COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF NATIONAL DEVELOPMENT

BUREAU OF MINERAL RESOURCES GEOLOGY AND GEOPHYSICS

RECORDS:

1967/135

UNCONSOLIDATED SEDIMENTS OF THE PIALLIGO REFUSE DISPOSAL Area. a.c.t.

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by

D.E.Gardner & J.L. McCawley

15928/65

UNCONSOLIDATED SEDIMENTS OF THE PIALLIGO REFUSE DISPOSAL AREA, A.C.T.

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INTRODUCTION

At the request of the National Capital Development Commission, a programme of augering was undertaken during February, 1965, to delineate possible extensions to the Pialligo garbage disposal area. The object of the work was to ascertain whether unconsolidated material extends to a depth sufficient to allow trenching by bulldozers and the burial of garbage. A map of the area showing the positions of the auger holes accompanies this report.

Topography: The site of the proposed extension is an area of low relief; it slopes gently to the south-west.

GEOLOGY

Much of the area is covered by thin sand and low sandhills of aeolian origin. The remainder of the area consists of colluvium and alluvium with sparse, small, weathered and ironstained outcrops of volcanic bedrock.

Bedrock: The outcrops consist of docitic rocks probably lava flows, of the Ainslie Volcanics, which are Devonian in age. Two specimens (specimen and thin section Nos. 65360012, A and B), collected near grid co-ordinates E 55500 S 3500 (Canberra grid), consist of devitrified glass containing very small scattered phenocrysts of quartz and feldspar.

Alluvium: The alluvium consists of silt, sand and gravel; the less-stable fragments are noticeably weathered and clay has been deposited in voids between fragments. The pebbles are well rounded and represent many rock types although most of them are of quartz. Some fragments of mudstone were recovered in the south-west of the area and a few water-worn cobbles of basic to intermediate volcanic rock were observed in the sand pits.

One centrally situated auger hole (G16) tapped groundwater at 16 feet; the supposition that this hole intersected an old stream bed is supported by the logs of holes numbered H12, I8, J4, K4, L0, M0, N0 - all of which intersected alluvium.

Colluvium: The colluvium consists of poorly sorted sub-angular fragments of weathered volcanic bedrock, quartz fragments and hard clay. A layering effect, the probable result of cyclical climatic changes, has been observed with depth. The depth of alluvium and colluvium penetrated is shown in the attached plan.

Sand: Eighteen of the holes intersected sand ranging in thickness from 3 to 14 feet. Average thickness of sand is seven feet. Because of the wide interval between auger holes it is not possible to delineate the boundaries of these sand deposits. The sand is mainly fine to medium in grain size; locally it is coarse-grained. Much of it could be utilized for mortar and plaster in the building industry, and for bedding material. Auger holes that passed through a thickness of at least 5 feet of this sand are shown on the map.

RESULTS OF AUGERING

Ninety seven holes, with a total footage of 1114.5 feet, were drilled during February, 1965. The holes averaged 11.5 feet in depth and were drilled on 400-foot centres in a grid pattern.

Difficulty was experienced at certain sites where the auger flights became clogged by plastic clay. It is considered that a bulldozer would have little difficulty in excavating the material to a greater depth than that penetrated by the drill.

The drilling programme proved that, of the 270 acres tested, 243 acres can be easily trenched by a bulldozer to depths that range from 6 to at least 14 feet; on the remaining 27 acres trenching would become difficult at depths shallower than 6 feet.

Conclusions: A total of 243 acres of the area tested can be utilised for the disposal of garbage, at depths ranging from 6 to 14 feet.

A useful deposit of building sand occurs in the area.

