

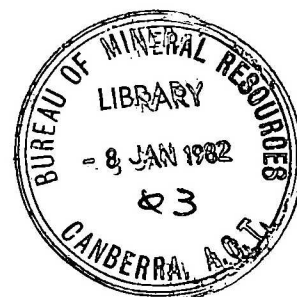


BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

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RECORD

Record 1980/75



STRATIGRAPHIC FIELD SECTIONS AND DRILLHOLE LOGS
OF THE ARRINTHRUNGA FORMATION,
GEORGINA BASIN,
CENTRAL AUSTRALIA

by

John Kennard

BMR
Record
1980/75
c.3

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CONTENTS

ABSTRACT	i
INTRODUCTION	1
STRATIGRAPHY OF THE ARRINTHRUNGA FORMATION	1
General statement	1
Distribution	2
Thickness	4
Stratigraphic relations	5
Age	7
DOCUMENTATION	8
REFERENCES	9

APPENDIX I	Arrinthrunga lithofacies distribution and relations in the Huckitta and Tobermory Sheet areas
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APPENDIX II	Detailed logs of stratigraphic sections of the Arrinthrunga Formation
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Figures

1. Location, 1:250 000 Sheet index, and simplified geology of the Georgina Basin.
2. Surface and subsurface distribution of the Arrinthrunga Formation and Meeta beds.
3. Locations of sections measured in the Arrinthrunga Formation, Huckitta and Marqua areas.
4. Stratigraphic relations of the Arrinthrunga Formation.
5. Locality diagram of section GEO 801.
6. Locality diagram of sections GEO 802, 803.
7. Locality diagram of sections GEO 806, 806B, 806C.
8. Locality diagram of section GEO 808.
9. Locality diagram of section GEO 811.

ABSTRACT

The Upper Cambrian Arrinthrunga Formation is an extensive unit of limestone, dolostone, minor quartz sandstone, siltstone, and shale in the southwestern Georgina Basin in the Elkedra, Glenormiston, Huckitta, Mount Whelan, Sandover River, and Tobermory 1:250 000 Sheet areas. Detailed logs of fourteen field sections and four stratigraphic drillholes in the formation are documented.

INTRODUCTION

This Record presents the lithostratigraphic data acquired in a sedimentological study of the Upper Cambrian Arrinthrunga Formation, a complex carbonate and mixed carbonate-siliclastic shelf sequence from the Georgina Basin, central Australia. Lithostratigraphic sections are presented at 1:250 000 scale, and are supported by location maps.

As such, this Record complements the Bulletin on the descriptions of lithofacies and the interpretation of depositional environments of the Arrinthrunga Formation (Kennard, 1981).

The Arrinthrunga Formation is extensive within the southwestern region of the Georgina Basin (Fig. 1), occurring within the Elkedra, Sandover River, Huckitta, Tobermory, Mount Whelan, and Glenormiston 1:250 000 Sheet areas.

STRATIGRAPHY OF THE ARRINTHRUNGA FORMATION

(Based on Kennard, 1981).

GENERAL STATEMENT

The Arrinthrunga Formation (Smith, 1964) consists of well bedded limestone and dolostone with interbeds of quartz sandstone, siltstone, and shale. The carbonates cover a wide spectrum of petrographic types; the dominant ones are peloid and ooid grainstone, algal boundstone, lime-mudstone, flat-pebble conglomerate, and crystalline dolostone. One prominent quartz sandstone interval has been delineated as a separate member, the Eurowie Sandstone (Smith, 1964).

The original nominated type section of the formation (Section X31, Smith, 1964; GEO 801, Appendix II) is faulted at the base, includes only about one third of the sequence, is structurally complex, and at two horizons some of the sequence has been faulted out. The section is not a valid type section and does not adequately demonstrate the full range of lithologies typical of the formation. A new reference section, GEO 802, is nominated for the formation at longitude 135.60°E, latitude 22.66°S, 7.5 km south-southeast of the abandoned Old Huckitta homestead, and a detailed lithological log of the section is given in Appendix II.

DISTRIBUTION

The Arrinthrunga Formation crops out in two separate areas (Fig. 2): one in the Huckitta and southern margin of the Elkedra Sheet areas; the other farther east in the Tobermory and northern join of the Hay River and Mount Whelan Sheet areas. The most complete exposed sections occur in the south in two steep to moderately shallow-dipping belts at the upturned and faulted southern margin of the basin; in the west along the southwest foothills of the Dulcie Range (this belt includes the new reference section) and in the east along the Marqua Monocline and Toomba Fault Zone. Elsewhere the formation forms an extensive and poorly exposed gently warped sheet, for which detailed stratigraphic information is restricted to drillhole data (BMR Huckitta Nos. 7 and 8 - formerly Grg. 7 and Grg. 8 respectively - and a series of mineral exploration holes drilled by Dampier Mining Company Limited, 1977a,b). The locations of field sections measured in the Arrinthrunga Formation are shown in Figure 3.

To the north of the area of Arrinthrunga Formation outcrop, a poorly exposed sequence of dolomite (microcrystalline, medium-coarse crystalline, and peloid-oid dolostones), quartz sandstone, and minor ooid limestone crops out over an extensive region in the Elkedra, Sandover River, Frew River, and Avon Downs Sheet areas. The sequence, known as the Meeta beds (Fig. 2), is equivalent to the lower part of the Arrinthrunga Formation (Smith, 1972), and is similar to the mainly dolomitic sequence of the Arrinthrunga Formation intersected in BMR 13 (Sandover). The sequence is poorly known in outcrop, but subsurface information has been obtained in BMR Elkedra Nos. 3, 3A, and 4, and Sandover River No. 14 (formerly Grg. 3, Grg. 3A, Grg. 4, and Grg. 14 respectively; Milligan, 1963), Alliance Mulga No. 1 (Laing, 1965), and water-bore 62 on Lake Nash station (Smith, 1972 p. 111). Core material from BMR Elkedra No. 4 and Sandover River No. 14 has been examined in detail by Fehr & Nichols (1963) and Nichols & Fehr (1964) respectively, and the sequences intersected are similar to that part of the Arrinthrunga Formation exposed in the northern part of the Huckitta Sheet area.

In the subsurface the Arrinthrunga Formation has been recognised in BMR 13 (Sandover), BMR 12 (Cockroach), Exoil Lucy Creek No. 1,

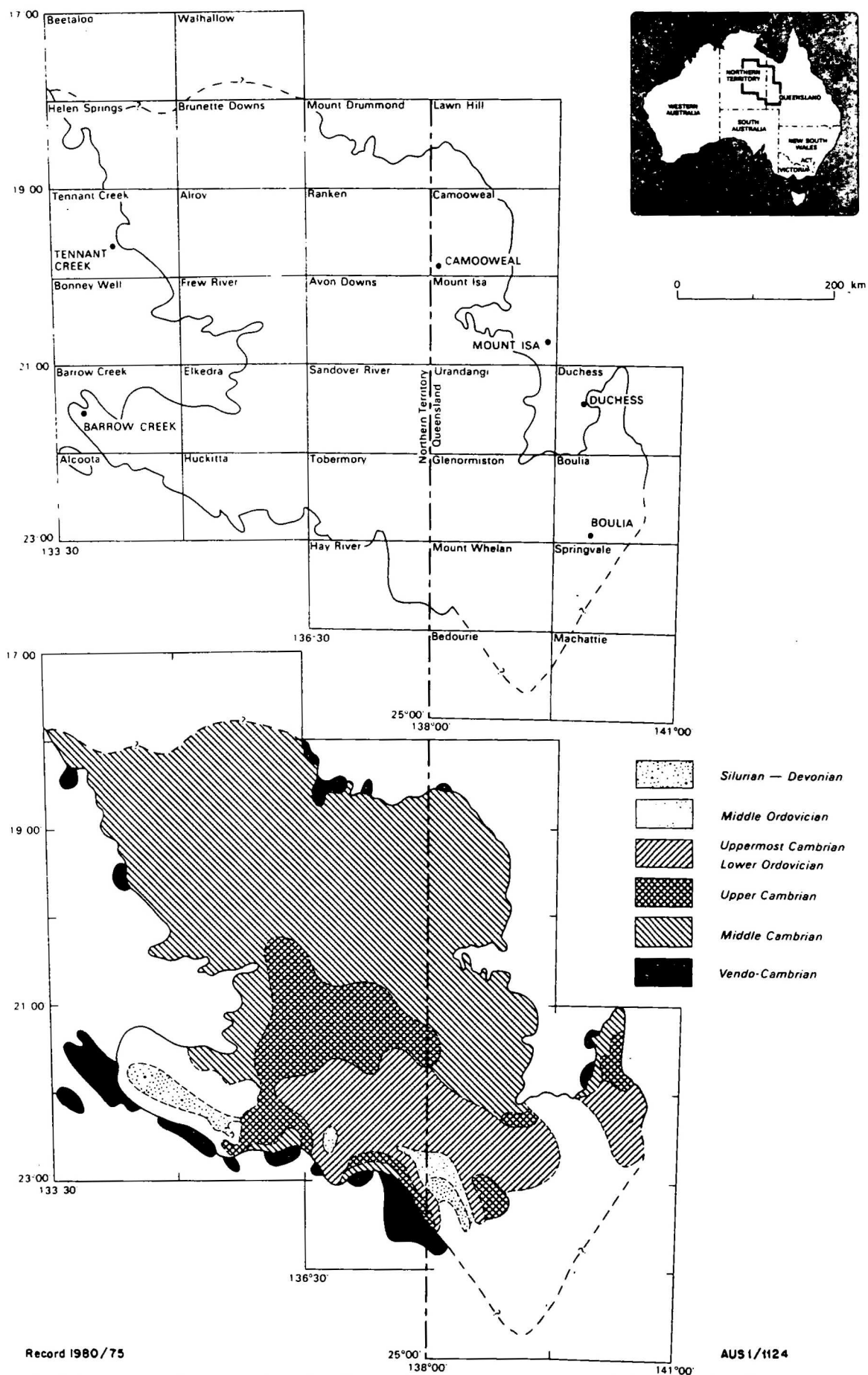
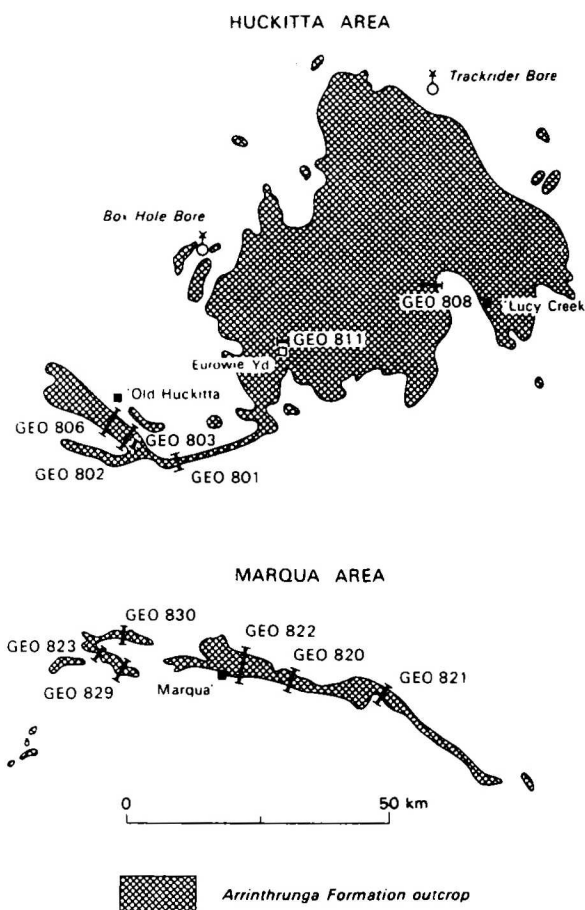


Fig.1 Location, 1:250 000 Sheet index, and simplified Geology of the Georgina Basin



Record 1980/75

Fig.3 Locations of sections measured in the Arrinthrunga Formation, Huckitta and Marqua areas

and Exoil Huckitta No. 1 (Fig. 2; Smith, 1972). Re-examination of the mixed carbonate-siliciclastic Upper Cambrian sequence recovered in BMR Huckitta No. 1 and BMR Elkedra No. 5 (formerly Grg. 1 and Grg. 5 respectively of Smith, 1972, see Appendix II) has led to the recognition of the Arrinthrunga Formation in these drillholes - not the Tomahawk beds as suggested by Smith (1972). The westward extent of the formation beyond the Huckitta Sheet area is not known, but the formation may correlate with 'a poorly exposed' sequence of interbedded sandstone, dolarenite, algal and oolitic dolomite and limestone which underlies, in part, fossiliferous Upper Cambrian sandstones, and which outcrops in a region 20-30 miles north-west of Grg. 5' (Milligan, 1963, p. 9). These rocks have been provisionally included in the Tomahawk beds on the Barrow Creek and Elkedra Sheet areas (Smith & Milligan, 1964).

The subsurface distribution of the formation in the east is not certain, and depends largely on the interpretation of the Palaeozoic sequence intersected in PAP Netting Fence No. 1. The original well completion report (Mines Administration Pty Ltd, 1965) divided the Lower Palaeozoic carbonates into the Ninmaroo Formation (384-726 m), Georgina Limestone (726-1247 m), Mungerebar Limestone (1247-1327 m), Steamboat Sandstone (1327-1548 m), and 'Netting Fence Formation' (1548-1959 m). However, Smith (1972, pp. 104, 108) considered that the Arrinthrunga Formation is probably present in the well section, and concluded that the 'dominantly carbonate sequence in the interval 726-1548 m below the Ninmaroo Formation is best placed in the Arrinthrunga Formation'. Pemberton (1966), on the other hand, correlated the interval 617-1286 m with the Arrinthrunga Formation intersected in BMR 12 (Cockroach) and Exoil Lucy Creek No. 1. The pick for the base of the Ninmaroo Formation in PAP Netting Fence No. 1 is largely subjective, being within a carbonate sequence containing many similar lithotypes throughout, but most workers agree with the original pick of 726 m, where geophysical log characteristics can be correlated with the base of the Ninmaroo Formation in BMR 12 (Cockroach), and below which limestone predominates over dolomite.

The outcrops of Upper Cambrian carbonates nearest to PAP Netting Fence No. 1 well section are those of the Arrinthrunga Formation, 15 km to the southwest, which form a discontinuous belt along the Toomba Fault zone. The nearest known outcrop of Georgina Limestone is 60 km

to the east, and the Mungerebar Limestone and Steamboat Sandstone crop out 100 km to the northeast of PAP Netting Fence No. 1 (Fig. 2).

Although it is not possible to directly correlate the Netting Fence well section with detailed lithological sections measured in the Arrinthrunga Formation 40 km to the west, I have correlated the interval 726-1327 m with the Arrinthrunga Formation after re-examining available core material from PAP Netting Fence No. 1. The base of this interval is picked at the top of a sandstone facies (the upper part of the Steamboat Sandstone Mines Administration Pty Ltd, 1965) which in turn overlies a thick section of micritic limestone, siltstone, and minor sandstone. These more deeply buried lithologies correlate well with exposures of the Marqua beds which underlie the Arrinthrunga Formation in the Tobermory Sheet area, and also with the lithologies of the Marqua beds intersected in BMR Hay River No. 10 (Shergold & Walter, 1979), BMR 12 (Cockroach), and Exoil Lucy Creek No. 1, all of which indicate a sandstone facies at the top of the Marqua beds.

I have thus concluded that in the subsurface the Arrinthrunga Formation extends at least as far east as PAP Netting Fence No. 1.

THICKNESS

The formation has a maximum thickness of 800-900 m in the Huckitta Sheet area and thins eastward to 716 m in Exoil Lucy Creek No. 1 and 601 m in PAP Netting Fence No. 1. A local thickening is apparent in the Marqua area where thicknesses of 777 m and 914 m were recorded in sections GEO 820 and GEO 822 respectively, but these measurements may be exaggerated owing to inaccuracies incurred in measuring the thickness of gently and variably dipping strata. In the Huckitta area there is a local thinning of the formation over the Huckitta Anticline where Exoil Huckitta No. 1 commenced about 250 m below the top of the formation and sectioned 465 m before entering the underlying Arthur Creek beds. Thus a total thickness of about 715 m is indicated, yet just 3 km to the south a thickness of 795 m was measured in the reference section GEO 802, and 3 km to the southwest 886 m was measured in GEO 806. In Exoil Huckitta No. 1 well section the Arthur Creek beds have a normal regional thickness of 240 m, and overlie a Proterozoic sequence with a much-thinned basal arkose

unit (Oorabra Arkose) in contact with granite. Thus, during Proterozoic sedimentation, the Huckitta Anticline was most likely a positive feature that was rejuvenated during the Cambrian to cause a stratigraphic thinning of the Arrinthrunga Formation. The structure may well have been emergent at the close of Arthur Creek bed sedimentation, when supratidal emergent evaporitic environments prevailed (see GEO 802, Appendix I).

In the north the Meeta beds thin to 465 m in Alliance Mulga No. 1, and the unit apparently continues to thin northwards and wedges out against underlying Middle Cambrian units.

STRATIGRAPHIC RELATIONS

The relation between the Arrinthrunga Formation and other stratigraphic units of the Georgina Basin is shown in Figure 4. The Arrinthrunga Formation is conformable over Middle Cambrian units throughout its distribution, but it may disconformably onlap older units to the west of the Huckitta Sheet area, where outcrops of Middle Cambrian sediments have not been recognised. The basal contact with the Arthur Creek beds (Huckitta area) and Marqua beds (Marqua area) is gradational, and lithologies of these units interdigitate with the formation over an interval of several metres.

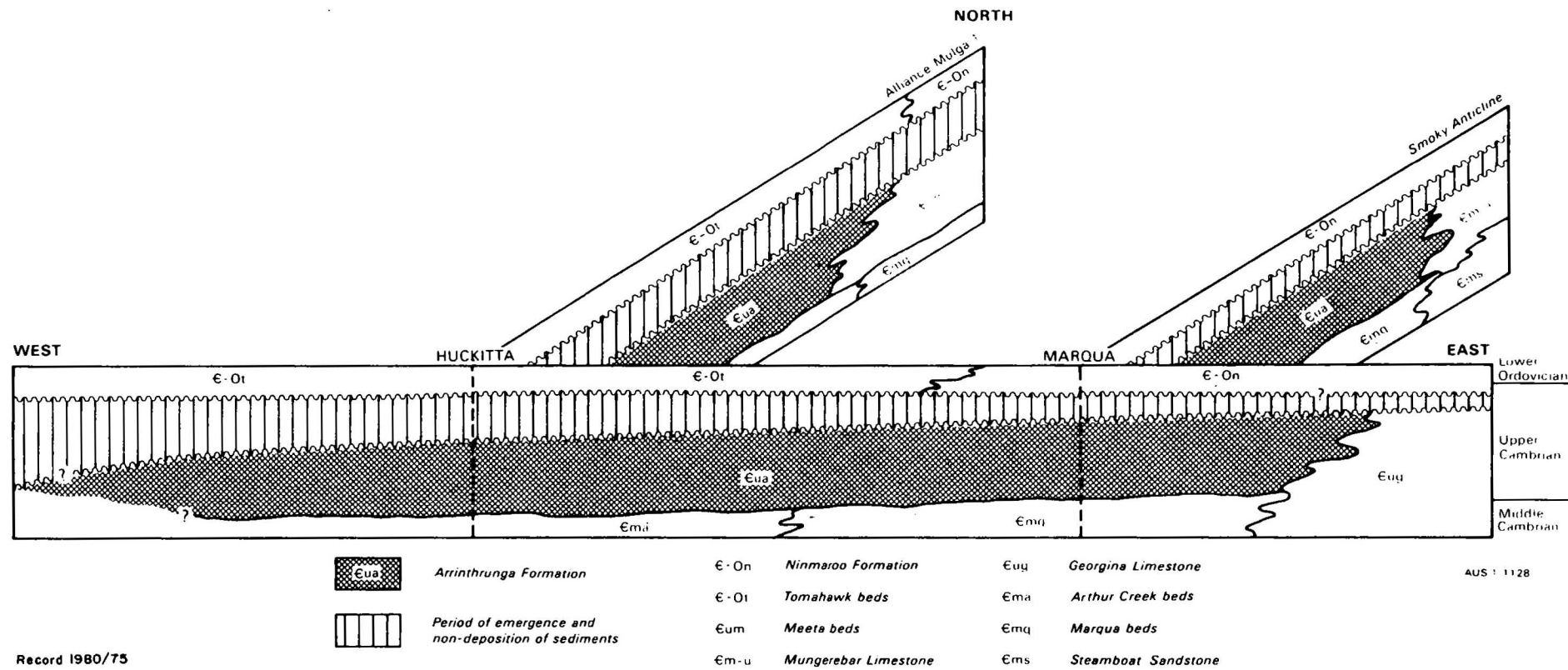
In the far east the Arrinthrunga Formation correlates with and grades laterally into the Georgina Limestone, a sequence of laminated dark grey bituminous micrite overlain by cross-laminated sandy pelletal limestone, algal boundstone, ooid grainstone, and flat-pebble conglomerate. This sequence crops out in the Glenormiston and Mount Whelan Sheet areas, and 420 m of the lower bituminous micrite unit was intersected in GSQ Mount Whelan No. 1 (Fig. 2).

The top of the Arrinthrunga Formation in PAP Netting Fence No. 1 can be traced in seismic section (Harrison & Schmidt, 1978) to Alliance Ethabuka No. 1 and thence to the top of the Georgina Limestone near

GSQ Mount Whelan No. 1 (Harrison, 1979). Within the Middle-Upper Cambrian interval of the Netting Fence-Ethabuka section there is a suite of reflections with an apparent dip of $1-4^{\circ}$ to the southeast, which Harrison (1979) has interpreted as a prograding sequence about 400 m thick. The exact position of the prograding sequence within the Cambrian section is not certain, but, by correlation with the section in PAP Netting Fence No. 1, it probably corresponds to the upper Marqua beds and may extend into the basal Arrinthrunga Formation. I suggest that the prograding sequence demarcates the edge of shallow-water high-energy carbonate bank sediments (Arrinthrunga Formation) prograding to the southeast over a gently dipping slope characterised by low-energy deeper-water carbonates and siltstones (Georgina Limestone and Marqua beds). This interpretation implies that, in the subsurface, the Arrinthrunga Formation extends south-southeast down the axis of the Toko Syncline almost as far as Alliance Ethabuka No. 1.

In the northeast the Arrinthrunga Formation correlates with the Mungerebar Limestone, a 30-m-thick sequence of micrite, dolomitic sandy ooid limestone, and possible evaporites (R. Henderson, James Cook University, personal communication 1978). The unit crops out on the western flank of the Smoky Anticline and demarcates the eastern and probable shoreline margin of the shallow-water high-energy carbonate bank sediments of the Arrinthrunga Formation.

A widespread unconformity occurs at the top of the formation throughout most and probably all of its distribution. In the Huckitta area the unconformity is marked by a karst erosion surface, that had formed before the overlying Tomahawk beds were deposited. Diagnostic features of the unconformity include pisolitic calcite, cavity fill breccias, an irregular carbonate topographic surface overlain and infilled by sandstone of the Tomahawk beds, and, on colour aerial photographs, disrupted drainage and joint patterns near the contact. Widespread low-amplitude buckling and folding of the basal Tomahawk beds in the southwest foothills of the Dulcie Range may be due to the collapse of this sequence into solution cavities developed on the karst surface. An erosional break is also indicated in the Lucy Creek area and near BMR 13 (Sandover) where the Tomahawk beds rest directly on upper but not topmost units of the Arrinthrunga Formation (Smith, 1972 p. 108); the top unit has presumably been removed by erosion.



Record 1980/75

Fig.4 Stratigraphic relation of the Arrinthrunga Formation

The contact with the overlying Ninmaroo Formation is difficult to define, since both units consist of similar lithologies and represent broadly similar carbonate megafacies that migrated across the basin at different times. In outcrop the contact is picked at the base of an extensive but poorly exposed steeply dipping belt of dolomite 200 m thick. The belt is concordant with the underlying mixed carbonates of the Arrinthrunga Formation to the south, and is possibly faulted to the north against shallow-dipping mixed carbonates of the Ninmaroo Formation. The dolomite belt comprises medium-bedded fine-medium crystalline dolostone, probably with interbedded silt or shale. It may represent either the late-stage dolomitisation of a faulted carbonate sequence, or distinct primary lithologies that were deposited at the culmination of a regressive and emergent sequence and subsequently controlled the location of fault movements. The Ninmaroo/Arrinthrunga contact has been intersected in BMR 12 (Cockroach) and PAP Netting Fence No. 1, but in both drillholes it has been picked at a marked change in geophysical log characteristics within an otherwise uniform mixed carbonate sequence. Elsewhere the Ninmaroo Formation disconformably overlies the Georgina Limestone and the Mungerebar Limestone (Smith, 1972), and in the far east of the basin it overlies aeolian deposits of the Chatsworth Limestone (Shergold, Druce, Radke, & Draper, 1976). The base of the Ninmaroo Formation thus marks a widespread disconformity surface developed on an emergent carbonate shelf; this surface correlates in the west with the karst surface beneath the Tomahawk beds.

