

DIVISION OF HIGHWAYS  
STATE OF COLORADO  
STAFF MATERIALS BRANCH  
4340 EAST LOUISIANA AVENUE  
DENVER, COLORADO 80222

TO: District Engineer, District I  
FROM: Staff Materials Branch  
SUBJECT: I-70 Roadway Subsidence  
DATE: 8-12-81

General:

Surface ground subsidences related to old gold mine workings have caused surface depressions and holes to develop in the roadway of Interstate 70 east of Idaho Springs. The Geology Section of the Colorado Highway Department drilled 81 test holes in June and July, 1981 as part of an intensive investigation program.

Location and Brief History:

The surface subsidences are located between the two bridges immediately east of the Idaho Springs twin tunnels on Interstate 70 and just west of Hidden Valley. The mining had taken place on the original Gold Bar Placer established in 1884, and more commonly known as the Dixie Mine and Mill. Several drifts were driven southward from portals on the south bench of Clear Creek next to the old Colorado Central Railroad line. Most of the mining took place during the ten years following 1884, and sporadically until the present.

During the construction of the I-70 four-lane highway several sink holes were discovered and filled, and several times in recent years surface subsidence holes in the roadway have been repaired. In June of this year, surface ground and roadway subsidences suddenly increased in size and number and the drilling program was initiated.

Geology:

The area of interest lies on gravel terraces adjacent to Clear Creek in a deeply cut valley on the eastern side of the Central Colorado Mountains. The bedrock is a metamorphic igneous biotite gneiss that is overlain by thirty feet of silt, sand and gravel. Gold in commercial quantities lying just above the bedrock has been mined since the 1880's.

The stream gravels were worked by hydraulic placer mining methods on the lower gravel benches. At the time of the Interstate construction, it was not commonly known that extensive mining from drifts (horizontal tunnels) and large chambers had been performed under and within the highway right-of-way. It is now evident that several feet of gravel lying above the bedrock was removed, and that the subsidence problem has resulted from collapse of the mined-out areas. Test drilling has disclosed numerous voids which range in height from 3 to almost 40 feet and average around 14 feet. Many of the collapsed areas are partially filled or bridged with loose material.

Test drilling was done with a CME 75 rotary drilling rig, using a 3 5/8 inch tricone bit, with water being used as the drilling fluid. A continuous penetrometer was used on several holes. The drill holes were located by stationing and offset left and right from median center-line. The voids were determined by the drilling rate and a decrease in bit pressure from over 800 lbs/inch to less than 200 lbs/inch. The drilling rate, pressure on bit, and the smoothness of cutting were used to estimate if the void was air-filled or partially filled with loose material. A void described as 60% on the driller's log, means that 40% of the void was filled with very loose material. The initial loss of drilling-fluid usually indicated the top of the void. Bedrock was indicated by slow drilling and very high drilling pressure on the bit. The drill holes took large volumes of drilling water, indicating interconnections between voids. The extremely porous and permeable gravel indicates that a high water table is unlikely; it should be nearly the same as, and fluctuate with the river level. However, the reason for the subsidence problem being more severe this spring than in the past could be a lower water table due to a 100-year low snow accumulation and spring runoff causing underground timber supports to collapse from dry rot.

Maps:

Sheet 1, 2, 3 Scale 1" = 10' Horizontal = Vertical

Plan view showing roadway center-lines (WB, EB, Median), driving lane (paint stripes), edge of oil, stations, drill holes (numbered), surface subsidences (asphalt patches, and cracks in roadway (as of July 1981). Profile view shows drill holes in a cross-section along center-line at approximate location projected to center-line.

Sheet 4, 5 (same base map as sheet 1, 2, 3)

Isopach map (thickness contours with five foot contour interval, showing the total feet of voids. The total voids include all voids (air-filled and loose gravel-filled).

Circles showing: test hole number, total feet of voids, percentage of void space that is air filled, and depth at which circulation was lost during drilling. Subsidence areas are shown with Roman numerals.

Surface Subsidences: (refer to Maps 4 and 5)

- I Station 214+30, 35 feet left  
Repaired 6-23-81 with 13 tons HBP (asphalt), 13 yds concrete (with steel mesh),  
9 tons sand and gravel.
- II Station 214+40, 20 feet left  
Repaired 6-23-81 with 10 tons HBP, 16 yds concrete (with steel mesh),  
4 tons sand and gravel. Repaired several additional times in July.
- III Station 214+65, 20 feet left  
Repaired several times since 1973.

- IV Station 215+65, 35 feet left  
Repaired 6-23-81 and 7-8-81 with 24 tons sand and gravel, 8 tons HBP.  
On 6-23-81 two cars blew tires and bent front ends.
- V Station 215+90, 60 feet left.  
Repaired many times in the past.
- VI Station 217+15, 20 feet right  
Repaired June 2, 1981 with 24 tons sand and gravel, concrete and steel  
mesh, asphalt patch.
- VII Station 217+65, 20 feet right  
Subsidence took place on June 1st and 2nd., 1981.  
Repaired with sand and gravel, concrete and asphalt patch.
- VIII Station 218+25, 70 feet ± left  
Four subsidences took place on May 20th and a fifth on June 1, 1981,  
all in a straight line between the main line and the northwest ramp.  
They were filled in with dirt.

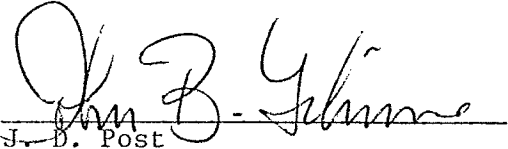
Conclusions:

The roadway surface and ground subsidence problem is due to collapse of subsurface voids in tunnels, shafts, and abandoned gold mine workings in stream deposited sand and gravel lying on bedrock at a depth of about thirty feet.

The voids are both air-filled and filled with loose gravel. The gravel is dry with no water table present above the top of the bedrock at the time of drilling.

The old mine workings followed a semi-circular trend as shown by the isopach contours shown on sheets 4 and 5. The voids extend from Station 213+85 in the westbound lane to Station 218+35 in the eastbound lane.

S. C. Tapp  
Staff Materials Engineer

by   
J. B. Post  
Senior Geologist

JDP/eh

cc: Ihlanfeldt (2)  
Gay  
Tapp-Abel  
Gilmore ✓

## FOUNDATION BORING LOG

Top Hole Elev. 7327.0 Geologist Bong Station 215+72, 44 Lt (W.B.) Boring No. 1

| Elev.  | Depth     | Description of Material  | BPF* | Remarks                     |
|--------|-----------|--|------|-----------------------------|
| 7327.0 | 0.0-0.3   | Asphalt Concrete   |      | 3-5/8" TC W/water           |
| 26.7   | 0.3-11.0  | Gravel, cobble, and scattered boulder; sandy<br>and silty, V. dense, br. |      | No return water<br>at 11.0' |
| 16.0   | 11.0-31.0 | Void and loose material (sand and silt)                                  |      |                             |
| 7296.0 | 31.0-32.0 | Bedrock; V. hard   |      |                             |
| 7295.0 | 32.0      | S. I. S.   |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |
|        |           |  |      |                             |

\* Standard Penetration Test (AASHTO T 206-74) drilled W/water  
Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 6/24/81 Time 1:00 P.M.  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Project 010545  
Location Idaho Springs, East  
Structure Fill Failure  
Route I 70 County Clear Creek  
Date Drilled 6/24/81

### FOUNDATION BORING LOG

Top Hole Elev. 7327.6 Geologist Bong Station 215+57 44Lt. (W.B.) Boring No. 2

| Elev.  | Depth     | Description of Material   | BPF* | Remarks              |
|--------|-----------|---|------|----------------------|
| 7327.6 | 0.0-0.3   | Asphalt concrete  |      | 3-5/8" TC<br>W/water |
| 27.3   | 0.3-11.0  | Gravel, cobble, and scattered boulder; sandy<br>and silty, v. dense, br |      |                      |
| 16.6   | 11.0-17.5 | Loose material; sand, silt, scattered gravel<br>and cobble.             |      |                      |
| 10.1   | 17.5-19.5 | Boulder; v. hard  |      |                      |
| 08.1   | 19.5-24.0 | Loose material; sand and silt   |      |                      |
| 03.6   | 24.0-30.0 | Gravel and scattered cobble; sandy, dense                               |      |                      |
| 7297.6 | 30.0-34.0 | Bedrock; v. hard  |      |                      |
| 7293.6 | 34.0      | S.I.S.  |      |                      |
|        |           |   |      |                      |
|        |           |   |      |                      |
|        |           |   |      |                      |
|        |           |   |      |                      |
|        |           |   |      |                      |
|        |           |   |      |                      |
|        |           |   |      |                      |
|        |           |   |      |                      |
|        |           |   |      |                      |
|        |           |   |      |                      |
|        |           |   |      |                      |
|        |           |   |      |                      |
|        |           |   |      |                      |
|        |           |   |      |                      |
|        |           |   |      |                      |
|        |           |   |      |                      |

\* Standard Penetration Test (AASHTO T 206-74) Drilled W/water

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 6/24/81 Time 2:15 PM  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7327.0 Geologist Bong Station 215+87, 44 Lt (W.B.) Boring No. 3

| Elev.  | Depth     | Description of Material                                       | BPF* | Remarks                     |
|--------|-----------|---|------|-----------------------------|
| 7327.0 | 0.0-0.3   | Asphalt concrete  |      | 3-5/8" TC<br>W/water        |
| 26.7   | 0.3-32.0  | Gravel and scattered cobble; sandy and<br><br>silty, v. dense |      | No return water<br>at 18.0' |
| 7295.0 | 32.0-34.0 | Bedrock; v. hard, yellowish br.                               |      |                             |
| 7293.0 | 34.0      | S.I.S.  |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |

\* Standard Penetration Test (AASHTO T 206-74)      Drilled W/water  
 Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 6/24/81 Time 4:00 P.M.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Project 010545  
 Location Idaho Springs, East  
 Structure Fill Failure  
 Route I 70 County Clear Creek  
 Date Drilled 6/25/81

### FOUNDATION BORING LOG

Top Hole Elev. 7327.0 Geologist Bong Station 215+90, 70 Lt. (W.B. ramp) Boring No. 4

| Elev.  | Depth     | Description of Material  | BPF* | Remarks  |
|--------|-----------|--|------|--|
| 7327.0 | 0.0-0.3   | Asphalt Concrete   |      | 3-5/8" TC<br>W/water                           |
| 26.7   | 0.3-33.0  | Gravel and scattered cobble; sandy and silty,<br>occasional loose material at 3.5-4.5 and<br>6.5-8.0 |      |  |
| 7294.0 | 33.0-39.0 | Bedrock; hard, grey  |      | Lost drilling water<br>momentairly at<br>28.0' |
| 7288.0 | 39.0      | S.I.S.   |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |

\* Standard Penetration Test (AASHTO T 206-74) Drilled W/water  
 Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 6/25/81 Time 8:40 A.M.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7327.0 Geologist Bong Station 215+85 56' Lt. (W.B. ramp) Boring No. 5

| Elev.  | Depth     | Description of Material  | BPF* | Remarks   |
|--------|-----------|--|------|---|
| 7327.0 | 0.0-11.0  | Gravel & scattered cobble; sandy and silty<br>dense, br and grey |      | 3-5/8" TC <i>Triane</i> bit<br>W/water          |
| 16.0   | 11.0-12.5 | Void and v. loose material (sand and silt)                       |      | No return water at 11.0'                        |
| 14.5   | 12.5-16.5 | Gravel & scattered cobble; sandy & silty, dense                  |      | Return water at 12.5'<br>No return water at 16. |
| 10.5   | 16.5-19.0 | Loose material (sand & silt)                                     |      | Return water at 23.0'                           |
| 08.0   | 19.0-32.0 | Gravel & scattered cobble; sandy & silty,<br>dense, grey         |      |   |
| 7295.0 | 32.0-34.0 | Bedrock; hard, yellowish br & grey                               |      |   |
| 7293.0 | 34.0      | S.I.S.   |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |

\* Standard Penetration Test (AASHTO T 206-74) Drilled W/water  
 Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 6/25/81 Time 11:10 A.M.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_



### FOUNDATION BORING LOG

Top Hole Elev. 7323.0 Geologist Bong Station 218+32 43' Lt. (W.B.) Boring No. 6

| Elev.  | Depth     | Description of Material                           | BPF* | Remarks  |
|--------|-----------|---|------|--|
| 7323.0 | 0.0-0.3   | Asphalt cone                                      |      | 3 5/8" TC w./water                             |
| 22.7   | 0.3-3.0   | Sand & scattered gravel; silty, med. dense        |      |  |
| 20.0   | 3.0-12.0  | Gravel and scattered cobble; sandy & silty, dense |      | 7.0-7.3; cobble                                |
| 11.0   | 12.0-35.5 | Sand and silt; scattered gravel, dense            |      | No return water @ 8.0'<br>return water @ 10.0' |
|        |           | yellowish br. & br.                               |      |  |
| 7287.5 | 35.5-39.5 | Bedrock; v. hard, grey                            |      |  |
| 7283.5 | 39.5      | S.I.S.  |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |

\* Standard Penetration Test (AASHTO T 206-74)  
 drilled w/water

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 6/22/81 Time 1:10 p.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## FOUNDATION BORING LOG

Top Hole Elev. 7322.5 Geologist Bong Station 218+47 43 1t. (W.B.) Boring No. 7

| Elev.  | Depth     | Description of Material                         | BPF* | Remarks           |
|--------|-----------|---|------|-------------------|
| 7322.5 | 0.0-0.3   | Asphalt conc.                                   |      | 3 5/8" TC w/water |
| 22.2   | 0.3-33.0  | Sand, silt, scattered gravel, dense; br. & grey |      |                   |
|        | 33.0-34.5 | Bedrock; v. hard, grey                          |      |                   |
| 7289.5 | 34.5      | S.I.S.  |      |                   |
|        |           | No void   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 6/25/81 Time 2:00 p.m.  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7323.5 Geologist Bong Station 218+02 43' Lt. (W.B.) Boring No. 8

| Elev.  | Depth     | Description of Material                                      | BPF* | Remarks  |
|--------|-----------|--|------|--|
| 7323.5 | 0.0-0.3   | Asphalt conc.  |      | 3 5/8" TC w/water                                    |
| 23.2   | 0.3-21.0  | Sand, silt, gravel, and scattered cobbles, dense             |      | no return water @ 5                                  |
| 02.5   | 21.0-24.0 | Loose material; fine-grained sand & silt, br. & grey         |      |  |
| 7299.5 | 24.0-32.7 | Sand, silt, gravel, and scattered cobbles, dense, br. & grey |      |  |
| 7290.8 | 32.7-34.5 | Bedrock; v. hard, grey                                       |      |  |
| 7289.0 | 34.5      | S.I.S.   |      | 4.0-4.8: cobble v.<br>11.0-11.7 " "<br>13.0-13.5 " " |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |

\* Standard Penetration Test (AASHTO T 206-74)

Project 010545  
Location Idaho Spgs. E.  
Structure Fill Failure  
Route I 70 County Clear Creek  
Date Drilled 6/25/81

### FOUNDATION BORING LOG

Top Hole Elev. 7324.0 Geologist Bong Station 217+87, 44' Lt. (W.B.) Boring No. 9

| Elev.  | Depth     | Description of Material                           | BPF* | Remarks           |
|--------|-----------|---|------|-------------------|
| 7324.0 | 0.0-0.3   | Asphalt conc.                                     |      | 3 5/8" TC w/water |
| 23.7   | 0.3-2.5   | Sand and silt; medium dense, br.                  |      |                   |
| 21.5   | 2.5-12.5  | Sand, silt, and small gravel; dense, grey         |      |                   |
| 11.5   | 12.5-17.0 | Loose material; sand and silt                     |      |                   |
| 02.0   | 17.0-24.0 | Sand, silt, and gravel; dense, br. & grey         |      |                   |
| 7300.0 | 24.0-29.0 | Loose material; mostly fine-grained sand and silt |      |                   |
| 7295.0 | 29.0-33.0 | Sand, silt, and gravel; dense, br. & grey         |      |                   |
| 91.0   | 33.0-33.5 | Bedrock; v. hard, grey                            |      |                   |
| 7290.5 | 33.5      | S.I.S.  |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 6/25/81 Time 5:00 p.m.  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## FOUNDATION BORING LOG