LOGS OF AUGER HOLES

Hole	From (In feet)	To	Description ("Fine", "Medium" and "coarse" refer to grain size
A0	0	5	Clayey silt with some fine-medium sand and weathered bedrock.
	5	7	Clayey silt and weathered dacitic?bedrock.
		7	Bedrock
A4	0	4	Clayey silt and decomposed bedrock. Some fine sand.
		4	Bedrock
A8	0	3.5	Clayey silt with decomposed bedrock and some fine/medium sand.
		3.5	Bedrock.
A12	0	3	Sandy silt
	3	6	Clay with particles of weathered rock
	6	12	Clay with much weathered rock.
	12	14	Black silty clay with fragments of decomposed bedrock.
A16	0	7	Silty clay with fragments of weathered rock (colluvium?)
	7	8	Weathered rock
	8	10	Clay
	10	15	Clay and shale fragments
A20	0	4	Very silty sand
	4	6	Silty sand and fragments of weathered rock
	6	9	Clay with fragments of weathered rock.
	9	15	Shale with fragments of weathered rock
A24	0	3	Very silty sand with lumps of clay
	3	5	Silty clay and weathered bedrock.
		5	Bedrock.
A28	0	1	Silt with fragments of weathered dacite.
	1	9	Red silty sand and fragments of weathered dacite.
	9	14	Silty clay with fragments of weathered dacite
		14	Bedrock
B0	0	4	Clayey silt with coarse fragments of weathered bedrock. Some fine to medium sand.
		4	Bedrock. dacite?

Hole	From (In feet)	To	Description ("Fine", "medium" and "coarse" refer to grain size)
B4	0	7	Red clayey silt with fragments of bedrock.
	7	9	Compacted clayey silt containing many angular and coarse rock fragments.
B8	0	3	Clayey silt with fine to coarse sand.
	3	4	Colluvium plus decomposed bedrock. Some clayey silt.
	4	6	Coarse colluvium and silt. Decomposed bedrock.
		6	Bedrock.
B12	0	4	Red clayey silt with coarse alluvium and some sand
	4	6	Clayey coarse colluvium
		6	Bedrock.
B16	0	2	Clayey red silt with some fine/medium sand.
	2	4	Sandy clay with colluvium
	4	4.5	Alluvium with coarse constituents
	4.5	5	Coarse boulder bed
B20	0	4	Red silt with some fine to coarse sand
	4	5	Clayey colluvium with some grey silt
		5	Bedrock
B24	0	3	Red silt with colluvium
	3	4	Red clayey silt with coarse colluvium
	4	5	Clayey colluvium with grey silt
		5	Bedrock
B28	0	1	Silt with weathered dacite fragments
	1	10	Clay with weathered dacite fragments
	10	14	Hard clay with weathered dacite
C0	0	5	Red clayey silt with colluvium and some fine to coarse sand.
	5	5.5	Coarse colluvium
C4	0	4	Clayey silt with medium to coarse sand
	4	8	Shale and clayey silt. Some fine to medium sand.
C8	0	3	Grey silt with fine to coarse sand
	3	4	Clayey silt
	4	7	Large ($\frac{1}{2}$") angular fragments of shale and fine grained sandstone (Colluvium?)
	7	10	Clayey sandy silt
	10	11	Sandy clay with some silt
		12	Bedrock or boulder bed
C12	0	3	Clayey silt with some fine to medium sand
	3	4	Weathered bedrock
C16	0	3	Grey talc-like silt with many fragments of red quartzite.
	3	4	Off-white silty shale
	4	6	Off-white talc-like silt with cemented nodules.
		6	Bedrock.
C20	0	6	Grey silt with fine to coarse sand, fragments of decomposed bedrock or coarse colluvium
	6	9	Ditto plus silty clay
	9	10	Clayey sand with some silt
	10	12	Clayey sand with coarse alluvium and minor silt.
	12	14	Silty clay with some sand and occasional large quartz pebbles.

