Composite surface section

Bed	Thickness, in feet	Description
24h	2.0	Tuff, light-grayish-brown, fine-grained, massive; pumice fragments; quartz, feldspar, and hornblende crystals
24g	17.5	Covered slope. Probably similar to bed 24e
24f	7.0	Tuff, light-gray, fine-grained. Pumice fragments, small flecks of biotite and hornblende(?), sand-size quartz grains. Dense, good ledge former, jointed
24e	30.0	Mostly covered; forms sloping bench. Resistant beds 1 to 2 feet thick crop out about every 5 ft; beds consist of medium-grained tuff. Pumice fragments, greenish-yellow porcellanitic fragments, and small brown quartzite fragments
24d	15.7	Tuff, mostly light-brownish-gray. Forms conspicuous rough-surfaced ledge. Contains many altered pumice fragments as much as 1 in. but mostly less than one-half an inch; abundant dark quartzite fragments, biotite flakes, and hornblende crystals. Eleven feet above base is a 1-ft thick white friable bed that divides unit into two benches
24c	15.0	Mostly covered but probably similar to bed below except more friable. Forms gentle slope
24b	11.8	Tuff. Lower 7 ft is red with light-gray pumice fragments to 1 in. and subangular quartzite fragments to 1½ in. but mostly less than one-half an inch (very distinctive bed). Upper part is mottled light brown. Forms good ledge
24a	10.0	Mostly covered but basal 1 ft is fine-grained hard porcellanitic tuff, with some brown quartzite fragments; breaks into angular small blocks or slabs
23p	4.5	Tuff, nearly white, fine-grained ground mass but contains ½-in. elongate pumice fragments. Scattered brown quartzite fragments to three-quarters of an inch. Forms good ledge
23o	8.5	Poorly exposed but appears to be light-gray lapilli tuff with pumice fragments. At middle of bed is 1 ft of porcellanitic grit, fragments of greenish-yellow porcellanite; few crystals of sanidine(?)
23n	6.0	Tuff, light-gray; lapilli and pumice fragments; few sanidine(?) crystals and sand-size quartz grains
23m	26.0	Tuff, light-gray, friable, fine-grained, pumiceous. Light and dark sand grains, few clear sanidine crystals. One-inch-thick pink bed 10 ft above base; 1-ft porcellanitic bed above pink bed. Fifteen feet above base is 1-ft medium-coarse bed with large brown quartzite fragments. Twenty-three feet above base is resistant gritty bed consisting of dark-gray and brown quartzite fragments, pumice fragments, and pink porcellanitic fragments. Gradational upper contact
23L	5.0	Tuff, light-gray, fine-grained, resistant ledge former, massive. Abundant small- to medium-size brown quartzite fragments and a few clear sanidine(?) crystals
23K	12.9	Tuff, light-gray, mottled with pink; indistinctly bedded. Some pumice and quartz fragments
23j	8.0	Covered; forms definite bench. Exposures to northeast indicate an upper white friable tuff underlain by 4 to 5 ft of very light pink tuff
23i	10.0	Tuff, light-gray, fine-grained, medium-bedded. A few porcellanitic layers about 1 ft thick and a few sand-size quartz grains
23h	0.8	Tuffaceous grit, greenish-gray with pink
23g	2.7	Tuff, sandy, light-gray; especially sandy near base
23f	0.5	Porcellanite, light-pink
23e	8.0	Tuff, fine-grained, gray, weathering light brown, well-bedded; abundant quartz grains
23d	1.5	Tuff, pink; abundant altered pumice fragments
23c	7.5	Tuff, light-gray. Alternating beds 6 to 10 in. thick of medium-coarse fragments of tuff, porcellanite, and brown quartzite fragments
23b	3.5	Tuff, coarse, gritty, very dense, greenish-yellow porcellanitic groundmass. Indistinctly stratified
23a	2.0	Tuff, gray, fine-grained with feldspar and quartz. Porcellanitic stringers
22k	3.8	Tuff, pink mottled with white. Small shark-tooth-shaped black inclusions; abundant quartz grains
22j	8.0	Tuff, similar to bed 22h except is darker gray locally. Small polygonal fracture pattern (3 to 4 in. across) visible on flat surfaces
22i	2.0	Tuff, similar to bed 22h except it is pink with white halos around small black grains
22h	10.0	Tuff, light-gray, very massive, medium-grained. Abundant quartz and chert grains. Polygonal fracture pattern 3 to 4 in. across on flat surfaces
22g	0.5	Tuff, light-gray, very friable
22f	1.0	Tuffaceous grit, well-bedded
22e	2.0	Tuff, pink with numerous white fragments, massive
