DETAIL 1: SC-310 INFILTRATION CHAMBERS

DETAIL 2: SPEC SHEET

ADDRESS:
J. LOLLEY, PE
CIVIL, STRUCTURAL & SOILS ENGINEERING
RESIDENTIAL DESIGN
PO BOX 1858 VINEYARD HAVEN, MASSACHUSETTS 02568

PLAN NAME:
4 STATE ROAD,
VINEYARD HAVEN, MA

PARCEL ID: 9-A-6

TEL: 508-693-5153
office@lolleype.com

JOB NUMBER:
21091

SCALE:

ISSUED FOR:

DATE:
3 MAY 2022

DRAWN BY:

CHECK BY:

5.3.22
VMC

DETAIL 3: STORMWATER CATCH BASIN FOR COMMERCIAL AREA

DETAIL 4: SOIL DATA

<table>
<thead>
<tr>
<th>Test Hole 1</th>
<th>Test Hole 2</th>
<th>Test Hole 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>(surface elev. 11.5±)</td>
<td>(surface elev. 10.5±)</td>
<td>(surface elev. 11±)</td>
</tr>
<tr>
<td>Depth</td>
<td>Soil Description</td>
<td>Depth</td>
</tr>
<tr>
<td>0&quot;-30&quot;</td>
<td>Fill, Broken Brick, Rock, And Asphalt</td>
<td>0&quot;-30&quot;</td>
</tr>
<tr>
<td>30&quot;+</td>
<td>Undisturbed Soil</td>
<td>30&quot;+</td>
</tr>
</tbody>
</table>

NO GROUNDWATER ENCOUNTERED
*SOIL WAS DAMP IN TEST HOLE 2

MONITORING PIPE INSTALLED IN HOLES 1 & 2

DETAIL 5: TRENCH DRAIN ALONG WALKWAY

DETAIL 6: INSPECTION PORT
3) BRING THE BACK OF THE LOT TO THE PROPOSED GRADE. EXCAVATING AND LAY DOWN GRAINGER GEOTEXTILE FABRIC (FIBERGLASS). FILL THE 70'x35' PIT W/ GRAVEL (AS PER SW1.0) AND LAY ANOTHER GEO-FABRIC OVER THE STONE.

2) BUILD RETAINING WALL AT THE BACK OF THE PROPERTY (AS SHOWN ON SW1.0)

TEST HOLE #1
NO G.W. @7'-6" BELOW GRADE

TEST HOLE #2
NO G.W. @7'-6" BELOW GRADE

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office@lolleype.com

JOB NUMBER:
21091

SCALE: 1" = 10'-0"

DATE:
3 MAY 2022

J. OLLEY
EXISTING LOT COVERAGE SUMMARY:

TOTAL LOT - 21,818 ± SQ. FT.
EXISTING IMPERVIOUS:
- ASPHALT DRIVEWAYS - 4,162 SQ FT
- BRICK SIDEWALK - 833 SQ FT
- LIGHT WELLS - 193 SQ FT
- BUILDING - 2,650 SQ FT
- COMPPACTED DIRT/ASPHALT PARKING LOT - 8,425 SQ FT
TOTAL IMPERVIOUS: 16,263 SQ FT (75% OF LOT)
TOTAL PERVIOUS: 5,555 SQ FT (25% OF LOT)

PROPOSED LOT COVERAGE SUMMARY:

TOTAL LOT - 21,818 ± SQ. FT.
PROPOSED IMPERVIOUS:
- PROPOSED BUILDING - 6,314 SQ FT
- EXISTING LIGHT WELLS - 55 SQ FT
- PATIO AND SIDEWALK - 2,741 SQ FT
TOTAL IMPERVIOUS: 9,110 SQ FT (42% OF LOT)
TOTAL PERVIOUS: 12,708 SQ FT (58% OF LOT)

PERMIT SET
NOT FOR CONSTRUCTION
Aim pervious = 16,263 \rightarrow 9,110 \text{ ft}^3 \rightarrow 75\% \rightarrow 42\%

Appervious = 5,555 \rightarrow 12,308 \text{ ft}^3 \rightarrow 25\% \rightarrow 58\%

(Areas provided by Kerkes' site plan)

\[ V_{\text{pervious}} = \text{Aim pervious} \times (1 - C) = (9,110 \text{ ft}^3) \times (1 - 0.483) \times 1.0 = 4,400 \text{ ft}^3 \]  
\text{min storage required}

\[ V_{\text{pervious}} = \text{Appervious} \times (1 - C) = (12,308 \text{ ft}^3) \times (1 - 0.483) \times 0.75 = 3,915.2 \text{ ft}^3 \]

Area permeable that starts the system

\[ V_{\text{theo}} = (42.5') \times (70') \times (2.5') = 22,312.5 \text{ ft}^3 \times 0.40 = \% \text{ yield} \]

\[ 8,925 \text{ ft}^3 > 4,400 \text{ ft}^3 \]
\[ \approx 50\% \text{ capacity utilized} \]

\[ Q_i = C \times A \]

\[ C = [(1.0)(0.48) + (0.75)(0.58)] = 0.55 \]

\[ i = 5.8' = 0.493 \text{ ft} \]

\[ A = \frac{1}{2} \text{ Acre} \]

\[ Q_{\text{in}} = 0.1033 \text{ cfs} \]

\[ Q_{\text{out}} = K \times A \]

\[ K = 8.27 \text{ in/hr} = 0.000191 \text{ ft/sec} \]

\[ A = \text{infl.} \times \# \text{ of infl.} = (20.16 \text{ ft}^2) \times 36 = 725.76 \text{ ft}^2 \]

\[ Q_{\text{out}} = 0.1386 \text{ cfs} \]

\[ Q_i < Q_{\text{out}} \rightarrow 0.1033 < 0.1386 \]
\[ \approx 75\% \text{ capacity utilized} \]

\[ * \text{ 1) Storage slightly higher } \rightarrow 2\# V_{\text{infl.}} = \left[36 V_{\text{infl.}} \right] \times 0.4 \]
\[ \text{volume of all basins} \quad \uparrow \\text{equivalent volume (storage)} \]
\[ \uparrow \text{held by stone.} \]

\[ * \text{ 2) Does not account for flow through ground (sand)?} \]

\[ * \text{ 3) Does not account for the spreading of water over the increased } 42'6" \times 76' \text{ gravel-sand interface.} \]

\[ \]