Top Hole Elev. 7324.0 Geologist \_\_\_\_\_ Post \_\_\_\_\_ Station 217+62 44' Lt. \_\_\_\_\_ Boring No. 10

| Elev.  | Depth    | Description of Material                 | BPF* | Remarks             |
|--------|----------|---|------|---------------------|
| 7324.0 | 0.0-5.0  | Fill, sand and gravel, top 6" asphalt   |      | 2 15/16 Tricone     |
| 19.0   | 5.0-6.0  | Boulder                                 |      |                     |
| 18.0   | 6.0-9.5  | Sand, some gravel, firm                 |      |                     |
| 14.5   | 9.5-34.5 | Silty clayey sand and gravel, gray-yell |      |                     |
|        |          | Drlg. fluid, golden fluid @ 30', firm   |      |                     |
| 7290.0 | 34.5     | T.D.                                    |      | No lost circulation |
|        |          |   |      |                     |
|        |          |   |      |                     |
|        |          |   |      |                     |
|        |          |   |      |                     |
|        |          |   |      |                     |
|        |          |   |      |                     |
|        |          |   |      |                     |
|        |          |   |      |                     |
|        |          |   |      |                     |
|        |          |   |      |                     |
|        |          |   |      |                     |
|        |          |   |      |                     |
|        |          |   |      |                     |
|        |          |   |      |                     |
|        |          |   |      |                     |
|        |          |   |      |                     |
|        |          |   |      |                     |
|        |          |   |      |                     |
|        |          |   |      |                     |

\* Standard Penetration Test (AASHTO T 206-74)  
Water level upon completion Dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7322.5 Geologist Post Station 218+17 44' Lt. Boring No. 11

| Elev.  | Depth     | Description of Material  | BPF* | Remarks                      |
|--------|-----------|--|------|------------------------------|
| 7322.5 | 0.0-5.0   | Fill, sand & gravel, top 6" asphalt  |      | 2 15/16 Tricone              |
| 17.5   | 5.0-9.0   | Gravel & sand, rough drlg.   |      | Lost Circ. at 9'             |
| 13.5   | 9.0-11    | Boulder  |      | Got return at 11'            |
| 11.5   | 11.0-12.0 | Voids: 11.0-11.5 12.5-14.0, partly filled                                    |      |                              |
| 10.5   | 12.0-19.5 | Silt, sand & gravel, yell. drlg. fluid, firm                                 |      | Long time getting water back |
| 03.0   | 19.5-21.0 | Boulder  |      | Lost cir. 20.5               |
| 01.5   | 21.0-24.0 | Voids: 21.0-22.5, 23.5-24.0  |      | Returns @ 22.5               |
| 7298.5 | 24.0-27.5 | Silt, sand & gravel, yell-gry drlg fluid, tr. gold                           |      |                              |
| 95.0   | 27.5-32.0 | Silt, sand, golden color, clayey, dense                                      |      |                              |
| 90.5   | 32.0-34.5 | Gravel and silt  |      |                              |
| 7287.5 | 34.5      | T.D.   |      |                              |
|        |           |  |      |                              |
|        |           | Note: Only minor lost circulation indicates non-inter-connected small voids. |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion Dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7330.0 Geologist \_\_\_\_\_ Post \_\_\_\_\_ Station 214+32 50'Lt. Boring No. 12

| Elev.  | Depth     | Description of Material                           | BPF* | Remarks           |
|--------|-----------|---|------|-------------------|
| 7330.0 | 0.0-4.0   | Fill sand and silt                                |      | 2-15/16 Tricone   |
| 26.0   | 4.0-13.0  | Sand and Silt                                     |      |                   |
| 17.0   | 13.0-14.5 | Yield: 13.0-14.5 50% voids ±                      |      | Lost Circ. at 13' |
| 15.5   | 14.5-17.0 | Boulder   |      |                   |
| 13.0   | 17.0-32.5 | 100% voids: 17-18, 18.5-19, 19 1/4-20, 21-29 1/2, |      | Large 16 1/2 void |
|        |           | 30.5-32.5   |      | Large 16 1/2 void |
| 7297.5 | 32.5-33.5 | Clay, grey, soft                                  |      |                   |
| 96.5   | 33.5-33.7 | Bedrock   |      |                   |
| 7296.3 | 33.7      | T.D.  |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |
|        |           |   |      |                   |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion Dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7329.3 Geologist Post Station 214+17 50' Lt. Boring No. 13

| Elev.  | Depth      | Description of Material           | BPF* | Remarks             |
|--------|------------|-----------------------------------|------|---------------------|
| 7329.3 | 0.0-1.0    | Asphalt                           |      | 2-15/16 Tricore     |
| 28.3   | 1.0-2.5    | Concrete and Rebar                |      | Lost Circ at 2 1/2' |
| 26.8   | 2.5-14.0   | Gravel and sand, very loose, soft |      |                     |
| 15.3   | 14.0-15.0  | Sand & Gravel, rough hard drlg    |      |                     |
| 14.3   | 15.0-30.0  | void 15.0-30.0                    |      | Large 15' void      |
| 7299.3 | 30.0-31.0' | Bedrock, tight dry drlg           |      |                     |
| 7298.3 | 31.0'      | T.D.                              |      |                     |
|        |            |                                   |      |                     |
|        |            |                                   |      |                     |
|        |            |                                   |      |                     |
|        |            |                                   |      |                     |
|        |            |                                   |      |                     |
|        |            |                                   |      |                     |
|        |            |                                   |      |                     |
|        |            |                                   |      |                     |
|        |            |                                   |      |                     |
|        |            |                                   |      |                     |
|        |            |                                   |      |                     |
|        |            |                                   |      |                     |
|        |            |                                   |      |                     |
|        |            |                                   |      |                     |
|        |            |                                   |      |                     |
|        |            |                                   |      |                     |
|        |            |                                   |      |                     |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_



### FOUNDATION BORING LOG

Top Hole Elev. 7330.7 Geologist \_\_\_\_\_ Post \_\_\_\_\_ Station 214+04.5 49' Lt Median Boring No. 14

| Elev.  | Depth     | Description of Material           | BPF* | Remarks         |
|--------|-----------|-----------------------------------|------|-----------------|
| 7330.7 | 0.0-1.0   | Asphalt                           |      | 2-15/16 Tricone |
| 29.7   | 1.0-11.0  | Sand, brn, crs, firm              |      | 11' lost circ.  |
| 19.7   | 11.0-14.0 | Sand and gravel, boulder at 13-14 |      |                 |
| 16.7   | 14.0-19.0 | Void 14.0-19.0 100%               |      | 5' Void         |
| 11.7   | 19.0-21.0 | Boulder                           |      |                 |
| 09.7   | 21.0-24.5 | Void 100%                         |      | 3½' Void        |
| 06.2   | 24.5-26.5 | Gravel and Boulders               |      |                 |
| 04.2   | 26.5-31.5 | Void 100%                         |      | 5' Void         |
| 7296.7 | 31.5-33.0 | Silt and clay, smooth drlg        |      |                 |
| 7295.2 | 33.0-39.5 | Bedrock, gneiss, hard             |      |                 |
| 7291.2 | 39.5      | T.D.                              |      |                 |
|        |           |                                   |      |                 |
|        |           |                                   |      |                 |
|        |           |                                   |      |                 |
|        |           |                                   |      |                 |
|        |           |                                   |      |                 |
|        |           |                                   |      |                 |
|        |           |                                   |      |                 |
|        |           |                                   |      |                 |
|        |           |                                   |      |                 |
|        |           |                                   |      |                 |
|        |           |                                   |      |                 |
|        |           |                                   |      |                 |
|        |           |                                   |      |                 |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion Dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7330.8 Geologist \_\_\_\_\_ Post \_\_\_\_\_ Station 213+92.5 50' Lt. Median Boring No. 15

| Elev.  | Depth     | Description of Material  | BPF* | Remarks           |
|--------|-----------|--------------------------|------|-------------------|
| 7330.8 | 0.0-0.5   | Asphalt                  |      | 2-15/16 Tricone   |
| 30.3   | 0.5-6.0   | Sand, brn., firm         |      |                   |
| 24.8   | 6.0-12.5  | Sand and gravel          |      | 11.5' lost circ.  |
| 18.3   | 12.5-17.0 | Gravel and boulders      |      |                   |
| 13.8   | 17.0-18.0 | Loose boulders, cavings? |      |                   |
| 12.8   | 18.0-19.0 | Gravel and boulders      |      |                   |
| 11.8   | 19.0-21.5 | Void, with loose fill    |      | 2 1/2 filled Void |
| 09.3   | 21.5-32.5 | Void 80%                 |      | 11' Void          |
| 7298.3 | 32.5-39.5 | Bedrock, Gneiss          |      |                   |
| 7291.3 | 39.5      | T.D.                     |      |                   |
|        |           |                          |      |                   |
|        |           |                          |      |                   |
|        |           |                          |      |                   |
|        |           |                          |      |                   |
|        |           |                          |      |                   |
|        |           |                          |      |                   |
|        |           |                          |      |                   |
|        |           |                          |      |                   |
|        |           |                          |      |                   |
|        |           |                          |      |                   |
|        |           |                          |      |                   |
|        |           |                          |      |                   |
|        |           |                          |      |                   |
|        |           |                          |      |                   |
|        |           |                          |      |                   |
|        |           |                          |      |                   |
|        |           |                          |      |                   |
|        |           |                          |      |                   |
|        |           |                          |      |                   |
|        |           |                          |      |                   |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion Dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7330.8 Geologist \_\_\_\_\_ Post \_\_\_\_\_ Station 213+80 50' Lt. Median \_\_\_\_\_ Boring No. 16

| Elev.  | Depth     | Description of Material              | BPF* | Remarks   |
|--------|-----------|--------------------------------------|------|---|
| 7330.8 | 0.0-0.5   | Asphalt                              |      | 3-3/4" Tricone  |
| 30.3   | 0.5-5.5   | Sand and some small gravel, firm     |      |   |
| 25.3   | 5.5-11.0  | Sand and gravel, hd drlg., silty     |      |   |
| 19.8   | 11.0-13.5 | Silty sand and gravel, boulder 12.5- |      | Lost small circ per 5<br>sec. at 13.5, 17, 18<br>Have circ. |
| 17.3   | 13.5-19.0 | Silty sand, tan, firm, coarse at 18' |      |   |
| 11.8   | 19.0-24.0 | Boulders                             |      |   |
| 7306.8 | 24.0      | I.D.                                 |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |
|        |           |                                      |      |   |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion Dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## FOUNDATION BORING LOG

Top Hole Elev. 7329.3 Geologist \_\_\_\_\_ Post \_\_\_\_\_ Station 214+47 46' Lt. Median \_\_\_\_\_ Boring No. 17

| Elev.  | Depth     | Description of Material                               | BPF* | Remarks                             |
|--------|-----------|---|------|-------------------------------------|
| 7329.3 | 0.0-0.4   | Asphalt   |      | 3-3/4" Tricone<br>HW csg at 23 1/2' |
| 28.9   | 0.4-5.0   | Gravel and boulders                                   |      |                                     |
| 24.3   | 5.0-13.0  | Silt and sand yellow to grey, firm                    |      |                                     |
| 16.3   | 13.0-20.0 | Sand and gravel, grey, hd and rough drlg              |      | Lost circ at 20'<br>Drilled to 24'  |
| 09.3   | 20.0-25.0 | Very loose gravel and sand, Void filling?<br>50-32-14 |      |                                     |
| 04.3   | 25.0-26.5 | Wood timber and gravel                                | 46   | Sp1. 17A                            |
| 03.3   | 25-26     | Blow count: 2 Penetrometer                            |      | 4' Void 100%                        |
| 02.3   | 27        | 2   |      |                                     |
| 01.3   | 28        | 1   |      |                                     |
| 7300.3 | 29        | 2   |      |                                     |
| 7299.3 | 30        | 4   |      |                                     |
| 98.3   | 31        | 25  |      |                                     |
| 98.1   | 31.2      | 50/.02  |      |                                     |
| 7298.1 | 31.2      | T.D.  |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion Dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Project 010545  
Location Idaho Springs, East  
Structure Fill Failure  
Route I 70 County Clear Creek  
Date Drilled 7/1/81

## FOUNDATION BORING LOG

Top Hole Elev. 7328.1 Geologist Bong Station 214+86 6' Lt. W.B. Boring No. 18

| Elev.  | Depth     | Description of Material  | BPF* | Remarks  |
|--------|-----------|--|------|--|
|        |           |  |      | 3-5/8" TC W/water                                      |
| 7328.6 | 0.0-2.0   | Sand and gravel, dense, br.  |      |  |
| 26.6   | 2.0-31.0  | Void and loose material (sand, silt<br>scattered gravel, and cobble) |      | easy drilling<br>20.0-20.5:cobble<br>23.0-24.0:boulder |
| 7297.6 | 31.0-34.0 | Bedrock; hard  |      | 25.0-25.4: cobble                                      |
| 7294.6 | 34.0      | S.I.S.   |      | No return water:<br>2.0-34.0                           |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/1/81 Time 8:30 AM  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

PENETROMETER LOG

Top Hole Elev. 7328.1 Geologist Bong Station 214 + 90 6' Lt. WB Boring No. 19

| Elev.  | Depth | Blows       |
|--------|-------|-------------|
| 7327.6 | 1     | 5           |
| 26.6   | 2     | 10          |
| 25.6   | 3     | 2           |
| 24.6   | 4     | 2           |
| 23.6   | 5     | 3           |
| 22.6   | 6     | 7           |
| 21.6   | 7     | 10          |
| 20.6   | 8     | 21          |
| 19.8   | 9     | 100<br>/ .8 |
|        | 10    |             |
|        | 11    |             |
|        | 12    |             |
|        | 13    |             |
|        | 14    |             |
|        | 15    |             |
|        | 16    |             |
|        | 17    |             |
|        | 18    |             |
|        | 19    |             |
|        | 20    |             |
|        | 21    |             |
|        | 22    |             |
|        | 23    |             |

| Elev. | Depth | Blows |
|-------|-------|-------|
|       | 24    |       |
|       | 25    |       |
|       | 26    |       |
|       | 27    |       |
|       | 28    |       |
|       | 29    |       |
|       | 30    |       |
|       | 31    |       |
|       | 32    |       |
|       | 33    |       |
|       | 34    |       |
|       | 35    |       |
|       | 36    |       |
|       | 37    |       |
|       | 38    |       |
|       | 39    |       |
|       | 40    |       |
|       | 41    |       |
|       | 42    |       |
|       | 43    |       |
|       | 44    |       |
|       | 45    |       |
|       | 46    |       |

| Elev. | Depth | Blows |
|-------|-------|-------|
|       | 47    |       |
|       | 48    |       |
|       | 49    |       |
|       | 50    |       |
|       | 51    |       |
|       | 52    |       |
|       | 53    |       |
|       | 54    |       |
|       | 55    |       |
|       | 56    |       |
|       | 57    |       |
|       | 58    |       |
|       | 59    |       |
|       | 60    |       |
|       | 61    |       |
|       | 62    |       |
|       | 63    |       |
|       | 64    |       |
|       | 65    |       |
|       | 66    |       |
|       | 67    |       |
|       | 68    |       |
|       | 69    |       |

| Elev. | Depth | Blows |
|-------|-------|-------|
|       | 70    |       |
|       | 71    |       |
|       | 72    |       |
|       | 73    |       |
|       | 74    |       |
|       | 75    |       |
|       | 76    |       |
|       | 77    |       |
|       | 78    |       |
|       | 79    |       |
|       | 80    |       |
|       | 81    |       |
|       | 82    |       |
|       | 83    |       |
|       | 84    |       |
|       | 85    |       |
|       | 86    |       |
|       | 87    |       |
|       | 88    |       |
|       | 89    |       |
|       | 90    |       |
|       | 91    |       |
|       | 92    |       |