From the available evidence, I have concluded that the Ninmaroo Formation disconformably overlies the Arrinthrunga Formation. This conclusion is further supported by the occurrence of about 70 m of quartz sandstone which crops out at the base of the Ninmaroo Formation in the south-east corner of the Tobermory Sheet area (E.C. Druce, formerly BMR, personal communication 1978); the sandstone was apparently deposited during post Arrinthrunga times.

AGE

The meagre fossil content of the Arrinthrunga Formation precludes its precise dating. Its stratigraphic position - between the Middle Cambrian Arthur Creek and Marqua beds and the uppermost Cambrian to Lower Ordovician Tomahawk beds and Ninmaroo Formation - indicates a general Upper Cambrian age for the unit, which scattered trilobite occurrences (Smith, 1972) support.

In the Lucy Creek area the base of the formation may extend into the Middle Cambrian, since trilobites of latest Middle Cambrian age (Leipyge laevigata zone) have been found in the Arthur Creek beds about 20 m below its contact with the Arrinthrunga Formation (P. West, formerly ANU student, personal communication 1978). In the Marqua area however a single trilobite species from the base of the Arrinthrunga Formation (2 km east of GEO 820) is thought to be of earliest Late Cambrian age (J. Shergold, BMR personal communication 1979). The base of the formation, therefore, may be time transgressive, younging to the east. The range in Late Cambrian time has not been established, but some trilobites from the lower Tomahawk beds south of Old Huckitta indicate that the Arrinthrunga Formation is older than latest Cambrian at that locality (J. Shergold, BMR personal communication 1979).

All major stratigraphic sections were unsuccessfully sampled for conodonts.

DOCUMENTATION

The distribution and relations of Arrinthrunga lithofacies, defined in Kennard (1981), are tabulated in Appendix I. Detailed lithostratigraphic sections are documented in Appendix II, and geographic positions are recorded in Figures 2, 3 and 5-9.

Documented sections include:

- GEO 801 - equivalent X31, nominated type section of Smith (1972)
- GEO 802 - reference section
- GEO 803
- GEO 806
- GEO 806 B & C
- GEO 808
- GEO 811/7-811/11 - Eurowie Sandstone
- GEO 820
- GEO 821
- GEO 822
- GEO 823
- GEO 828
- GEO 829
- GEO 830

BMR Huckitta No. 1
 BMR Elkedra No. 5
 BMR Huckitta No. 7
 BMR Huckitta No. 8

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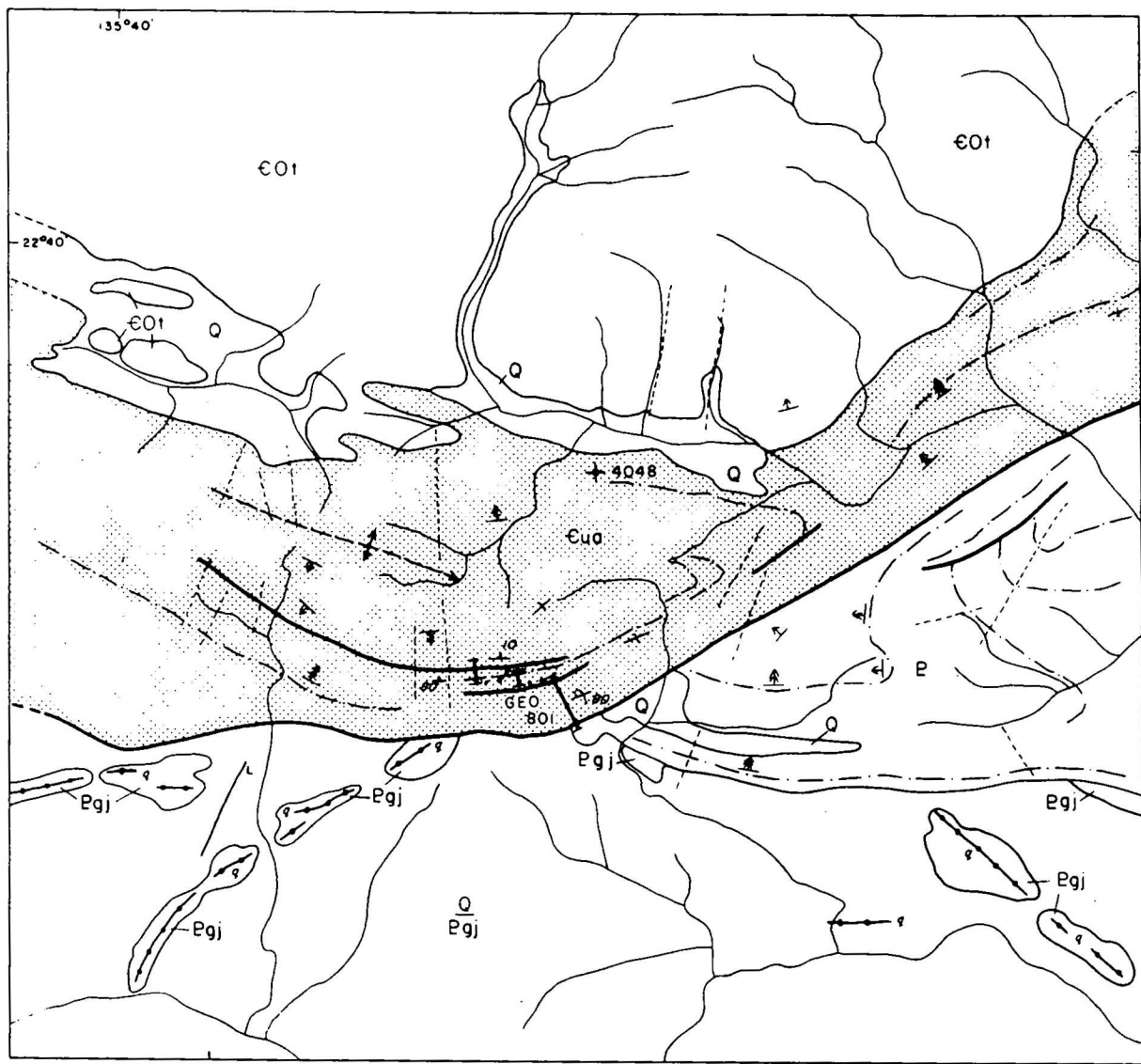
Quaternary	Q	alluvium, colluvium
Lower Ordovician- Upper Cambrian	EOt	Tomahawk beds
Upper Cambrian	Eua	Arrinthrunga Formation
Middle Cambrian	Ema	Arthur Creek beds
Lower Cambrian	Eib	Mount Baldwin Formation
Upper Proterozoic	P	Sediments (undifferentiated)
Lower Proterozoic	Pib	Jinka granite

	Geological boundary
	Anticline showing plunge
	Syncline showing plunge
	Fault
Where location of boundaries, folds and faults is approximate, line is broken, where inferred, queried, where concealed, boundaries and folds are dotted, faults are shown by short dashes.	
	Strike and dip of strata, facing known or inferred
	Strike and dip of strata, facing known or inferred, dip unmeasured.
	Vertical strata
	Vertical strata, facing not known
	Horizontal strata
	Quartz vein
	Strike and dip of overturned strata
	Dip 5°
	Dip 5°-15°
	Dip 15°-45°
	Dip 45°
} airphoto interpretation	
	Edge of bed
	Joint pattern
	Lineament
	Photocentre and number
	Measured section
	Waterhole
	Bore with windpump
	Correlation between measured section lines
	Road
	Fence

Record 1980/75

F53/A11/88

Legend to locality diagrams (Figures 5-9)



Record 1980/75

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Fig. 5 Locality diagram of section GEO 801 (based on aerial photograph JINKA Run 5/4048)

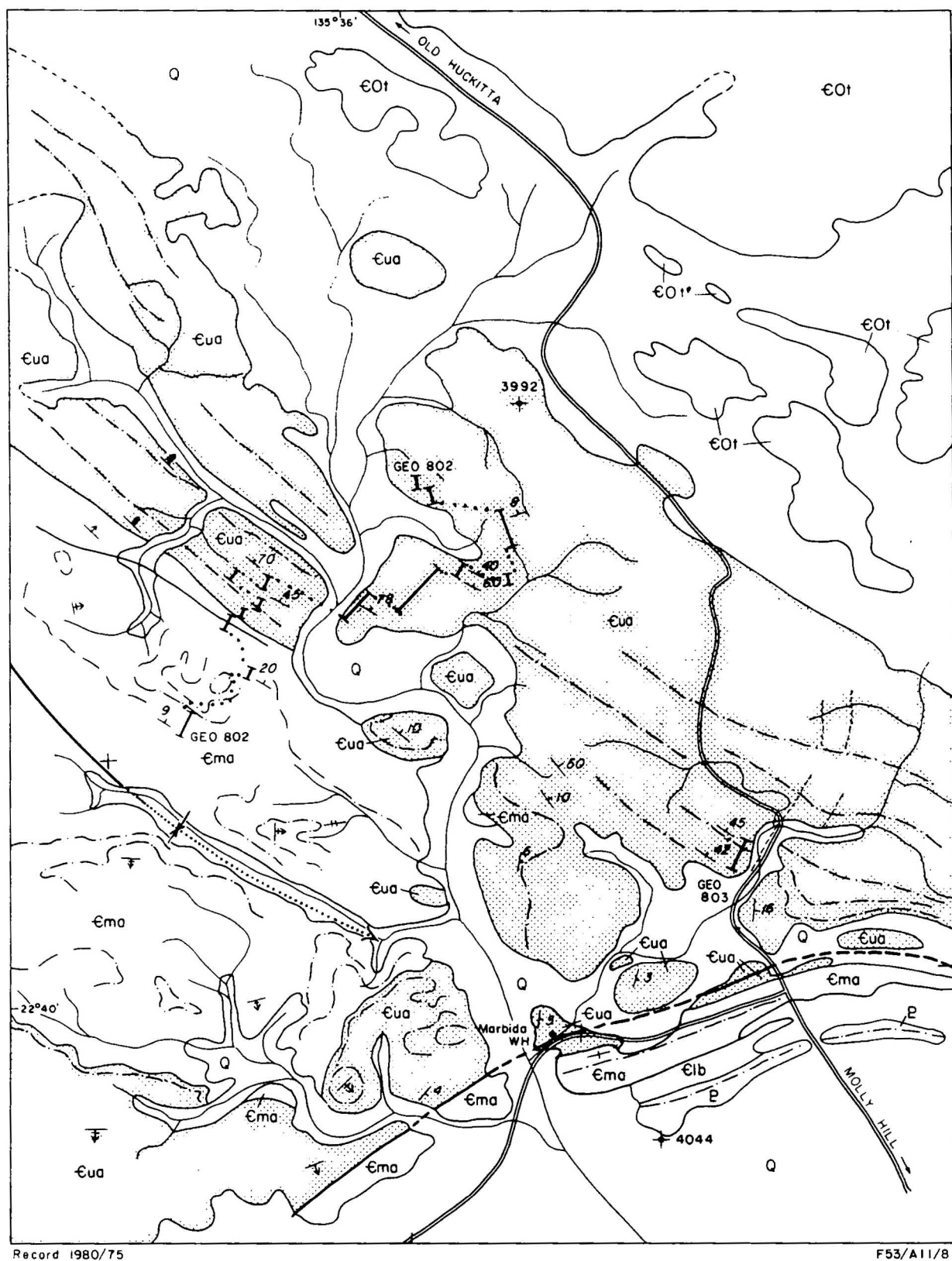
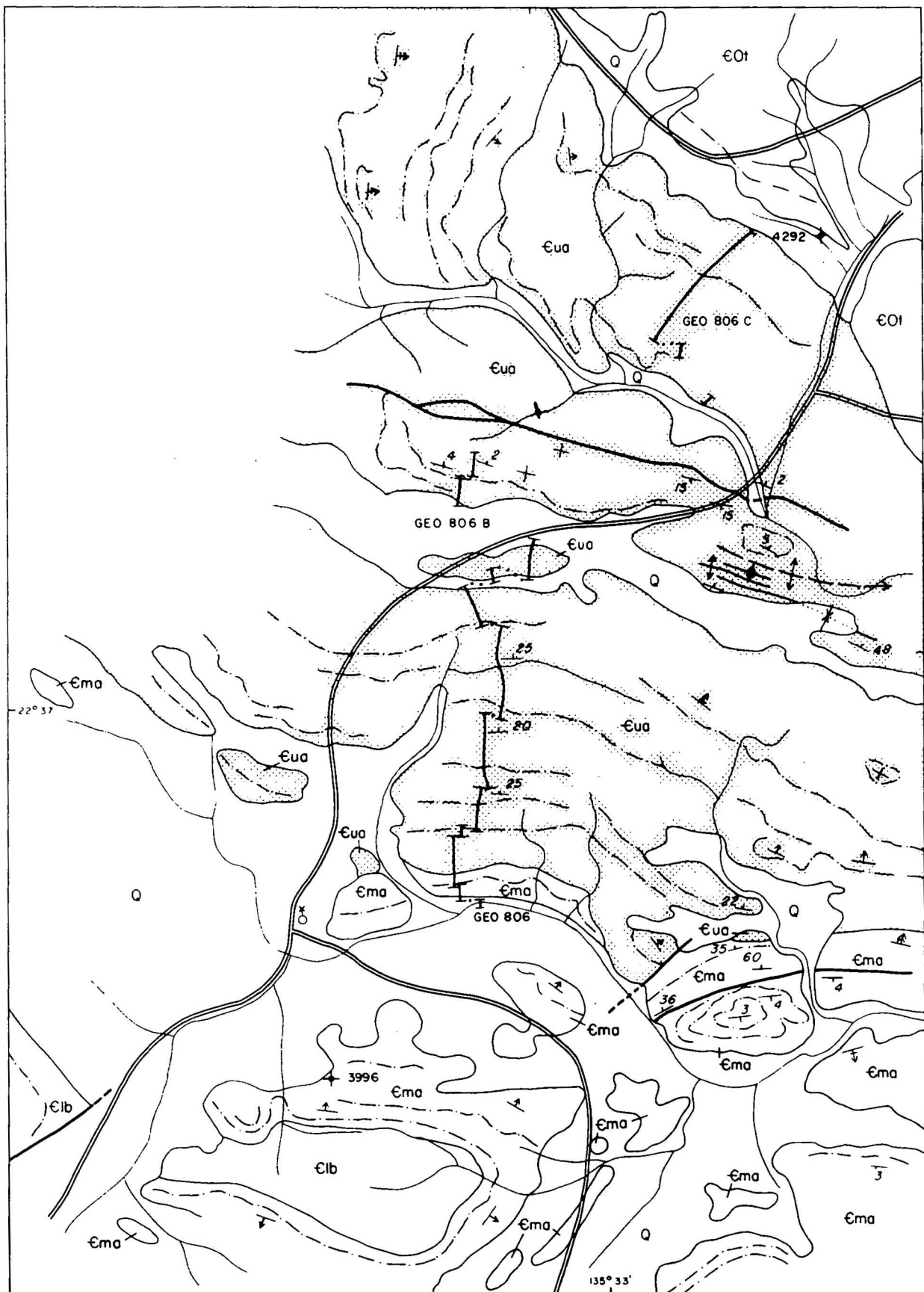


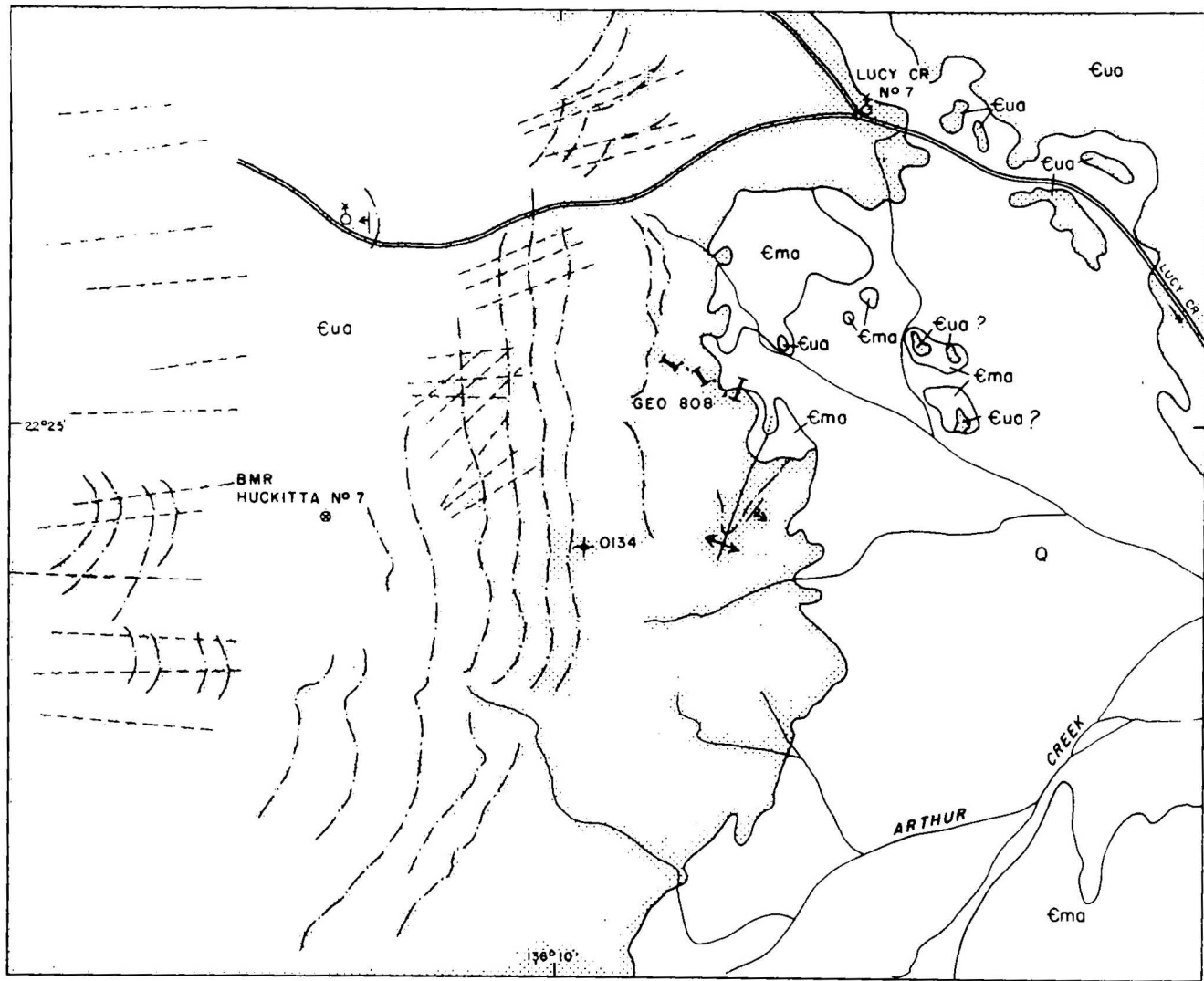
Fig.6 Locality diagram of sections GEO 802,803 (based on aerial photographs JINKA Run 4/3992, Run 5/4044)



Record 1980/75

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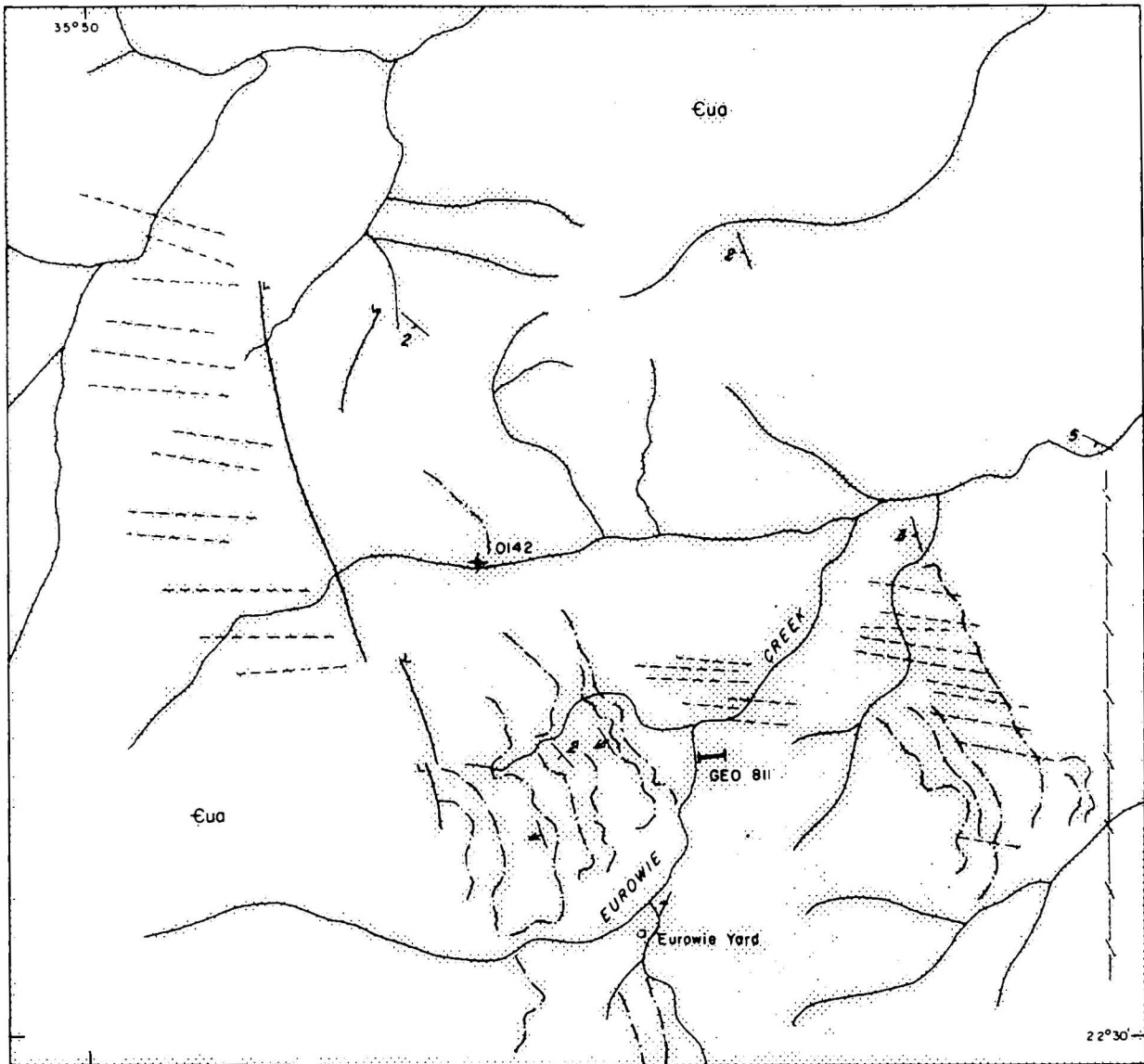
Fig.7 Locality diagram of sections GEO 806, 806 B, 806 C (based on aerial photographs DNEIPER Run 3E/4292 JINKA Run 4/3996)



Record 1980/75

F53/A11/83

Fig. 8 Locality diagram of section GEO 808 (based on aerial photograph
HUCKITTA Run 4/0134)



Record 1980/75

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Fig.9 Locality diagram of section GEO 811 (based on aerial photograph
HUCKITTA Run 4/0142)

APPENDIX I

ARRINTHRUNGA LITHOFACIES DISTRIBUTION AND RELATIONS IN THE
HUCKITTA AND TOBERMORY SHEET AREAS.