22d	6.0	Tuff, light-gray, medium-coarse-grained, friable, with brown and black lithic fragments (mostly quartzite)
22c	1.0	Tuff, alternate pink and gray bands
22b	2.0	Tuffaceous grit, gray, resistant; forms good ledge
22a	1.1	Tuff, pink; chert and tuffaceous fragments
21	20.5	Tuff, mostly light-gray, resistant, gritty. Contains dark-gray quartzite and quartz grains. Lower 3 to 4 ft well bedded with grit bed at base (thin resistant beds alternate with coarse tuffaceous beds). Sixteen feet from base is 2 ft bed of light-gray very friable tuffaceous grit. One-foot pink bed 14 ft from base. Upper 3 ft is light-gray resistant tuff with porcellanite at base
20	7.7	Tuff, light-red (5 R 6/6) to pink (5 R 7/4); abundant cream-colored pumice fragments to 1 in. and brown limonite(?) fragments. Hard, massive; breaks into sharply angular fragments. Sharp upper contact; gradational lower contact
19d	27.0	Tuff, fairly dense, fine-grained; lower 1.5 ft red grading upward into pink; contains biotite, sanidine, and quartz grains. Medium-coarse-grained tuff about 3 ft above base contains abundant pumice fragments, biotite, quartz, sanidine(?), and a green mineral. Upper 10 ft is nearly white; very friable; and has abundant pumice fragments
19c	3.3	Tuff, yellowish-gray, gritty at base. Upper part contains abundant pumice fragments
19b	1.5	Tuff, white, glassy, with open texture (loosely cemented ½- to 1-in. flat aggregates with cavities between)
19a	15.0	Tuff, mottled light-gray and pink; porcellanitic. Tuffaceous grit bed about one-half a foot thick 8½ ft above base
18	19.0	Tuff, light-gray with thin pink bands, fine-grained; sand-size brown quartzite grains moderately abundant. Top bed is about 2 ft thick and fine grained at top and contains scattered pumice fragments
17	5.0	Covered
16	4.6	Tuff, gritty porcellanitic. Yellowish green at base with quartzite fragments; overlain by gray and mottled pink stringers. Quartzite fragments to 1 in. at top
15	28.0	Tuff, fine-grained, well-bedded; light gray with some pink bands and brown bands in upper part. Numerous sand-size quartz grains. Thin porcellanitic bed 1 ft from top
14	22.2	Tuff, divisible into three parts. Lowest part is about 4 ft thick, dark brick red, very dense, generally massive; breaks into sharply angular blocks, and contains many limonite inclusions, some pumice fragments, and black pipe-shaped hollow inclusions. Middle part is pinkish red and fine grained and contains earthy limonite inclusions and a little biotite. Upper part similar to middle except tan
13	14.0	Covered
12	6.0	Tuff, yellowish-green, fine-grained. Few blebs of white porcellanitic material as much as 2 in. Some sand-size quartz grains
11	4.7	Tuff, generally fine-grained and dense; brick red lower half and light gray upper half. Scattered large fragments of quartzite. Forms very good ledge
10	2.2	Tuff, coarse; fragments of pumice and tuff to 1 in.; mottled light red and green
9	7.1	Tuff; light-gray beds interbedded with three yellowish-green beds. Fragments of pumice and porcellanitic material
8	2.2	Tuff, reddish-orange. Fragments of pumice, quartzite, and porcellanitic material
7	2.5	Tuffaceous grit. Abundant subangular fragments. Thin brownish-gray porcellanitic bed
6	20.5	Tuff; intermittent exposures of dense, fine-grained gray and pink bands. Some mottled pink and gray beds. Lower 6 ft mostly covered dip slope
5	9.0	Tuff, well-bedded; pink with thin dark-red bands; some dense porcellanitic layers but generally medium grained with few pumice fragments, biotite flakes, and sand-size quartz grains. At base is 1-ft-thick pisolitic layer, mottled pink and gray, and dense
4	3.5	Tuff, white, fine-grained, bedded; dense except for small cavities; small black specks
3		Tuffaceous grit; yellowish-brown. Abundant large subangular brown and gray quartzite fragments. Forms good ledge
2	2.0	Tuffaceous grit, yellowish-brown. Large quartzite fragments. Forms good ledge
1	10.5	Tuff; alternating beds yellowish gray and pink. Yellowish-gray beds are fine (porcellanitic) to medium grained and contain tuffaceous fragments, scattered brown quartzite fragments, and porcellanitic blebs. Pink beds mottled light gray (greenish cast), fine grained, and dense. Forms ledge