### FOUNDATION BORING LOG

Top Hole Elev. 7328.6 Geologist Bong Station 215+01 6' Lt. W.B. Boring No. 20

| Elev.  | Depth     | Description of Material  | BPF* | Remarks  |
|--------|-----------|--|------|--|
| 7328.6 | 0.0-9.0   | Sand, gravel, scattered cobble; dense,<br>yellowish br. and br.      |      | 3-5/8" w/water<br>some wood frag-<br>ments: 2.0-7.0          |
| 19.6   | 9.0-31.5  | Void and loose material (sand, silt,<br>scattered gravel and cobble) |      | No return water<br>at 9.0'                                   |
| 7297.1 | 31.5-34.0 | Bedrock; hard  |      | 11.8-12.5: cobble<br>15.2-15.6: cobble<br>15.8-16.3: cobbles |
| 7294.6 | 34.0      | S.I.S.   |      | 18.0-18.2: gravel<br>23.2-24.0: cobble                       |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/1/81 Time 10:00 A.M.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

PENETROMETER LOG

Top Hole Elev. 7328.6 Geologist Bong Station 215 + 04 6' Lt WB Boring No. 21

| Elev.  | Depth | Blows | Elev.  | Depth | Blows | Elev. | Depth | Blows | Elev. | Depth | Blows |
|--------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|
| 7327.6 | 1     |       | 04.6   | 24    | 16    |       | 47    |       |       | 70    |       |
| 26.6   | 2     |       | 03.6   | 25    | 18    |       | 48    |       |       | 71    |       |
| 25.6   | 3     |       | 02.6   | 26    | 25    |       | 49    |       |       | 72    |       |
| 24.6   | 4     |       | 01.6   | 27    | 23    |       | 50    |       |       | 73    |       |
| 23.6   | 5     |       | 00.6   | 28    | 20    |       | 51    |       |       | 74    |       |
| 22.6   | 6     |       | 7299.6 | 29    | 24    |       | 52    |       |       | 75    |       |
| 21.6   | 7     |       | 98.6   | 30    | 22    |       | 53    |       |       | 76    |       |
| 20.6   | 8     |       | 97.6   | 31    | 67    |       | 54    |       |       | 77    |       |
| 19.6   | 9     |       |        | 32    |       |       | 55    |       |       | 78    |       |
| 18.6   | 10    | 0     |        | 33    |       |       | 56    |       |       | 79    |       |
| 17.6   | 11    | 2     |        | 34    |       |       | 57    |       |       | 80    |       |
| 16.6   | 12    | 4     |        | 35    |       |       | 58    |       |       | 81    |       |
| 15.6   | 13    | 3     |        | 36    |       |       | 59    |       |       | 82    |       |
| 14.6   | 14    | 4     |        | 37    |       |       | 60    |       |       | 83    |       |
| 13.6   | 15    | 5     |        | 38    |       |       | 61    |       |       | 84    |       |
| 12.6   | 16    | 6     |        | 39    |       |       | 62    |       |       | 85    |       |
| 11.6   | 17    | 11    |        | 40    |       |       | 63    |       |       | 86    |       |
| 10.6   | 18    | 6     |        | 41    |       |       | 64    |       |       | 87    |       |
| 09.6   | 19    | 5     |        | 42    |       |       | 65    |       |       | 88    |       |
| 08.6   | 20    | 20    |        | 43    |       |       | 66    |       |       | 89    |       |
| 07.6   | 21    | 13    |        | 44    |       |       | 67    |       |       | 90    |       |
| 06.6   | 22    | 15    |        | 45    |       |       | 68    |       |       | 91    |       |
| 05.6   | 23    | 17    |        | 46    |       |       | 69    |       |       | 92    |       |



### FOUNDATION BORING LOG

Top Hole Elev. 7329.0 Geologist Bong Station 214+71 6'Lt. W.B. Boring No. 22

| Elev.  | Depth      | Description of Material                    | BPF* | Remarks                |
|--------|------------|--|------|------------------------|
| 7329.0 | 0.0-7.0    | Sand, gravel, scattered cobble, dense, br. |      | 3-5/8" TC W/water      |
| 22.0   | 7.0-9.0    | Void                                       |      |                        |
| 20.0   | 9.0-27.8   | Continuous penetrometer test               |      | No return water at 7.0 |
|        | Depth      | 10 11 12 13 14 15 16 17 18                 | 19   |                        |
|        | Blow Count | 14 11 10 14 16 15 21 56 24                 | 22   |                        |
|        | Depth      | 20 21 22 23 24 25 26 27 28                 |      |                        |
|        | Blow Count | 45 23 18 15 8 12 36 23 70/.8               |      |                        |
| 7301.2 | 27.8       | S.I.S.                                     |      |                        |
|        |            |  |      |                        |
|        |            |  |      |                        |
|        |            |  |      |                        |
|        |            |  |      |                        |
|        |            |  |      |                        |
|        |            |  |      |                        |
|        |            |  |      |                        |
|        |            |  |      |                        |
|        |            |  |      |                        |
|        |            |  |      |                        |
|        |            |  |      |                        |
|        |            |  |      |                        |
|        |            |  |      |                        |
|        |            |  |      |                        |
|        |            |  |      |                        |
|        |            |  |      |                        |
|        |            |  |      |                        |
|        |            |  |      |                        |
|        |            |  |      |                        |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/1/81 Time 11:05 A.M.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7329.3 Geologist Bong Station 214+56 6'Lt. W.B. Boring No. 23

| Elev.  | Depth         | Description of Material                       | BPF* | Remarks                     |
|--------|---------------|---|------|-----------------------------|
| 7329.3 | 0.0-12.0      | Sand, gravel, and scattered cobble, dense, br |      | 3-5/8" TC<br>W/water        |
| 17.3   | 12.0-14.0     | Void  |      | No return<br>water at 11.0' |
| 15.3   | 14.0-30.2     | Continuous penetrometer test                  |      |                             |
|        | Depth         | 15 16 17 18 19 20 21 22 23                    | 24   | 25                          |
|        | Blow<br>Count | 12 14 15 15 17 13 16 31 26                    | 31   | 35                          |
|        | Depth         | 26 27 28 29 30 31                             |      |                             |
|        | Blow<br>Count | 37 20 16 24 23 50/.2                          |      |                             |
| 7299.1 | 30.2          | S.I.S   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/1/81 Time 12:15 PM  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## FOUNDATION BORING LOG

Top Hole Elev. 7329.3 Geologist Bong Station 214+56 6'Lt. W.B. Boring No. 23

| Elev.  | Depth         | Description of Material                       | BPF* | Remarks                     |
|--------|---------------|---|------|-----------------------------|
| 7329.3 | 0.0-12.0      | Sand, gravel, and scattered cobble, dense, br |      | 3-5/8" TC<br>W/water        |
| 17.3   | 12.0-14.0     | Void  |      | No return<br>water at 11.0' |
| 15.3   | 14.0-30.2     | Continuous penetrometer test                  |      |                             |
|        | Depth         | 15 16 17 18 19 20 21 22 23                    | 24   | 25                          |
|        | Blow<br>Count | 12 14 15 15 17 13 16 31 26                    | 31   | 35                          |
|        | Depth         | 26 27 28 29 30 31                             |      |                             |
|        | Blow<br>Count | 37 20 16 24 23 50/.2                          |      |                             |
| 7299.1 | 30.2          | S.I.S   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |
|        |               |   |      |                             |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/1/81 Time 12:15 PM  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Project 010545  
 Location Idaho Springs, East  
 Structure Fill Failure  
 Route I 70 County Clear Creek  
 Date Drilled 7/1/81

### FOUNDATION BORING LOG

Top Hole Elev. 7330.0 Geologist Bong Station 214+26 8' Lt. W.B. Boring No. 24

| Elev.  | Depth     | Description of Material                        | BPF* | Remarks                        |
|--------|-----------|--|------|--------------------------------|
| 7330.0 | 0.0-25.0  | Sand, gravel, and scattered cobble, dense, br  |      | 3-5/8" TC<br>W/water           |
| 05.0   | 25.0-31.0 | As above, more gravel and cobble, V. dense, br |      | No return<br>water at 16.0'    |
| 7299.0 | 31.0-34.0 | Bedrock; V. hard                               |      | Return water<br>at 29.0'=34.0' |
| 7296.0 | 34.0      | S.I.S.   |      | 13.8-14.5:cobble               |
|        |           |  |      | 15.7-16.2:cobble               |
|        |           |  |      | 16.5-17.2:cobble               |
|        |           |  |      | 19.4-19.8:cobble               |
|        |           |  |      | 21.0-21.8:cobble               |
|        |           |  |      | 30.0-31.0:boulder              |
|        |           |  |      |                                |
|        |           |  |      |                                |
|        |           |  |      |                                |
|        |           |  |      |                                |
|        |           |  |      |                                |
|        |           |  |      |                                |
|        |           |  |      |                                |
|        |           |  |      |                                |
|        |           |  |      |                                |
|        |           |  |      |                                |
|        |           |  |      |                                |
|        |           |  |      |                                |
|        |           |  |      |                                |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/1/81 Time 2:30 P.M.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7327.1 Geologist Bong Station 215+19 8' Lt. W.B. Boring No. 25

| Elev.  | Depth      | Description of Material   | BPF* | Remarks                  |
|--------|------------|---|------|--------------------------|
| 7327.1 | 0.0-15.0   | Sand, gravel, scattered cobble, and some wood fragments, dense, br. |      | 3-5/8" TC<br>W/water     |
| 12.1   | 15.0-21.0  | Void  |      | No return water at 14.5' |
| 12.1   | 15.0-30.4  | Attempted continuous penetrometer test at 15.0'                     |      |                          |
|        | Depth      | 16 17 18 19 20 21 22 23 24 25                                       |      |                          |
|        | Blow Count | - - - - - 0 - - - - - 14 17 22 24                                   |      |                          |
|        | Depth      | 26 27 28 29 30 31   |      |                          |
| 7296.7 | Blow Count | 29 20 12 16 19 50/.4  |      |                          |
|        | 30.4       | S.I.S.  |      |                          |
|        |            |   |      |                          |
|        |            |   |      |                          |
|        |            |   |      |                          |
|        |            |   |      |                          |
|        |            |   |      |                          |
|        |            |   |      |                          |
|        |            |   |      |                          |
|        |            |   |      |                          |
|        |            |   |      |                          |
|        |            |   |      |                          |
|        |            |   |      |                          |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/1/81 Time 3:10 P.M.  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7327.8 Geologist Bong Station 215+56 7' Lt W.B. Boring No. 26

| Elev.  | Depth     | Description of Material   | BPF* | Remarks                               |
|--------|-----------|---|------|---------------------------------------|
| 7327.8 | 0.0-22.0  | Sand, gravel, and scattered cobble, some<br>wood fragments, dense, br |      | 3-5/8" TC<br>W/water                  |
| 05.8   | 22.0-28.0 | Loose material; sand and silt   |      | easy drilling                         |
|        | 28.0-32.0 | Sand, gravel, and cobble; V. dense                                    |      | 12.0-12.8:cobble<br>13.7-14.5:cobble  |
| 7299.8 | 32.0-34.0 | Bedrock; hard   |      | 15.0-15.5:cobble<br>16.2-16.8:cobble  |
| 7293.8 | 34.0      | S.I.S.  |      | 17.0-18.0:boulder<br>19.0-19.6:cobble |
|        |           |   |      | No return water:<br>19.0-34.0         |
|        |           |   |      |                                       |
|        |           |   |      |                                       |
|        |           |   |      |                                       |
|        |           |   |      |                                       |
|        |           |   |      |                                       |
|        |           |   |      |                                       |
|        |           |   |      |                                       |
|        |           |   |      |                                       |
|        |           |   |      |                                       |
|        |           |   |      |                                       |
|        |           |   |      |                                       |
|        |           |   |      |                                       |
|        |           |   |      |                                       |
|        |           |   |      |                                       |
|        |           |   |      |                                       |
|        |           |   |      |                                       |
|        |           |   |      |                                       |
|        |           |   |      |                                       |
|        |           |   |      |                                       |
|        |           |   |      |                                       |
|        |           |   |      |                                       |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/1/81 Time 5:15 P.M.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

STATE OF COLORADO  
 DEPARTMENT OF HIGHWAYS  
 DIVISION OF HIGHWAYS  
 DOH Form No. 267  
 Revised, September, 1978

Project 010545  
 Location Idaho Spgs. E.  
 Structure Fill failure  
 Route I 70 County Clear Cr.  
 Date Drilled 7/2/81

### FOUNDATION BORING LOG

Top Hole Elev. 7323.5 Geologist Bong Station 217+94 6' Rt. E.B. Boring No. 27

| Elev.  | Depth     | Description of Material                              | BPF* | Remarks                                  |
|--------|-----------|--|------|--|
| 7323.5 | 0.0-24.0  | Sand, gravel, and scattered cobble; dense, br & gry. |      | 3 5/8" TC w/water<br>no return water @ 1 |
| 7299.5 | 24.0-29.0 | Void and loose material (sand & silt)                |      | momentarily                              |
| 94.5   | 29.0-32.0 | Sand, gravel, and scattered cobble; v. dense         |      |  |
| 7291.5 | 32.0-34.0 | Bedrock; hard  |      | no return water @ 2                      |
| 7289.5 | 34.0      | S.I.S.   |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/2/81 Time 8:50 a.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Project 010545  
 Location Idaho Spgs. E.  
 Structure Fill failure  
 Route I 70 County Clear Cr.  
 Date Drilled 7/2/81

### FOUNDATION BORING LOG

Top Hole Elev. 7323.5 Geologist Bong Station 218+09 6' Rt. E.B. Boring No. 28

| Elev.  | Depth     | Description of Material  | BPF* | Remarks                  |
|--------|-----------|--|------|--------------------------|
| 7323.5 | 0.0-5.0   | Sand, gravel, and scattered cobble; v. dense,                          | br.  | 3 5/8" TC w/water        |
| 18.5   | 5.0-44.0  | Void and loose material (sand, silt, and occasional gravel and cobble) |      | no return water @ 5<br>4 |
|        |           | Attempted penetrometer test @ 9.0'                                     |      |                          |
|        | depth     | 10            11   |      |                          |
|        | blow      | 28            50/.3  |      |                          |
| 7279.5 | 44.0-45.0 | Bedrock; v. hard   |      |                          |
| 7278.5 | 45.0      | S.I.S.   |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |
|        |           |  |      |                          |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/2/81 Time 10:40 a.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_



**FOUNDATION BORING LOG**

Top Hole Elev. 7323.0 Geologist Bong Station 218+24 6' Rt. E.B. Boring No. 29

| Elev.  | Depth     | Description of Material                                     | BPF* | Remarks  |
|--------|-----------|---|------|--|
| 7323.0 | 0.0-4.0   | Sand, gravel, and scattered cobble; dense, br.              |      | 3 5/8" TC w/water                                      |
| 19.0   | 4.0-15.0  | Void and loose material (sand, silt, and occasional cobble) |      | no water return @ 4                                    |
|        |           | attempted penetrometer test @ 14.0'                         |      | 35   |
|        | depth     | 15      16      17      18                                  |      |  |
|        | blow      | 17      28      71      50/.2                               |      |  |
| 08.0   | 15.0-31.0 | Sand, gravel, cobble; v. dense                              |      | 19.0-19.8: cobble<br>21.0-21.5: 7<br>more cobble after |
| 7292.0 | 31.0-33.0 | Bedrock; v. hard  |      |  |
| 7290.0 | 33.0      | S.I.S.  |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |

\* Standard Penetration Test (AASHTO T 206-74)

Project 010545  
 Location Idaho Spgs. E.  
 Structure Fill Failure  
 Route I 70 County Clear Cr.  
 Date Drilled 7/2/81