Lithologies

	<i>Limestone</i>		<i>Calcareous</i>
	<i>Dolomitic limestone</i>		<i>Dolomitic</i>
	<i>Calcareous limestone</i>		<i>Chert nodules</i>
	<i>Dolostone</i>		<i>Conglomeratic</i>
	<i>Sandstone</i>		<i>Sandy</i>
	<i>Siltstone</i>		<i>Silty</i>
	<i>Shale, mudstone</i>		<i>Shaly, muddy</i>
	<i>Chert</i>		<i>Brecciated</i>
			<i>Veins</i>

Lithofacies

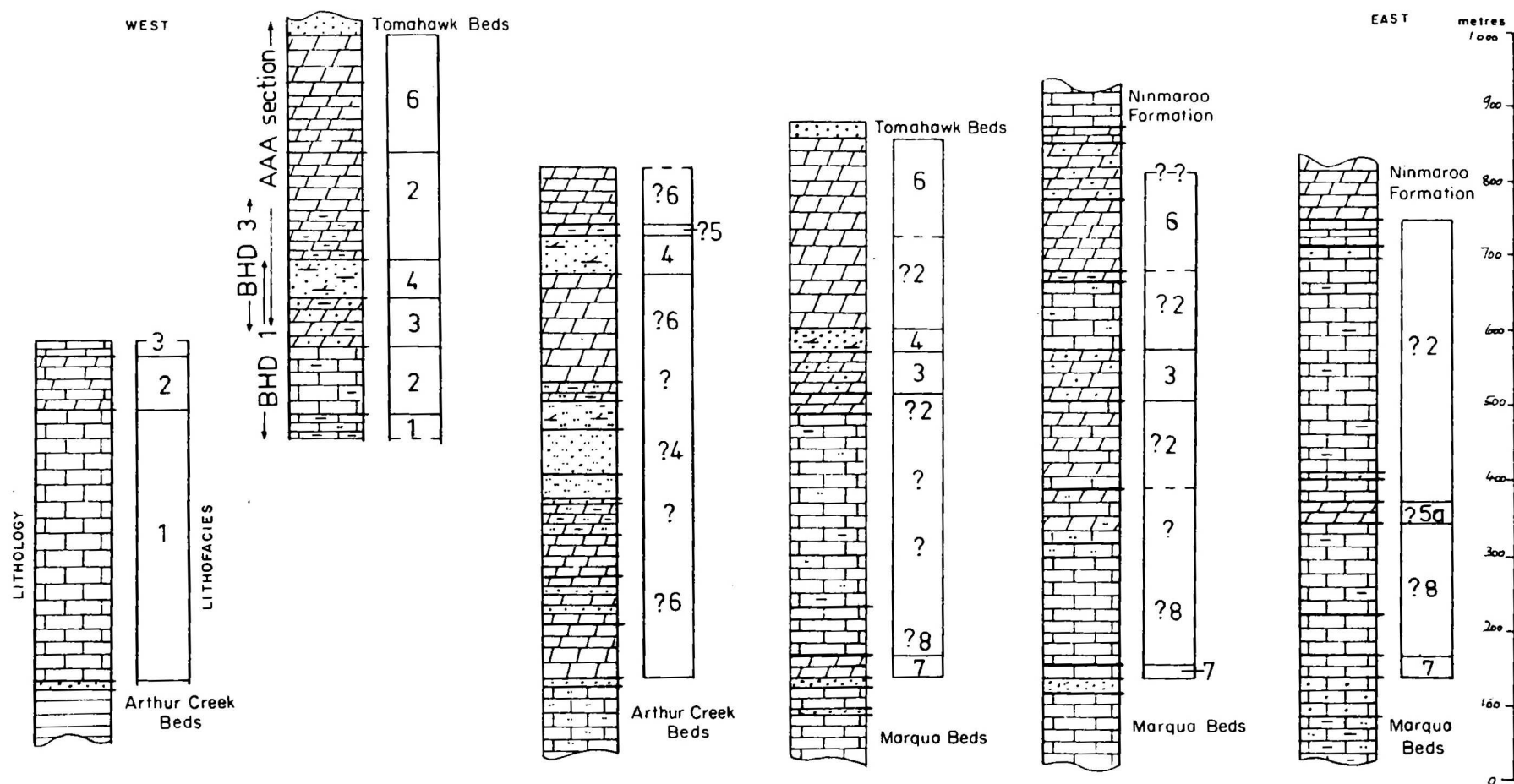
- 1 *Very fine grainstone and mudstone lithofacies*
- 2 *Algal mound lithofacies*
- 3 *Mixed carbonate-siliciclastic sandstone lithofacies*
- 4 *Eurowie Sandstone lithofacies*
- 5 *Algal laminate lithofacies*
- 6 *Ooid dolostone lithofacies*
- 7 *Peloid grainstone lithofacies*
- 8 *Peloidal lime-mud lithofacies*

 *Interval of non-outcrop*

Record 1980/75

F53/A11/87

Legend for Appendix I



Exoil Huckitta 1
Record 1980/75

Dampier BHD 1 & 3
Aust Anglo-American

BMR 13 (Sandover)

Exoil Lucy Creek 1

BMR 12
(Cockroach)

PAP Netting Fence 1
F53/A11/86

APPENDIX I (C) Lithofacies of stratigraphic drill holes and petroleum and mineral exploration drill holes, Huckitta and Tobermory Sheet areas

APPENDIX II

DETAILED LOGS OF STRATIGRAPHIC SECTIONS OF THE ARRINTHRUNGA FORMATION.

Explanation and legend for stratigraphic logs

Layout

Stratigraphic logs are arranged in 8 columns which are, from left to right:

1. Scale
2. Graphic litholog
3. Sample horizons
4. Bedding thickness
5. Sedimentary structures
6. Grainsize of terrigenous component in lithologies
7. Abbreviated description
8. Symbol summary of particle types

1. Scale

The scale on the left hand side of the graphic log indicates the stratigraphic level in metres above the base of the section.

2. Graphic litholog

The left side of the graphic log is a generalisation of differential weathering characteristics of the sequence. Gradational contacts have no line separating symbols which are consequently merged.

3. Sample horizons

Sample horizons are indicated by arrowheads and the accompanying sample number may be followed by sample type:

P - petrographic; G - Geochemical; IR - insoluble residue;
C - conodont; M - macrofossil. Sample descriptions are on permanent file, Microfiche CPDMRXWG, Bureau of Mineral Resources, Canberra, Australia.

4. Bedding thickness

5. Sedimentary structures

6. Terrigenous grainsize

vf	very fine sand
f	fine sand
c	coarse sand
vc	very coarse sand
g	granule
cbl	cobble

7. Abbreviated description

The ordering of each description is standardised, beginning with

1. colour, the abbreviated description from the G.S.A. rock colour chart.
2. a qualifier, if necessary, of the rock type indicated in the graphic log, e.g., grainstone qualifying limestone.
3. the qualifier is followed by descriptive adjectives, indicating component particles and sedimentary structures, listed in decreasing order of abundance.
4. a colon separates these sedimentary features from diagenetic and weathering features.

Many of the abbreviations used are from the standard Bureau of Mineral Resources abbreviation list. As a general rule of thumb, they are derived by removing vowels. In some cases, consonants from word endings are also removed. Nouns are indicated by uppercase, and adjectives by lower case.

8. Symbol summary

This column is repetitive after the abbreviated description in that it summarises the component particle types in decreasing order of abundance.

- 3 -

Additionally, emphasis on abundance is made by underlining, e.g., p, or on rarity by bracketing, e.g., (p).

Graphic log: lithologies

	Limestone		Calcareous
	Dolomitic limestone		Dolomitic
	Calcareous dolostone		Chert nodules
	Dolostone		Conglomeratic
	Sandstone		Sandy
	Siltstone		Silty
	Shale, mudstone		Shaly, muddy
	Chert		Brecciated
			Veins

Bedding thickness

	Very thick (> 100 cm)
	Thick (30-100 cm)
	Medium (10-30 cm)
	Thin (< 10 cm)
	Laminated (< 1 cm)

Grain types

	Peloid
	Ooid
	Intraclast
	Pisolith oncolite
	Trilobite
	Brachiopod
	Skeletal algae
	Algal stromatolite
	Fossil undifferentiated

Sedimentary structures

	Lamination
	Cross-lamination
	Cross-bedding
	Slumped bedding
	Wavy bedding
	Lenticular bedding
	Flaser bedding
	Fenestrae
	Ripple, symmetrical
	Ripple, asymmetrical
	Desiccation cracks
	Pull-apart, synaeresis cracks
	Bioturbation, burrows
	Scour channels

AUS 1/1137

Record 1980/75

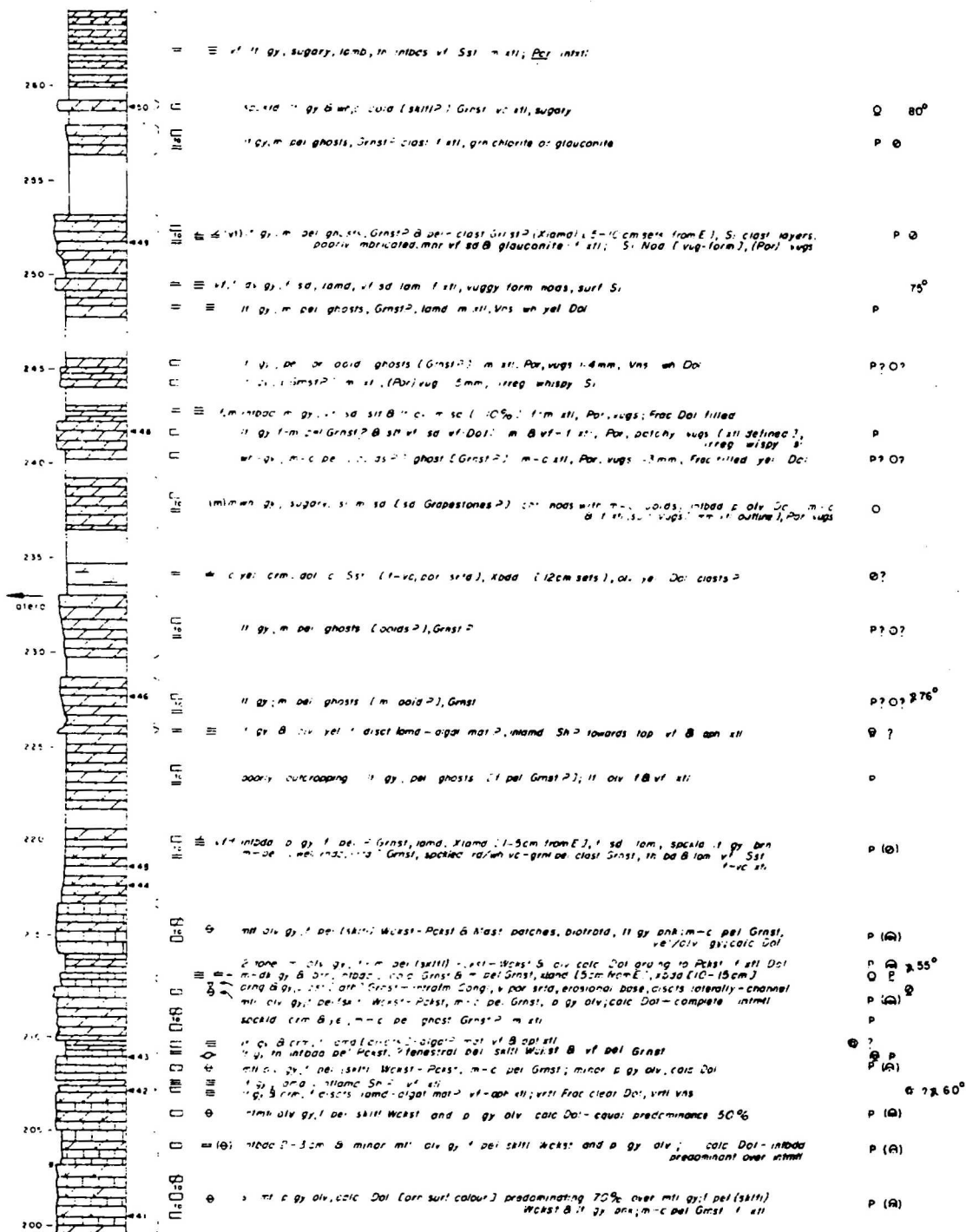
Appendix II : Symbols used on stratigraphic sections

HUCKITTA Sheet Area

SECTION GEO 801



HUCKITTA Sheet Area
SECTION GEO 801



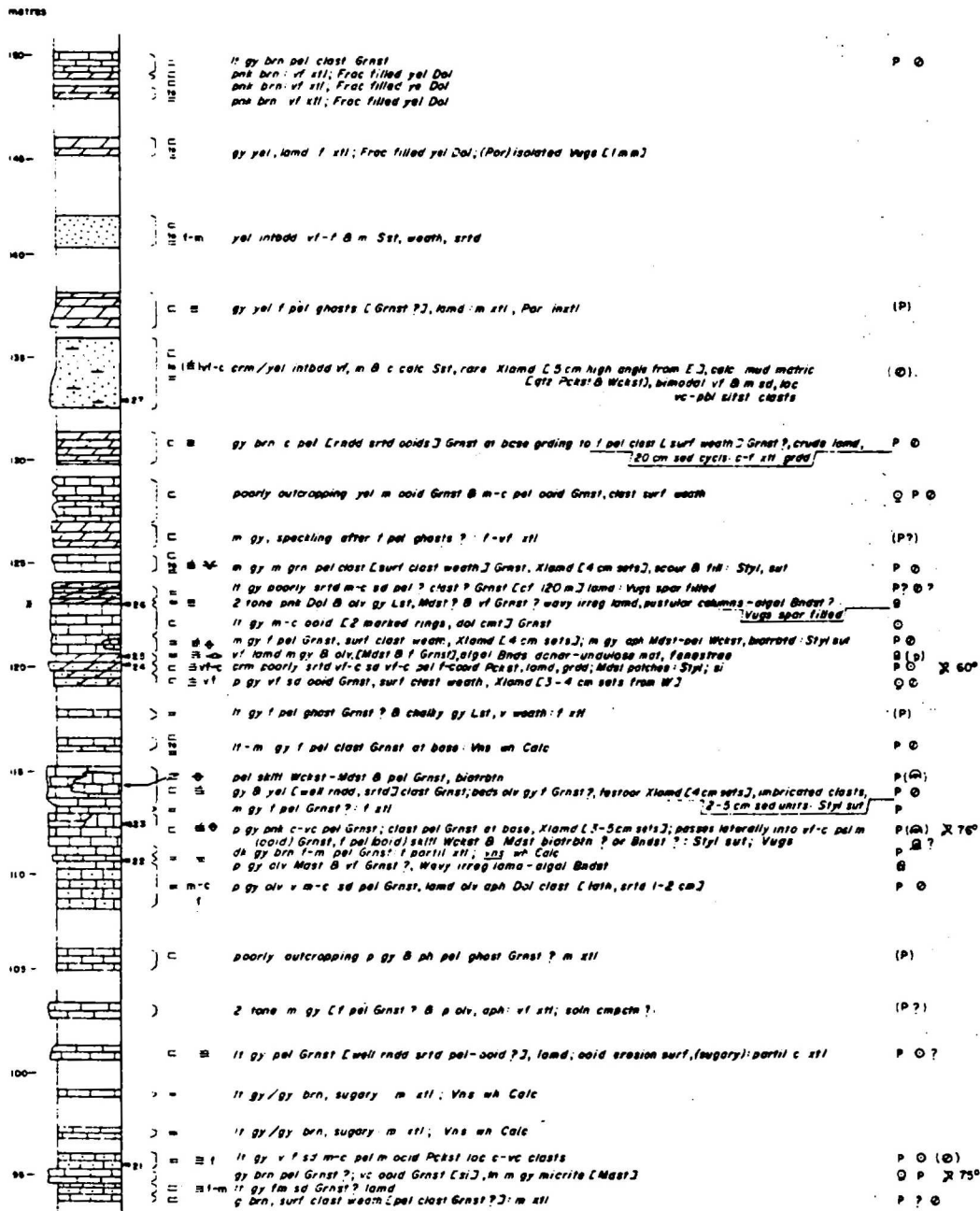
Record 1980/75

2.60°



(3 of 6) F53/A11/71

HUCKITTA Sheet Area
SECTION GEO 801

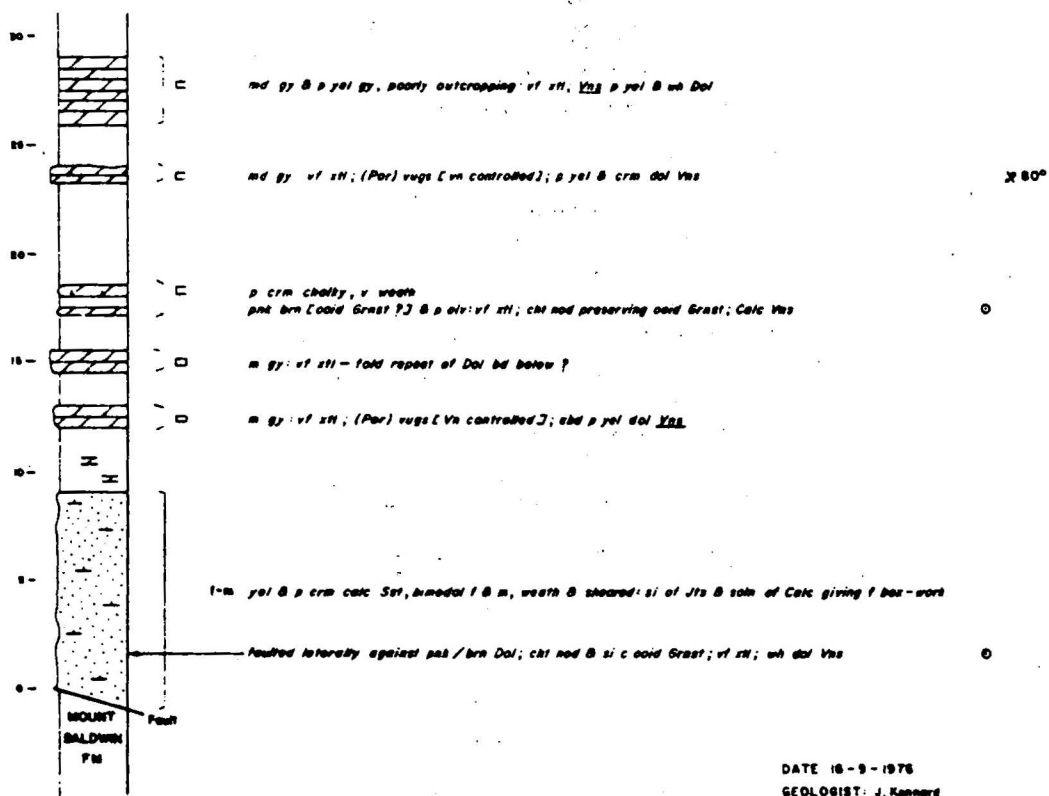


Record 1980/78

HUCKITTA Sheet Area
SECTION GEO 801



HUCKITTA Sheet Area
SECTION GEO 801



Record 1980/75

DATE 16-9-1976
GEOLOGIST: J. Kennard
MAP SHEET: Huckitta

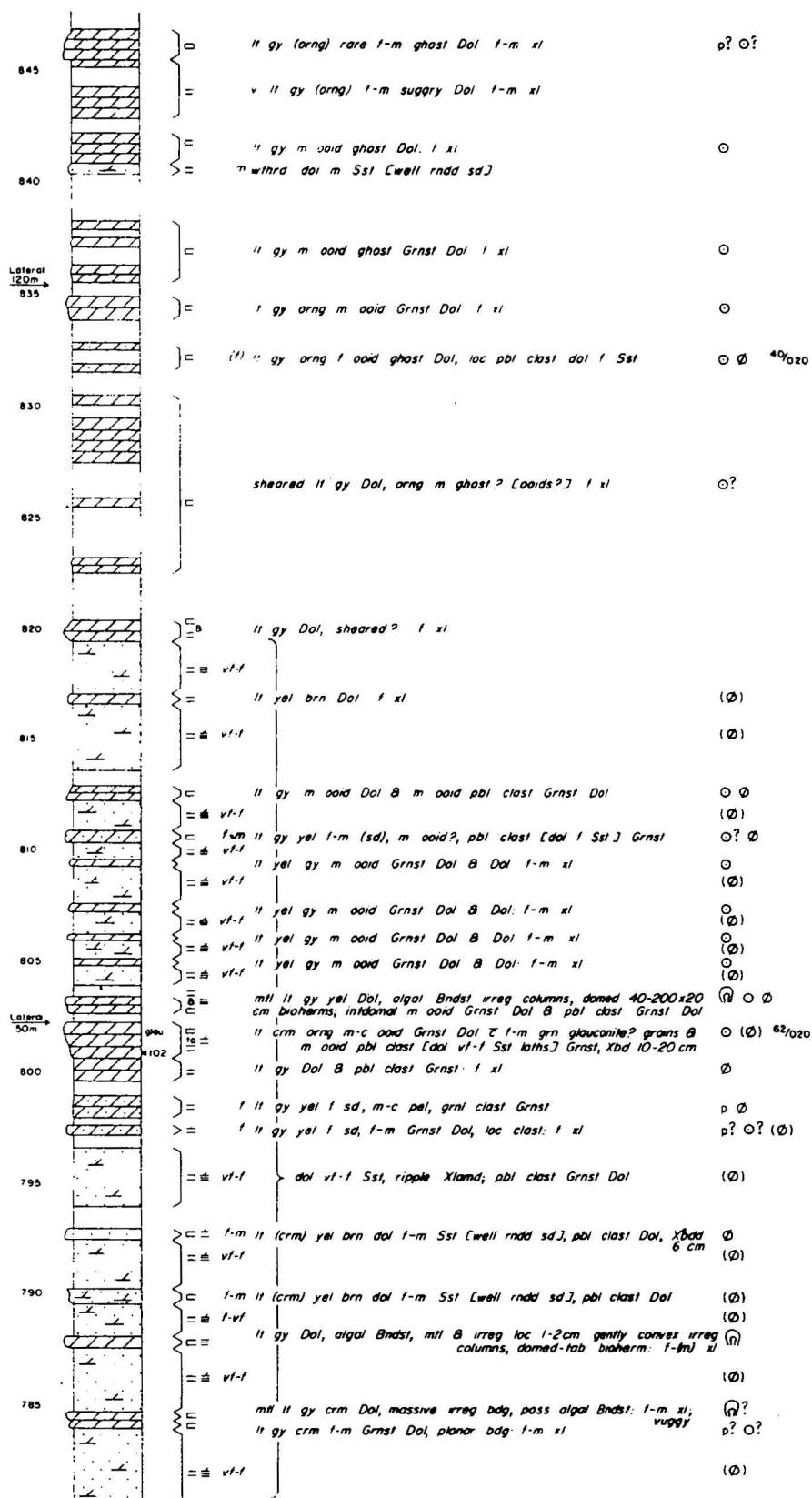
(6 of 6) F53/A11/71

CONTACT WITH TOMAHAWK BEDS OBSCURED BY ALLUVIUM



(1 of 18) F53/All/72

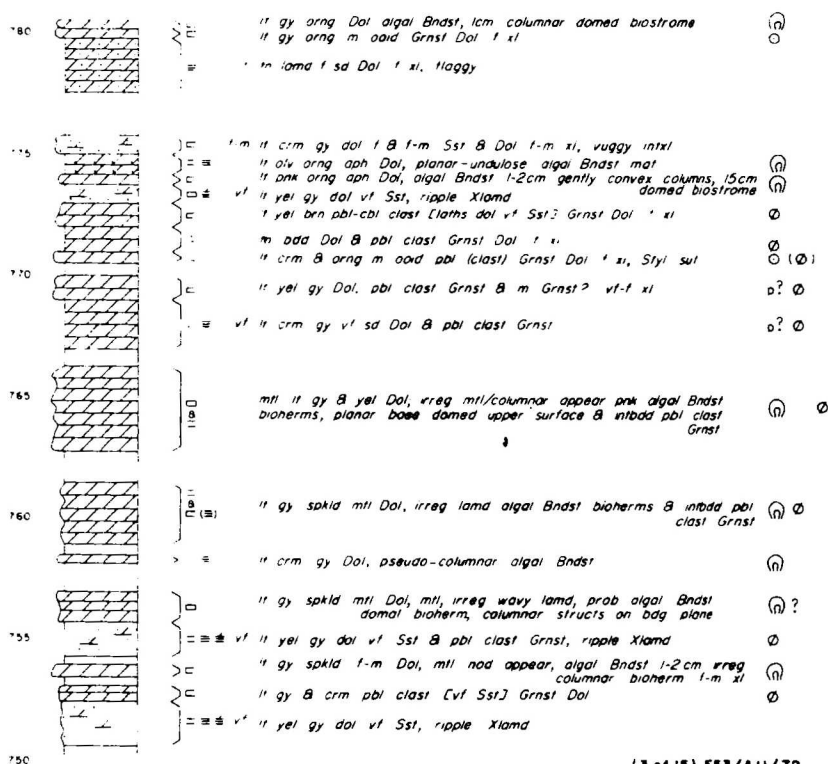
GEORGINA BASIN
SECTION GEO 802



Record 1980/75

(2 of 15) F53/A11/72

GEORGINA BASIN
SECTION GEO 802



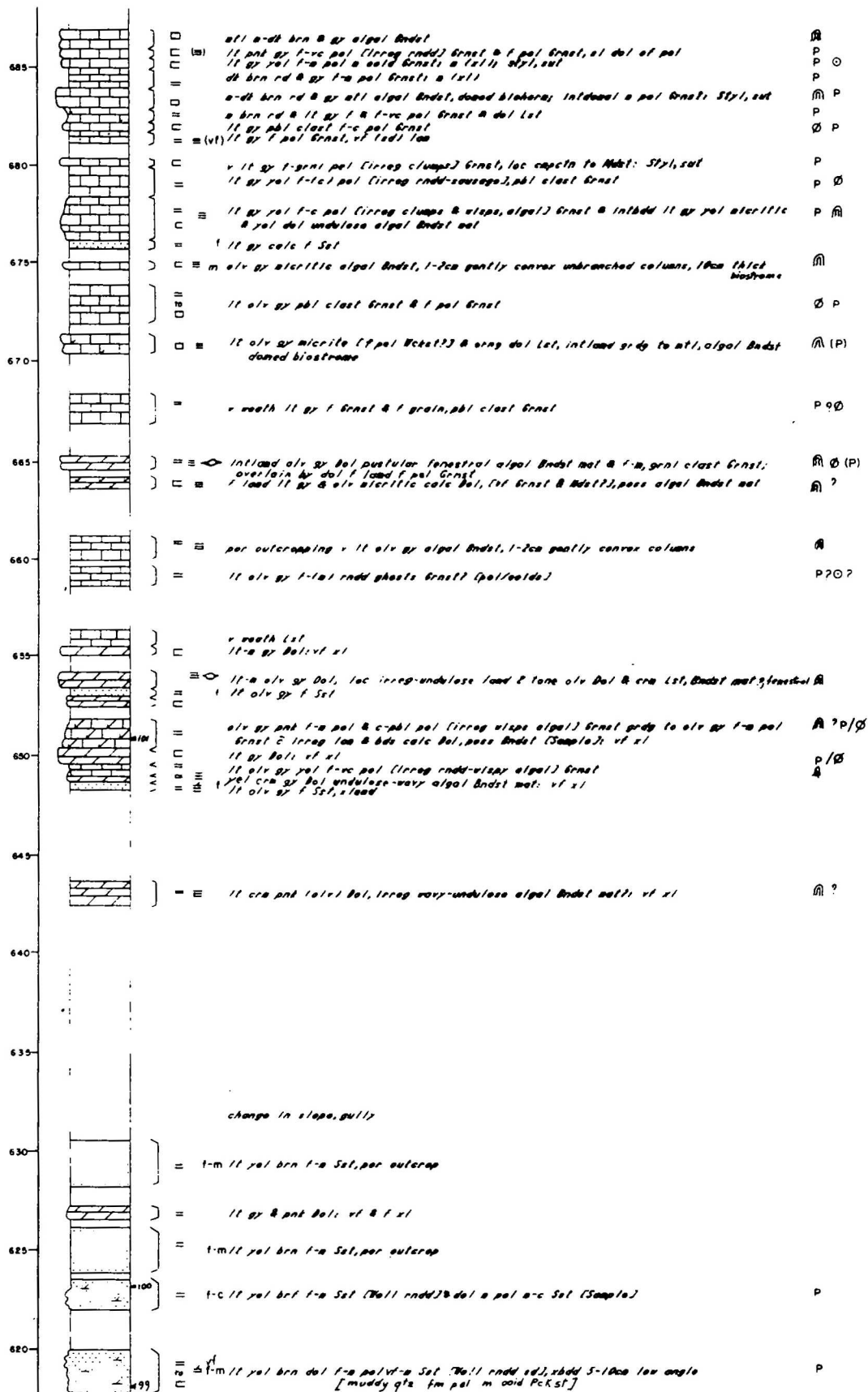
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Record 1980/75