Hole	From (In feet)	To	Description ("Fine", "medium" and "coarse" refer to grain size)
C24	0	2	White silt with fine to coarse sand
	2	3	Ditto and some clay
	3	4	Silty clay with decomposed bedrock and minor sand.
		5	Bedrock
C28	0	4	Fragments of weathered bedrock, clayey silt and some sand
	4	7	Fragments of weathered bedrock, silty clay and some fine sand
	7	12	Clayey silt and rock fragments (slope wash)
	12	13	Clayey silt with weathered bedrock
D8	0	2	Red clayey silt with some sand. Weathered grey bedrock.
		2	Bedrock (andesite?)
D12	0	3	Silty medium to fine sand
	3	5	Sandy clay with weathered rock fragments
	5	6	Fragments of decomposed bedrock in silty sand.
		6	Bedrock
D16	0	6	Fine-Medium grained silty silty sand
	6	8	Ditto plus clay nodules
	8	10	Clayey sand
	10	11	Dark sand with less clay
	11	12	Dark silty clay and sand
	12	13	Silty clay with some sand
	13	14	Silty clay with rock fragments and some sand.
D20	0	4	Fine to medium silty sand with decomposed rock
	4	6	Ditto plus silty clay
		6	Bedrock
D24	0	4	Talc-like silty with some fine sand
	4	5	Fine to coarse alluvium with some silt
	5	6	Talc-like silt with weathered bedrock
		6	Bedrock
D28	0	3	Grey silt with some fine sand
	3	8	Coarse angular rock fragments with clayey silt
	8	9	Silty clay
	9	14	Clayey silt with rock fragments
E8	0	1	Fine silty sand
	1	5	Fine sand
	5	8	Clay with grains of fine sand
	8	10	Clay and medium grained sand
	10	14	Clay with some medium sand
E12	0	2	Fine silty sand
	2	4	Fine sand
	4	8	Clay with some silt
	8	14	Clay with sand
E16	0	2	Fine silty sand
	2	4	Silty sand with clay nodules
	4	5	Silty clay
	5	9	Silty clay and weathered rock
	9	12	Clay and weathered rock
	12	14	Weathered bedrock.

Hole	From (In feet)	To	Description ("Fine", "medium" and "coarse" refer to grain size)
E20	0	2	Fine silt
	2	8	Silty clay with weathered rock
	8	13½	Weathered bedrock and silty clay
		13½	Bedrock
E24	0	1	Silt with some fine sand
	1	6	Silt and weathered bedrock
	6	14	Silty clay with decomposed bedrock
E28	0	6"	Rock fragments
		6"	Weathered bedrock?
F12	0	8	Dark silt with some sand
	8	12	Silt with clay and some sand
	12	14	Sandy clay with some silt. Some rare shale inclusions.
F16	0	3	Red silt with fine-medium sand
	3	6	Ditto plus decomposed bedrock
		6	Drilling difficult
F20	1	5	Fine grey silt with fine-coarse alluvium
	5	7	Silty clay with some sand
		7	Sandy clay with some silt
F24	0	5	Silt and fine to coarse sand
	5	7	Ditto and fine clay
	7	9	Fine to coarse sand, clay and silt
	9	10	Sandy clay with some silt
	10	11	Colluvium and clay with some sand and silt
	11	12	Colluvium and clay with some silt
F28	0	5	Silty sand
	5	8	Silty sand with clay
	8	10	Clay with sand
	10	14	Weathered bedrock
G12	0	10	Clayey silt with limonite nodules and medium-coarse sand
	10	12	Silty clay with some sand
	12	14	Sandy clay with some silt. Some shale fragments.
G16	0	4	Grey silt with fine-coarse sand, some clay
	4	13	Silty clay with some fine to medium sand
	13	16	Plastic clay with some silt and sand. Water.
G20	0	3	Fine to medium sand and silt.
	3	4	Ditto plus weathered bedrock
		4	Bedrock
G24	0	4	Fine-medium silty sand
	4	5	Ditto plus clay nodules
	5	8	Silty clay (sand)
	8	10	Colluvium, clay and some fine-medium sand
	10	12	Sandy clay
	12	13	Clayey silt with some fine sand
	13	14	Ditto plus weathered bedrock
H12	0	7	Silt and fine-coarse sand
	7	10	Silty clay with some fine-medium grained sand. Limonitic rock fragments also present.
	10	14	Silty clay with fine to coarse sand.