### FOUNDATION BORING LOG

Top Hole Elev. 7324.0 Geologist Bong Station 217+81 7' Rt. E.B. Boring No. 30

| Elev.  | Depth     | Description of Material                                    | BPF* | Remarks             |
|--------|-----------|--|------|---------------------|
| 7324.0 | 0.0-0.9   | Asphalt conc. (new fill)                                   |      | 3 5/8" TC w/water   |
| 23.9   | 0.9-2.0   | Void (100%)  |      | no return water @ 2 |
| 22.0   | 2.0-8.0   | Sand, gravel, and scattered boulder; v. dense,             |      | 6.5-8.0: boulder, V |
| 16.0   | 8.0-10.0  | Void & V. loose material (sand & silt)                     |      |                     |
|        |           | penetrometer test @ 9.0                                    |      |                     |
|        | depth     | 10 11 12 13 14 15 16                                       |      |                     |
|        | blow      | 1 5 13 11 10 10 18   |      |                     |
|        | depth     | 17 18 19 20 21 22 23                                       |      |                     |
|        | blow      | 12 24 22 27 26 11 8  |      |                     |
|        | depth     | 24 25 26 27 28 29 30 31                                    |      |                     |
|        | blow      | 11 9 10 10 14 12 54 50/.3                                  |      |                     |
| 14.0   | 10.0-30.0 | Void and loose material (sand, silt, and scattered gravel) |      |                     |
| 7294.0 | 30.0-30.3 | Bedrock; v. hard   |      |                     |
| 7293.7 | 30.3      | S.I.S.   |      |                     |
|        |           |  |      |                     |
|        |           |  |      |                     |
|        |           |  |      |                     |
|        |           |  |      |                     |
|        |           |  |      |                     |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/2/81 Time 3:00 p.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## FOUNDATION BORING LOG

Top Hole Elev. 7324.1 Geologist Bong Station 217+64 7' Rt. E.B. Boring No. 31

| Elev.  | Depth     | Description of Material                                  | BPF* | Remarks                |
|--------|-----------|--|------|------------------------|
| 7324.1 | 0.0-13.0  | Sand, silt, gravel, scattered cobble; dense, br.         |      | 3 5/8" TC w/water      |
| 11.1   | 13.0-14.0 | Boulder; v. hard   |      | no return water @ 11.1 |
| 10.1   | 14.0-18.0 | Void and loose material (sand, silt, & scattered gravel) |      |                        |
|        |           | penetrometer test; 17-30                                 |      |                        |
|        | depth     | 17 18 19 20 21 22 23                                     |      |                        |
|        | blow      | 24 22 31 37 56 34 75                                     |      |                        |
|        | depth     | 24 25 26 27 28 29 30                                     |      |                        |
|        | blow      | 39 33 52 32 30 38 110                                    |      |                        |
| 06.1   | 18.0-29.0 | Sand, gravel, scattered cobble; dense                    |      |                        |
| 7295.1 | 29.0-30.0 | Bedrock; hard  |      |                        |
| 7294.1 | 30.0      | S.I.S.   |      |                        |
|        |           |  |      |                        |
|        |           |  |      |                        |
|        |           |  |      |                        |
|        |           |  |      |                        |
|        |           |  |      |                        |
|        |           |  |      |                        |
|        |           |  |      |                        |
|        |           |  |      |                        |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/6/81 Time 10:50 a.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Project 010545  
Location Idaho Spgs. E.  
Structure Fill Failure  
Route 170 County Clear Cr.  
Date Drilled 7/6/81

## FOUNDATION BORING LOG

Top Hole Elev. 7324.3 Geologist \_\_\_\_\_ Bong \_\_\_\_\_ Station 217+46 6' Rt. E.B. Boring No. 32

| Elev.  | Depth     | Description of Material  | BPF* | Remarks                              |
|--------|-----------|--|------|--------------------------------------|
| 7324.3 | 0.0-7.5   | Sand, silt, gravel, and scattered cobble; dense                    |      | 3 5/8" TC w/water                    |
| 16.8   | 7.5-30.0  | Void and loose material (silt, sand,<br>scattered gravel & cobble) |      | no return water @ 6<br>easy drilling |
| 7294.3 | 30.0-31.0 | Bedrock; v. hard   |      | 12.5-14.0: boulder,                  |
| 7293.3 | 31.0      | S.I.S.   |      |                                      |
|        |           |  |      |                                      |
|        |           |  |      |                                      |
|        |           |  |      |                                      |
|        |           |  |      |                                      |
|        |           |  |      |                                      |
|        |           |  |      |                                      |
|        |           |  |      |                                      |
|        |           |  |      |                                      |
|        |           |  |      |                                      |
|        |           |  |      |                                      |
|        |           |  |      |                                      |
|        |           |  |      |                                      |
|        |           |  |      |                                      |
|        |           |  |      |                                      |
|        |           |  |      |                                      |
|        |           |  |      |                                      |
|        |           |  |      |                                      |
|        |           |  |      |                                      |
|        |           |  |      |                                      |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/6/81 Time 1:10 p.m.  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## FOUNDATION BORING LOG

Top Hole Elev. 7327.0 Geologist Bong Station 215+86 41'Rt. E.B. Boring No. 33

| Elev.  | Depth     | Description of Material                                       | BPF* | Remarks                     |
|--------|-----------|---|------|-----------------------------|
| 7327.0 | 0.0-0.7   | Asphalt Conc.   |      | 3-5/8" TC<br>W/water        |
| 26.3   | 0.7-12.5  | Sand, silt, gravel, and scattered cobble;<br>dense, br.       |      | No return<br>water at 11.5' |
| 14.5   | 12.5-32.0 | Void and loose material (sand, silt, and<br>scattered cobble) |      | Easy drilling               |
| 7295.0 | 32.0-34.0 | Bedrock; hard   |      | 11.5-12.5:boulder, V        |
| 7293.0 | 34.0      | S.I.S.  |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |
|        |           |   |      |                             |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/6/81 Time 2:20 P.M.

Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7326.9 Geologist Bong Station 216+01 41' Rt. E.B. Boring No. 34

| Elev.  | Depth     | Description of Material   | BPF* | Remarks                          |
|--------|-----------|---|------|----------------------------------|
| 7326.9 | 0.0-22.0  | Sand, silt, gravel, and scattered cobble; dense, br.            |      | 3 5/8" TC w/water                |
| 7304.9 | 22.0-32.0 | Voids and loose materials (sand, silt,<br>and scattered gravel) |      | grey @ 21.0<br>no return water @ |
| 7294.9 | 32.0-34.0 | Bedrock; hard   |      |                                  |
| 7292.9 | 34.0      | S.I.S.  |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |
|        |           |   |      |                                  |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/6/81 Time 3:35 p.m.  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Project 010545  
 Location Idaho Spgs. E.  
 Structure Fill Failure  
 Route I 70 County Clear Cr.  
 Date Drilled 7/6/81

## FOUNDATION BORING LOG

Top Hole Elev. 7324.7 Geologist Bong Station 217+29 6' Rt. E.B. Boring No. 35

| Elev.  | Depth     | Description of Material                                 | BPF* | Remarks                             |
|--------|-----------|---|------|-------------------------------------|
| 7324.7 | 0.0-16.0  | Sand, silt, gravel, and scattered cobble; dense, br.    |      | 3 5/8" TC w/water                   |
| 08.7   | 16.0-30.0 | Voids and loose material (sand, silt, scattered gravel) |      | no return water @ 16' easy drilling |
| 7294.7 | 30.0-32.0 | Bedrock; hard   |      |                                     |
| 7292.7 | 32.0      | S.I.S.  |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |
|        |           |   |      |                                     |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/6/81 Time 4:50 p.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## FOUNDATION BORING LOG

Top Hole Elev. 7325.0 Geologist Bong Station 217+12 6' Rt. E.B. Boring No. 36

| Elev.  | Depth     | Description of Material                              | BPF* | Remarks             |
|--------|-----------|--|------|---------------------|
| 7325.0 | 0.0-1.0   | Concrete (new fill)                                  |      | 3 5/8" TC w/water   |
| 24.0   | 1.0-3.0   | V. loose material (sand and silt)                    |      | no return water @ 1 |
| 22.0   | 3.0-16.0  | Sand, silt, gravel, and scattered cobble; dense, br. |      |                     |
| 09.0   | 16.0-32.0 | Voids and loose material (sand, silt, and            |      | easy drilling       |
|        |           | scattered gravel)                                    |      | very loose @ 20.0'  |
| 7293.0 | 32.0-34.0 | Bedrock; hard  |      |                     |
| 7291.0 | 34.0      | S.I.S.   |      |                     |
|        |           |  |      |                     |
|        |           |  |      |                     |
|        |           |  |      |                     |
|        |           |  |      |                     |
|        |           |  |      |                     |
|        |           |  |      |                     |
|        |           |  |      |                     |
|        |           |  |      |                     |
|        |           |  |      |                     |
|        |           |  |      |                     |
|        |           |  |      |                     |
|        |           |  |      |                     |
|        |           |  |      |                     |
|        |           |  |      |                     |
|        |           |  |      |                     |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/7/81 Time 9:10 a.m.

Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_



Project 010545  
 Location Idaho Spgs. E.  
 Structure Fill failure  
 Route I 70 County Clear Cr.  
 Date Drilled 7/7/81

**FOUNDATION BORING LOG**

Top Hole Elev. 7325.2 Geologist Bong Station 216+98 6' Rt. E.B. Boring No. 37

| Elev.  | Depth     | Description of Material   | BPF* | Remarks  |
|--------|-----------|---|------|--|
| 7325.2 | 0.0-26.0  | Sand, silt, gravel, and scattered cobble & boulder, v. dense, br. |      | 3 5/8" TC w/water<br>no return water momentarily @ 17. |
| 7299.2 | 26.0-31.0 | Loose material; sand and silt                                     |      | no return water @                                      |
| 7294.2 | 31.0-32.0 | Bedrock; v. hard  |      |  |
| 7293.2 | 32.0      | S.I.S.  |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/7/81 Time 11:05 a.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7326.0 Geologist Bong Station 216+50 6' Rt. E.B. Boring No. 38

| Elev.  | Depth     | Description of Material                              | BPF* | Remarks                      |
|--------|-----------|--|------|------------------------------|
| 7326.0 | 0.0-30.0  | Sand, silt, gravel, and scattered cobble; dense, br. |      | 3 5/8" TC w/water            |
| 7296.0 | 30.0-31.0 | Bedrock; v. hard                                     |      | no return water              |
| 7295.0 | 31.0      | S.I.S.   |      | momentarily @ 11. C<br>19. C |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |
|        |           |  |      |                              |

\* Standard Penetration Test (AASHTO T 206-74)  
 Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/7/81 Time 1:20 p.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7329.3 Geologist Bong Station 214+55 7' Rt. E.B. Boring No. 39

| Elev.  | Depth     | Description of Material                     | BPF* | Remarks                                |
|--------|-----------|---|------|--|
| 7329.3 | 0.0-31.0  | Sand, silt, gravel, scattered cobble; dense |      | 3-5/8" TC with water                   |
| 7298.3 | 31.0-34.0 | Bedrock; V. hard                            |      | Return water at all time.              |
| 7295.3 | 34.0      | S.I.S.                                      |      | No return water<br>Momentairly at 16.5 |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |
|        |           |   |      |  |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/7/81 Time 3:10 P.M.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7329.0 Geologist Bong-Post Station 214+70 8'Rt. E.B. Boring No. 40

| Elev.  | Depth     | Description of Material                                 | BPF* | Remarks                    |
|--------|-----------|---|------|----------------------------|
| 7329.0 | 0.0-16.0  | Sand, silt, gravel, and scattered cobble;<br>dense, br. |      | 3-5/8" TC<br>W/water       |
| 13.0   | 16.0-18.0 | Void 100%   |      | 500-900 lb/in.<br>pressure |
| 11.0   | 18.0-20.0 | Void 20% (80% loose sand & gravel)                      |      | Lost some circ<br>at 14'   |
| 09.0   | 20.-25    | Voids 20% (80% loose sand & gravel)                     |      |                            |
| 04.0   | 25-31.0   | Voids 40%(60% loose sand & gravel)                      |      |                            |
| 7298.0 | 31.0      | Bedrock   |      |                            |
| 7296.0 | 33.0      | T.D.  |      |                            |
|        |           |   |      |                            |
|        |           |   |      |                            |
|        |           |   |      |                            |
|        |           |   |      |                            |
|        |           |   |      |                            |
|        |           |   |      |                            |
|        |           |   |      |                            |
|        |           |   |      |                            |
|        |           |   |      |                            |
|        |           |   |      |                            |
|        |           |   |      |                            |
|        |           |   |      |                            |
|        |           |   |      |                            |
|        |           |   |      |                            |
|        |           |   |      |                            |
|        |           |   |      |                            |
|        |           |   |      |                            |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion Dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7329.0 Geologist \_\_\_\_\_ Post \_\_\_\_\_ Station 214+85 6'Rt \_\_\_\_\_ Boring No. 41

| Elev.  | Depth     | Description of Material     | BPF* | Remarks         |
|--------|-----------|-----------------------------|------|-----------------|
| 7329.0 | 0.0-4.0   | Fill sand & gravel          |      | 2-15/16 Tricone |
| 25.0   | 4.0-5.0   | Sand, soft                  |      |                 |
| 24.0   | 5.0-9.0   | Sand and gravel, dense      |      | Lost circ at 7' |
| 20.0   | 9.0-10.0  | Void 100%                   |      |                 |
| 19.0   | 10.0-13.5 | Gravel, hd, dense           |      |                 |
| 15.5   | 13.5-18.5 | Void 100%                   |      |                 |
| 10.5   | 18.5-22.0 | Void 20% (80% loose gravel) |      | Total Void 14½  |
| 06.0   | 22.0-24.0 | Void 90%                    |      |                 |
| 05.0   | 24.0-26.0 | Gravel, hd                  |      |                 |
| 03.0   | 26.0-29.0 | Void 100%                   |      |                 |
| 7300.0 | 29.0-30.5 | Gravel, hd.                 |      |                 |
| 7298.5 | 30.5-31.0 | Bedrock, gneiss             |      |                 |
| 7298.0 | 31.0      | T.D.                        |      |                 |
|        |           |                             |      |                 |
|        |           |                             |      |                 |
|        |           |                             |      |                 |
|        |           |                             |      |                 |
|        |           |                             |      |                 |
|        |           |                             |      |                 |
|        |           |                             |      |                 |
|        |           |                             |      |                 |
|        |           |                             |      |                 |
|        |           |                             |      |                 |
|        |           |                             |      |                 |
|        |           |                             |      |                 |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion Dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## FOUNDATION BORING LOG

Top Hole Elev. 7328.6 Geologist Post Station 215 + 00 6' Rt. Boring No. 42

| Elev.  | Depth      | Description of Material        | BPF* | Remarks           |
|--------|------------|--------------------------------|------|-------------------|
| 7328.6 | 0.0 - 2.5  | Sand and gravel                |      | 2 15/16 Tricone   |
| 26.1   | 2.5 - 7.0  | Void 100%                      |      | Lost Circ. 2 1/2' |
| 21.6   | 7.0 - 8.0  | Void 50% (50% very loose fill) |      | 200# only         |
| 20.6   | 8.0 - 9.0  | Boulder                        |      |                   |
| 19.6   | 9.0 -14.5  | Void 100%                      |      |                   |
| 14.1   | 14.5 -15.5 | Boulder                        |      |                   |
| 13.1   | 15.5 -19.0 | Void 100%                      |      | 24 1/2 Void       |
| 09.6   | 19.0 -19.5 | Void 30%                       |      |                   |
| 09.1   | 19.5 -20.0 | Gravel - Timber ?              |      |                   |
| 08.6   | 20.0 -22.0 | Void 100%                      |      |                   |
| 06.6   | 22.0 -24.5 | Void 60%                       |      |                   |
| 04.1   | 24.5 -27.0 | Sand & Gravel                  |      |                   |
| 01.6   | 27.0- 29.0 | Void 50%                       |      |                   |
| 7299.6 | 29.0 -32.0 | Void 100%                      |      |                   |
| 96.6   | 32.0 -35.0 | Bedrock, soft, firm            |      |                   |
| 7293.6 | 35.0       | T.D.                           |      |                   |
|        |            |                                |      |                   |
|        |            |                                |      |                   |
|        |            |                                |      |                   |
|        |            |                                |      |                   |
|        |            |                                |      |                   |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7328.0 Geologist Post Station 215 + 22 6' RT. EB Boring No. 43

| Elev.  | Depth     | Description of Material            | BPF* | Remarks          |
|--------|-----------|------------------------------------|------|------------------|
| 7328.0 | 0.0 -11.0 | Fill, gravel & boulders, firm, hd. |      | 2 15/16 Tricone  |
| 17.0   | 11.0-14.0 | Sand & gravel, hd., firm           |      |                  |
| 14.0   | 14.0-16.0 | Boulder                            |      |                  |
| 12.0   | 16.0-22.5 | Gravel and boulders, hd., firm     |      | Lost water 22.0' |
| 07.5   | 22.5-23.0 | Void 50%                           |      |                  |
| 05.0   | 23.0-26.0 | Gravel & Boulders, hd., firm       |      |                  |
| 02.0   | 26.0-31.0 | Void 85%                           |      |                  |
| 7297.0 | 31.0-32.0 | Bedrock, soft, firm                |      |                  |
| 7296.0 | 32.0      | T. D.                              |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |
|        |           |                                    |      |                  |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## FOUNDATION BORING LOG