[illegible]

(4 of 15) F83/A11/72

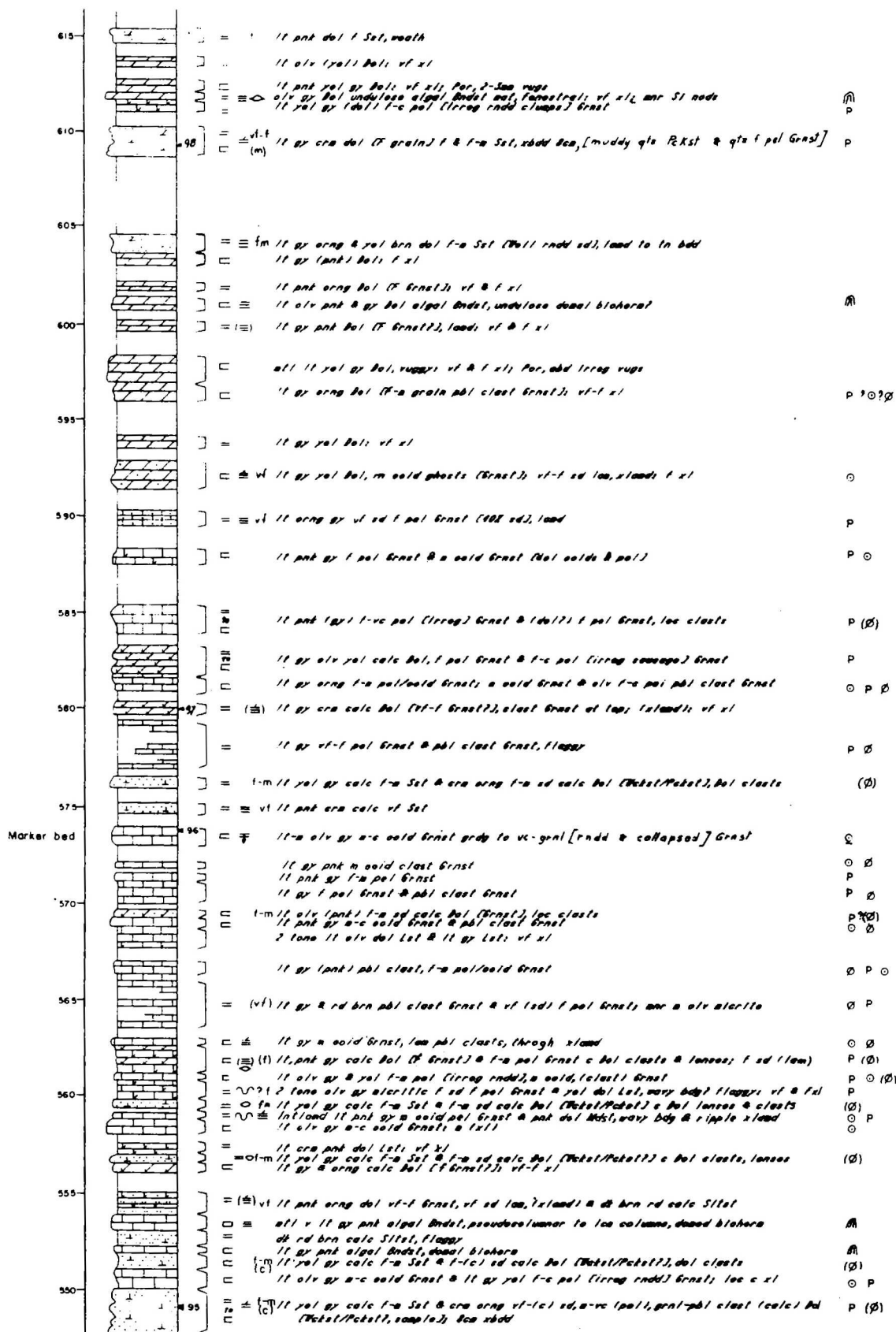
GEORGINA BASIN
SECTION GEO 802



Record 1980/75

(5 of 15) F53/A11/72

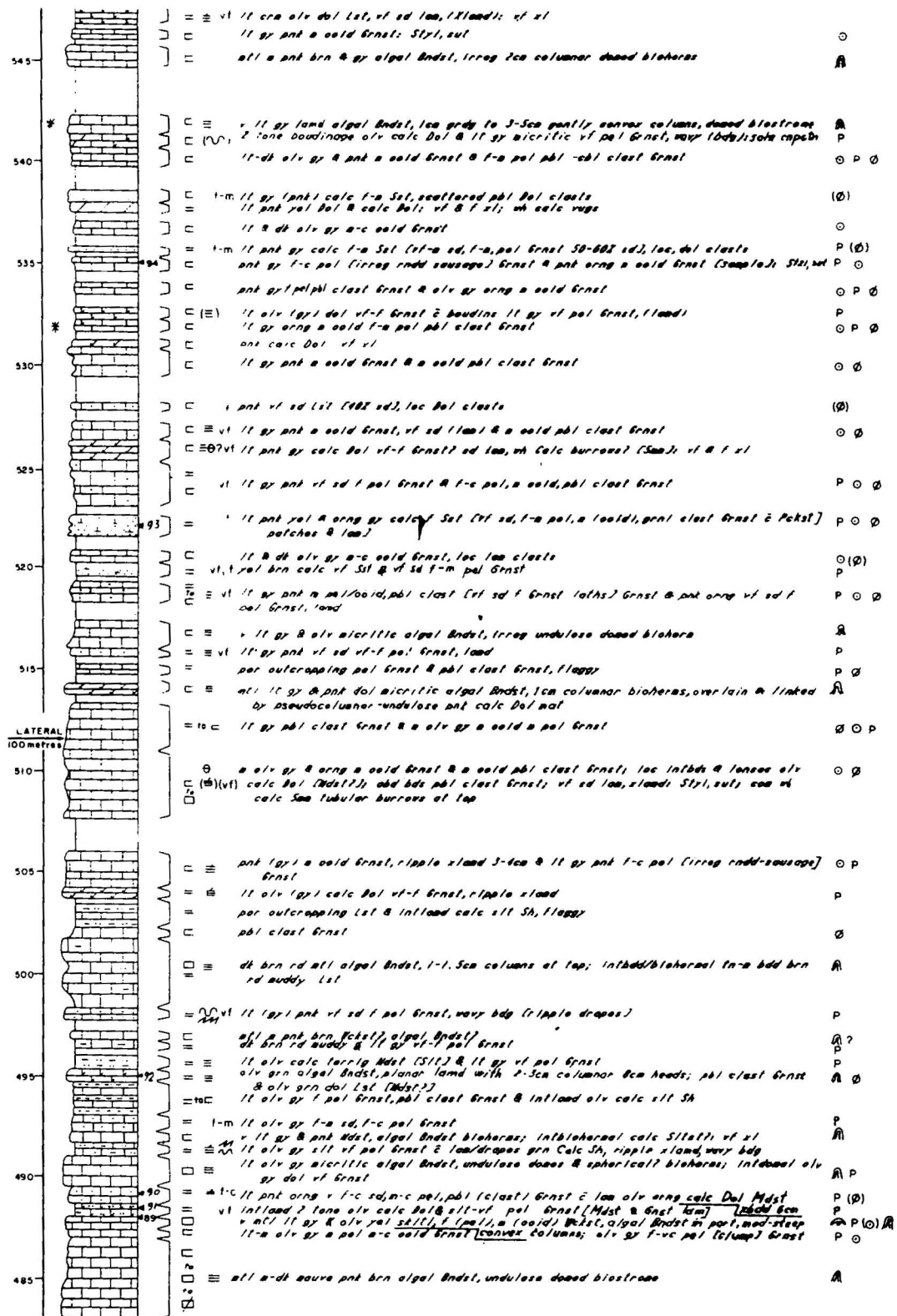
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SECTION GEO 802



Record 1980/75

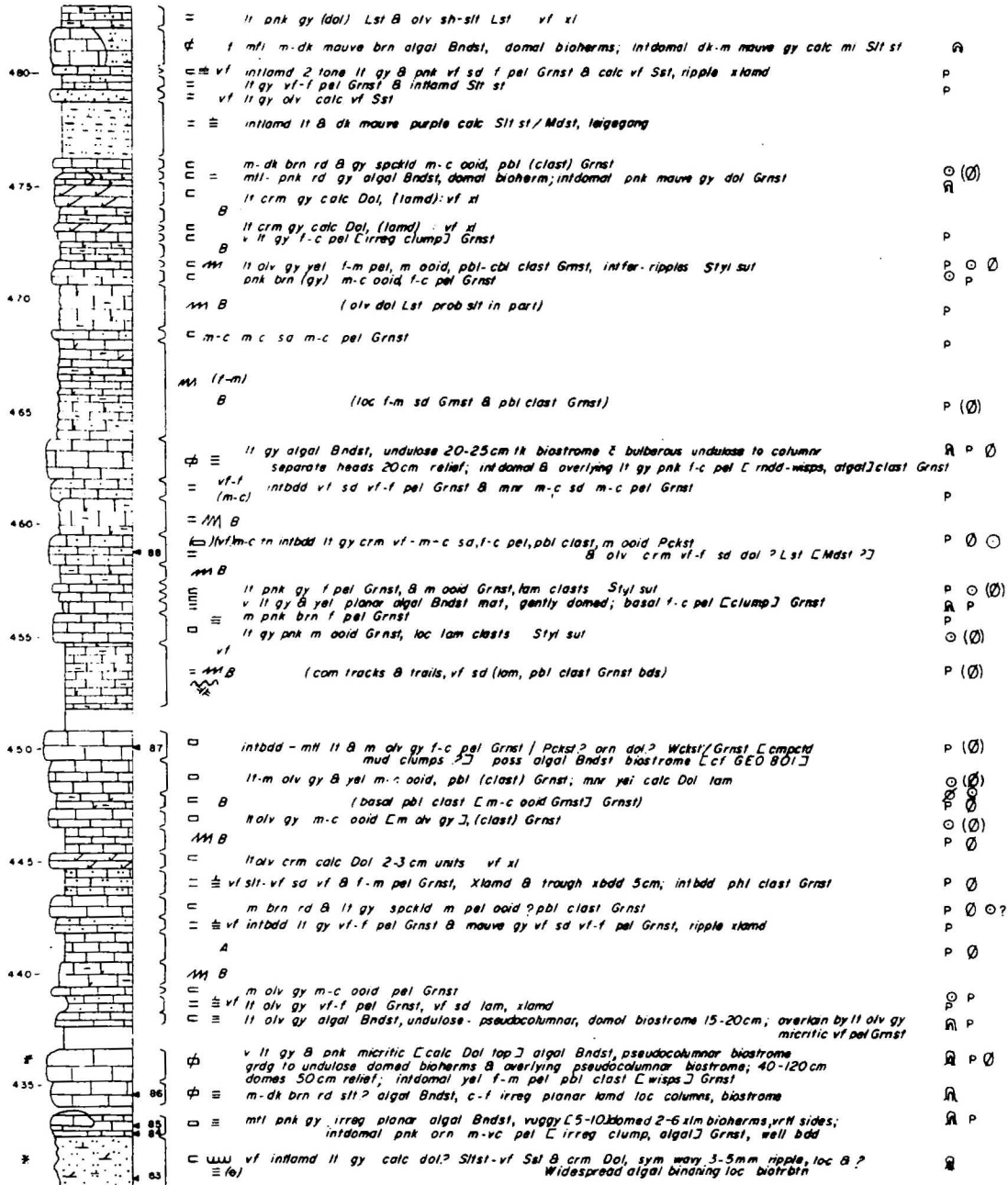
(6 of 15) F53/A11/72

GEORGINA BASIN
SECTION GEO 802



GEORGINA BASIN

SECTION GEO 802



Record 1980/75

(8 of 15) F53/A11/72

430 - 米

425 - 米

420 - 米

415 - 米

410 - 米

405 - 米

400 - 米

395 - 米

390 - 米

385 - 米

380 - 米

375 - 米

370 - 米

365 - 米

360 - 米

82

81

80

79

78

77

1/4 f B (intbdd f sd Grnst, tracks & trails)
 = Δ 11 gy f B f-c pel Cirreg rndd sausage J Grnst, 6-10cm dunes, biotrbn, mnr 2 tone & pbl clast Grnst - High energy pulse
 = olv calc Dol, Mdst, in intlamd 11 gy micritic vf pel Grnst
 • B (com biotrbn destroys intbdg, massive mtl 50-100 intervals)
 A
 = m-dk mauve gy (dol?) Lst, mnr 2 tone & 11 gy micritic vf pel Grnst lam
 A
 = v 11 olv gy, micritic Mdst mauve gy pnk calc Dol, Mdst? basal 5cm pbl clast Grnst? vf xl calc Vns
 A
 = Δ 11 B 2 tone intlamd & boudinage 11 gy micritic vf pel Grnst & olv sh dol Lst [Mdst?]; ripple Xlamd, wavy & lenticular bdg & sh drapes, lac biotrbn Ccf 362 & 379 m
 A
 = v 11 gy (yel) f-vc pel Cirreg sausage J, pbl-clast Grnst & in olv sh dol Lst lam, intbdd vf sd f pel Grnst, ripple Xlamd-high energy
 = Δ 11 A 11 gy micritic vf pel Grnst, flaggy, ripple Xlamd infer, intbdd pbl clast Grnst
 B
 A
 B (normal 2 tone assoc & dol Lst [Mdst] v predominant)
 = 11 pnk gy pbl-clast Grnst, in calc Sh drapes, 4-8cm units styl sut
 A
 B
 B
 B
 = Δ 11 mtl 11-olv gy f-vc pel [Cirreg] Grnst, micritic vf-pel Grnst & pnk yel dol Lst; biotrbn high energy pulse
 vf B (vf sd lam)
 v f A (vf sd lam)
 = Δ 11 (v) mauve gy dol Lst grd to mauve gy calc Dol lac vf sd? lam vf xl
 = 2 tone intbdd/lamd 11 m gy micrite [Mdst?] & mauve pnk (dol) Lst, slit pel Grnst? lam
 = 11 11 gy micritic vf-f pel Grnst, vf sd lam
 = 11 11 gy & orn f sd, f-m pel, in void pbl clast Grnst, sbdd 10cm
 = Δ 11 11 gy micritic vf pel Grnst & intbdd 11 gy aph f-m pel Grnst, Xlamd 4cm; pbl clast Grnst & in sh drapes
 = 11 olv yel gy (dol) Lst vf xl
 = 11 olv gy am f-m pel clast Grnst and pbl clast Grnst
 = 11 m brn rd (gy) calc slit st & Sh, por outcrop, lamd: fiss
 = Δ 11 11 gy-olv gy micritic vf pel Grnst & intbdd pbl clast Grnst; por outcrop, in sh dol drapes, ripples, wavy bdg: vf xl; flaggy
 = Δ 11 m olv gy sh micrite [Mdst]: vf xl; abd f rd purple xls
 = intbdd 11-m olv gy micritic vf-f pel Grnst & vc-pbl clast Grnst; intlamd sh?: vf xl; flaggy
 = crm pnk algal Bndst, 3cm pseudocolumnar algal Bndst to steeply convex columns
 = 11 11 gy pnk f-vc pel Grnst
 = 11 mtl 11 gy & pnk f pel sh Rl Wkfst & Grnst
 = Δ 11 2 tone intbdd 11 gy micritic vf-f pel Grnst & olv sh (dol) Lst, boudinage, ripple Xlamd, wavy bdg: vf xl; soft cmcp
 = Δ 11 2 tone intbdd 11 gy micritic vf-f pel Grnst & olv sh dol Lst boudinage, ripple xlamd, wavy bdg: vf xl; soft cmcp
 = 11 11 gy yel pnk pseudocolumnar algal Bndst, 3cm waves
 = 11 olv (gy) dol Lst: vf xl
 = 11 pnk crm aph pseudocolumnar algal Bndst, 2-30 m waves
 = 11 m brn rd slit-muddy Lst: vf-f xl
 = 11 11 gy pnk pbl-clast [Xlamd] laths J Grnst
 = 11 m brn rd slit-muddy Lst, sheared: vf-f xl
 = 11 v 11 gy & pnk (undulose) planar algal Bndst mat: overlain by 11 gy micrite: vf xl
 = 11-m mauve gy (calc) Dol & mnr v similar mauve gy (dol) Lst Cf pel/oid vn Grnst, sample J, 3-4 cm units
 = 11 olv gy (pnk) pbl clast Grnst, f-m pel matrix & f-c pel Grnst
 = 11 11 gy am olv calc Dol: vf xl
 = 11 mtl 11 gy & pnk algal Bndst, f lamd 2-3 gently convex irreg columns
 = 11 11 gy micritic vf pel Grnst & pbl clast Grnst
 = 11 olv gy & pnk speckld f-m pel Grnst
 = 11 pnk yel f lamd calc Dol: vf xl
 = Δ 11 11 m olv gy micritic vf-f pel Grnst & intlamd olv sh slit? dol? Lst drapes, wavy bdg, ripple Xlamd?, tracks
 = Δ 11 11 gy crm & olv calc Dol, lamd: vf xl; vf Calc Vns
 = Δ 11 2 tone in intbdd boudinage m gy micritic vf Grnst, (Xlamd) 2cm & olv sh dol Lst [Mdst?]; poss 'entrc bdg: soft cmcp, bioturbation
 = 11 mtl 11 olv gy micrite & yel dol Lst, algal Bndst bioherm 250x100cm, stylo nod; intbihermal in bdd v 11 gy yel aph f-m pel Crndd clump J ghost Grnst

(9 of 15) F53/All/72

GEORGINA BASIN
SECTION GEO 802



(10 of 15) F53/A11/72

90- C } = lt mauve gy dol Lst, lamd; dk brn rd pbl clast Grnst Ø

B } C v lt gy f-m pel [clump] ghost Lst P

85- C } (=) m-dk olv gy micrite & dol Lst [Mdst?] (lamd) vf xl (Ø)

C } = lt gy mauve dol Lst; pbl clast Grnst vf xl Ø

B } C v lt gy f-m pel [clump] ghost Lst P

A } C lt & m olv gy & crm m-c ooid m-c pel (clast) Grnst, pnk (dol) Mdst bds/lenses O (+Ø)

80- C } C dk rd brn calc ferrig Mdst; v lt gy & yel spkld f-m pel [unspy] Grnst; 2-tone lt gy micrite & yel dol Lst P

B } C dk rd brn calc ferrig Mdst, lamd

C } C v lt gy & (yel) f-m pel [clump] Lst; intbdd mauve gy dol Lst & dk rd brn pbl clast aph & m? xl P (Ø)

75- C } C (=vf) lt bl gy mauve calc Dol, vf sd lam vf xl

C } = v par outcropping gy mauve dol Lst

70- C } = v lt gy Lst - vf & m? xl, vrtll striated xl; 1-2mm vugs Ø

65- C } C lt gy pbl clast Grnst

B } C (=vf) dk rd brn calc ferrig Mdst; gy purple vf sd f pel Grnst (P)

60- C } C v lt gy aph Lst, aph-vf xl, vrtll striated xl; 1-2mm vugs

55- C } C (=vf) purple mauve calc Dol [ferrig muddy micrite], slt-vf sd lam, loc bioherben; pbl clast Grnst (Ø)

50- C } C mtl lt gy & m olv gy vf-c pel clump, m ooid Grnst, loc Wckst horizons P Ø

45- C } C = lt crm pnk dol Lst, algal Bndst 3-5cm gently convex columns; pbl clast Grnst Ø (Ø)

B } C crm calc Dol vf xl

A } C pnk brn & yel Dol & dol Lst, irreg undulose lamd algal Bndst mat? f xl Ø?

40- C } C lt mauve gy Lst vf xl

35- C } C = dk vf Sst, lamd, ripple Xlamd

30- C } C (=) lt mauve gy micrite [Mdst?], olv gy m pel [clump] Grnst; vf sd f pel Grnst, (Xlamd) P 70/10

25- C } C v lt gy aph vf-c pel clump Grnst & pel skilll Wckst patches-aph & m-c xl P (Ø)

20- C } C v lt gy aph Lst & pbl clast Grnst Ø

15- C } C m-dk rd brn calc ferrig Mdst?; intbdd lt gy aph vc-grnl pel [Coral] Grnst P

10- C } C lt gy pnk f Grnst? - vf xl; loc 1-6mm vugs & striated vrtll xl

5- C } C gy mauve Lst vf xl

0- C } C m-dk rd brn calc ferrig Mdst, intlamd & dewatering? lt gy Lst Ø

C } C lt gy pbl-cbl clast [f Grnst] Grnst

B } C v lt gy aph Lst [Mdst?] & pnk f lam [Styl lam?] aph, styl lam

A } C m mauve gy & pnk brn [Styl?] Lst: vf xl Ø

45- C } C crm-gy micrite vf-f Grnst? (lamd): f xl

40- C } C v lt gy aph f-vc pel Grnst/Mdst; intlamd pnk dol Lst, irreg algal? lamd - vf. aph xl P (Ø)?

35- C } C m mauve gy & pnk brn [Styl?] Lst: vf xl

30- C } C lt gy & pnk f-c pel clast Grnst vf xl P Ø

25- C } C pnk yel calc Dol, lamd vf xl

20- C } = m mauve gy & pnk brn [Styl?] Lst; m bds pbl clast Grnst vf xl lam (Ø)

15- C } C (=vf) m gy micrite [vf-f Grnst?], rare vf sd lam; Mdst? or soln cmptcn lam P?