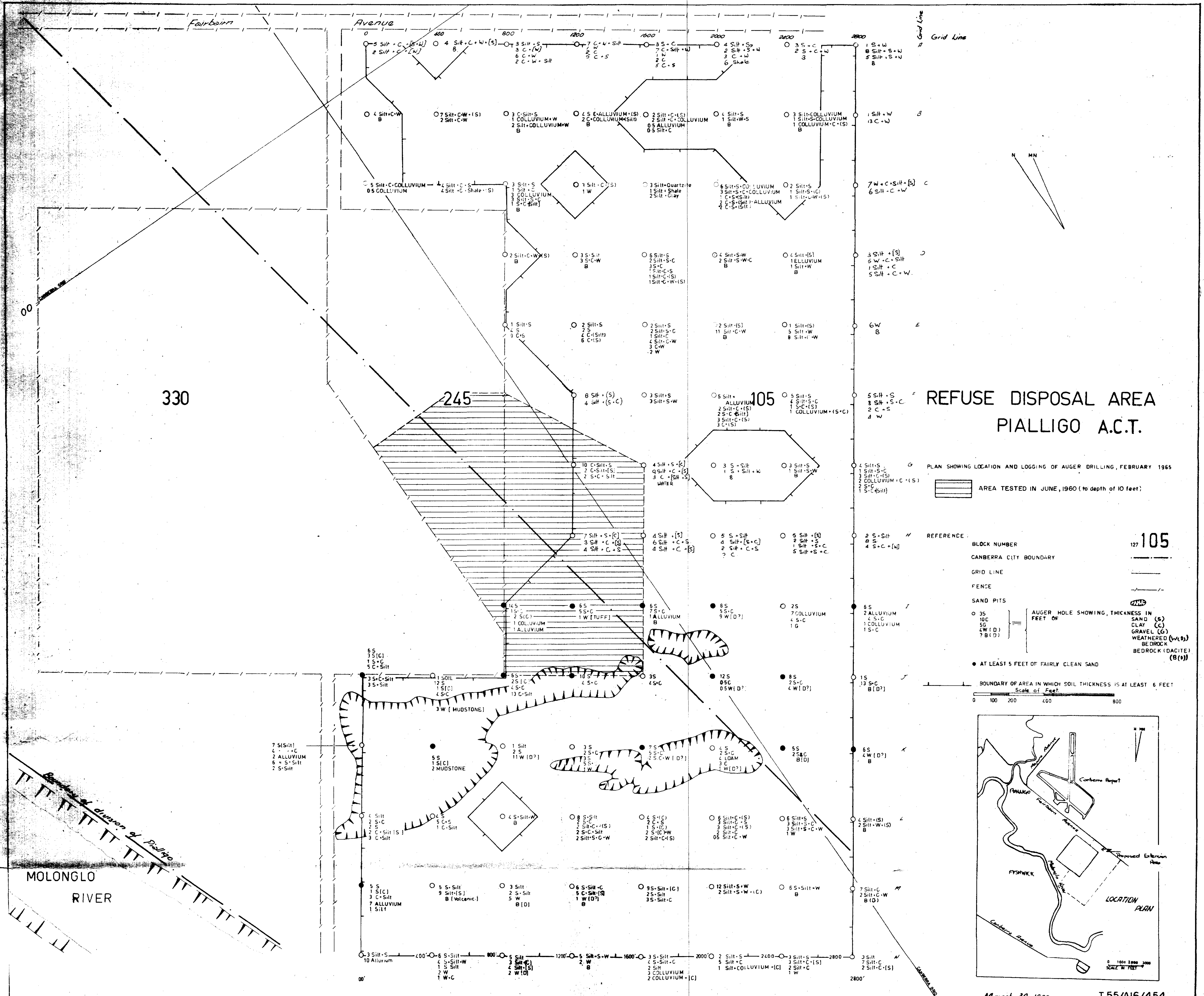
Hole	From (In feet)	To	Description ("Fine", "medium" and "coarse" refer to grain size)
H16	0	4	Silt with some fine sand. Limonitic fragments
	4	10	Silty clay with fine to coarse sand
	10	14	Silty clay with some sand. Large fragments of quartz and a weathered feldspathic material which is weakly limonitic. Fragments up to ½"
H20	0	5	Silty fine to medium sand
	5	9	Silt with some fine-medium sand and silty clay nodules
	9	11	Clayey silt with sand - as above
		11	Silty clay - drilling became difficult.
H24	0	5	Silt with some fine-medium quartz.
	5	7	Sand and silt
	7	8	Medium to coarse silty sand and clay nodules
	8	11	Silty clay and some sand
	11	12	Silty, sandy clay.
	12	13	Ditto, with mudstone fragments
	13	14	Silty clay with some fine to medium sand
I8	0	6	Fairly clean fine to coarse red sand
	6	14	Coarse clean sand
	14	15	Ditto plus traces of clay
	15	17	Fine to coarse sand, silty and ferruginous pisolites
	17	18	Partly cemented coarse-fine sand with some silt and clay. Colluvium?
	18	19+	River sand? (coarse)
I12	0	2	Pale grey fine-medium sand and silt
	2	4	Ditto, ferruginous mottling. Lightly cemented.
	4	6	Sandy, silty, dusty lightly cemented decomposed bedrock
	6	12	Ditto, slightly moist clay. Ferruginous pisolites. Weathered and decomposed bedrock (Very fine acid tuff. Hard at 12')
I16	0	3	Fine to coarse sand and silt
	3	6	Ditto but with a greater proportion of quartz grains
	6	7	Clayey sand
	7	8	Clayey sand with ferruginous concretions
	8	13	Clayey medium-coarse sand
	13	14	Clayey alluvium
		14	Bedrock
I20	0	2	Fine to coarse sand with some silt
	2	5	Fairly clean red fine-coarse sand (some silt)
	5	8	Ditto, mainly medium to coarse
	8	13	Ditto, some clay
	13	18	Decomposed volcanics
	18	22+	Same with ferruginous nodules
I24	0	2	Very fine sand and silt
	2	7	Sandy colluvium
	7	9	Clayey sandy colluvium
	9	13	Sandy clay and clayey sand (could be windblown sand and colluvial layers)
	13	14	Clayey sand, probably calluvium
I28	0	6	Medium to coarse sand and silt
	6	8	Alluvium
	8	10	Coarse sand with clay
	10	10½	Sandy clay
	10½	11	Clayey sand
	11	12	Sandy clay
	12	13	Slope wash
	13	14+	Fine clayey sand.