Top Hole Elev. 7329.2 Geologist Post Station 214 + 72 46' Lt. Boring No. 44

| Elev.  | Depth     | Description of Material     | BPF* | Remarks                               |
|--------|-----------|-----------------------------|------|---------------------------------------|
| 7329.2 | 0.0 - 5.0 | Fill, sand and gravel, firm |      | 2 15/16" Tricone                      |
| 24.2   | 5.0 -30.0 | Sand and gravel, firm       |      | Lost Circ. 13 1/2'<br>Get return @15' |
| 7299.2 | 30.0-31.0 | Clay, soft                  |      | No lost circ.                         |
| 98.2   | 31.0-31.5 | Bedrock, hd.                |      |                                       |
| 7298.2 | 31.5      | T. D.                       |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |
|        |           |                             |      |                                       |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_



## FOUNDATION BORING LOG

Top Hole Elev. 7329.2 Geologist Post Station 215 + 07 52' Lt. Boring No. 45

| Elev.  | Depth      | Description of Material        | BPF* | Remarks          |
|--------|------------|--------------------------------|------|------------------|
| 7329.2 | 0.0 -0.5   | Asphalt                        |      | 2 15/16 Tricone  |
| 28.7   | 0.5 - 5.0  | Sand & gravel, fill            |      |                  |
| 24.2   | 5.0 -10.0  | Sand, brown, gray, firm, silty |      | Lost circ. @13½' |
| 19.2   | 10.0 -13.0 | Gravel and boulders            |      |                  |
| 16.2   | 13.0 -14.0 | Void 100%                      |      |                  |
| 15.2   | 14.0 -16.0 | Boulder                        |      |                  |
| 13.2   | 16.0 -17.0 | Void 100%                      |      |                  |
| 12.2   | 17.0 -18.0 | Boulder                        |      |                  |
| 11.2   | 18.0 -20.0 | Gravel, firm                   |      |                  |
| 09.2   | 20.0 -23.0 | Void, 100%                     |      |                  |
| 06.2   | 23.0 -27.0 | Gravel, firm, hd.              |      |                  |
| 02.2   | 27.0 -28.5 | Sand, smooth drilling          |      |                  |
| 00.7   | 28.5 -29.0 | Boulder                        |      |                  |
| 7200.2 | 29.0 -31.5 | Gravel, firm                   |      |                  |
| 7297.7 | 31.5 -32.0 | Bedrock                        |      |                  |
| 7297.2 | 32.0       | T. D.                          |      |                  |
|        |            |                                |      |                  |
|        |            |                                |      |                  |
|        |            |                                |      |                  |
|        |            |                                |      |                  |
|        |            |                                |      |                  |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## FOUNDATION BORING LOG

Top Hole Elev. 7329.0 Geologist Post Station 215 + 40 56' Lt. Boring No. 46

| Elev.  | Depth      | Description of Material             | BPF* | Remarks         |
|--------|------------|-------------------------------------|------|-----------------|
| 7329.0 | 0.0 - 0.4  | Asphalt                             |      | 2 15/16 Tricone |
| 28.6   | 0.4 - 3.5  | Fill, gravel, hd., dense            |      |                 |
| 25.5   | 3.5 - 9.0  | Sand, brown, coarse, dense, firm    |      |                 |
| 20.0   | 9.0 -12.0  | Silty sand, gray-tan, boulder @10'  |      | Lost circ. @12' |
| 17.0   | 12.0 -17.0 | Sand and gravel                     |      |                 |
| 12.0   | 17.0-19.0  | Void 65% (35% loose fill)           |      |                 |
| 10.0   | 19.0-20.0  | Gravel                              |      |                 |
| 09.0   | 20.0-21.5  | Void 75%                            |      |                 |
| 07.5   | 21.5-29.5  | Gravel & boulders, hd. drlg., dense |      |                 |
| 7299.5 | 29.5-30.0  | Clay, soft                          |      |                 |
| 99.0   | 30.0-31.0  | Bedrock, gneiss                     |      |                 |
| 7298.0 | 31.0       | T. D.                               |      |                 |
|        |            |                                     |      |                 |
|        |            |                                     |      |                 |
|        |            |                                     |      |                 |
|        |            |                                     |      |                 |
|        |            |                                     |      |                 |
|        |            |                                     |      |                 |
|        |            |                                     |      |                 |
|        |            |                                     |      |                 |
|        |            |                                     |      |                 |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## FOUNDATION BORING LOG

Top Hole Elev. 7328.3 Geologist John Post Station 215 + 22 35' Rt. Boring No. 47

| Elev.                       | Depth     | Description of Material                         | BPF* | Remarks          |
|-----------------------------|-----------|---|------|------------------|
| 7328.3                      | 0.0 - 0.3 | Asphalt   |      | 2 15/16" Tricone |
| 28.0                        | 0.3 - 6.0 | Sand and small gravel, dense                    |      |                  |
| 22.3                        | 6.0 -13.0 | Sand and gravel, hd., firm                      |      |                  |
| 15.3                        | 13.0-17.0 | Silty sand, some gravel                         |      |                  |
| 11.3                        | 17.0-18.5 | Gravel, sand, firm                              |      |                  |
| 9.8                         | 18.5-24.0 | Boulders, gravel, sand, hd., firm               |      |                  |
| 4.3                         | 24.0-25.5 | Sand, gravel, fast drilling                     |      |                  |
| 2.8                         | 25.5-27.0 | Boulder   |      |                  |
| 1.3                         | 27.0-33.5 | Sand, smooth drilling, firm, very little gravel |      |                  |
| 7294.8                      | 33.5-35.0 | Bedrock   |      |                  |
| <del>7294.3</del><br>7294.3 | 35.0      | T. D.   |      |                  |
|                             |           |   |      |                  |
|                             |           |   |      |                  |
|                             |           |   |      |                  |
|                             |           |   |      |                  |
|                             |           |   |      |                  |
|                             |           |   |      |                  |
|                             |           |   |      |                  |
|                             |           |   |      |                  |
|                             |           |   |      |                  |
|                             |           |   |      |                  |
|                             |           |   |      |                  |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Opposite #31  
 Outside land E.B. c.l.

### FOUNDATION BORING LOG

Top Hole Elev. <sup>24.2</sup>7328.6 Geologist Hansen Station 217+62 35' Rt. Boring No. 48

| Elev.  | Depth     | Description of Material    | BPF*   | Remarks                             |
|--------|-----------|----------------------------|--------|-------------------------------------|
| 7328.6 | 0.0-0.3   | Asphalt                    |        | 2 15/16 Tricone                     |
| 28.3   | 0.3-1.3   | Concrete                   |        |                                     |
| 27.3   | 1.3-2.5   | Sand, very soft            |        |                                     |
| 26.1   | 2.5-4.0   | Boulders, gravel, hd.-firm |        | 3.5 lost water                      |
| 24.6   | 4.0-5.5   | Void 100%                  |        |                                     |
| 23.1   | 5.5-6.0   | Gravel sand                |        |                                     |
| 22.6   | 6.0-9.0   | Void 100%                  |        |                                     |
| 19.6   | 9.0-9.5   | Boulder                    |        |                                     |
| 19.1   | 9.5-11.0  | Void 85%                   |        |                                     |
| 17.6   | 11.0-12.0 | Boulder                    |        |                                     |
| 16.3   | 12.0-14.0 | Void 50%                   |        |                                     |
| 14.1   | 14.0-15.0 | Boulder                    |        |                                     |
| 13.6   | 15.0-18.5 | Void 100%                  |        |                                     |
| 10.6   | 18.5-19.0 | Boulder                    |        |                                     |
| 09.6   | 19.0-20.0 | Void 100%                  |        |                                     |
| 8.6    | 20.0-21.5 | Boulder gravel hd. firm    |        |                                     |
| 7.1    | 21.5-24.0 | Loose gravel 500 lbs.      |        |                                     |
| 4.6    | 24.0-26.5 | Gravel, sand firm          |        |                                     |
| 2.1    | 26.5-27.5 | Boulder                    | 7299.1 | 29.5-32.5 Sand smooth drilling firm |
| 1.1    | 27.5-28.5 | smooth Sand drilling       | 96.1   | 32.5-34.0 Bedrock                   |
| 7300.1 | 28.5-29.5 | Boulder                    | 7294.6 | 34.0 TD                             |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Opp. #36  
Outside land E.B. c.l.

### FOUNDATION BORING LOG

Top Hole Elev. <sup>25.9</sup> 7328.7 Geologist Hansen Station 217+17 35' Rt. Boring No. 49

| Elev.  | Depth     | Description of Material            | BPF* | Remarks                                     |
|--------|-----------|------------------------------------|------|---|
| 7328.7 | 0.0-0.3   | Asphalt                            |      | 2 15/16 Tricone                             |
| 28.4   | 0.3-2.0   | Concrete                           |      | 4.0-20.5 slow drilling<br>Very compact John |
| 26.7   | 2.0-3.0   | Boulders, gravel, hd.              |      |   |
| 25.7   | 3.0-4.0   | Sand                               |      |   |
| 24.7   | 4.0-10.5  | Boulder, gravel, sand, hd.-firm    |      |   |
| 18.2   | 10.5-15.5 | Gravel, sand, hd.-firm             |      |   |
| 13.2   | 15.5-16.5 | Boulder                            |      |   |
| 12.2   | 16.5-19.0 | Gravel; HD, firm                   |      |   |
| 02.7   | 19.0-21.0 | Void 100%            2.0 foot void |      |   |
| 07.7   | 21.0-21.5 | Boulder                            |      |   |
| 07.2   | 21.5-22.5 | Void 80%            1.0 foot void  |      |   |
| 06.2   | 22.5-23.5 | Boulder                            |      |   |
| 05.2   | 23.5-27.5 | Void 100%            4.0 foot void |      |   |
| 01.2   | 27.5-29.5 | Gravel, firm                       |      |   |
| 7299.2 | 29.5-33.0 | Void 100%            3.5 foot void |      |   |
| 95.7   | 33.0-35.0 | Bedrock                            |      |   |
| 7293.7 | 35.0      | T.D.                               |      |   |
|        |           |                                    |      |   |
|        |           |                                    |      |   |
|        |           |                                    |      |   |
|        |           |                                    |      |   |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion Dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

2' Lt. of inside stripe

### FOUNDATION BORING LOG

Top Hole Elev. 7323.0 Geologist \_\_\_\_\_ Post \_\_\_\_\_ Station 218+27 18' Lt. \_\_\_\_\_ Boring No. 50

| Elev.  | Depth     | Description of Material             | BPF* | Remarks         |
|--------|-----------|-------------------------------------|------|-----------------|
| 7323.0 | 0.0-0.3   | Asphalt                             |      | 2 15/16 Tricone |
| 22.7   | 0.3-4.0   | Gravel, some sand, hd. drlg., dense |      |                 |
| 19.0   | 4.0-14.0  | Sand, f.g. to crse., dense          |      |                 |
| 09.0   | 14.0-17.0 | Gravel and sand, dense, firm        |      |                 |
| 06.0   | 17.0-23.0 | Sand, some gravel, dense            |      |                 |
| 7300.0 | 23.0-23.5 | Boulder, hd. drlg.                  |      |                 |
| 7299.5 | 23.5-32.5 | Sand and silt, yell., dense         |      |                 |
| 91.2   | 32.5-33.0 | Bedrock                             |      | No lost circ.   |
| 7289.0 | 34.0      | T.D.                                |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |
|        |           |                                     |      |                 |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion Dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## FOUNDATION BORING LOG

Top Hole Elev. 7323.3 Geologist Post Station 217+87 18' Lt. of median Boring No. 51

| Elev.  | Depth     | Description of Material       | BPF* | Remarks           |
|--------|-----------|-------------------------------|------|-------------------|
| 7323.3 | 0.0-0.3   | Asphalt                       |      | 2 15/16 Tricone   |
| 23.0   | 0.3-4.0   | Gravel, hd., drlg., some sand |      |                   |
| 19.3   | 4.0-4.7   | Void 100%                     |      |                   |
| 18.6   | 4.7-7.0   | Gravel, hd., dense, some sand |      |                   |
| 16.3   | 7.0-8.0   | Sand, brn., soft              |      |                   |
| 15.3   | 8.0-9.0   | Void 100%                     |      |                   |
| 14.3   | 9.0-13.0  | Gravel and sand, hd.          |      | Lost circ. @ 8.5' |
| 13.3   | 13.0-15.0 | Void 100%                     |      |                   |
| 08.3   | 15.0-16.0 | Gravel, firm                  |      |                   |
| 07.3   | 16.0-18.0 | Void 100%                     |      |                   |
| 05.3   | 18.0-19.0 | Gravel, firm                  |      |                   |
| 04.3   | 19.0-19.5 | Void 50%                      |      |                   |
| 03.8   | 19.5-22.0 | Gravel, loose                 |      |                   |
| 01.3   | 22.0-24.5 | Void 100%                     |      |                   |
| 7298.8 | 24.5-26.0 | Gravel, loose                 |      |                   |
| 97.3   | 26.0-26.5 | Void 100%                     |      |                   |
| 96.8   | 26.5-29.5 | Clay and silt                 |      |                   |
| 94.8   | 29.5-30.5 | Bedrock                       |      |                   |
| 7292.8 | 30.5      | T.D.                          |      |                   |
|        |           |                               |      |                   |
|        |           |                               |      |                   |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion Dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Project 010545  
 Location Hidden Valley  
 Structure Subsidence  
 Route I 70 County Clear Cr.  
 Date Drilled 7/13

### FOUNDATION BORING LOG

Top Hole Elev. 7327.8 <sup>24.3</sup> Geologist \_\_\_\_\_ Post \_\_\_\_\_ Station 217+50 18' Lt. of Median Boring No. 52

| Elev.  | Depth     | Description of Material                        | BPF* | Remarks         |
|--------|-----------|--|------|-----------------|
| 7327.8 | 0.0-0.3   | Asphalt  |      | 2 15/16 Tricone |
| 27.5   | 0.3-7.0   | Gravel and sand, firm                          |      |                 |
| 20.8   | 7.0-9.0   | Sand, brn., m.g., firm                         |      |                 |
| 18.8   | 9.0-17.0  | Sand and silt, gry., fairly soft               |      |                 |
| 10.8   | 17.0-21.0 | Silt and sand, gry, yell., fairly soft         |      |                 |
| 06.8   | 21.0-26.0 | Silt, sand and gravel, firm, magnetite @ 24.5' |      |                 |
| 01.8   | 26.0-28.5 | Clay, silt, yell., some boulders               |      |                 |
| 7299.3 | 28.5-29.0 | Bedrock  |      |                 |
| 7298.8 | 29.0      | T.D.   |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |

\* Standard Penetration Test (AASHTO T 208-74)  
 Water level upon completion Dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_



