



Mr. Scott Lindebak  
Baughman Company  
315 Ellis  
Wichita, Kansas 67211

December 6, 2000

COPY

**SUBJECT: Permeability Test Report**  
**Ascension Lutheran Maple Campus**  
**Wichita, Kansas**  
**GSI Job No. 007152**

Dear Mr. Lindebak:

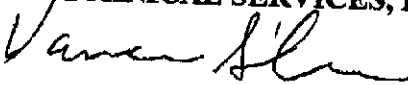
As requested, GSI has completed a falling head permeability test for the retention pond at the Ascension Lutheran Maple Campus. The falling head permeability test ASTM D5084 was performed on sample number U3 of Boring B-7. Please note the attached laboratory analysis report sheet which indicates an average hydraulic conductivity of  $1.5 \times 10^{-5}$  centimeters per second.

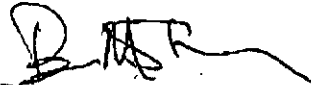
This value may be used to calculate a total retention pond discharge quantity using the equation  $Q=kiA$ .

- Q = quantity of water per unit of time
- k = hydraulic conductivity
- i = hydraulic gradient ( $h/L$ )  
h=water head, L=length of flow path (liner thickness)
- A = effective wetted area of pond

We trust this information meets your need at this time. Please feel free to contact our Wichita office if you should need further assistance.

Respectfully submitted,  
**GEOTECHNICAL SERVICES, INC.**

  
Vance R. Silvers  
Materials Testing Manager

  
Ryan M. Schaner  
Staff Engineer

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GEOTECHNICAL, MATERIALS ENGINEERING & ENVIRONMENTAL CONSULTANTS

4503 EAST 47<sup>TH</sup> STREET SOUTH  
WICHITA, KANSAS 67210-1851  
(316) 584-0725 • FAX (316) 584-0744

OFFICES LOCATED THROUGHOUT IOWA, KANSAS, MISSOURI & NEBRASKA

# PERMEABILITY TEST REPORT

**Sample Identification:**

B-7 U-3

**Sample Description:**

RED BROWN CLAYEY SAND

**SPECIMEN DATA**

| SPECIMEN INFORMATION | Wet Unit Weight (lb/ft <sup>3</sup> ) | Dry Unit Weight (lb/ft <sup>3</sup> ) | Moisture Content (%) | Void Ratio | Saturation | Porosity |
|----------------------|---------------------------------------|---------------------------------------|----------------------|------------|------------|----------|
| Initial Data         | 134.4                                 | 111.1                                 | 20.9                 | 0.488      | 100%       | 0.328    |
| During Test Data     |                                       |                                       |                      |            | 100%       |          |
| Final Data           | 129.8                                 | 107.1                                 | 21.2                 | 0.544      | 100%       | 0.352    |

AVERAGE INITIAL SPECIMEN DIMENSIONS: Diameter = 2.785 (in.)  
 Length = 2.285 (in.)

**TEST INFORMATION**

PERMEANT LIQUID USED: Deaired Water

MAGNITUDE OF TOTAL BACK PRESSURE: 90.5 (lb/in<sup>2</sup>)  
 EFFECTIVE CONSOLIDATION STRESS: MAX= 3.0 (lb/in<sup>2</sup>)  
 MIN= 1.5 (lb/in<sup>2</sup>)  
 HYDRAULIC GRADIENT RANGE: HIGH= 26.79  
 LOW= 24.17

**AVERAGE HYDRAULIC CONDUCTIVITY**

1.5E-05 cm/sec.

Lab No.

Test conducted in general accordance with ASTM D5084-90.



**Geotechnical Services Inc.**

|             |                    |               |
|-------------|--------------------|---------------|
| Project:    | ASCENSION LUTHERAN |               |
| Location:   | WICHITA, KANSAS    |               |
| Job Number: | 007152             | Date: 12/5/00 |