Hole	From (In feet)	To	Description ("Fine", "medium" and "coarse" refer to grain size)
J0	0	3	Fairly clean clayey sand
	3	6	Clean coarse sand
	6	9	Medium to coarse sand with some clay
	9	10	Clayey sand
	10	15	Buff yellow silty clay or clayey silt
	15	18	Silty sand and clay. Semi rounded fragments of weathered mudstone
	18	21	Silty fine sand or fine sandy silt. Some clay.
J4	0	1	Soil, dark with some sand
	1	5	Fairly clean medium-coarse sand
	5	13	Clean medium to coarse sand
	13	14	Coarse sand. Trace of clay
	14	14½	Clayey band.
	14½	16	Coarse sand with some clay
	16	18	Clayey sand
	18	21	Decomposed bedrock (mudstone). Fairly hard over this section. Probably would rip deeper, but not easily.
J8	0	6	Fine to coarse sand with some silt (fairly clean)
	6	8	Same, small quantity of clay
	8	9	Same, more clay
	9	12	Sandy clay
	12	25	Silty clay: ferruginous pisolites
J12	0	6	Fine to coarse sand with some silt
	6	10	Fine to coarse sand siltier, some clay
	10	14	Clayey sand
J16	0	3	White fine to coarse sand with some silt
	3	7	Red sandy clay or clayey sand
	7	8	Weathered dacite
J20	0	4	Very pale buff grey fine sand with some silt
	4	6	Fine red sand with some silt
	6	7	Medium to coarse sand with some silt
	7	8	Coarse sand with ferruginous nodules
	8	13	Clayey sand
	13	13½	Bed of very tenaceous clay
	13½	14	Decomposed volcanics
J24	0	2	Very fine pale yellow silty sand
	2	4	Ditto, reddish yellow in colour
	4	8	Clayey sand
	8	9	Very clayey sand
	9	10	Fine sandy silt and dust. Yellow
	10	14	Decomposed bedrock (dacite?)
J28	0	1	Fine sandy and silt
	1	2	Ditto, very clayey
	2	14	Ditto, clayey decomposed dacite
K0	0	7	Fine to coarse sand with some silt
	7	11	Ditto and clay nodules ..... Alluvium?
	11	13	Silty clay nodules and coarse quartz grains. Alluvium
	13	17	Coarse alluvium and some fine to silty sand