### FOUNDATION BORING LOG

Top Hole Elev. <sup>25.2</sup>7328.0 Geologist \_\_\_\_\_ Post \_\_\_\_\_ Station 217+15 18' Lt. Median Boring No. 53

| Elev.  | Depth     | Description of Material            | BPF* | Remarks             |
|--------|-----------|------------------------------------|------|---------------------|
| 7328.0 | 0.0-0.3   | Asphalt                            |      | 2 15/16 Tricone bit |
| 27.7   | 0.3-5.0   | Sand and gravel, hard, firm        |      | No lost circ.       |
| 23.0   | 5.0-13.5  | Silt, sand, some gravel            |      |                     |
| 14.5   | 13.5-16.0 | Boulder                            |      |                     |
| 12.0   | 16.0-25.0 | Sand and gravel, hard drlg.        |      |                     |
| 03.0   | 25.0-29.5 | Silt and gravel, gry., yell., firm |      |                     |
| 7298.5 | 29.5-30.0 | Bedrock                            |      |                     |
| 7298.0 | 30.0      | T.D.                               |      |                     |
|        |           |                                    |      |                     |
|        |           |                                    |      |                     |
|        |           |                                    |      |                     |
|        |           |                                    |      |                     |
|        |           |                                    |      |                     |
|        |           |                                    |      |                     |
|        |           |                                    |      |                     |
|        |           |                                    |      |                     |
|        |           |                                    |      |                     |
|        |           |                                    |      |                     |
|        |           |                                    |      |                     |
|        |           |                                    |      |                     |
|        |           |                                    |      |                     |
|        |           |                                    |      |                     |
|        |           |                                    |      |                     |
|        |           |                                    |      |                     |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion Dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7325.6 Geologist \_\_\_\_\_ Post \_\_\_\_\_ Station 216+70 18' Lt. Boring No. 54

| Elev.  | Depth     | Description of Material                      | BPF* | Remarks         |
|--------|-----------|--|------|-----------------|
| 7325.6 | 0.0-0.5   | Asphalt                                      |      | 2 15/16 Tricone |
| 25.1   | 0.5-18.0  | Sand and gravel, some 1' boulders, hd., firm |      |                 |
| 07.6   | 18.0-26.0 | Silt, sand, gravel, gry, firm                |      |                 |
| 7299.6 | 26.0-32.0 | Silt and clay, yell., firm, boulder 27-28    |      |                 |
| 94.6   | 32.0-33.0 | Bedrock                                      |      |                 |
| 7292.6 | 33.0      | T.D.   |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |
|        |           |  |      |                 |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion Dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## FOUNDATION BORING LOG

Top Hole Elev. 7326.2 Geologist Hansen Station 216+36 18' Lt. Boring No. 55

| Elev.  | Depth     | Description of Material                    | BPF* | Remarks                     |
|--------|-----------|--|------|-----------------------------|
| 7326.2 | 0.0-0.3   | Asphalt                                    |      | 2 15/16 Tri.                |
| 25.9   | 0.3-2.0   | Gravel, sand, firm-hd.                     |      |                             |
| 24.2   | 2.0-2.5   | Boulder                                    |      |                             |
| 23.7   | 2.5-3.0   | Gravel, sand, firm-hd.                     |      |                             |
| 23.2   | 3.0-3.5   | Boulder                                    |      |                             |
| 22.7   | 3.5-5.0   | Gravel, sand, firm-hd.                     |      |                             |
| 21.2   | 5.0-5.5   | Boulder                                    |      |                             |
| 20.7   | 5.5-7.5   | Sand                                       |      |                             |
| 18.7   | 7.5-8.0   | Boulder                                    |      |                             |
| 18.2   | 8.0-8.5   | Sand, gravel, firm-hd.                     |      |                             |
| 17.7   | 8.5-9.5   | Boulder                                    |      |                             |
| 16.7   | 9.5-13.5  | Sand, gravel, firm-hd. some small boulders |      |                             |
| 12.7   | 13.5-14.0 | Boulder                                    |      |                             |
| 12.2   | 14.0-17.0 | Gravel, sand, firm-hd.                     |      |                             |
| 09.2   | 17.0-17.6 | Boulder                                    |      | Lost circ. @ 18 momentarily |
| 08.6   | 17.6-20.0 | Sand, gravel, firm-hd.                     |      |                             |
| 06.2   | 20.0-21.0 | Boulder                                    |      |                             |
| 05.2   | 21.0-30.0 | Sand, gravel, firm-hd.                     |      |                             |
| 7396.2 | 30.0-30.5 | Bedrock                                    |      |                             |
| 7395.7 | 30.5      | T.D.                                       |      |                             |
|        |           |  |      |                             |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/14 Time 11:10 a.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## FOUNDATION BORING LOG

Top Hole Elev. 7326.4 Geologist Post Station 215 + 85 18' Lt. of median Boring No. 56

| Elev.  | Depth      | Description of Material                | BPF* | Remarks         |
|--------|------------|--|------|-----------------|
| 7326.4 | 0.0 - 0.3  | Asphalt                                |      | 2 15/16 Tricone |
| 26.1   | 0.3 - 8.0  | Sand, gravel, firm, hd.                |      |                 |
| 16.4   | 8.0 - 19.0 | Sand, some gravel, fairly firm         |      | Lost circ. @8'  |
| 07.4   | 19.0-19.5  | Void 20%                               |      |                 |
| 06.9   | 19.5-27.0  | Sand, gravel, firm, hd.                |      | Get return @25' |
| 7299.4 | 27.0-29.5  | Silt, sand, gravel, yellow, firm, hard |      |                 |
| 96.9   | 29.5-30.5  | Bedrock                                |      |                 |
| 7295.9 | 30.5       | T. D.                                  |      |                 |
|        |            |  |      |                 |
|        |            |  |      |                 |
|        |            |  |      |                 |
|        |            |  |      |                 |
|        |            |  |      |                 |
|        |            |  |      |                 |
|        |            |  |      |                 |
|        |            |  |      |                 |
|        |            |  |      |                 |
|        |            |  |      |                 |
|        |            |  |      |                 |
|        |            |  |      |                 |
|        |            |  |      |                 |
|        |            |  |      |                 |
|        |            |  |      |                 |
|        |            |  |      |                 |
|        |            |  |      |                 |
|        |            |  |      |                 |
|        |            |  |      |                 |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7-14-81 Time 12:55 P.M.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## FOUNDATION BORING LOG

Top Hole Elev. 7325.5 Geologist Hansen Station 216+90 45' Lt. Boring No. 57

| Elev.  | Depth     | Description of Material                   | BPF* | Remarks         |
|--------|-----------|---|------|-----------------|
| 7325.5 | 0.0-0.3   | Asphalt                                   |      | 2 15/16 Tricone |
| 25.2   | 0.3-1.0   | Gravel                                    |      | No lost circ.   |
| 24.5   | 1.0-2.0   | Boulder                                   |      |                 |
| 23.5   | 2.0-5.5   | Gravel, sand, firm-hd.                    |      |                 |
| 20.0   | 5.5-7.0   | Boulder                                   |      |                 |
| 18.5   | 7.0-9.0   | Gravel, sand, firm-hd.                    |      |                 |
| 16.5   | 9.0-10.5  | Sand, soft                                |      |                 |
| 15.0   | 10.5-11.5 | Gravel                                    |      |                 |
| 14.0   | 11.5-12.5 | Boulder                                   |      |                 |
| 13.0   | 12.5-14.0 | Sand, some gravel, firm                   |      |                 |
| 11.5   | 14.0-16.0 | Gravel, sand, firm                        |      |                 |
| 09.5   | 16.0-16.5 | Boulder                                   |      |                 |
| 09.0   | 16.5-20.0 | Sand, very little gravel, firm, gry.      |      |                 |
| 05.5   | 20.0-20.5 | Boulder                                   |      |                 |
| 05.0   | 20.5-22.0 | Sand, gravel, firm                        |      |                 |
| 03.5   | 22.0-22.5 | Boulder                                   |      |                 |
| 03.0   | 22.5-24.5 | Gravel, sand, firm-hd.                    |      |                 |
| 01.0   | 24.5-31.0 | Sand, yell., firm                         |      |                 |
| 7294.5 | 31.0-33.0 | Silt & sand, yell.,                       |      |                 |
| 7292.5 | 33.0-40.0 | Bedrock, gneiss, gry., micac., fairly hd. |      |                 |
| 7285.5 | 40.0      | T.D.                                      |      |                 |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/14 Time 3:10  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## FOUNDATION BORING LOG

Top Hole Elev. 7326.2 Geologist Post Station 216+35 45' Lt. Boring No. 58

| Elev.  | Depth     | Description of Material                       | BPF* | Remarks         |
|--------|-----------|---|------|-----------------|
| 7326.2 | 0.0-0.3   | Asphalt                                       |      | 2 15/16 Tricone |
| 25.9   | 0.3-9.0   | Sand, gravel, firm-hard                       |      | No lost circ.   |
| 17.2   | 9.0-13.0  | Gravel and boulders                           |      |                 |
| 13.2   | 13.0-20.0 | Sand and gravel, brn.                         |      |                 |
| 06.2   | 20.0-23.0 | Silt, sand, gravel, gry.                      |      |                 |
| 03.2   | 23.0-25.0 | Silt and sand, loose, soft                    |      |                 |
| 01.2   | 25.0-31.0 | Silt and clay, red, green, yell., some gravel |      |                 |
| 7295.2 | 31.0-45.0 | Gneiss?, decomposed, fault gauge, weathered   |      |                 |
|        |           | shite clay 40-45, fairly soft                 |      |                 |
|        |           |   |      |                 |
|        |           |   |      |                 |
|        |           |   |      |                 |
|        |           |   |      |                 |
|        |           |   |      |                 |
|        |           |   |      |                 |
|        |           |   |      |                 |
|        |           |   |      |                 |
|        |           |   |      |                 |
|        |           |   |      |                 |
|        |           |   |      |                 |
|        |           |   |      |                 |
|        |           |   |      |                 |
|        |           |   |      |                 |

\* Standard Penetration Test (AASHTO T 208-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/14 Time 4:35 p.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## FOUNDATION BORING LOG

Top Hole Elev. 7323.3 Geologist Hansen Station 217+86 34' Rt. Boring No. 59

| Elev.  | Depth     | Description of Material | BPF* | Remarks         |
|--------|-----------|-------------------------|------|-----------------|
| 7323.3 | 0.0-0.3   | Asphalt                 |      | 2 15/16 tricone |
| 23.0   | 0.3-2.0   | Gravel soft             |      |                 |
| 21.3   | 2.0-2.5   | Boulder                 |      |                 |
| 20.8   | 2.5-6.0   | Gravel, sand, firm-hd.  |      |                 |
| 17.3   | 6.0-8.0   | Void 50%                |      |                 |
| 15.3   | 8.0-8.5   | Boulder                 |      |                 |
| 14.8   | 8.5-9.0   | Gravel, sand, firm-hd.  |      |                 |
| 14.3   | 9.0-9.5   | Void 100%               |      |                 |
| 13.8   | 9.5-11.0  | Gravel, sand, firm-hd.  |      |                 |
| 12.3   | 11.0-12.0 | Boulder                 |      |                 |
| 11.3   | 12.0-19.0 | Sand, soft, some gravel |      |                 |
| 04.3   | 19.0-21.0 | Gravel, sand, firm      |      |                 |
| 02.3   | 21.0-22.5 | Sand, firm              |      |                 |
| 00.3   | 22.5-25.0 | Gravel, sand, firm-hd.  |      | Lost water 25.0 |
| 7298.3 | 25.0-30.0 | Void 65%                |      |                 |
| 93.3   | 30.0-31.0 | Sand, silt              |      |                 |
| 92.3   | 31.0-35.0 | Bedrock                 |      |                 |
| 7288.3 | 35.0      | T.D.                    |      |                 |
|        |           |                         |      |                 |
|        |           |                         |      |                 |
|        |           |                         |      |                 |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

<sup>273</sup>  
 Top Hole Elev. 7327.8 Geologist Hansen Station 217+50 34 Rt. Boring No. 60

| Elev.  | Depth     | Description of Material                             | BPF* | Remarks         |
|--------|-----------|---|------|-----------------|
| 7327.8 | 0.0-0.3   | Asphalt   |      | 2 15/16 Tricone |
| 27.5   | 0.3-1.5   | Concrete  |      |                 |
| 26.3   | 1.5-2.5   | Sand  |      |                 |
| 25.3   | 2.5-3.0   | Boulder   |      |                 |
| 24.8   | 3.0-3.5   | Gravel, sand, firm-hd.                              |      |                 |
| 24.3   | 3.5-4.5   | Void 50%  |      |                 |
| 23.3   | 4.5-6.0   | Gravel, sand, firm-hd.                              |      |                 |
| 21.8   | 6.0-8.0   | Very soft 100 lbs. to 500 lbs pressure (loose sand) |      | Lost water 7.0  |
| 19.8   | 8.0-9.0   | Gravel, sand, firm-hd.                              |      |                 |
| 18.8   | 9.0-9.5   | Void 100%   |      |                 |
| 18.3   | 9.5-11.0  | Gravel, sand, firm                                  |      |                 |
| 16.8   | 11.0-11.5 | Void 100%   |      |                 |
| 16.3   | 11.5-13.0 | Gravel, sand, firm-hd.                              |      |                 |
| 14.8   | 13.0-13.5 | Boulder   |      |                 |
| 14.3   | 13.5-20.0 | Gravel, sand, firm-hd.                              |      |                 |
| 07.8   | 20.0-25.0 | Sand, some gravel, soft                             |      |                 |
| 02.8   | 25.0-27.0 | Gravel, sand, soft                                  |      |                 |
| 00.8   | 27.0-32.0 | Void 90%  |      |                 |
| 7295.8 | 32.0-33.0 | Gravel, sand, firm                                  |      |                 |
| 94.8   | 33.0-35.0 | Bedrock   |      |                 |
| 7292.8 | 35.0      | T.D.  |      |                 |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_



## FOUNDATION BORING LOG

Top Hole Elev. 7325.8 Geologist Hansen Station 216+94 34 Rt. Boring No. 61

| Elev.  | Depth     | Description of Material         | BPF*           | Remarks         |
|--------|-----------|---------------------------------|----------------|-----------------|
| 7325.8 | 0.0-0.3   | Asphalt                         |                | 2 15/16 Tricone |
| 25.3   | 0.3-2.0   | Sand, some gravel, soft         |                |                 |
| 23.8   | 2.0-3.0   | Gravel, sand, firm-hd.          |                |                 |
| 22.8   | 3.0-5.0   | Void 50%                        |                |                 |
| 20.8   | 5.0-6.5   | Boulder                         |                |                 |
| 19.3   | 6.5-7.0   | Void 100%                       |                |                 |
| 18.8   | 7.0-10.0  | Sand, gravel, firm-Hd.          |                | Lost water 9.0  |
| 15.8   | 10.0-10.5 | Void 100%                       |                |                 |
| 15.3   | 10.5-11.5 | Boulder                         |                |                 |
| 14.3   | 11.5-12.0 | Void 100%                       |                |                 |
| 13.8   | 12.0-13.0 | Gravel, sand, firm-Hd.          |                |                 |
| 12.8   | 13.0-14.0 | Void 100%                       |                |                 |
| 11.8   | 14.0-16.0 | Gravel, sand, firm-Hd.          |                |                 |
| 09.8   | 16.0-16.5 | Void 100%                       |                |                 |
| 09.3   | 16.5-17.5 | Gravel, sand, firm-Hd.          |                |                 |
| 08.3   | 17.5-19.0 | Sand                            |                |                 |
| 06.8   | 19.0-10.5 | Gravel, sand, firm-Hd.          |                |                 |
| 05.3   | 20.5-23.0 | Sand, firm (very little gravel) |                |                 |
| 02.8   | 23.0-25.0 | Gravel, sand, firm-Hd.          |                |                 |
| 00.8   | 25.0-31.5 | Void 90%                        | 93.3 32.5-35.0 | Bedrock         |
| 7294.3 | 31.5-32.5 | Gravel, sand, soft              | 7290.8 35.0    | T.D.            |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7325.6 Geologist Hansen Station 216+70 34' Rt. of Median Boring No. 62