10- C } C (=) lt gy aph skilll vf pel Grnst spar fill planar voids P? Ø

5- C } C lt gy pnk Lst, breccoid? - vf xl

0- C } C (=) vf 2-tone disrupld lt gy micrite & crm dol Lst, mnr ripple Xlamd vf sd bd P

C } C (=) vf intlamd lt gy & pnk vf-f Grnst, ripple xlamd vf sd lam

B } C v lt gy aph m pel Grnst/Mdst vf xl

A } C intbdd/boudinage "2-tone" v lt gy Mdst & yel pnk lamd dol Lst - soln cmptcn P

50- C } C mauve gy dol Lst: f xl

45- C } C lt gy crm micrite Mdst? - vf xl

40- C } C m pnk brn slt Lst, v weath

35- C } C v lt gy aph m pel Grnst/Mdst, loc yel & pnk mtl

30- C } C pnk brn & gy pbl clast [Xlamd] vf sd or dol laths Grnst Ø

25- C } C lt gy m-c pel [irreg mud clumps] Grnst & cmptcd Md patches - vf-f (xl) P

20- C } C = f mauve & lt gy dol Lst & calc Dol, lamd; mnr f sd ripple Xlamd & calc Dol drapes

15- C } C = vf m bl-gy mauve dol Lst, vf sd lam: f xl

10- C } C m mauve gy & pnk Lst; intbdd pbl clast Grnst f xl Ø

(11 of 15) FB3/All/72

SECTION GEO 802

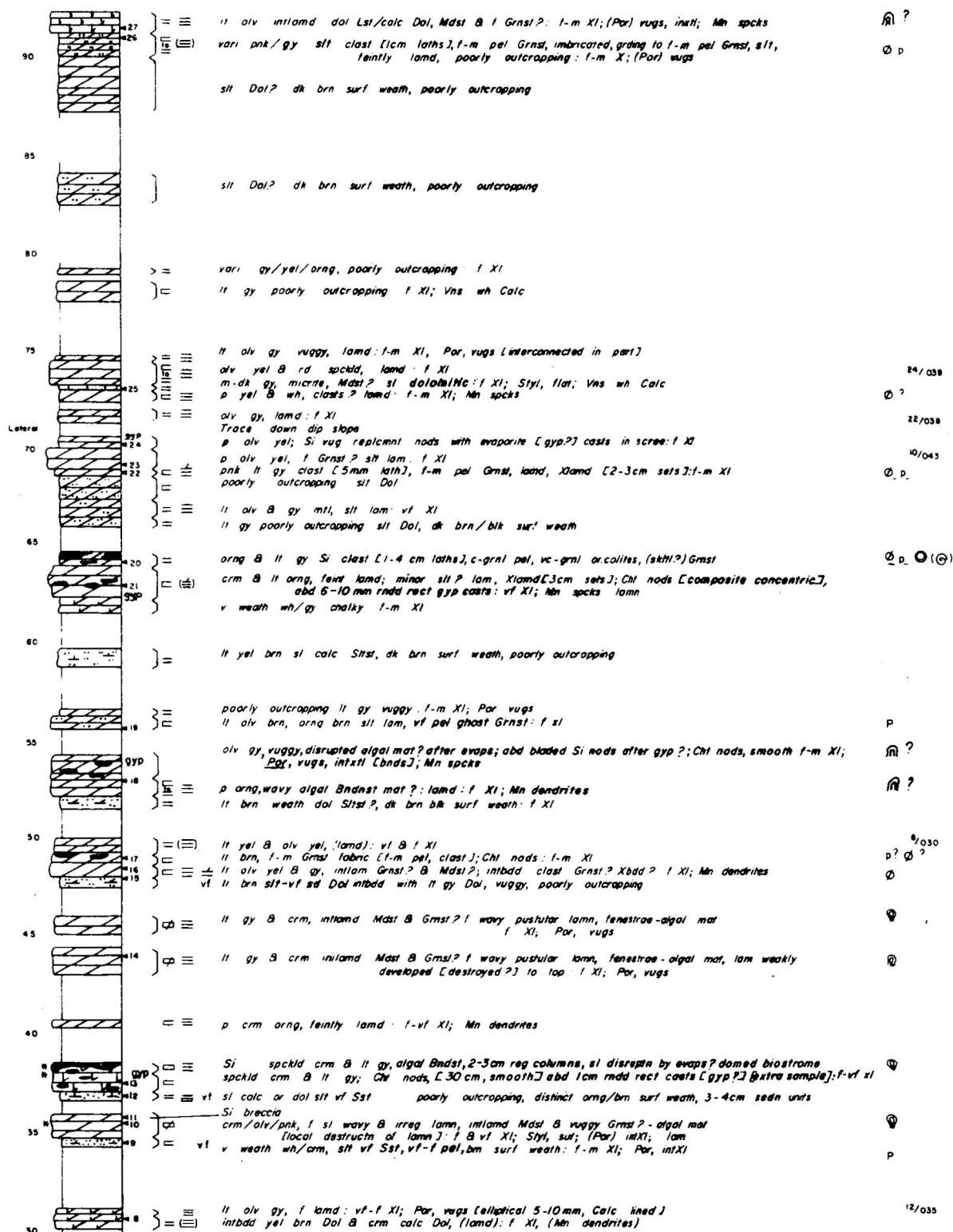


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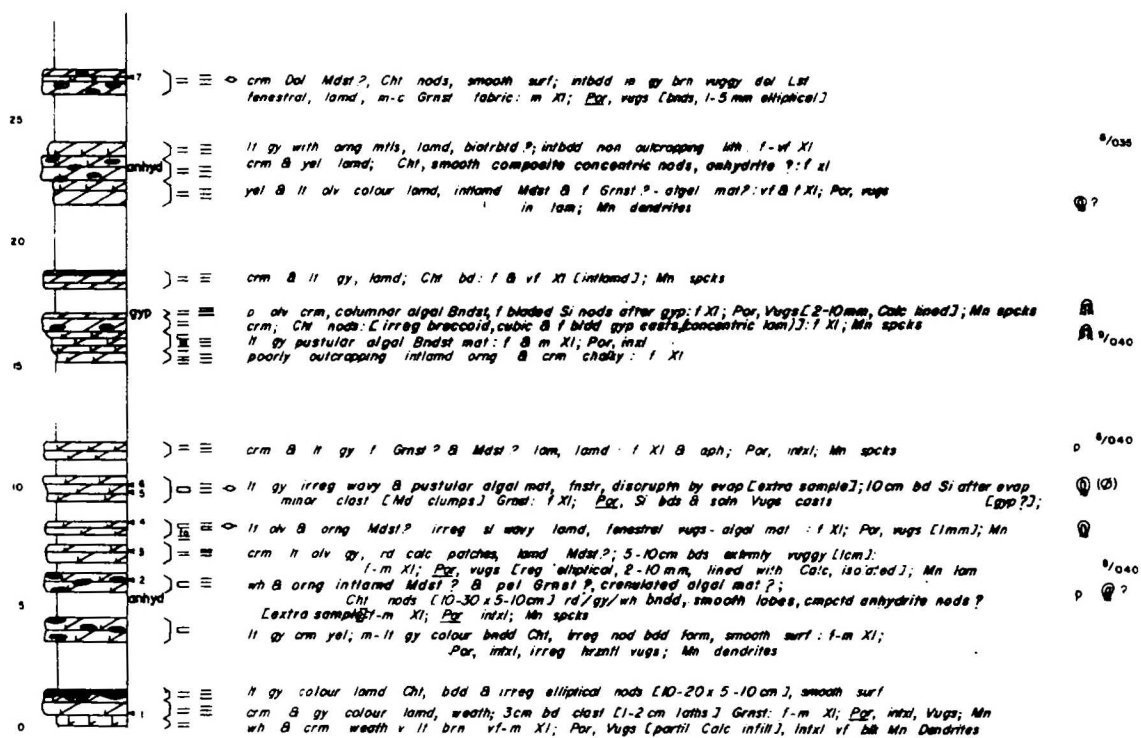
(13 of 15) F58/All/72

GEORGINA BASIN
SECTION GEO 802



Record 1980/75

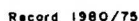
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Record 1980/75

(15 of 15) F53/A11/72

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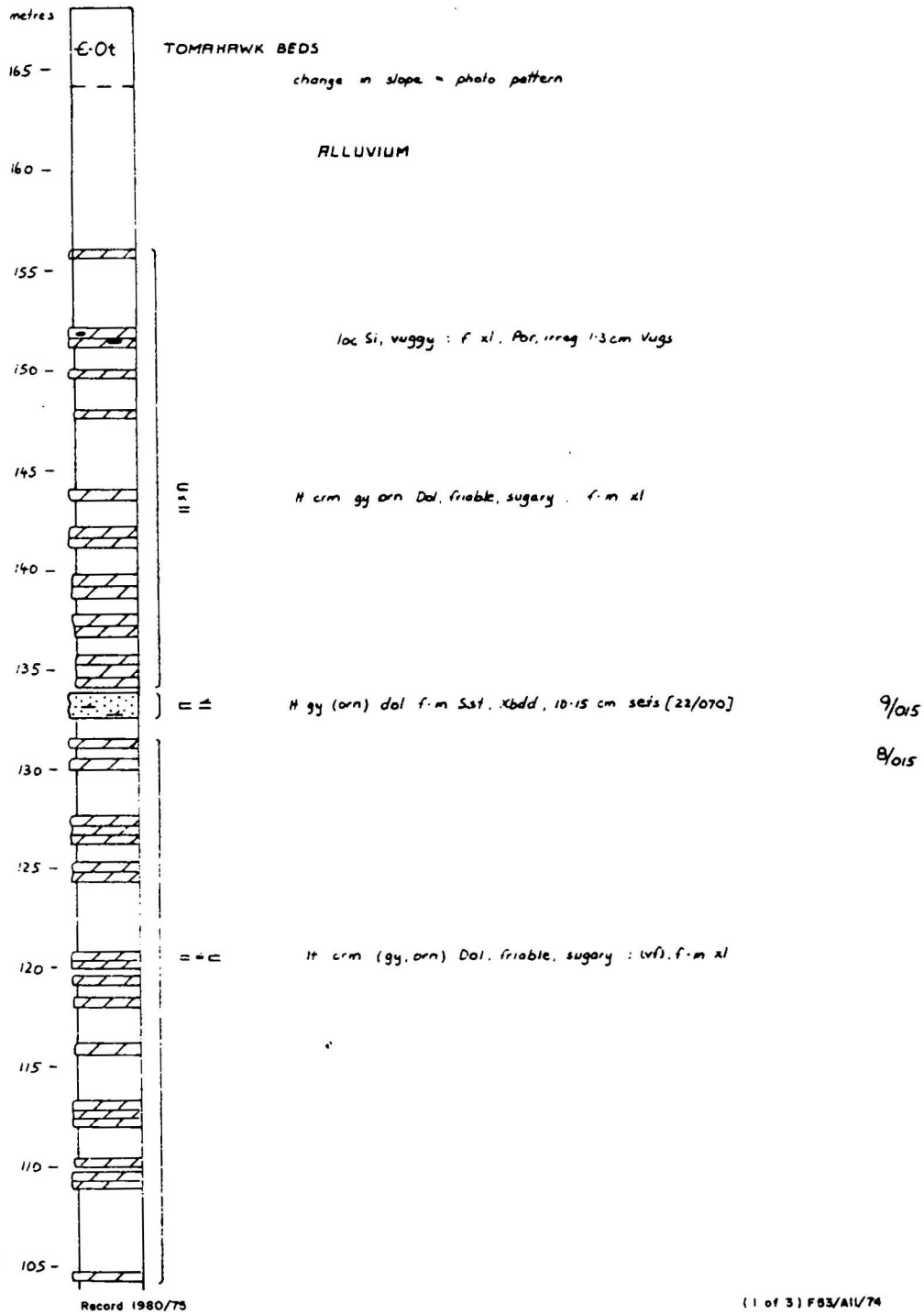
HUCKITTA Sheet Area - SECTION GEO 803



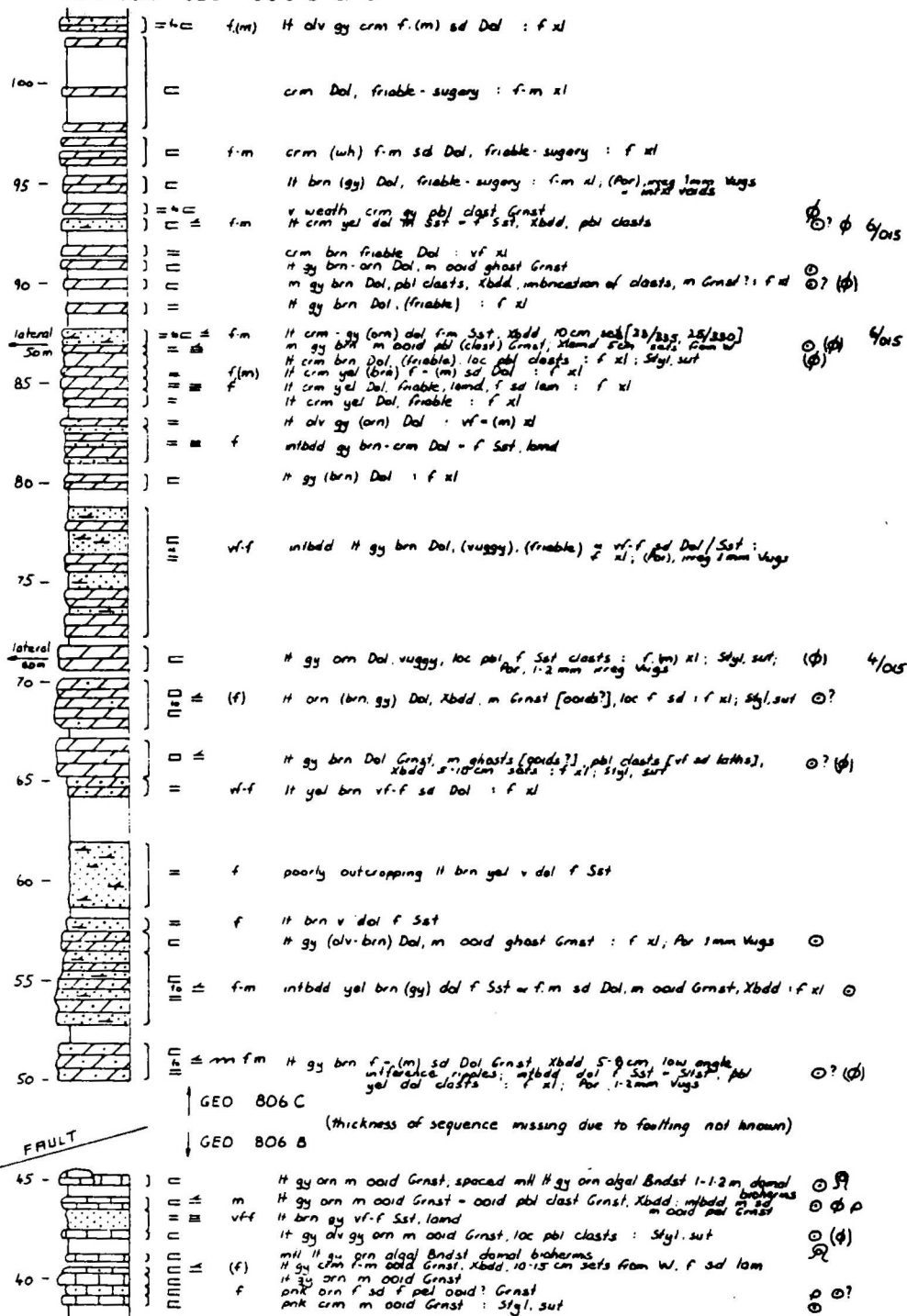
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DATE: 1 10-76
GEOLOGIST: J. Kennard
MAP SHEET: Huaita
(2 of 2) F53, AH/70

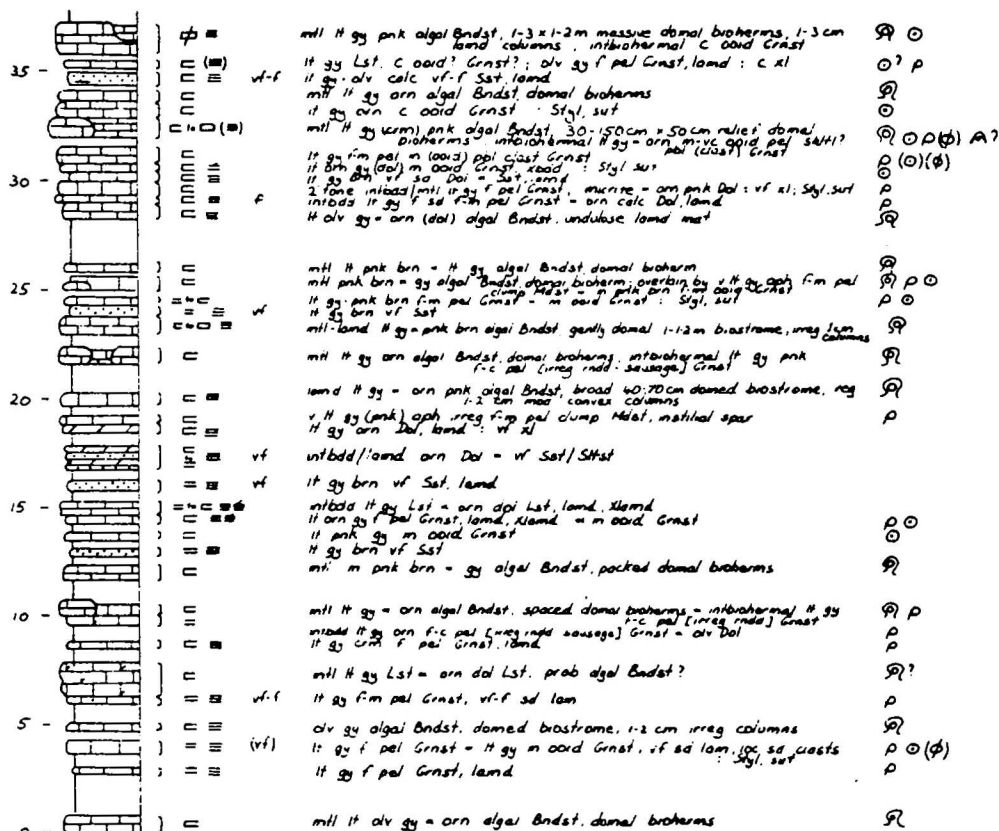
HUCKITTA Sheet Area
SECTION GEO 806B=C



SECTION GEO 806 B & C



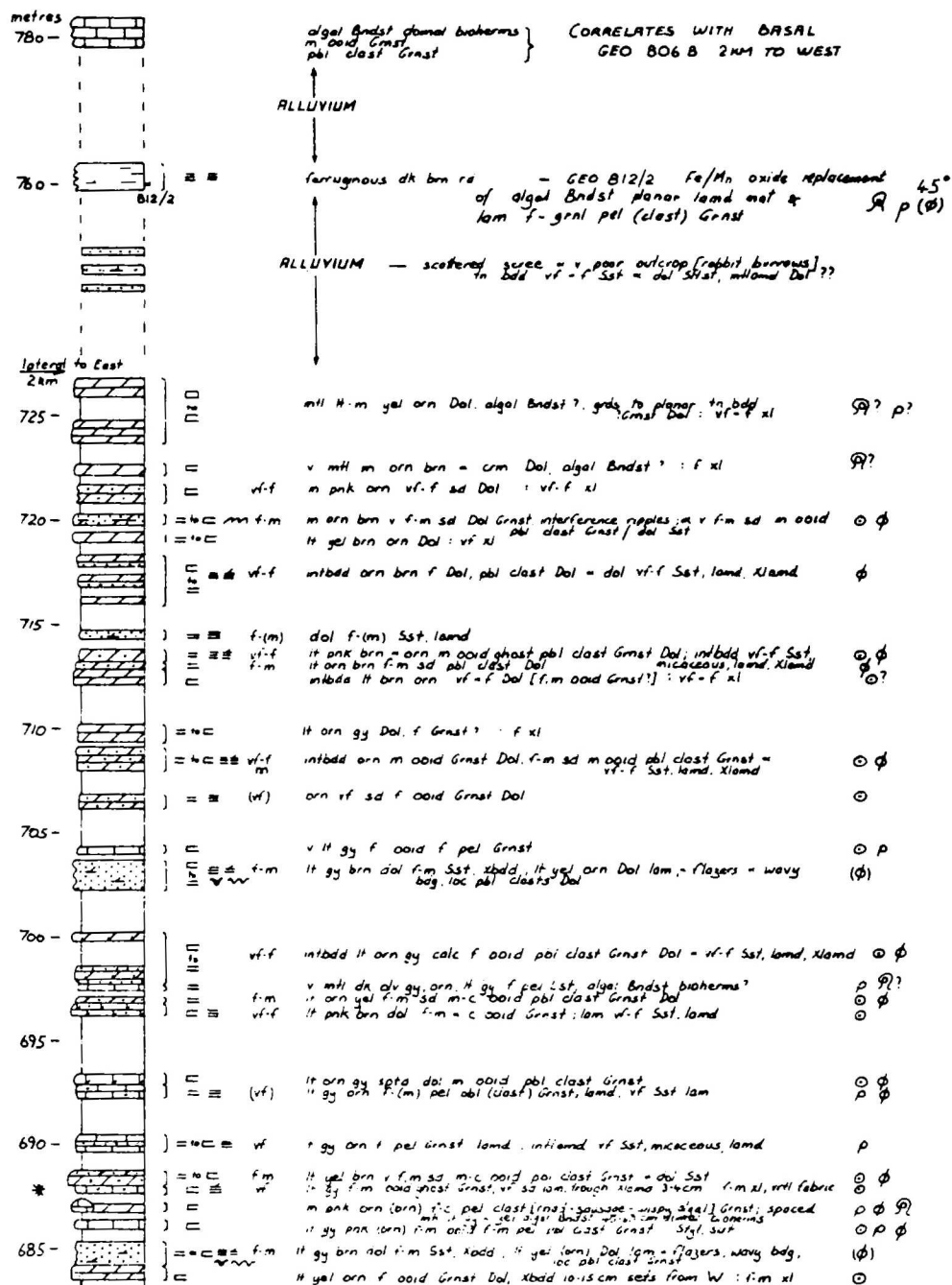
HUCKITTA Sheet Area
SECTION GEO 806 B & C