Hole	From (In feet)	To	Description ("Fine", "medium" and "coarse" refer to grain size)
K4	0	5	Clean coarse sand
	5	6	Coarse sand with some clay
	6	8	Weathered mudstone
K8	0	1	Fine sand with some silt
	1	3	Fine to medium sand, fairly clean
	3	14	Fragments of decomposed volcanics
K12	0	3	Fine silty sand
	3	5	Fine to coarse silty sand and some clay
	5	8	Quartz grains in silty fine sand
	8	13	Clayey sands
		13	Decomposed volcanics
K16	0	4	Fine to medium with some coarse, silty sand.
	4	7	Medium to coarse sand with some fine sand and silt
	7	12	Ditto and clay
	12	14	Grey-brown sand silt and clay with some decomposed volcanics
K20	0	2	Fine yellow sand, some silt
	2	4	Yellow clay to red-yellow sand, some ferruginous matter.
	4	6	Sand and clay
	6	10	Red brown coarse soil. Some clay
	10	13	Pale brown clay with quartz fragments. Sandy clay or clayey sand.
	13	14+	Decomposed dacite
K24	0	3	Fine yellow sand with some silt
	3	5	Ditto, with ferruginous concretion
	5	7	Fine yellow-grey sand and clay
L0	0	4	Black organic silt changing to grey silt
	4	6	Clayey fine sand or sandy clay
	6	8	Coarse river sand with some silt and clay
	10	11	Clay and silt with some fine sand
	11	14	Pale brown clayey silt.
L4	0	4	Fairly clean fine to coarse sand
	4	9	Fine brown sandy clay
	9	10	Silty clay with some fine sand. Buff-yellow
	10	11	Silt
	11	13	Silt with some sand
	13	16	Clayey silt or silty clay
L8	0	1	Fine silty sand and weathered bedrock
		4	Bedrock
L12	0	8	Fine to medium silty sand
	8	10	Fine to medium clayey sand
	10	12	Silty clay with some sand
	12	14	Fine clayey sand
L16	0	4	Fine to medium sand (minor coarse)
	4	6	Fine to coarse sandy clay
	6	7	Fine to coarse sand (minor coarse)
	7	10	Fine to coarse sandy clay
	10	11	Silty clay with some sand
	11	12	Silty clay with little sand
	12	14	Sandy silty clay with many ferruginous andesite? frags.

Hole	From (In feet)	To	Description ("Fine", "medium" and "coarse" refer to grain size)
L20	0	6	Silty clay with some sand
	6	9	Clayey silty medium to coarse sand
	9	12	Silty clay with some sand
	12	13	Clayey silt
	13	13½	Ditto plus particles of weathered bedrock
L24	0	6	Fine to medium silty sand
	6	9	Ditto plus clay nodules
	9	11	Ditto plus weathered bedrock
	11	12	Weathered bedrock
		12	Bedrock
L28	0	4	Red silt with some fine-medium quartz grains
	4	6	Ditto plus weathered bedrock
		6	Bedrock
M0	0	5	Silty fine-medium sand
	5	6	Ditto with minor clay
	6	9	Fine clayey silt with some coarse quartz and fine sand
	9	11	Alluvium with coarse quartz pebbles
	11	12	Well sorted river alluvium
	12	15	Very dirty alluvium
	15	16	Clayey fine to medium silt
M4	0	5	Fine to medium silty sand
	5	14+	Fine sandy silt; ferruginous pisolites. Decomposed volcanic bedrock.
M8	0	3	Grey silt
	3	5	Red sandy silt
	5	10	Decomposed bedrock
		11	Bedrock
M12	0	4	Fine red silty sand
	4	5	Fine-medium silty sand with some clay
	5	6	Fine silty sand with clay nodules
	6	8	Clayey silt nodules with some fine sand
	8	10	Silty clay with some fine sand
	10	11	Clayey silt with some fine sand
	11	12	Decomposed bedrock (dacite?)
		12	Bedrock
M16	0	4	Silty fine to coarse sand with some clay
	4	9	Medium to coarse silty sand with clay nodules
	9	11	Fine to medium silty sand
	11	12	Fine to medium silty sand with clay nodules
	12	14	Fine to coarse silty sand. Large (½") nodules
M20	0	6	Fine to coarse silty sand. Weathered bedrock frags.
	6	12	Sandy silt with decomposed bedrock
	12	14	Ditto plus clay nodules. Much decomposed bedrock
M24	0	6	Fine to medium silty sand. Decomposed bedrock
		6	Bedrock
M28	0	5	Red silty loam with silty clay nodules
	5	7	Silty clay
	7	9	Ditto plus fragments of weathered bedrock
		9	Bedrock (dacite)