| Elev.  | Depth     | Description of Material | BPF* | Remarks                     |
|--------|-----------|-------------------------|------|-----------------------------|
| 7325.6 | 0.0-0.3   | Asphalt                 |      | Tricone 2 15/16             |
| 25.3   | 0.3-4.5   | Sand, gravel, soft      |      |                             |
| 21.1   | 4.5-6.0   | Gravel, sand, firm-hd.  |      |                             |
| 19.6   | 6.0-6.5   | Boulder                 |      |                             |
| 19.1   | 6.5-7.0   | Sand, soft              |      |                             |
| 18.6   | 7.0-7.5   | Gravel, sand, firm-hd.  |      |                             |
| 18.1   | 7.5-8.5   | Boulder                 |      |                             |
| 17.1   | 8.5-10.5  | Gravel, sand, firm      |      | 9.0 lost water              |
| 15.1   | 10.5-13.0 | Void 100%               |      |                             |
| 12.6   | 13.0-14.0 | Gravel, sand, firm-hd.  |      |                             |
| 11.6   | 14.0-17.0 | Void 100%               |      |                             |
| 08.6   | 17.0-17.5 | Boulder                 |      |                             |
| 08.1   | 17.5-20.5 | Void 100%               |      |                             |
| 05.1   | 20.5-21.5 | Boulder                 |      |                             |
| 04.1   | 21.5-24.0 | Gravel, sand, firm-hd.  |      |                             |
| 01.6   | 24.0-36.0 | Void 100%               |      |                             |
| 7289.6 | 36.0-38.0 | Bedrock                 |      | Lost 10.0 drill rod in hole |
| 7287.6 | 38.0      | T.D.                    |      |                             |
|        |           |                         |      |                             |
|        |           |                         |      |                             |
|        |           |                         |      |                             |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion Dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7326.3 Geologist Hansen Station 216+25 34' Rt. Boring No. 63

| Elev.  | Depth     | Description of Material       | BPF* | Remarks         |
|--------|-----------|-------------------------------|------|-----------------|
| 7326.3 | 0.0-0.3   | Asphalt                       |      | 2 15/16 Tricone |
| 26.3   | 0.3-7.5   | Sand, soft very little gravel |      |                 |
| 18.8   | 7.5-9.5   | Gravel, sand, firm-hd.        |      |                 |
| 16.8   | 9.5-10.0  | Boulder                       |      |                 |
| 16.3   | 10.0-12.0 | Gravel, sand, firm            |      |                 |
| 14.3   | 12.0-14.0 | Sand, soft                    |      |                 |
| 12.3   | 14.0-16.0 | Gravel, sand, firm-hd.        |      |                 |
| 10.3   | 16.0-16.5 | Boulder                       |      |                 |
| 09.8   | 16.5-17.5 | Gravel, sand, firm            |      | Lost water 17.0 |
| 08.8   | 17.5-22.0 | Void 100%                     |      |                 |
| 04.3   | 22.0-22.5 | Boulder                       |      |                 |
| 03.8   | 22.5-31.0 | Void 100%                     |      |                 |
| 7295.3 | 31.0-35.0 | Bedrock                       |      |                 |
| 7291.3 | 35.0      | T.D.                          |      |                 |
|        |           |                               |      |                 |
|        |           |                               |      |                 |
|        |           |                               |      |                 |
|        |           |                               |      |                 |
|        |           |                               |      |                 |
|        |           |                               |      |                 |
|        |           |                               |      |                 |
|        |           |                               |      |                 |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. N.A. Geologist Post Station 171 + 55 21' Rt. of EB C Boring No. 64

| Elev. | Depth     | Description of Material  | BPF* | Remarks         |
|-------|-----------|--------------------------|------|-----------------|
|       | 0.0 - 0.3 | Asphalt                  |      | 2 15/16 Tricone |
|       | 0.3 - 8.5 | Sand, gravel, firm, hard |      | Lost circ. 7.0' |
|       | 8.5 - 9.0 | Void 100%                |      |                 |
|       | 9.5 -11.0 | Void 20%, loose soft     |      |                 |
|       | 11.0-14.5 | Sand, brown, firm        |      |                 |
|       | 14.5-17.5 | Sand, gravel, firm       |      |                 |
|       | 17.5-18.5 | Silt, clay, sand, gravel |      |                 |
|       | 18.5-20.0 | Bedrock, gneiss          |      |                 |
|       | 20.0      | T. D.                    |      |                 |
|       |           |                          |      |                 |
|       |           |                          |      |                 |
|       |           |                          |      |                 |
|       |           |                          |      |                 |
|       |           |                          |      |                 |
|       |           |                          |      |                 |
|       |           |                          |      |                 |
|       |           |                          |      |                 |
|       |           |                          |      |                 |
|       |           |                          |      |                 |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. N.A. Geologist \_\_\_\_\_ Post \_\_\_\_\_ Station 171 + 70 9' Rt. of EB C Boring No. 65

| Elev. | Depth      | Description of Material         | BPF* | Remarks         |
|-------|------------|---------------------------------|------|-----------------|
|       | 0.0 - 0.3  | Asphalt                         |      | 2 15/16 Tricone |
|       | 0.3 - 2.5  | Sand, Gravel, firm, dense       |      |                 |
|       | 2.5 - 7.0  | Sand, m.g., soft                |      |                 |
|       | 7.0 - 9.0  | Void 100%                       |      |                 |
|       | 9.0 -12.0  | Gravel, sand, hard, firm, brown |      |                 |
|       | 12.0 -17.5 | Silt, sand, gravel, gray        |      |                 |
|       | 17.5-20.0  | Bedrock                         |      |                 |
|       | 20.0       | T.D.                            |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |
|       |            |                                 |      |                 |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## FOUNDATION BORING LOG

Top Hole Elev. 7328.6 Geologist Post Station 215 + 00 33' Rt. Boring No. 66

| Elev.  | Depth     | Description of Material        | BPF* | Remarks                                     |
|--------|-----------|--------------------------------|------|---|
| 7328.6 | 0.0 - 0.3 | Asphalt                        |      | 2 15/16 Tricone                             |
| 28.3   | 0.3 - 3.5 | Sand, Gravel, firm, hard       |      |   |
| 25.1   | 3.5 -12.0 | Silt, sand, gravel, firm, hard |      | Losing some water<br>@5.0'-8.0', 12'-14 16- |
| 16.6   | 12.0-13.0 | Boulder                        |      |   |
| 15.6   | 13.0-16.0 | Sand, gravel, hard, firm       |      |   |
| 12.6   | 16.0-18.0 | Silt, sand, yellow, firm       |      |   |
| 10.6   | 18.0-22.0 | Gravel, boulder                |      |   |
| 06.6   | 22.0-29.0 | Void 100%, tr. wood            |      | Lost circ. @22.0                            |
| 7299.6 | 29.0-29.5 | Loose gravel                   |      |   |
| 99.1   | 29.5-30.0 | Bedrock                        |      |   |
| 7298.6 | 30.0      | T.D.                           |      |   |
|        |           |                                |      |   |
|        |           |                                |      |   |
|        |           |                                |      |   |
|        |           |                                |      |   |
|        |           |                                |      |   |
|        |           |                                |      |   |
|        |           |                                |      |   |
|        |           |                                |      |   |
|        |           |                                |      |   |
|        |           |                                |      |   |
|        |           |                                |      |   |
|        |           |                                |      |   |
|        |           |                                |      |   |
|        |           |                                |      |   |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7329.0 Geologist            Post            Station 214 + 80 33' Rt.            Boring No. 67

| Elev.  | Depth      | Description of Material                             | BPF* | Remarks                       |
|--------|------------|---|------|-------------------------------|
| 7329.0 | 0.0 - 0.3  | Asphalt   |      | 2 15/16 Tricone               |
| 28.7   | 0.3 -17.0  | Sand, gravel, hard, firm                            |      |                               |
| 12.0   | 17.0 -19.5 | Silt, sand, gravel, gray, hard, firm                |      |                               |
| 09.5   | 19.5-27.5  | Silt, sand, some gravel, yellow & gray, fairly firm | Firm | Lost circ. @22.5' momentarily |
| 01.5   | 27.5-30.5  | Silt, gravel, boulders, hard, firm                  |      |                               |
| 7298.5 | 30.5-32.5  | Bedrock   |      |                               |
| 7296.5 | 32.5       | T.D.  |      |                               |
|        |            |   |      |                               |
|        |            |   |      |                               |
|        |            |   |      |                               |
|        |            |   |      |                               |
|        |            |   |      |                               |
|        |            |   |      |                               |
|        |            |   |      |                               |
|        |            |   |      |                               |
|        |            |   |      |                               |
|        |            |   |      |                               |
|        |            |   |      |                               |
|        |            |   |      |                               |
|        |            |   |      |                               |
|        |            |   |      |                               |
|        |            |   |      |                               |
|        |            |   |      |                               |
|        |            |   |      |                               |
|        |            |   |      |                               |
|        |            |   |      |                               |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Project 010545  
 Location Hidden Valley  
 Structure Subsidence  
 Route I 70 County Clear Creek  
 Date Drilled 7/16/81

### FOUNDATION BORING LOG

Top Hole Elev. 7322.8 Geologist \_\_\_\_\_ Post \_\_\_\_\_ Station 218+34 34' Rt. of median Boring No. 68

| Elev.  | Depth     | Description of Material         | BPF* | Remarks         |
|--------|-----------|---------------------------------|------|-----------------|
| 7322.8 | 0.0-0.3   | Asphalt                         |      | 2 15/16 Tricone |
| 22.5   | 0.3-12.0' | Fill, sand, gravel, firm, dense |      |                 |
| 10.8   | 12.0-22.0 | Silt, sand, gravel, gry.        |      |                 |
| 00.8   | 22.0-23.0 | Gravel, boulders                |      |                 |
| 7299.8 | 23.0-33.0 | Silt, sand, gravel, yell., firm |      |                 |
| 89.8   | 33.0-35.0 | Bedrock, gneiss                 |      |                 |
| 7287.8 | 35.0      | T.D.                            |      |                 |
|        |           |                                 |      |                 |
|        |           |                                 |      |                 |
|        |           |                                 |      |                 |
|        |           |                                 |      |                 |
|        |           |                                 |      |                 |
|        |           |                                 |      |                 |
|        |           |                                 |      |                 |
|        |           |                                 |      |                 |
|        |           |                                 |      |                 |
|        |           |                                 |      |                 |
|        |           |                                 |      |                 |
|        |           |                                 |      |                 |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion Dry Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time 3:45 p.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_





Project 010545  
 Location Idaho Spgs. E.  
 Structure Fill failure  
 Route I 70 County Clear Cr.  
 Date Drilled 7/20/81

## FOUNDATION BORING LOG

E.B. Ramp

Top Hole Elev. 7328.0 Geologist Bong Station 215+24 76' Rt. Boring No. 70

| Elev.  | Depth    | Description of Material  | BPF* | Remarks                                   |
|--------|----------|--|------|---|
| 7328.0 | 0.0-30.0 | Sand, silt, gravel, cobble, and scattered boulder, v. dense, br. |      | 2 15/16" TC w/water return water @ all ti |
| 7298.0 | 30.0     | S.I.S.   |      |   |
|        |          | Note: No void  |      |   |
|        |          |  |      |   |
|        |          |  |      |   |
|        |          |  |      |   |
|        |          |  |      |   |
|        |          |  |      |   |
|        |          |  |      |   |
|        |          |  |      |   |
|        |          |  |      |   |
|        |          |  |      |   |
|        |          |  |      |   |
|        |          |  |      |   |
|        |          |  |      |   |
|        |          |  |      |   |
|        |          |  |      |   |
|        |          |  |      |   |
|        |          |  |      |   |
|        |          |  |      |   |
|        |          |  |      |   |
|        |          |  |      |   |
|        |          |  |      |   |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/20/81 Time 1:50 p.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7327.0 Geologist Bong Station 215+45 77' Rt. E.B. Ramp Boring No. 71

| Elev.  | Depth    | Description of Material                              | BPF* | Remarks               |
|--------|----------|--|------|-----------------------|
| 7327.0 | 0.0-30.0 | Sand, silt, gravel, and scattered cobble; dense, br. |      | 2 15/16" TC w/water   |
| 7297.0 | 30.0     | S.I.S.   |      | return water @ all ti |
|        |          | Note: No void  |      |                       |
|        |          |  |      |                       |
|        |          |  |      |                       |
|        |          |  |      |                       |
|        |          |  |      |                       |
|        |          |  |      |                       |
|        |          |  |      |                       |
|        |          |  |      |                       |
|        |          |  |      |                       |
|        |          |  |      |                       |
|        |          |  |      |                       |
|        |          |  |      |                       |
|        |          |  |      |                       |
|        |          |  |      |                       |
|        |          |  |      |                       |
|        |          |  |      |                       |
|        |          |  |      |                       |
|        |          |  |      |                       |
|        |          |  |      |                       |
|        |          |  |      |                       |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/20/81 Time 3:05 p.m.  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

**FOUNDATION BORING LOG**

Top Hole Elev. 7322.8 Geologist Bong Station 216+93 90' Rt. E.B. Ramp Boring No. 72

| Elev.  | Depth     | Description of Material                             | BPF* | Remarks                 |
|--------|-----------|---|------|-------------------------|
| 7322.8 | 0.0-14.0  | Sand, silt, gravel, and scattered cobble; dense br. |      | 2 15/16" TC w/water     |
| 08.8   | 14.0-20.0 | Void and v. loose material (sand & silt)            |      | no return water @ 13. ↓ |
| 02.8   | 20.0-27.0 | Sand, gravel, and scattered cobble; dense           |      | 29.                     |
| 7295.8 | 27.0-29.0 | Bedrock; v. hard                                    |      |                         |
| 7293.8 | 29.0      | S.I.S.  |      |                         |
|        |           |   |      |                         |
|        |           |   |      |                         |
|        |           |   |      |                         |
|        |           |   |      |                         |
|        |           |   |      |                         |
|        |           |   |      |                         |
|        |           |   |      |                         |
|        |           |   |      |                         |
|        |           |   |      |                         |
|        |           |   |      |                         |
|        |           |   |      |                         |
|        |           |   |      |                         |
|        |           |   |      |                         |
|        |           |   |      |                         |
|        |           |   |      |                         |
|        |           |   |      |                         |
|        |           |   |      |                         |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/20/81 Time 4:30 p.m.  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Project 010545  
 Location Idaho Spgs. E.  
 Structure Fill failure  
 Route I 70 County Clear Cr.  
 Date Drilled 7/21/81

### FOUNDATION BORING LOG

Top Hole Elev. N.A. Geologist Bong Station 209+40 46' Rt. E.B. Boring No. 73

| Elev. | Depth     | Description of Material                      | BPF* | Remarks               |
|-------|-----------|--|------|-----------------------|
|       | 0.0-2.0   | Sand, gravel, and scattered cobble; dense    | 2    | 15/16" TC w/water     |
|       | 2.0-6.0   | Some void and loose material.                |      | no return water @ 2.0 |
|       | 6.0-7.3   | Boulder                                      |      |                       |
|       | 7.3-9.0   | Sand, gravel, and scattered cobble; dense    |      |                       |
|       | 9.0-18.0  | Sand, silt, and scattered gravel; med. dense |      | easy drilling         |
|       | 18.0-32.0 | Sand, gravel, and scattered cobble; dense    |      |                       |
|       | 32.0-33.5 | Bedrock; v. hard                             |      |                       |
|       | 33.5      | S.I.S.                                       |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/21/81 Time 9:00 a.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Project 010545  
 Location Idaho Spgs. E.  
 Structure Fill failure  
 Route I 70 County Clear Cr.  
 Date Drilled 7/21/81