Base of GEO 806 B=C equivalent to GEO 806 780 m

Date 21-6-78
Geologist J Kennard
Map Sheet Huckitta

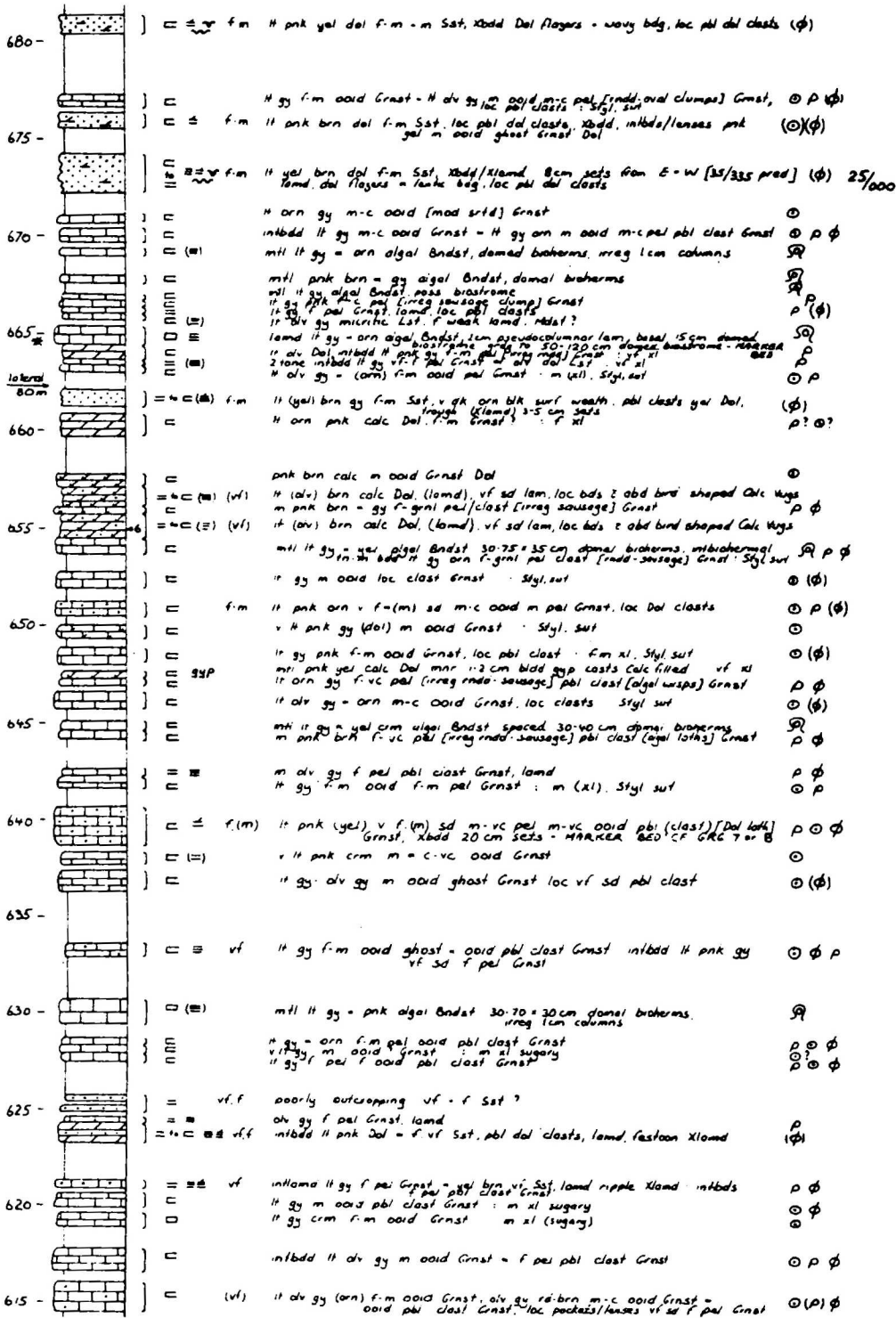
HUCKITTA Sheet Area
SECTION GEO 806



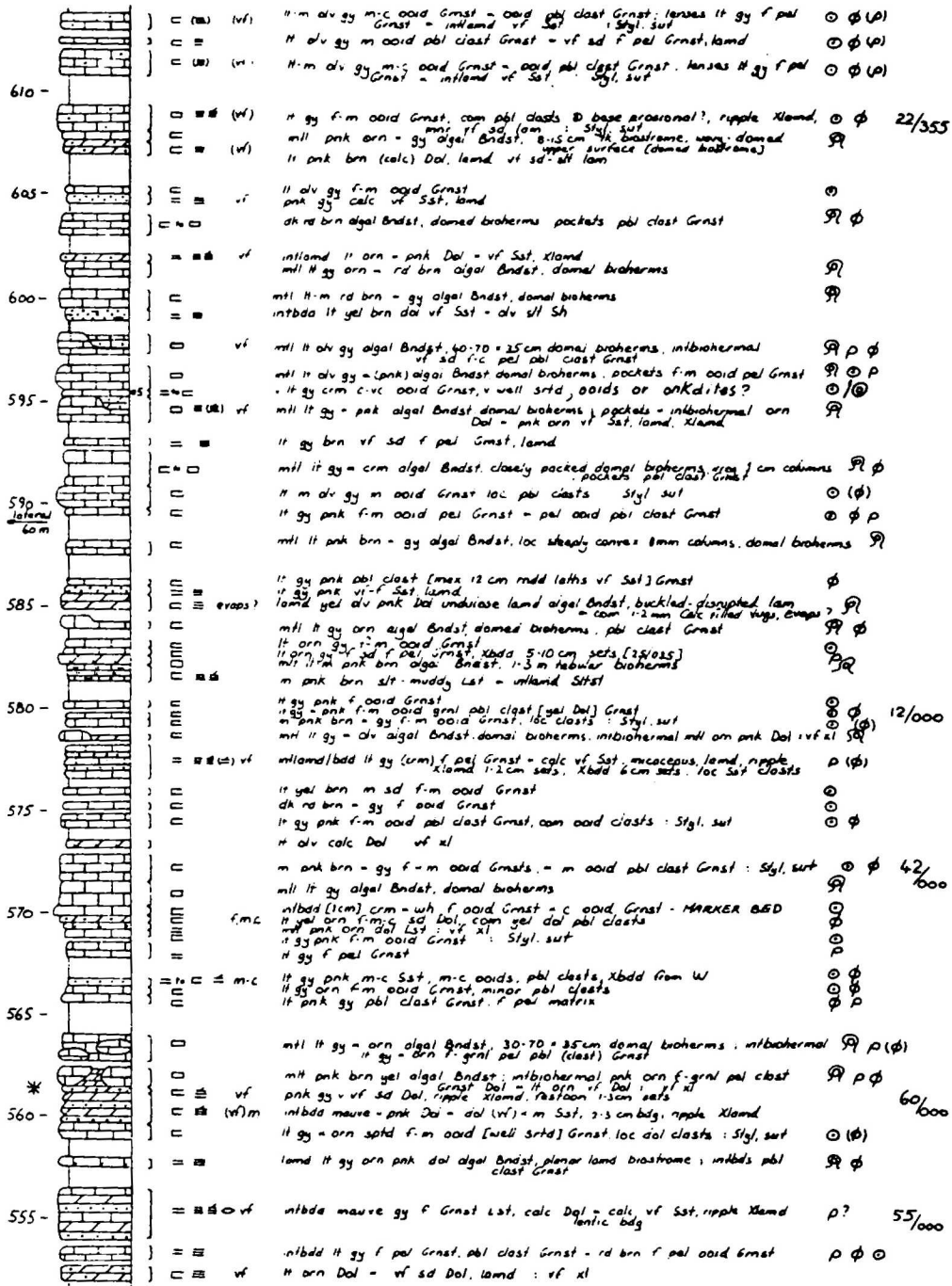
Record 1980/75

(1 of 12) F53/A11/73

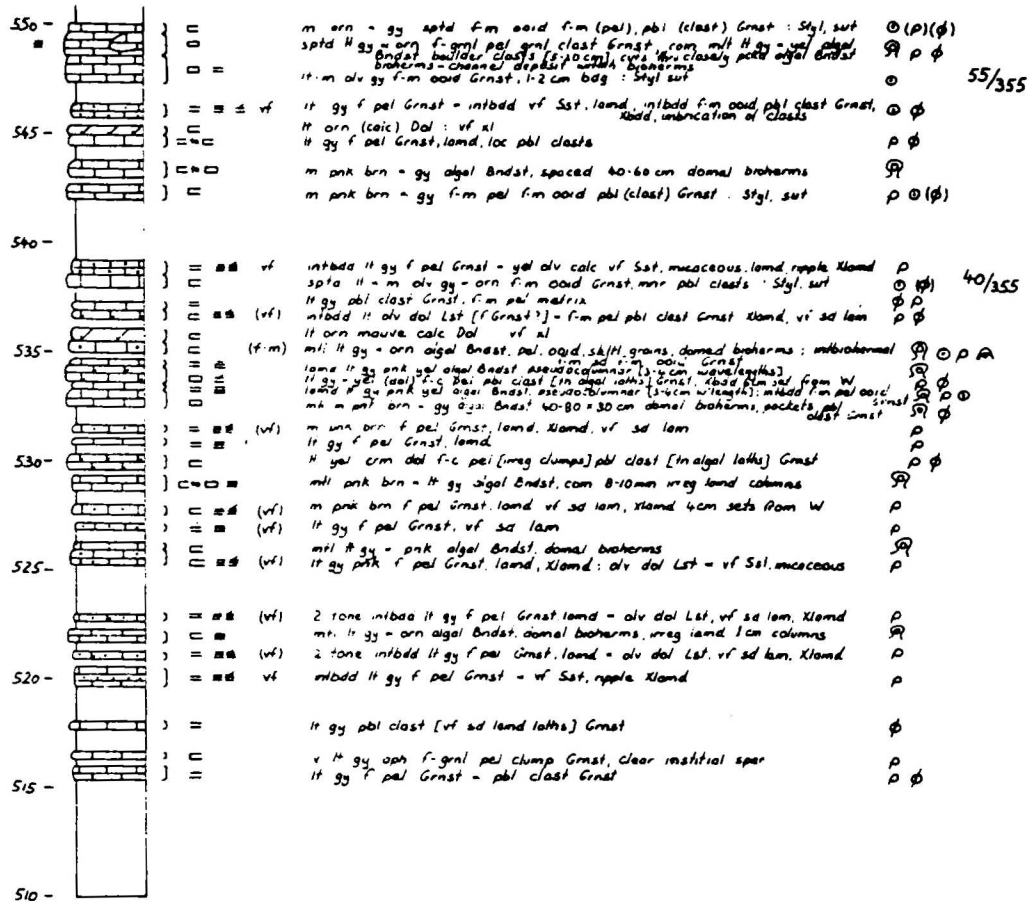
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HUCKITTA Sheet Area
SECTION GEO 806

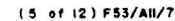


HUCKITTA Sheet Area
SECTION GEO 806

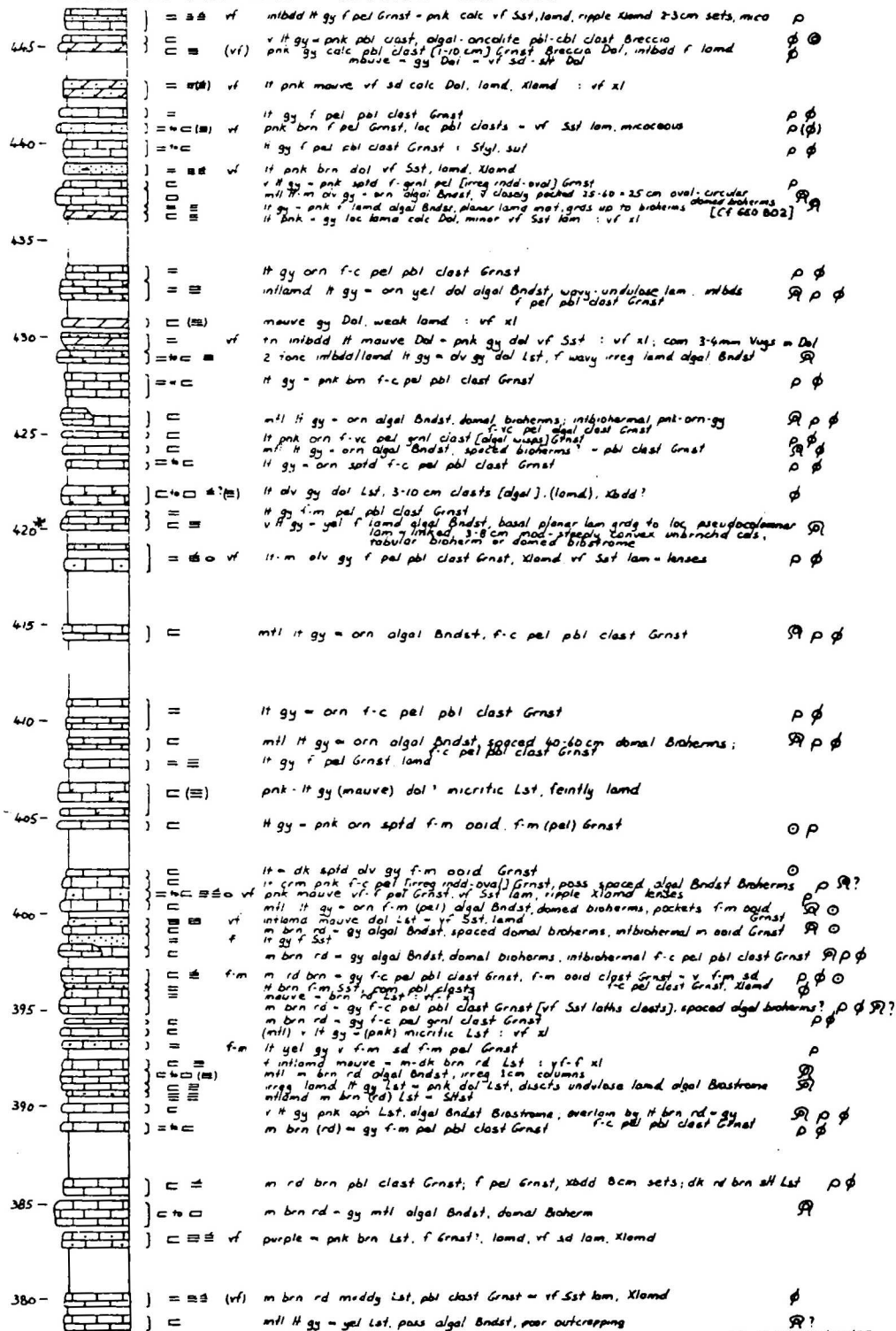


Date 10-6-78
 Geologist J Kennard
 Map Sheet Huckitta

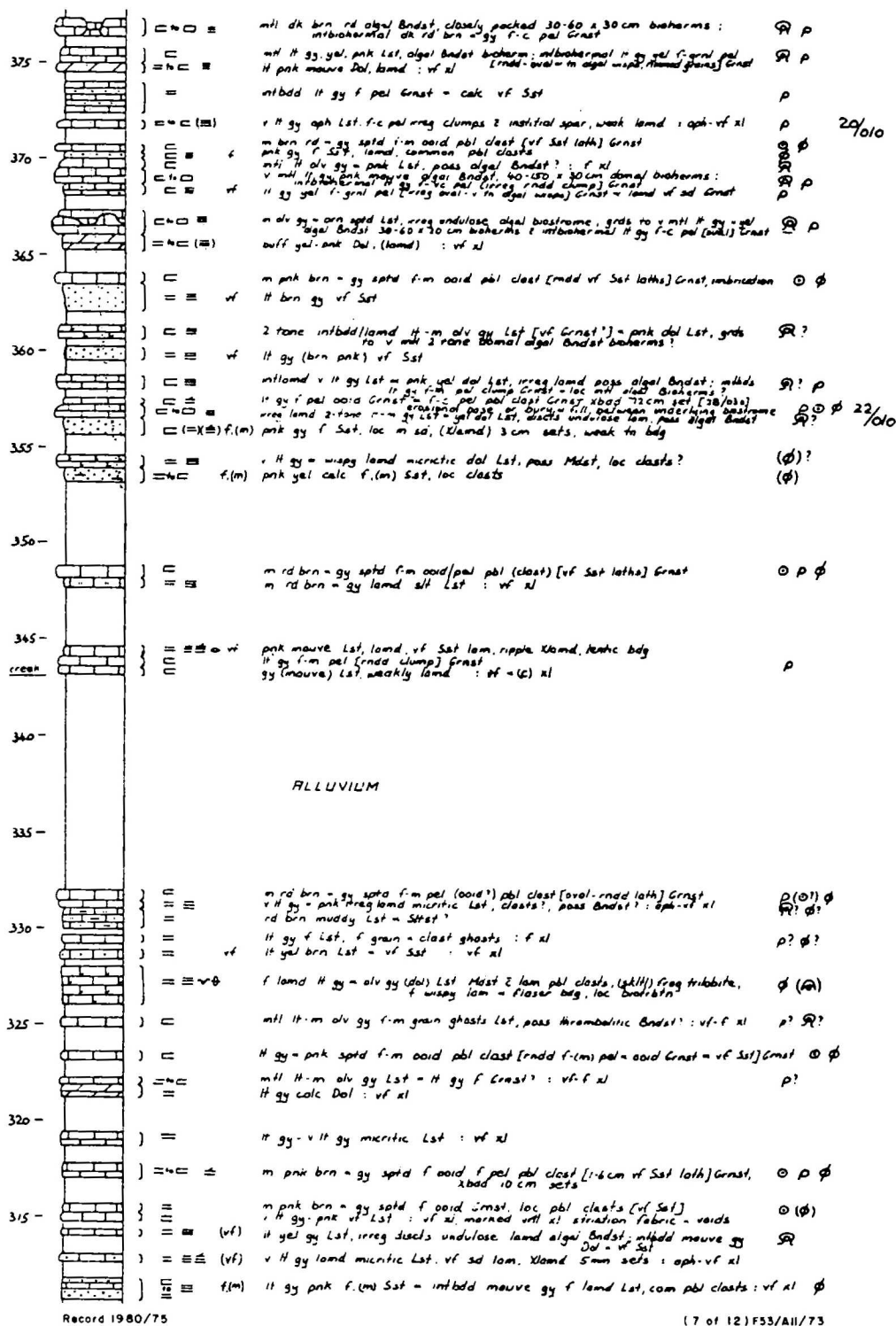
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HUCKITTA Sheet Area — SECTION GEO 806



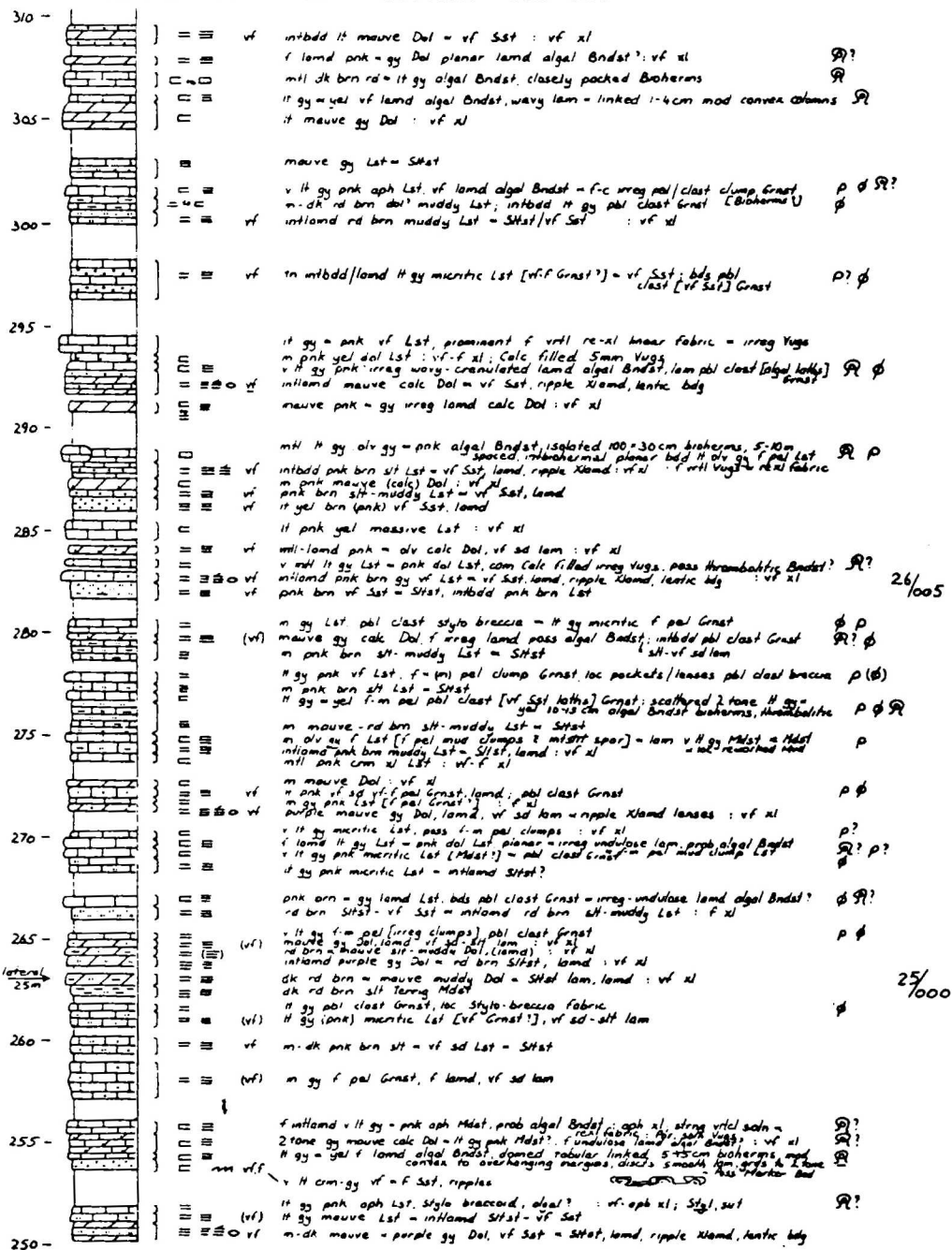
HUCKITTA Sheet Area
SECTION GEO 806



Record 1980/75

(7 of 12) F53/A11/73

HUCKITTA Sheet Area — SECTION GEO 806

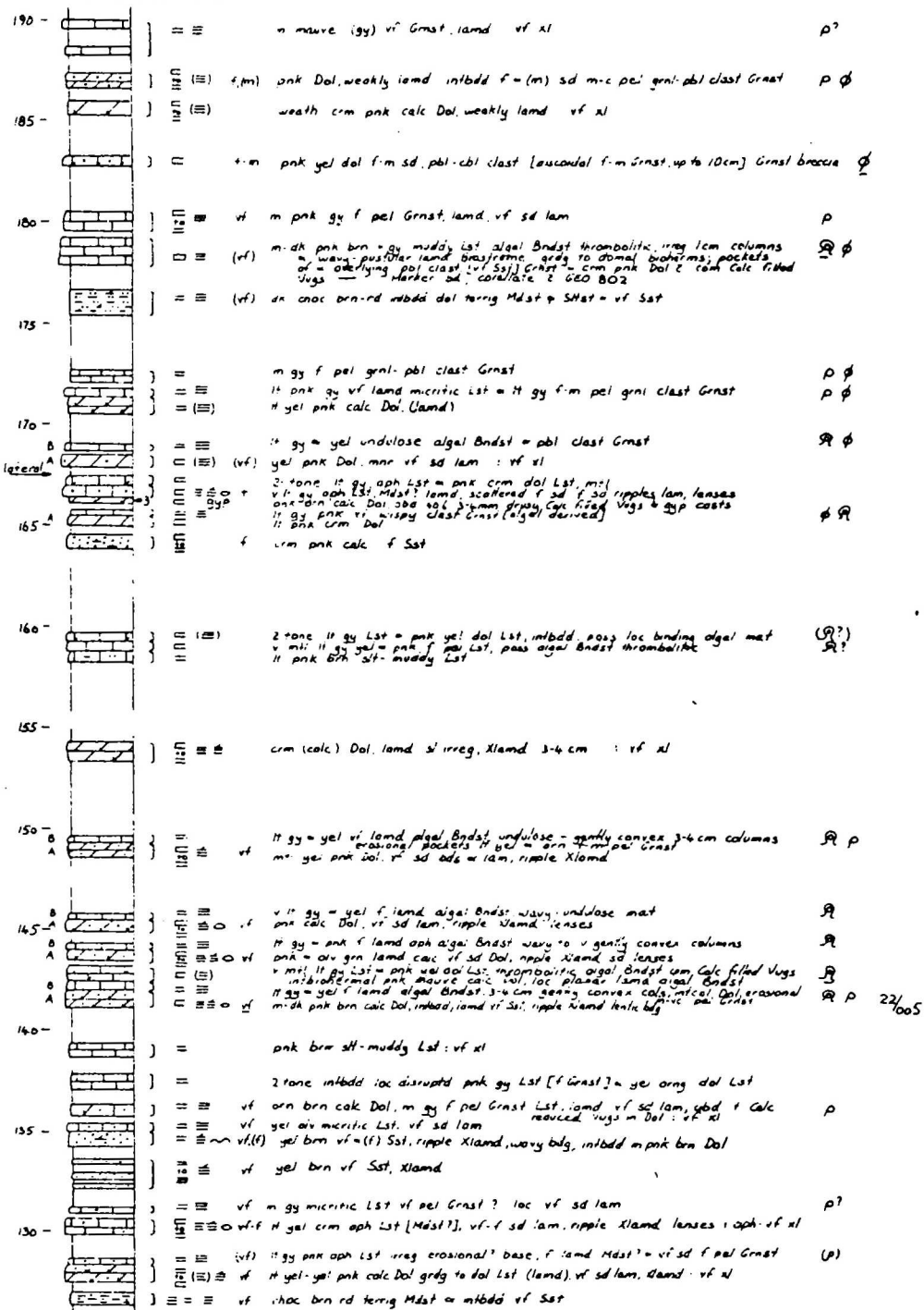


Date 10-6-78
Geologist J Kennard
Map Sheet Huckitta

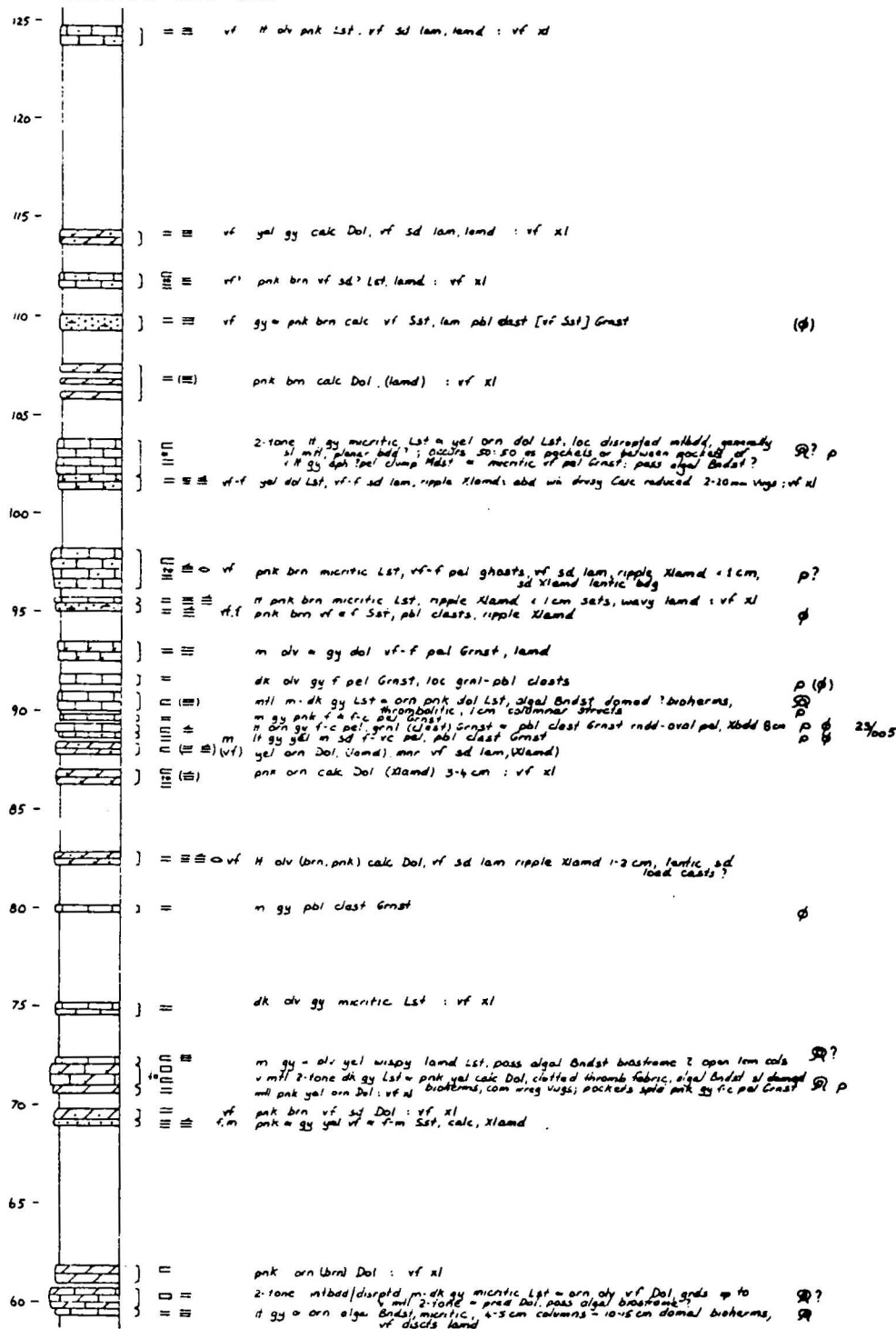
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SECTION GEO 806