Base of Unit 4

Base of Unit 3

Drill hole 1A
(over room B)
Collar alt 5767.03 ft

Depth, in feet	Description
0	No core recovery
10.0	Tuff, gray; ⅛-in. black fragments, scattered (only 3.6 ft core)
15.0	Tuff, gray; ⅛-in. black fragments, scattered (only 3.5 ft core)
19.5	Tuff, gray; <½-in. black fragments; soft white to pink blebs
23.5	Tuff, gray; <½-in. black fragments; soft clay blebs
29.0	Tuff, light; ¼-in. black fragments
31.5	Tuff, light; fine fragments, scattered
36.0	Tuff, light; fine fragments; slightly pink cast
42.0	Tuff, light; ⅛-in. black fragments; red and brown mottling
47.0	Tuff, gray, fine-grained
48.6	Tuff, gray; ⅛-in. black fragments; pink mottling
49.9	Tuff, gray; ⅛-in. black fragments; scarce pink mottling
57.0	Tuff, pale-pink; <¼-in. fragments; white clay mottling
61.5	Tuff, light, friable
62.0	Tuff, gray; ¼-in. fragments; pink mottling
65.0	Tuff, light; <¼-in. fragments; pink mottle; core soft
66.8	Tuff, gray; <¼-in. fragments. Dip 12°
68.1	Tuff, light; ⅛-in. fragments; pink cast
71.3	Tuff, gray; <¼-in. fragments; pink cast
72.8	Tuff, light; <½-in. fragments
73.6	Tuff, light; <⅛-in. fragments
75.0	Tuff, gray; ⅛-in. fragments; pink cast
75.5	Tuff, light; ⅛-in. fragments; small pink blebs
78.0	Tuff, gray; ½-in. fragments; pink cast
78.6	Tuff, gray; ⅛-in. fragments; pink cast
80.0	Tuff, gray; fine fragments
81.0	Tuff, pink, dense
82.0	Tuff, light; ⅛-in. fragments
85.0	Tuff, pink; very fine fragments
86.0	Tuff, gray; red streaks at 87 ft; very fine fragments
87.0	Tuff, gray; ⅛-in. fragments; red streaks at 90 ft
90.0	Tuff, pink; ⅛-in. fragments
91.5	Tuff, gray; ¼-in. fragments
94.5	Tuff, gray; <½-in. fragments, coarser at top
101.0	Tuff, gray, very fine grained
102.0	Tuff, red; white clay blebs
106.0	Tuff, gray; mottling at 109 ft; ⅛-in. angular fragments
112.0	Tuff, pink; ⅛-in. fragments; white clay blebs
115.0	Tuff, gray; ⅛-in. fragments; white clay blebs
117.5	Tuff, gray, dense
118.0	Tuff, gray; ⅛-in. fragments
120.5	Tuff, gray; <¼-in. fragments
125.0	Tuff, gray; ⅛-in. fragments
126.0	Tuff, light; ¼-in. fragments
129.0	Tuff, pink; ¼-in. fragments; white blebs
131.0	Tuff, pink; recovered 1 ft of core only
	Tuff, light-colored; top 1 ft pale pink; white and gray blebs
136.0	Tuff, red; >½-in. white blebs; ⅛-in. fragments
138.5	Tuff, light grit; <½-in. fragments
139.7	Tuff, light; scattered ¼-in. brown fragments
140.7	Tuff, pink; ⅛-in. fragments
142.2	Tuff, gray; <¼-in. fragments
143.7	Tuff, white; soft clay; crumbly core
145.0	Tuff, white, friable, ⅛-in. fragments; crumbly core
146.5	Tuff, white, dense (porcellanitic?)
148.5	Tuff, gray; ¼-in. fragments
150.0	Tuff, light; ⅛-in. fragments, dense matrix
153.0	Tuff, gray-brown, friable; ⅛-in. fragments
155.0	Tuff, gray; fine fragments
158.0	Tuff, gray; ¼-in. fragments; core broken
159.0	Tuff, gray; fine fragments
161.0	Tuff; yellow-green cast; >¼-in. fragments; fine-grained matrix
162.0	Tuff, fine-grained
164.2	Tuff, brick-red; medium-fine-grained white clay blebs
165.0	Tuff; fine matrix
172.3	Tuff, brownish; white blebs and stringers of clay
175.4	Tuff, gray; brownish blebs; medium-sized dark sand grains
176.7	Tuff, gray; brown inclusions; subround angular fragments; sandy
179.0	Tuff, brick-red, dense
185.3	Tuff; gray-brown cast
187.7	Tuff, pink
190.5	Tuff, light-brown
198.4	Tuff, gray, soft, friable; pink clay blebs
200.7	Tuff, coarse grit
202.6	Tuff, gray; light-brown at top
203.2	Tuff, red
204.6	Tuff, light-gray; pink clay blebs
205.0	Tuff, red-brown, dense
207.5	Tuff, light-gray; pink flecks
208.0	Tuff, gritty, dark; quartz fragments; pumice
209.6	Tuff; mottled red and gray; porcellanitic stringers
210.5	Tuff, brick-red
213.0	Tuff, light-gray to greenish; scattered quartz grains; pink streaks. Dip 10°
213.4	Tuff; mottled pink to red at top
220.6	Tuff, light-gray; scattered fine grains
224.6	Tuff; mottled pink
228.1	Tuff, light-gray
228.9	Tuff, gray; scattered large pumice fragments
233.1	Tuff, gray; gritty at bottom
235.0	Tuff, light-pink; elongate fragments of pumice and quartzite granules
237.3	Tuff, light-gray; porcellanitic fragments
238.1	Tuff, light-gray; pink mottling
239.1	Tuff, gray, gritty
239.9	Tuff, gray; quartzite fragments. Dip 14°
243.8	Porcellanitic, gray, dense. Dip 20°
249.0	Tuff, red
250.5	Tuff, gray, fine-grained
251.5	
252.0	