### FOUNDATION BORING LOG

Top Hole Elev. N.A. Geologist Bong Station 209+49 46 Rt. E.B. Boring No. 74

| Elev. | Depth     | Description of Material                      | BPF* | Remarks               |
|-------|-----------|--|------|-----------------------|
|       | 0.0-2.5   | Sand, gravel, and scattered cobble; dense    |      | 2 15/16" TC w/water   |
|       | 2.5-3.6   | Boulder; v. hard                             |      | no return water @ 3.0 |
|       | 3.6-11.5  | Sand, silt, and scattered gravel, med. dense |      | 32.5                  |
|       | 11.5-31.5 | Sand, gravel, and scattered cobble; dense    |      |                       |
|       | 31.5-32.5 | Bedrock; v. hard                             |      |                       |
|       | 32.5      | S.I.S.                                       |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |
|       |           |  |      |                       |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/21/81 Time 10:50 a.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. N.A. Geologist Bong Station 209+49 46' Rt. E.B. Boring No. 75

| Elev. | Depth     | Description of Material                         | BPF* | Remarks              |
|-------|-----------|---|------|----------------------|
|       | 0.0-9.5   | Sand, silt, and scattered gravel; medium dense  |      | 2 15/16" TC w/water  |
|       | 9.5-19.0  | Sand, silt, gravel, and scattered cobble; dense |      | no return water @ 6. |
|       | 19.0-31.0 | As above, more cobble, v. dense                 |      | 32.                  |
|       | 31.0-32.0 | Bedrock; v. hard                                |      |                      |
|       | 32.0      | S.I.S.  |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |
|       |           |   |      |                      |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/21/81 Time 11:50 a.m.  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Project 010545  
 Location Idaho Spgs. E.  
 Structure Fill Failure  
 Route I 70 County Clear Cr.  
 Date Drilled 7/21/81

## FOUNDATION BORING LOG

E. B. Ramp

Top Hole Elev. 7323.0 Geologist Bong Station 216+78 90' Rt. Boring No. 76

| Elev.  | Depth     | Description of Material  | BPF* | Remarks                                     |
|--------|-----------|--|------|---|
| 7323.0 | 0.0-27.0  | Sand, silt, gravel, and scattered cobble;<br>dense, br. & greenish br. |      | 2 15/16 TC w/water<br>return water @ all t: |
| 7296.0 | 27.0-29.0 | Bedrock; v. hard   |      |   |
| 7294.0 | 29.0      | S.I.S.   |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/21/81 Time 1:40 p.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_



Project 010545  
Location Idaho Spgs. E.  
Structure Fill failure  
Route I 70 County Clear Cr.  
Date Drilled 7/21/81

### FOUNDATION BORING LOG

E.B. Ramp

Top Hole Elev. 7322.4 Geologist Bong Station 217+32, 91' Rt. Boring No. 77

| Elev.         | Depth           | Description of Material                                     | BPF* | Remarks                    |
|---------------|-----------------|---|------|----------------------------|
| <u>7322.4</u> | <u>0.0-29.0</u> | <u>Sand, silt, gravel, and scattered cobble; dense, br.</u> |      | <u>2 15/16" TC w/water</u> |
| <u>7293.4</u> | <u>29.0</u>     | <u>S.I.S.</u>   |      |                            |
|               |                 |   |      |                            |
|               |                 | <u>Note: No void</u>  |      |                            |
|               |                 |   |      |                            |
|               |                 |   |      |                            |
|               |                 |   |      |                            |
|               |                 |   |      |                            |
|               |                 |   |      |                            |
|               |                 |   |      |                            |
|               |                 |   |      |                            |
|               |                 |   |      |                            |
|               |                 |   |      |                            |
|               |                 |   |      |                            |
|               |                 |   |      |                            |
|               |                 |   |      |                            |
|               |                 |   |      |                            |
|               |                 |   |      |                            |
|               |                 |   |      |                            |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/21/81 Time 3:00 p.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_



Project 010545  
 Location Idaho Spgs. E.  
 Structure Fill failure  
 Route I 70 County Clear Cr.  
 Date Drilled 7/22/81

### FOUNDATION BORING LOG

W.B. Ramp

Top Hole Elev. 7312.8 Geologist Bong Station 219+48 132' Lt. Boring No. 79

| Elev.  | Depth     | Description of Material                             | BPF* | Remarks               |
|--------|-----------|---|------|-----------------------|
| 7312.8 | 0.0-17.0  | Sand, silt, gravel; and scattered cobble; dense br. |      | 2 15/16" TC w/water   |
| 7295.8 | 17.0-25.0 | Bedrock; hard, br.                                  |      | return water @ all ti |
| 7287.8 | 25.0      | S.I.S.  |      |                       |
|        |           | Note: No void                                       |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/22/81 Time 8:15 a.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Project 010545  
 Location Idaho Spgs. E.  
 Structure Fill failure  
 Route I 70 County Clear Cr.  
 Date Drilled 7/22/81

### FOUNDATION BORING LOG

W.B. Ramp

Top Hole Elev. 7313.0 Geologist Bong Station 219+33 132' Lt. Boring No. 80

| Elev.  | Depth     | Description of Material                             | BPF* | Remarks               |
|--------|-----------|---|------|-----------------------|
| 7313.0 | 0.0-17.0  | Sand, silt, gravel, and scattered cobble; dense br. |      | 2 15/16" TC w/water   |
| 7296.0 | 17.0-20.0 | Bedrock; hard, br.                                  |      | return water @ all ti |
| 7293.0 | 20.0      | S.I.S.  |      |                       |
|        |           |   |      |                       |
|        |           | Note: No void                                       |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |
|        |           |   |      |                       |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/22/81 Time 9:00 a.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Project 010545  
 Location Idaho Spgs. E.  
 Structure Fill failure  
 Route I 70 County Clear Cr.  
 Date Drilled 7/22/81

### FOUNDATION BORING LOG

Top Hole Elev. 7312.6 Geologist Bong Station 219+63 132' Lt. W.B. Ramp Boring No. 81

| Elev.  | Depth     | Description of Material                              | BPF* | Remarks               |
|--------|-----------|--|------|-----------------------|
| 7312.6 | 0.0-17.0  | Sand, silt, gravel, and scattered cobble; dense, br. |      | 2 15/16 TC w/water    |
| 7295.6 | 17.0-20.0 | Bedrock  |      | no return water @ 7.0 |
| 7292.6 | 20.0      | S.I.S.   |      | 20.0                  |
|        |           | Note: No void  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |
|        |           |  |      |                       |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 7/22/81 Time 9:30 a.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7315.5 Geologist Berry Station 218+75 Cl. W. B. Ramp Boring No. 82

| Elev.  | Depth     | Description of Material  | BPF* | Remarks                           |
|--------|-----------|--------------------------|------|-----------------------------------|
| 7315.5 | 0.0-0.5   | Asphalt surfacing        |      | 2 15/16" T.C./water               |
| 15.0   | 0.5-3.0   | Sand, gravel, silt       |      |                                   |
| 12.5   | 3.0-6.0   | Void (80%)               |      | 0 p.s.i.                          |
| 09.5   | 6.0-9.0   | Sand, gravel, silt-loose |      | p.s.i. varies<br>lose water circ. |
| 06.5   | 9.0-20.0  | Cobbles, gravel, sand    |      | 600 p.s.i.                        |
| 02.5   | 13.0-14.0 | Boulder                  |      |                                   |
| 7295.5 | 20.0-21.0 | Sand, silt, gravel       |      | 600 p.s.i.                        |
| 94.5   | 26.0-25.0 | Dark gray schist bedrock |      |                                   |
| 7290.5 | 25.0      | S.I.S.                   |      |                                   |
|        |           |                          |      |                                   |
|        |           |                          |      |                                   |
|        |           |                          |      |                                   |
|        |           |                          |      |                                   |
|        |           |                          |      |                                   |
|        |           |                          |      |                                   |
|        |           |                          |      |                                   |
|        |           |                          |      |                                   |
|        |           |                          |      |                                   |
|        |           |                          |      |                                   |
|        |           |                          |      |                                   |
|        |           |                          |      |                                   |
|        |           |                          |      |                                   |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7318.0 Geologist Berry Station 218+25 (on Rt. Sh.) W.B. Ramp Boring No. 83

| Elev.  | Depth     | Description of Material | BPF* | Remarks                       |
|--------|-----------|-------------------------|------|-------------------------------|
| 7318.0 | 0.0-0.5   | Asphalt surfacing       |      | 2 15/16" T.C./water           |
| 17.5   | 0.5-3.0   | Silt, sand, gravel      |      | 600 p.s.i.                    |
| 15.0   | 3.0-10.0  | Loose sand and gravel   |      | 0 to 200 p.s.i.               |
| 08.0   | 10.0-16.0 | Silt, sand, gravel      |      | Lost circ. @ 9'<br>600 p.s.i. |
| 02.0   | 16.0-18.0 | Dense gravel            |      | 600 p.s.i.<br>slow drilling   |
| 00.0   | 18.0-25.0 | Gray schist bedrock     |      | 600 p.s.i.<br>smooth drilling |
| 7293.0 | 25.0      | S.I.S.                  |      |                               |
|        |           |                         |      |                               |
|        |           |                         |      |                               |
|        |           |                         |      |                               |
|        |           |                         |      |                               |
|        |           |                         |      |                               |
|        |           |                         |      |                               |
|        |           |                         |      |                               |
|        |           |                         |      |                               |
|        |           |                         |      |                               |
|        |           |                         |      |                               |
|        |           |                         |      |                               |
|        |           |                         |      |                               |
|        |           |                         |      |                               |
|        |           |                         |      |                               |
|        |           |                         |      |                               |
|        |           |                         |      |                               |
|        |           |                         |      |                               |
|        |           |                         |      |                               |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Project I 70-3(101)  
Location Hidden Valley  
Structure Subsidence Problem  
Route I 70 County Clear Creek  
Date Drilled 10/22/81

**FOUNDATION BORING LOG**

Top Hole Elev. 7321.0 Geologist Berry Station 217+50-02' Rt. of L. Sh. Boring No. 84 W.B. Ramp

| Elev.  | Depth     | Description of Material   | BPF* | Remarks                       |
|--------|-----------|---------------------------|------|-------------------------------|
| 7321.0 | 0.0-0.5   | Asphalt surfacing         |      | 2 15/16" T.C./water           |
| 20.5   | 0.5-5.0   | Sand and gravel-dense     |      | 600 p.s.i.                    |
| 18.0   | 3.0-4.0   | As above                  |      | Loose circ.                   |
| 16.0   | 5.0-8.0   | Boulders                  |      | Loose circ.                   |
| 13.0   | 8.0-11.0  | Cobbles, boulders, gravel |      |                               |
| 10.0   | 11.0-21.0 | Boulders                  |      | 700 p.s.i.                    |
| 00.0   | 21.0-25.0 | Bedrock-gray schist       |      | 500 p.s.i.<br>smooth drilling |
| 7296.0 | 25.0      | S.I.S.                    |      |                               |
|        |           |                           |      |                               |
|        |           |                           |      |                               |
|        |           |                           |      |                               |
|        |           |                           |      |                               |
|        |           |                           |      |                               |
|        |           |                           |      |                               |
|        |           |                           |      |                               |
|        |           |                           |      |                               |
|        |           |                           |      |                               |
|        |           |                           |      |                               |
|        |           |                           |      |                               |
|        |           |                           |      |                               |
|        |           |                           |      |                               |
|        |           |                           |      |                               |
|        |           |                           |      |                               |
|        |           |                           |      |                               |
|        |           |                           |      |                               |
|        |           |                           |      |                               |
|        |           |                           |      |                               |

\* Standard Penetration Test (AASHTO T 206-74)

Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_



Project I 70-3(101)  
 Location E. of Idaho Spgs.  
 Structure Subsidence  
 Route I 70 County Clear  
 Date Drilled 10/26/81

### FOUNDATION BORING LOG

Top Hole Elev. 7323.9 Geologist Bong Station 216+80 C.L. W.B. Ramp Boring No. 85

| Elev.  | Depth     | Description of Material                              | BPF* | Remarks   |
|--------|-----------|--|------|---|
| 7323.9 | 0.0-0.3   | Asphalt concrete                                     |      | 2 15/16" T.C. w/water                                   |
| 23.6   | 0.3-14.0  | Sand, silt, gravel, and scattered cobble dense br.   |      | no return water   |
| 09.9   | 14.0-16.0 | Loose material; sand and silt                        |      | momentarily between<br>6.5 and 7.0 and<br>14.0 and 16.0 |
| 07.9   | 16.0-25.0 | Sand, silt, gravel, and scattered cobble, dense, br. |      | 7.8'-8.5'; cobble,<br>v. hard                           |
| 7298.9 | 25.0-29.0 | Bedrock; v. hard, yellowish br.                      |      |   |
| 7294.9 | 29.0      | S.I.S.   |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |
|        |           |  |      |   |

\* Standard Penetration Test (AASHTO T 206-74)  
 drilled w/water  
 Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 10/26/81 Time 11:50 a.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_





## FOUNDATION BORING LOG

Top Hole Elev. 7336.9 Geologist Bong Station 210+50, 10' Lt. W.B. Boring No. 88

| Elev.  | Depth     | Description of Material                              | BPF* | Remarks                                  |
|--------|-----------|--|------|--|
| 7336.9 | 0.0-0.3   | Asphalt concrete                                     |      | 2 15/16" T.C. w/water                    |
| 36.6   | 0.3-20.5  | Sand, silt, gravel, and scattered cobble, dense, br. |      |  |
| 16.7   | 20.2-26.0 | Void and loose material                              |      | No return water @ 7.1' to bottom of T.H. |
| 10.9   | 26.0-30.0 | Sand, silt, gravel, and scattered cobble, dense      |      | 18.0-18.6; cobble<br>19.8-20.5; cobble   |
| 06.9   | 30.0-31.0 | Bedrock; v. hard                                     |      | 27.5-28.7; boulder                       |
| 7305.9 | 31.0      | S.I.S.   |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |

\* Standard Penetration Test (AASHTO J 206-74)  
 drilled w/water  
 Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 12/26/81 Time 4:30 p.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

### FOUNDATION BORING LOG

Top Hole Elev. 7337.7 Geologist Bong Station 210+57 21' Lt. W.B. Boring No. 89

| Elev.  | Depth     | Description of Material                                  | BPF* | Remarks  |
|--------|-----------|--|------|--|
| 7337.7 | 0.0-0.3   | Asphalt concrete   |      | 2 15/16" T.C. w/water                          |
| 7337.4 | 0.3-7.0   | Sand, silt, gravel, & scattered cobble, dense, br.       |      | 3.0-3.5; cobble, V.H.<br>6.0-6.5; cobble, V.H. |
| 30.7   | 7.0-12.0  | Sand, silt, & scattered gravel; medium dense,            |      | no return water @ 6.0<br>to bottom of T.H.     |
| 25.7   | 12.0-29.0 | Void and loose material (sand, silt, & scattered gravel) |      |  |
| 08.7   | 29.0-31.0 | Sand, gravel, & cobble; v. dense                         |      |  |
| 06.7   | 31.0-33.0 | Bedrock; v. hard   |      |  |
| 7304.7 | 33.0      | S.I.S.   |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |

\* Standard Penetration Test (AASHTO T 206-74)  
 drilled w/water  
 Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 10/27/81 Time 9:00 a.m.  
 Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_



Project I 70-3(101)  
Location E. of Idaho Spgs.  
Structure Subsidence  
Route I 70 County Clear  
Date Drilled 10/27/81

### FOUNDATION BORING LOG

Top Hole Elev. 7332.0 Geologist Bong Station 212+68 31' Rt. E.B. Boring No. 91

| Elev.  | Depth     | Description of Material  | BPF* | Remarks  |
|--------|-----------|--|------|--|
| 7332.0 | 0.0-0.3   | Asphalt concrete   |      | 2 15/16" T.C. w/water  |
| 31.7   | 0.3-27.5  | Sand, silt, gravel, & scattered cobble,<br>dense, br. and grey |      | Return water @ all t   |
| 04.5   | 27.5-29.5 | Bedrock; v. hard, yellowish br.                                |      | 4.9-5.5; cobble, V.H<br>10.3-10.7; Cobble V.<br>17.0-17.8; cobble V.<br>25.2-25.6; cobble V. |
| 7302.5 | 29.5      | S.I.S.   |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |
|        |           |  |      |  |

\* Standard Penetration Test (AASHTO T 206-74)  
drilled w/ water  
Water level upon completion \_\_\_\_\_ Elev. \_\_\_\_\_ Date 10/27/81 Time 1:50 p.m.  
Water level (24 hrs.) \_\_\_\_\_ Elev. \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