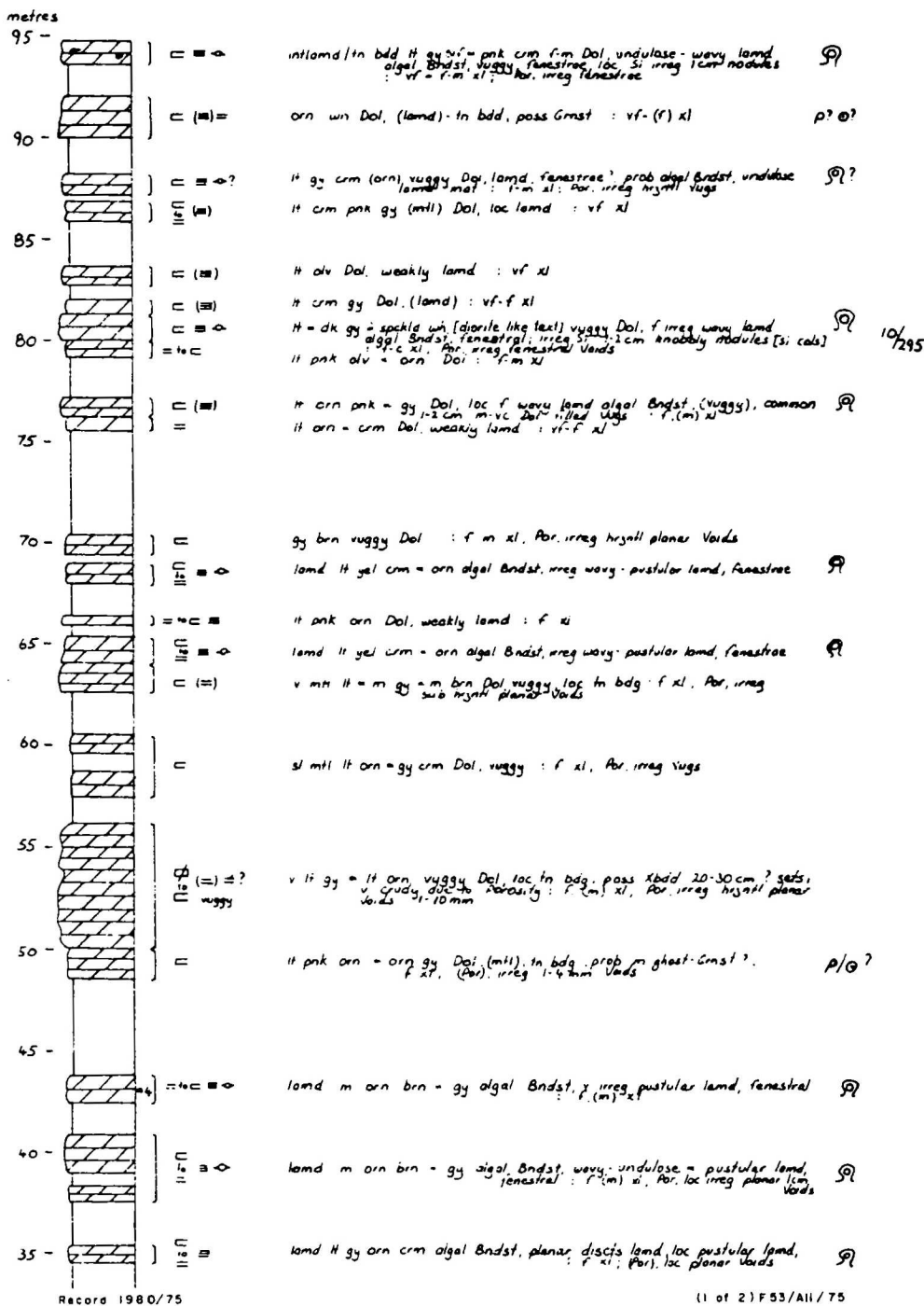
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SECTION GEO 806



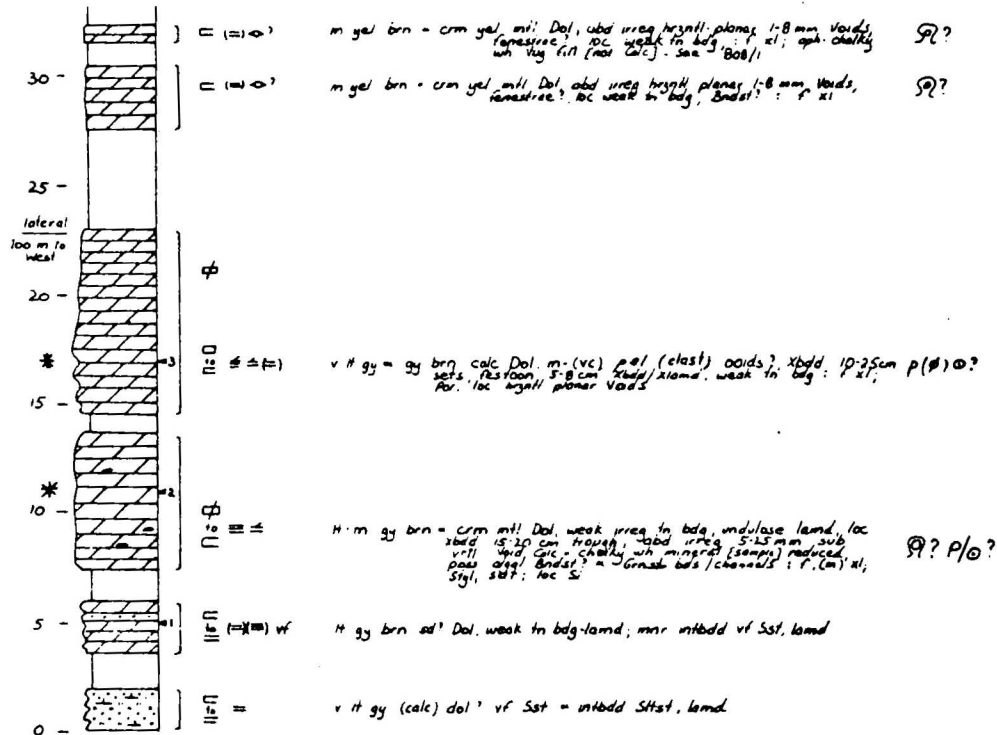
HUCKITTA Sheet Area
SECTION GEO 806



HUCKITTA Sheet Area
SECTION GEO 808



HUCKITT Sheet Area
SECTION GEO 808



Date 17-6-78
Geologist J Kennard
Map Sheet Huckitta

Record 1980/75

(2 of 2) 153/11/75

F

(1 of 1) F53/A11/77

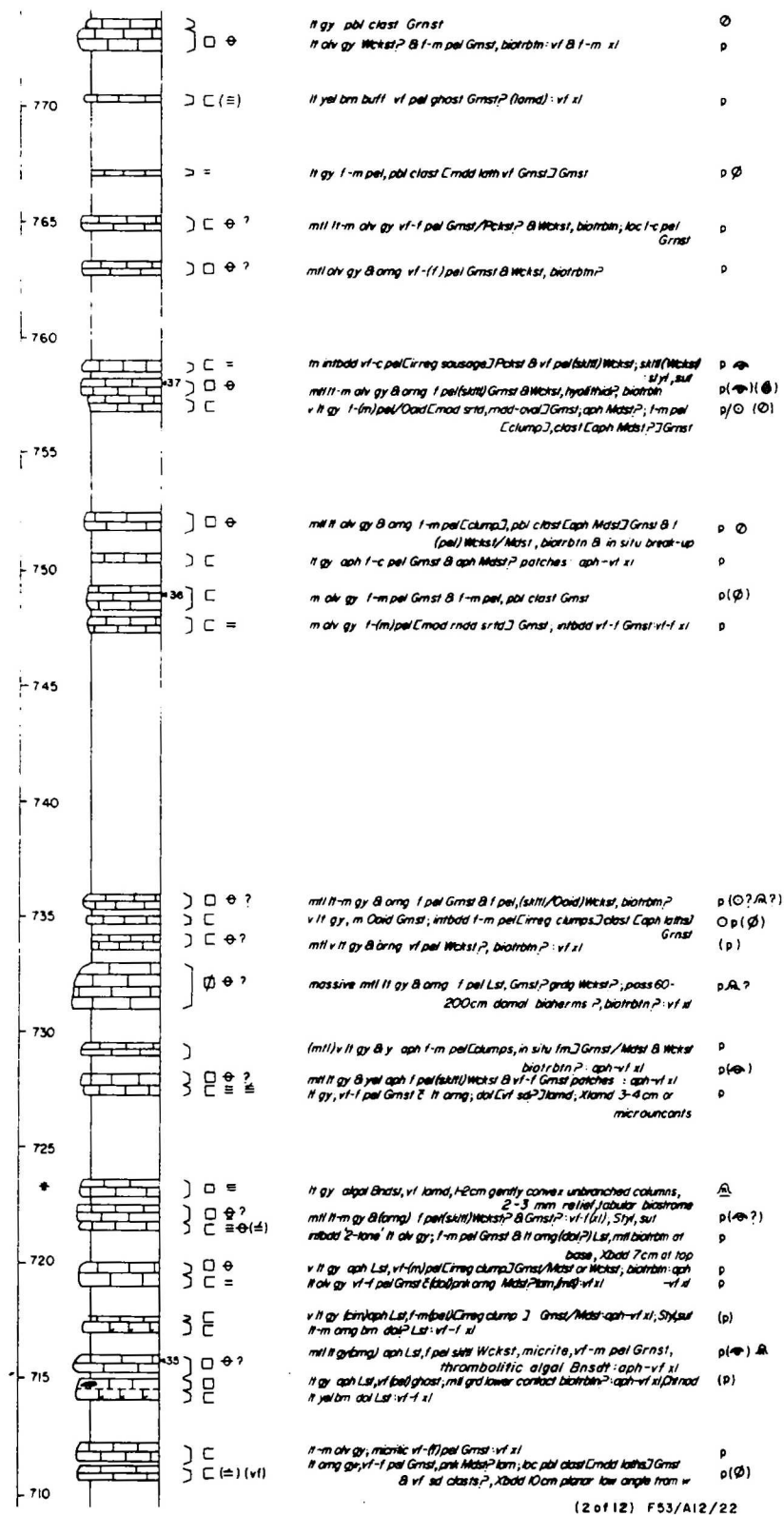
825
 NINMAROO FORMATION
 820
 815
 ARRINTHURGA FORMATION
 810

It crm gy Dol: f xl; loc Calc Vns 78
 It yel brn Dol: f xl 80
 It gy pbl clast [rmdd lath v f Grnst, 8cm max] Grnst; 82
 intbdd It gy v f pel Grnst, in contact c Dol 84
 It gy f-m pel, sktl, f ooid/skth wckst: styl, sut 86
 It gy f-m pel Pckst? 88
 mtl It gy & orn f pel, pbl clast [rmdd lath micrite] Wckst, 90
 biotrbn? 92
 mtl It olv gy & orn f pel Wckst & Grnst, biotrbn 94
 mtl It gy & orn v f pel Wckst, biotrbn 96
 In intbdd & mil'2 tone' It gy & yel brn (dol?) f pel Grnst, p 98
 biotrbn, Xbdd 5cm fram E 100
 It gy pbl clast [rmdd lath Mdst? & v f Grnst, max 15cm] 102
 Grnst 104
 75
 80
 85
 90
 95
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 200



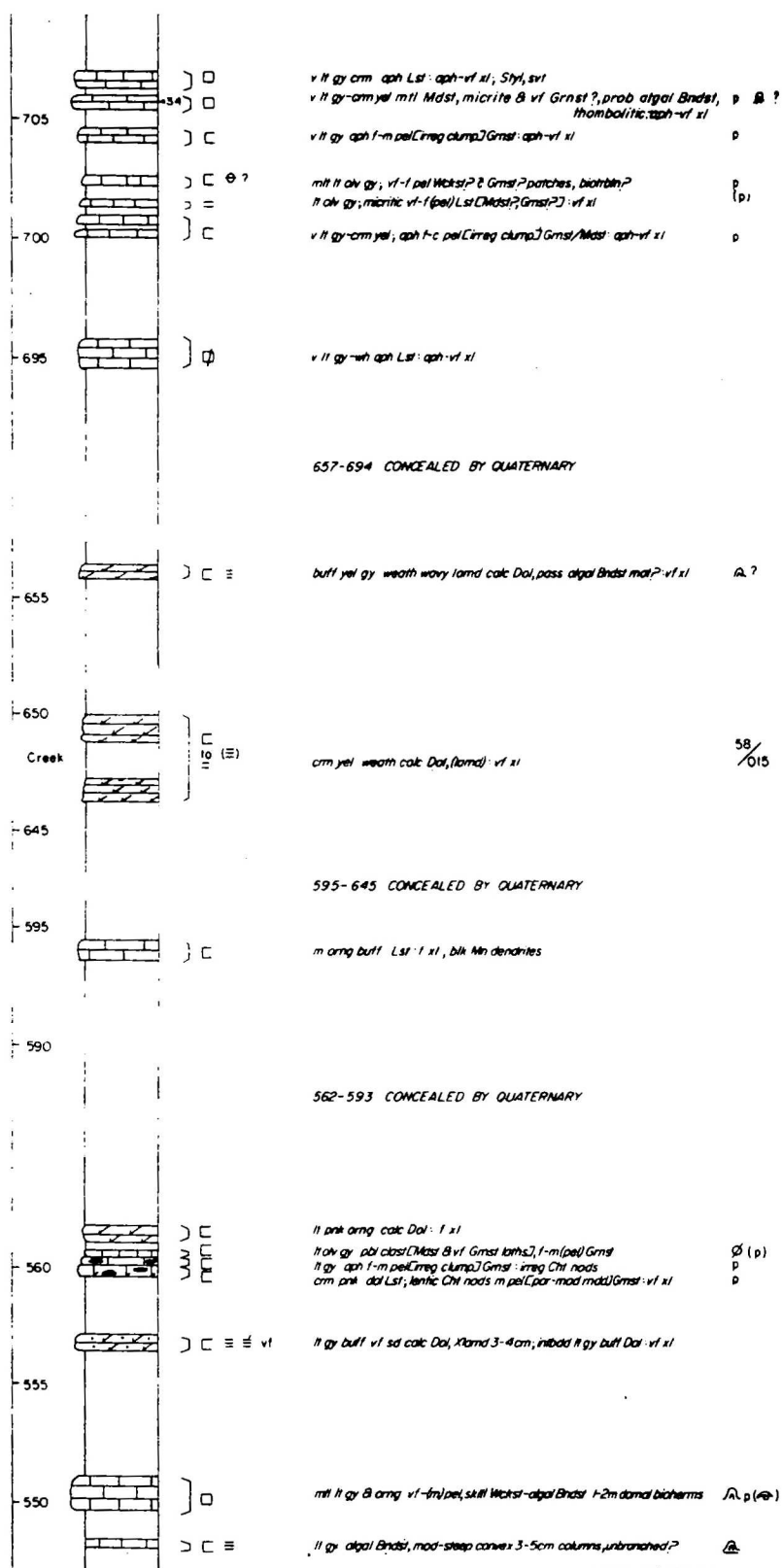
TOBERMORY

SECTION GEO 820



Record 1980/75

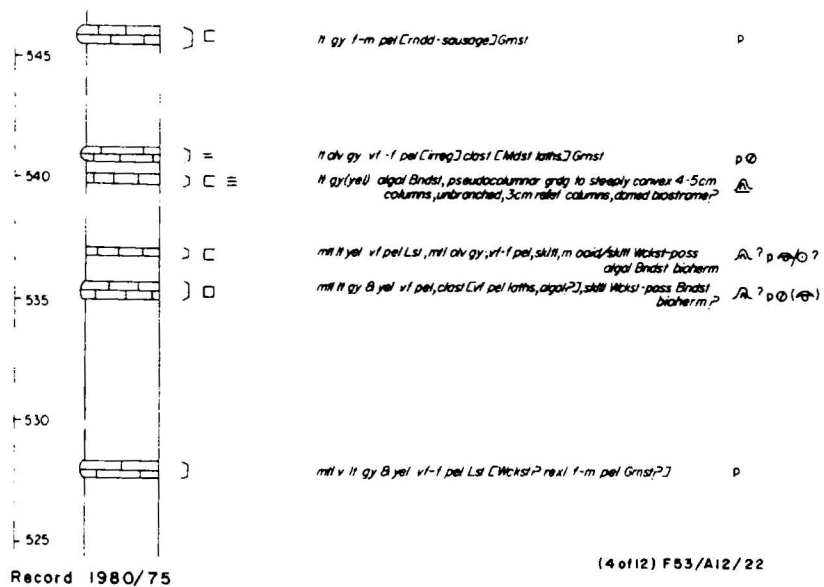
TOBERMORY
SECTION GEO 820



Record 1980/75

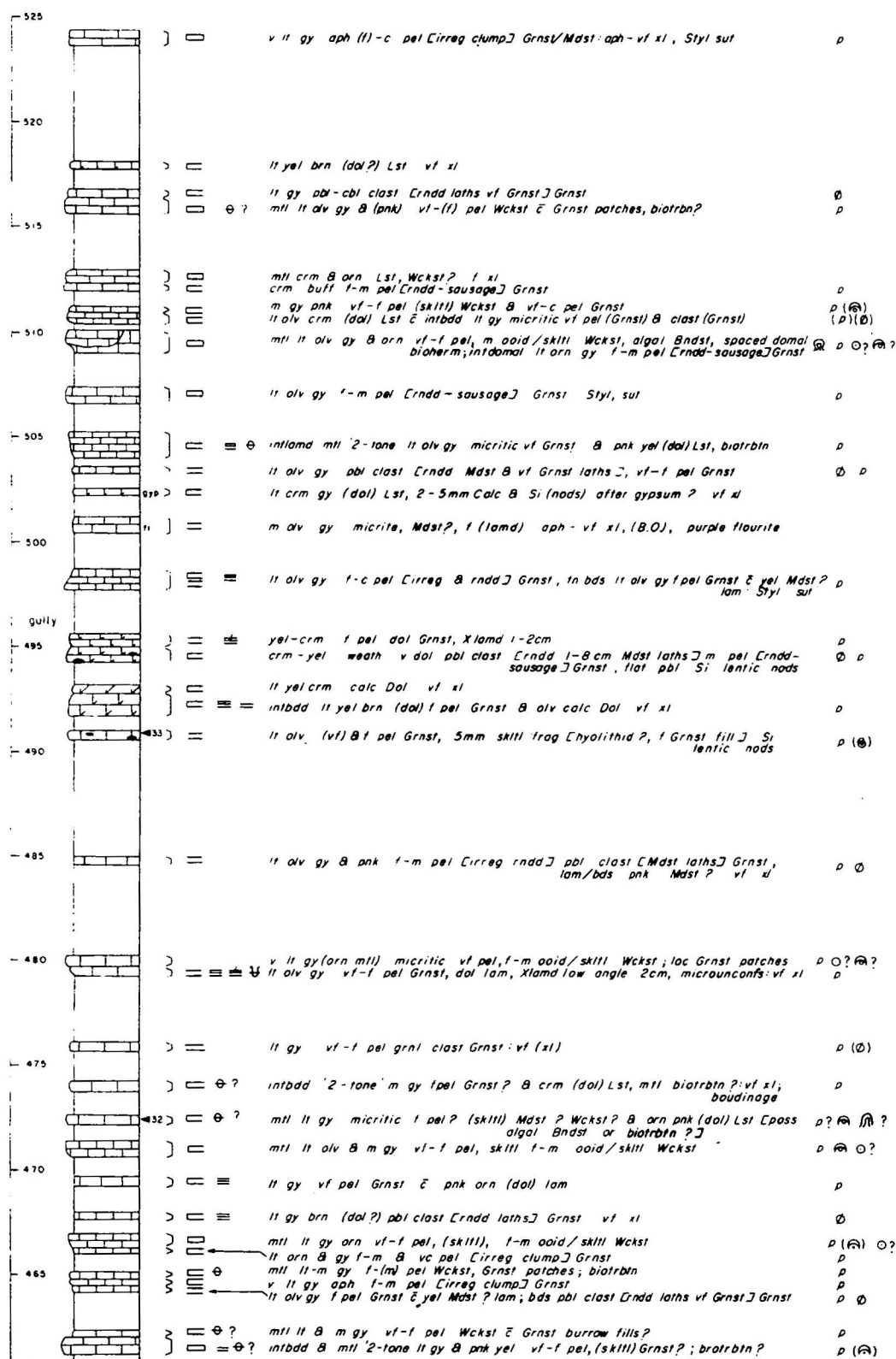
(3 of 12) F53/A12/22

TOBERMORY
SECTION GEO 820



TOBERMORY

SECTION GEO 820



(5 of 12) F53/A12/22

Record 1980/75

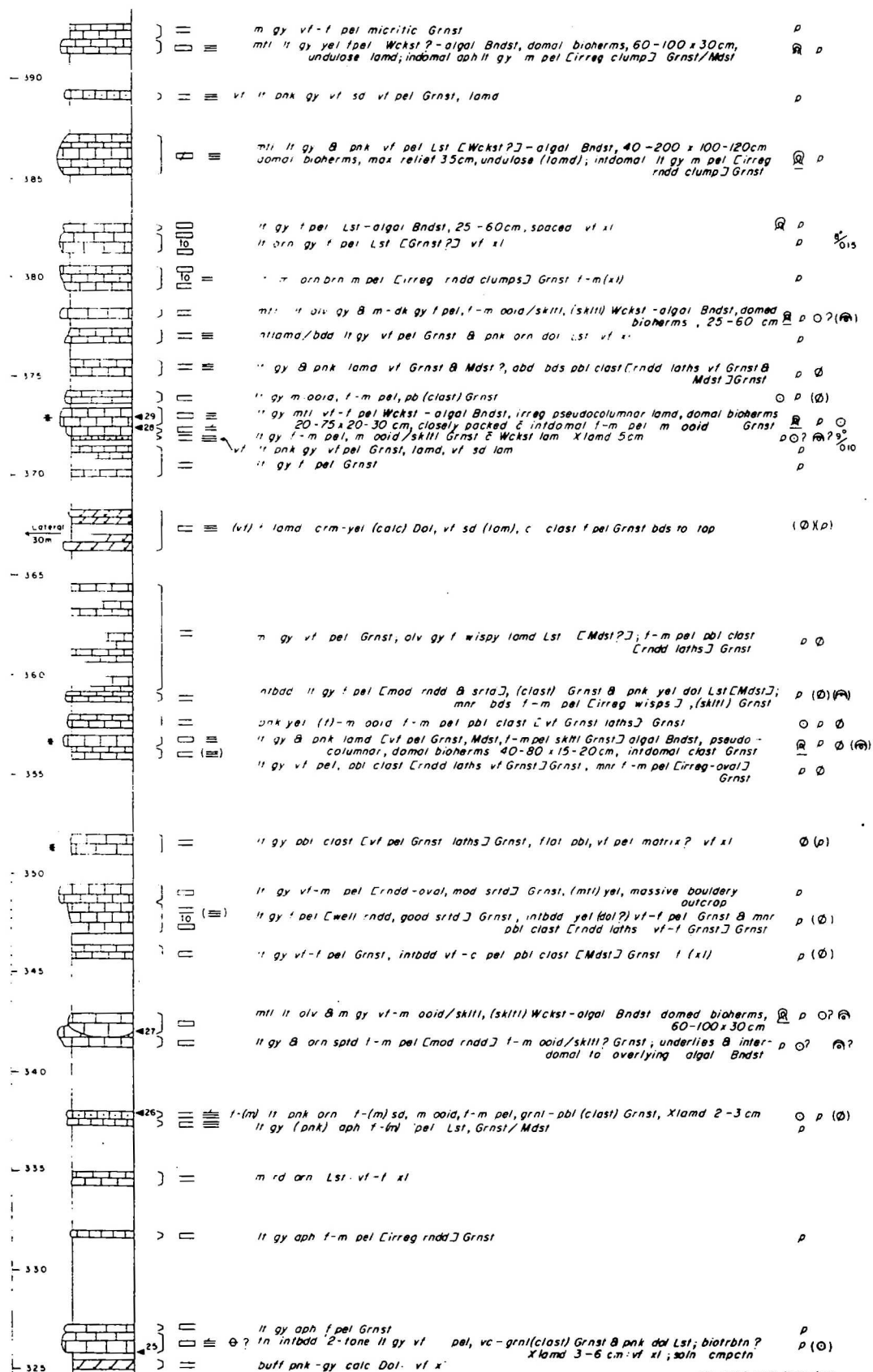
460
455
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415
410
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395

