conditions. In all cases, provide soil borings at least three (3) feet below anticipated infiltration to identify soils and verify there are no potential water table limitations.

7. Perform double ring infiltrometer infiltration tests (or other similar method such as double well casing down a borehole) according to the Low Impact Development (LID) Design Manual for Michigan developed by SEMCOG at the depth of the bottom of the proposed infiltration feature.

8. Summarize findings in a letter that will include:
    a. A boring diagram
    b. A log prepared for each boring that will include a description of the soils encountered and the results of the field and laboratory tests
    c. A description of the site conditions and evaluation procedures
    d. Specific details regarding the soil and groundwater conditions encountered in each of the borings
    e. A description of the field and laboratory testing programs and an interpretive analysis of the results
    f. An estimated permeability rate of the subgrade soils (e.g., inches per hour) based on the results from the infiltration testing and the boring logs
    g. A table with Boring #, Test depth, soil at base of infiltration testing, duration of test, estimated field measured infiltration rate (inches/hour), recommended design infiltration rate
    h. Geotechnical consultant's recommendation of design infiltration rate per hour for storm water management design and calculations is to be based on a minimum factor of safety of at least two (2) applied to the measured infiltration rate according to the Low Impact Development (LID) Design Manual for Michigan and is to be stated as such
    i. Geotechnical Consultant's professional opinion if soils are not suitable for infiltration

ASSUMPTIONS:

The following assumptions are made regarding scope of services and professional services fee:

1. U-M will provide right-of-entry for Consultant to conduct the evaluation.
2. Consultant will contact Miss Dig to clear and mark the location of public underground utilities at the site prior to performing the field exploration.
3. Consultant will stake the boring locations at the time of the field exploration.
4. *Location is or is not (edit) accessible for truck mounted drill rig.*
5. Field services will be performed by consultant Monday through Friday during normal business hours unless prior arrangements have been made to accommodate project needs. *(Verify)*
6. Care will be exercised to reduce potential damage to existing ground surface areas during the field exploration. *____(insert)_____ will repair damaged landscaping. Pavement cores are required to be reinserted or backfilled with cold-patch material to avoid trip hazards.*

7. Soil boring cuttings shall be placed back in the borehole to the best extent possible. Remaining cuttings should be dispersed on-site if possible, in such a manner as to not cause sediment discharge from the site (i.e., not on impervious surfaces). If cuttings are from a site of known contamination, please contact the U-M Project Manager for guidance.

Address Proposal to:

Todd Coon
UM Procurement Services
University of Michigan
7071 Wolverine Tower
3003 South State Street
Ann Arbor, MI 48109-1282