Bottom of hole

Drill hole 2
(over room A)
Collar alt 5717.00 ft

Depth, in feet	Description
0	Cased, no core
11.5	Tuff, gray; <¼-in. angular black fragments
15.0	Tuff, gray; very fine black fragments
16.5	Tuff, gray; ¼-in. black fragments
20.5	Tuff, light-gray, fine-grained, friable
21.5	Tuff, white; pinkish blebs
23.4	Tuff, white; soft clayey ⅛-in. black fragments
26.6	Tuff, gray-brown; <¼-in. angular black fragments
27.9	Tuff; greenish cast; <¼-in. angular black fragments
31.5	Tuff; pinkish cast; small white clay blebs
32.5	Tuff, red, dense; white clay blebs
38.0	Tuff, light-colored; poor core recovery
40.2	Tuff, light-colored; ⅛-in. angular black fragments
42.0	Tuff, light-colored; pink cast; scattered ¼-in. brown fragments
43.3	Tuff, gray; <¼-in. brown fragments abundant
48.2	Tuff, light-colored; fine black fragments in lowest 1 in.
49.2	Tuff, gray; ⅛-in. black fragments abundant
50.4	Tuff, light-colored; red stringers
54.5	Tuff; greenish cast; <¼-in. black fragments abundant
58.0	Tuff, light-colored; red bands at 55.0 tot 56.0 ft
62.5	Tuff, gray; greenish cast; <¼-in. black fragments
64.0	Tuff; greenish cast; >¼-in. angular black fragments
65.0	Tuff; greenish cast; very fine grained
69.5	Tuff; gray-green cast; scattered fine fragments
73.3	Tuff, brick-red; ¼-in. scattered black fragments
76.8	Tuff, pink; ⅛-in. scattered black fragments
77.9	Tuff, greenish cast; fine fragments
79.7	Tuff, light-gray; fine black fragments
82.0	Tuff, greenish cast; red mottled
85.5	Tuff, red; <¼-in. white clay blebs
87.0	Tuff, light-gray, fine-grained; very fine black fragments
87.5	Tuff, light-gray, fine-grained
99.0	Tuff, gray-green; ⅛-in. scattered black fragments
102.0	Tuff, brick-red; ½-in. brown mottling with black fragments at center of mottling
103.3	Tuff, brown, with red mottling
105.3	Tuff, brick-red; ½-in. brown mottling
106.5	Tuff, greenish cast; <½-in. brown and black fragments
112.0	Tuff, greenish cast; fine-grained (some core missing)
114.0	Tuff, gray; ¼-in. black fragments
114.7	Tuff, greenish cast; ¼-in. black fragments
115.7	Tuff, pink; ¼-in. black fragments
121.0	Tuff, green; pink cast bottom 1 ft; coarse ½-in. fragments and green clay blebs
123.0	Tuff, green, fine-grained, dense
123.4	Tuff, brown, fine-grained, friable

Hole cut back of room A

EXPLANATION

Lithology	Color
Massive tuff	Red
Well-bedded tuff	Pink
Concealed section	Undetermined
Inclusions	White or gray
Pumice fragments	Yellow, green, or yellow green
Pisolitic tuff	Brown

FEET
0
20
40
60

COMPARATIVE SURFACE AND SUBSURFACE SECTIONS, USGS TUNNEL AREA, NEVADA TEST SITE

654-996 O - 63 (In pocket)