Hole	From (In feet)	To	Description ("Fine", "medium" and "coarse" refer to grain size)
NO	0	3	Fine sandy silt
	3	6	Alluvium with coarse mudstone fragments
	6	11	Poorly sorted clean gravel. Constituents generally over $\frac{1}{2}$ diameter
	11	13	Finer($\frac{1}{4}$") gravel with clay
N4	0	6	Fine red silt with some fine-coarse sand
	6	10	Ditto plus fragments of decomposed bedrock
	10	11	Red sandy silt
	11	13	Largely greatly weathered bedrock
	13	14	Decomposed clayey bedrock
N8	0	5	Red sandy silt
	5	8	Silt with clay nodules
	8	9	Fine-medium silty sand
	9	12	Sandy silt
	12	14	Decomposed bedrock
N12	0	5	Fine silty sand and weathered bedrock
	5	7	Decomposed bedrock
		7	Bedrock
N16	0	3	Red sandy silt
	3	7	Ditto plus coarse clay nodules
	7	9	Silty nodules (calcareous)
	9	12	Cemented silty colluvium
	12	14	Loose silty colluvium with some clay
N20	0	2	Red silt with some fine to medium sand
	2	7	Clayey silt with some fine to medium sand
	7	12	Silty clay
	12	13	Silty colluvium with some clay
	13	14	Weathered bedrock
N24	0	3	Red silt with some fine-medium sand
	3	6	Clayey red silt with some sand
	6	8	Red silt with clay nodules
	8	9	Weathered bedrock
		9	Bedrock
N28	0	3	Talc-like white silt
	3	10	Silty clay
	10	12	Clayey silt with minor fine to medium sand
	12	14	Decomposed dacite? bedrock.



REFUSE DISPOSAL AREA
PIALLIGO A.C.T.
PLAN SHOWING LOCATION AND LOGGING OF AUGER DRILLING, FEBRUARY 1965
AREA TESTED IN JUNE, 1960 (to depth of 10 feet)
REFERENCE
BLOCK NUMBER
CANBERRA CITY BOUNDARY
GRID LINE
FENCE
SAND PITS
AUGER HOLE SHOWING, THICKNESS IN FEET OF
SAND (S)
CLAY (C)
GRAVEL (G)
WEATHERED (W(B))
BEDROCK
BEDROCK (DACITE) (B(D))
AT LEAST 5 FEET OF FAIRLY CLEAN SAND
BOUNDARY OF AREA IN WHICH SOIL THICKNESS IS AT LEAST 6 FEET
Scale of Feet
0 100 200 400 800
Fairbairn Avenue
Grid Line
330
245
105
MOLONGLO RIVER
Boundary of division of Pialligo
LOCATION PLAN
Canberra Airport
PIALLIGO
FYSHWICK
Fairbairn Avenue
Canberra Avenue
Proposed Extension Area
March 30, 1965.
I55/A16/454

Bureau of Mineral Resources Geology + Geophysics Canberra ACT

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To accompany record 1967/135