11-m orn brn f-c pel Crndd Birreg] Grnst, (lamd)
v lt gy aph f-c pel Cirreg clump] Grnst
v lt gy aph f-c pel Cirreg clump], pbl clast Cirreg aph Mdst] Grnst
mtl lt-m gy & orn vf pel, skilli, f ooid/skilli, Wckst [loc Pckst?] algal Bndst? domal? bioherm, undulose lam to top; indomal lt gy vf-m pel Grnst? & imbdd? p (A) O?
yet Mdst?, top 5-10 cm lt gy f fenestral Mdst? algal Bndst?
lt gy & pnk (skilli) micrite, Mdst? (A)
lt gy f-c pel Cirreg clump], pbl clast Crndd Mdst laths] Grnst p (O)
lt gy pnk f pel Grnst [mod srtid] & yet Mdst? lam, f bds/olv gy f-m pel, pbl clast Grnst p (O)
lt yet crm algal Bndst, f planar lamd, gently convex domal bioherm 30x10cm fiss (A)
intbdd lt gy vf pel Grnst & pnk orn Mdst, loc m pel/ooid? Pckst Wckst; p (O)?
lt gy aph vf-f pel Grnst?, pnk (mtl) p
mtl lt olv gy orn crm vf-c pel, m (ooid), (skilli) Pckst & Wckst?, massive bdg, no domes - algal Bndst biostrume? p (A) O (A)
lt yet gy f-(m) pel Cirreg clumps] Grnst, intbdd pbl clast [vf Grnst laths] Grnst p (O)
intbdd lt olv gy vf-f pel Grnst & olv yet dol Lst vf xl, boudins, soln cmptn p
mtl lt-m gy & orn vf-f pel (skilli), m ooid/skilli Wckst - algal Bndst? 40-60cm domal bioherm, indomal bdd f-m pel Gckst? Pckst? p (A) O?
m gy pbl clast Crndd laths vf pel Grnst] Grnst, vf-f pel matrix, flat pbl (O) p
lt orn & gy f-c pel Crndd - sausage] Grnst mg Calc Vugs p
lt orn brn & gy f-m pel Crndd - sausage] f ooid Grnst, mod srtid p (O)
mtl lt gy & (pnk orn) vf-f pel Pckst? Wckst? p
mtl lt-m gy & orn vf-f pel (skilli) Wckst & Pckst? p (A)
mtl lt gy & pnk orn f pel m ooid/skilli Wckst - algal Bndst? poss domes, intbdd / domal? f pel Cast Grnst, v weath? p (A) O? (A) O?
in intbdd & mtl olv (skilli) micrite [Mdst?] & olv gy vf pel Grnst, biotrbn; p (A)
mtl lt-m olv gy & orn vf-f pel Grnst? grdg to pel (skilli), Wckst?; no domes (bd) m Grnst (A) 40?
evident, algal Bndst biostrume? m brn c Dol (xl) p 20/025
lt-m gy f-m pel [mod rndd, por srtid] Grnst p
lt gy aph vf-f pel Lst & intbdd yet crm dol Lst [Mdst?] p
lt-m gy & orn f-(m) pel [mod rndd srtid], pbl clast Crndd lath vf Grnst] p (O) 20/025
mtl lt gy & orn pnk vf pel Grnst Grnst p
lt orn gy f-m pel Cirreg rndd - sausage] Grnst p
lt orn vf-f pel Grnst; mtl lt gy & orn vf-f pel m ooid/skilli Pckst? p (O)? (A)
lt gy & orn (vf)-m pel Grnst?, clasts? p (O)?
spckld lt gy & orn vf-f pel Pckst? [Grnst?] p
spckld lt gy & orn vf-f pel, m ooid/skilli Pckst? [Grnst?]; mnr vf-f pel Grnst p (O)? (A)
mtl lt yet gy f-m pel [mod srtid rndd ooids?] Grnst & lt gy vf-f pel, m ooid / skilli Wckst; biotrbn? p (O)? (A)
mtl lt-m gy & orn vf-f pel Wckst? Pckst?, no domes evident - wh Calc mg p
lt olv gy vf-f pel micrite [Grnst?] aph - vf xl Vugs & Vhs p
mtl lt-m gy & orn vf-f pel Wckst?, no domes evident p
mtl lt gy & pnk vf-f pel m ooid/skilli Wckst? - algal Bndst?, 30-50cm domes? (A)? p (O)? (A)
mtl lt-m gy & pnk f pel Wckst - algal Bndst?, por defined domes (A)? p
orn & lt gy m-c pel Cirreg wispy clumps] Grnst p

(6 of 12) F53/A12/22

TOBERMORY

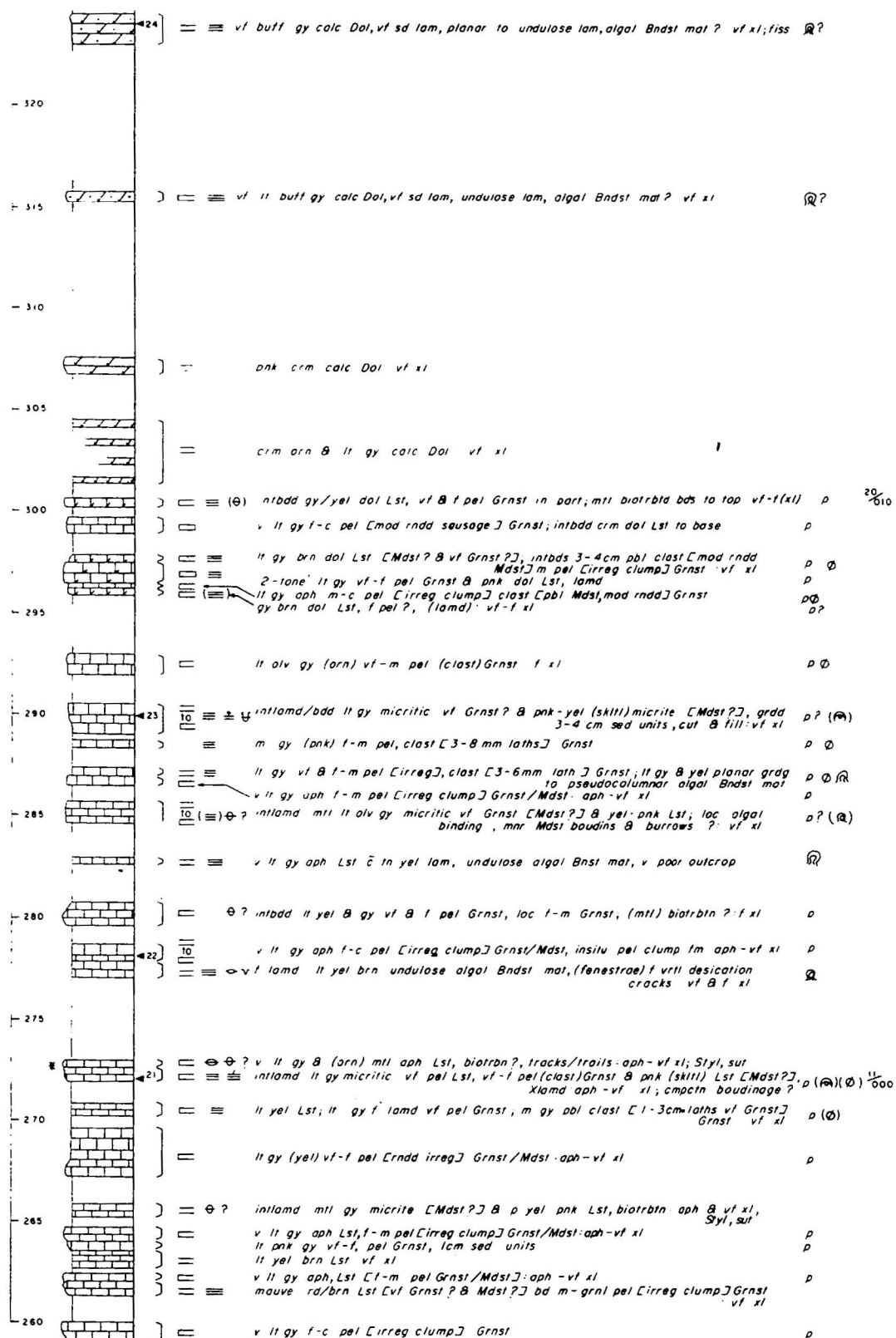
SECTION GEO 820



Record 1980/75

TOBERMORY

SECTION GEO 820

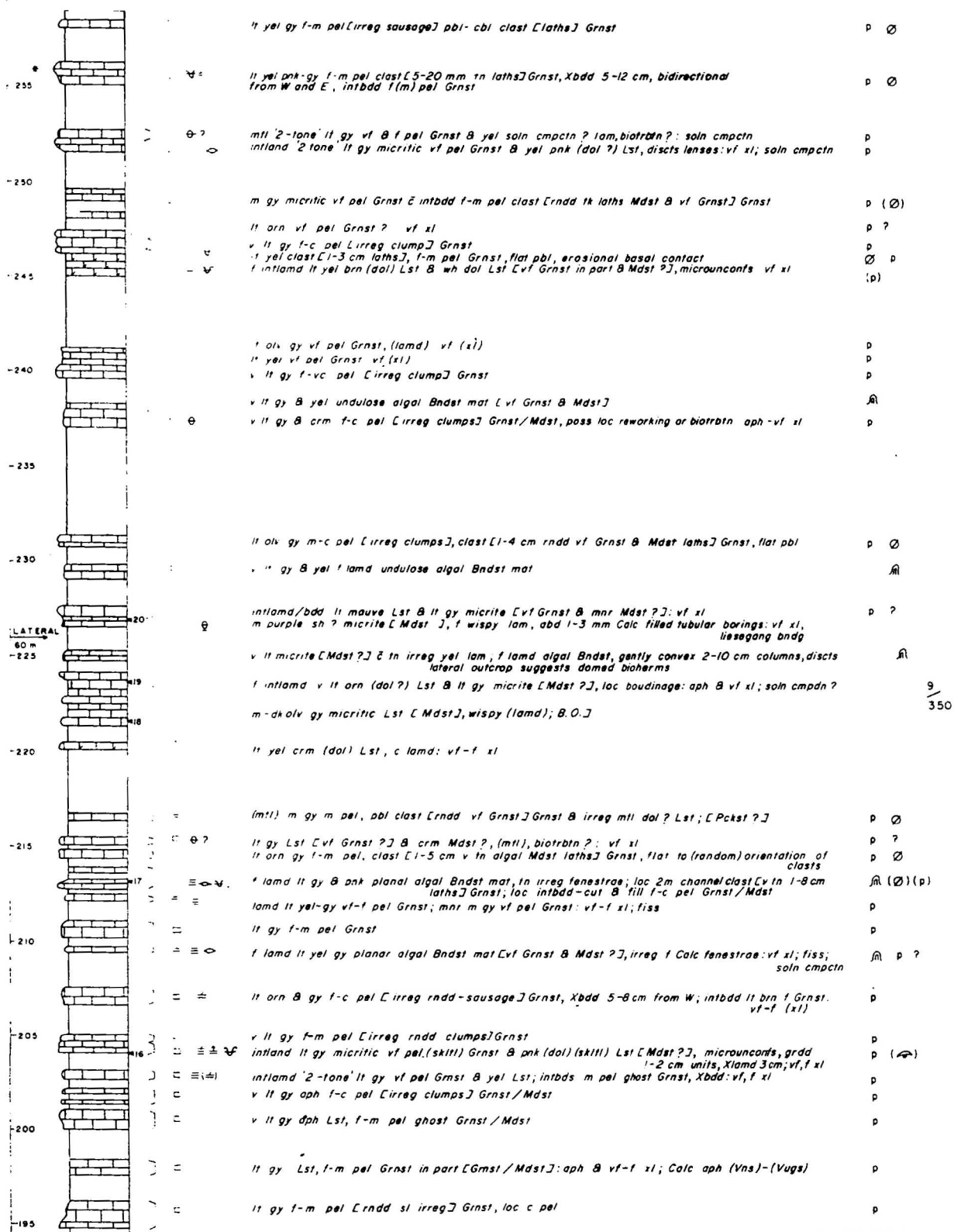


Record 1980/75

(8 of 12) F53/A12/22

TOBERMORY

SECTION GEO 820



Record 1980/75

(9 of 12) F53/A12/22

Geological cross-section showing stratigraphic layers from 130 to 196. The section includes a 'TRACE DOWN DIP' label and various stratigraphic units labeled with numbers 12 through 15.

p

p

p ?

p

p

p II
p 355

p ?

p

p

p

p ?

e

p ?

(p)

p

p (A ?)

p

p / Ø

p

p

p

p

p

p (B)

p

p

p

p

p

p

A
p
p

p IO
p 005

p

p

p

p

p Ø
C ?

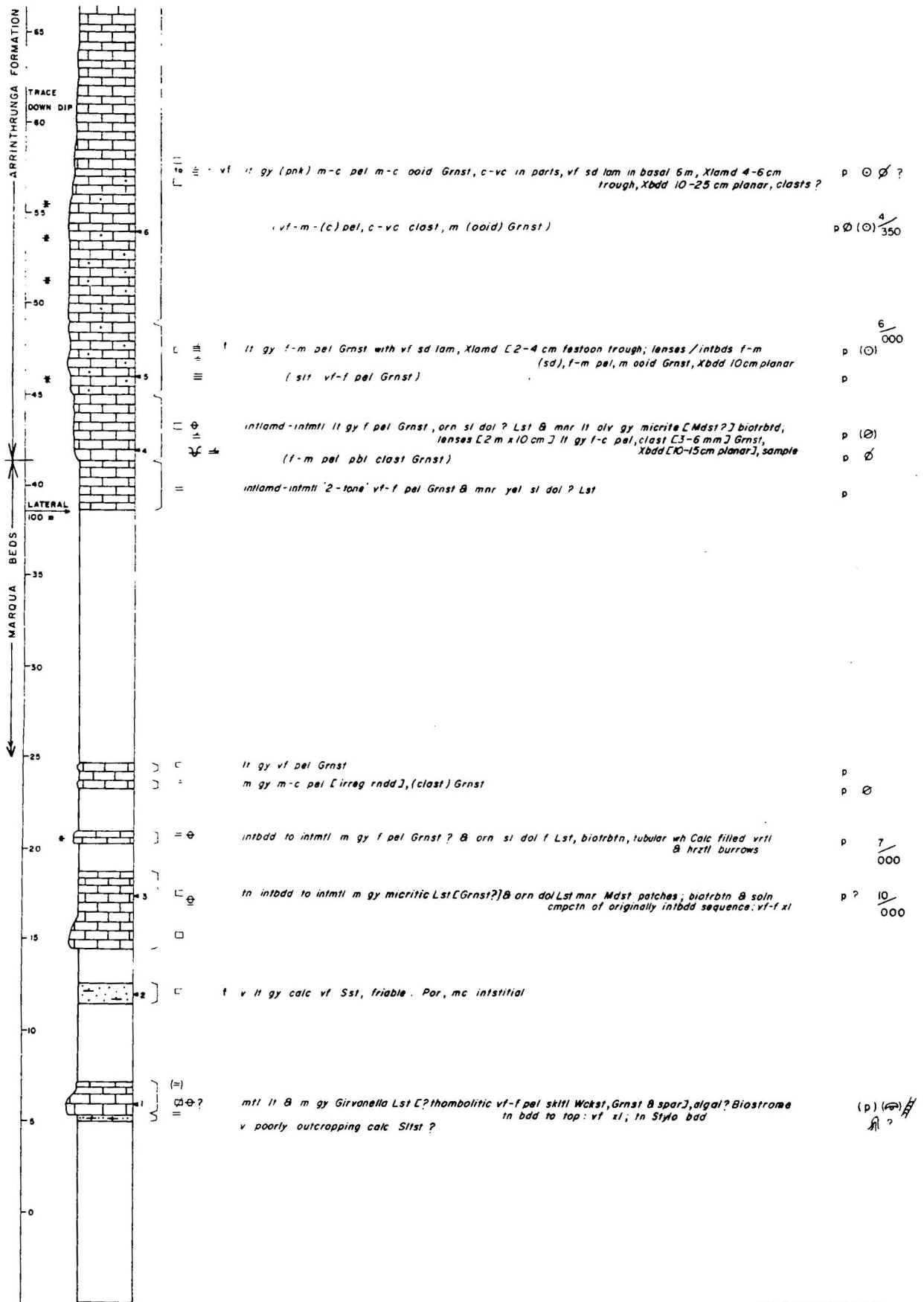
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(10 of 12) F53/A12/22

SECTION GEO 820

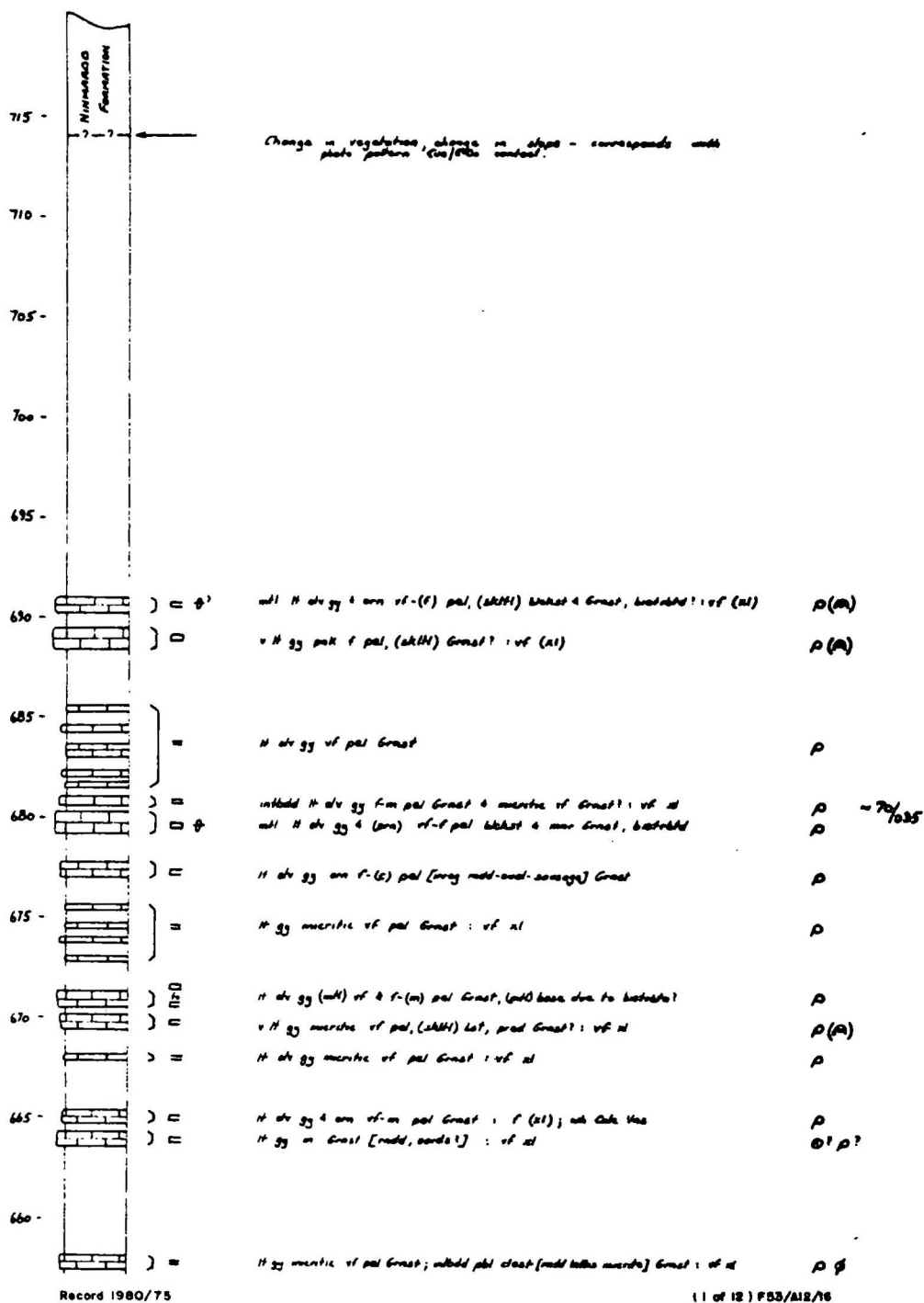


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SECTION GEO 820



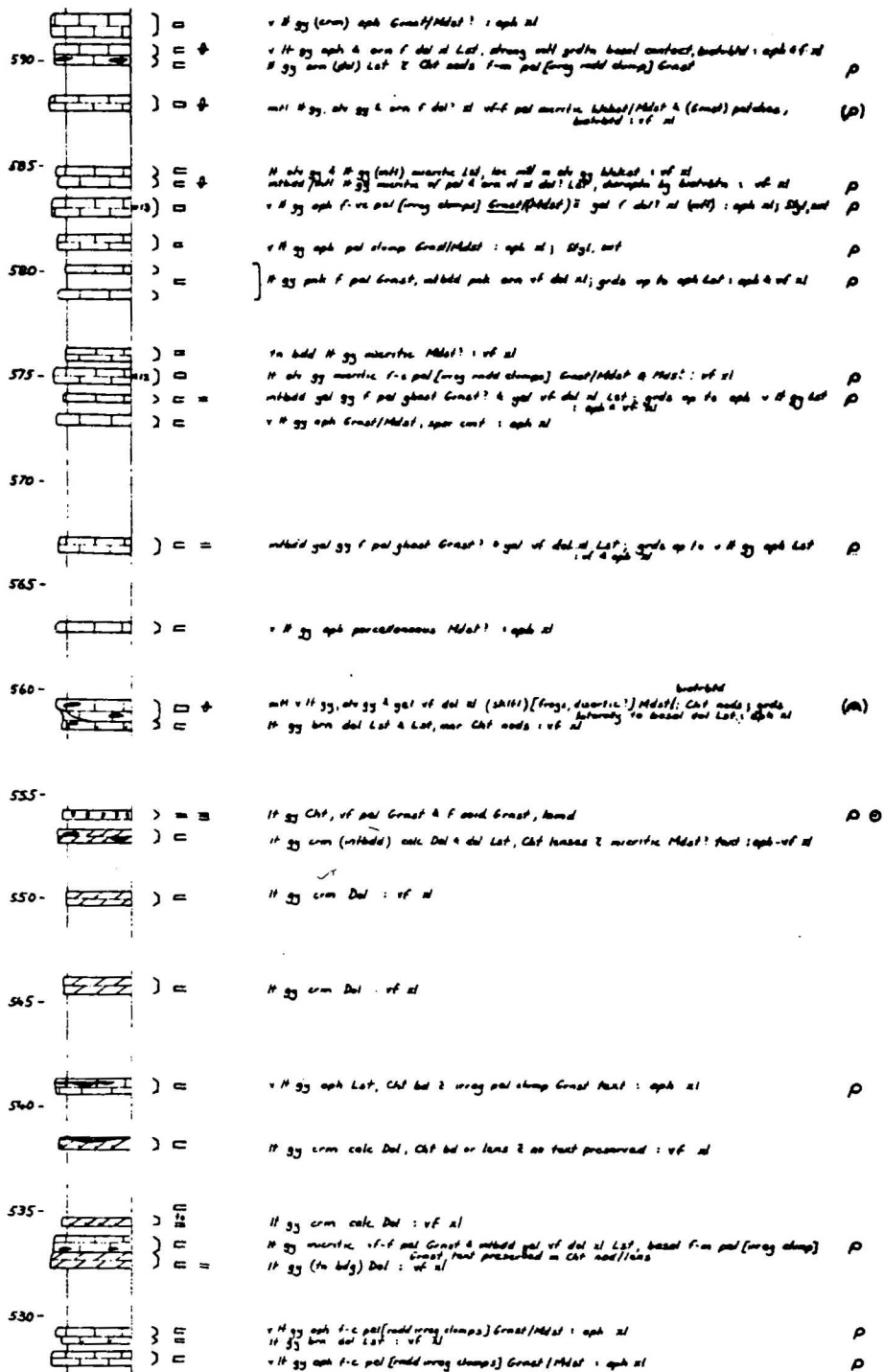
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(12 of 12) F53/A12/22



Record 1980/75

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SECTION GEO 821

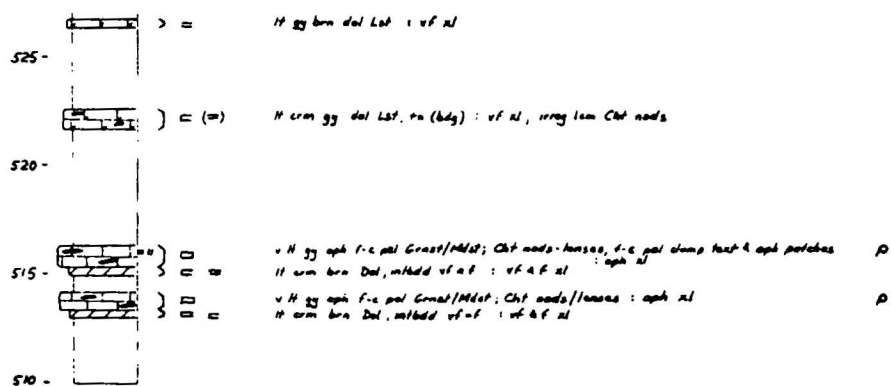


Record 1980/75

(3 of 12) F53/A12/16

TOBERMORY Sheet Area

SECTION GEO 821

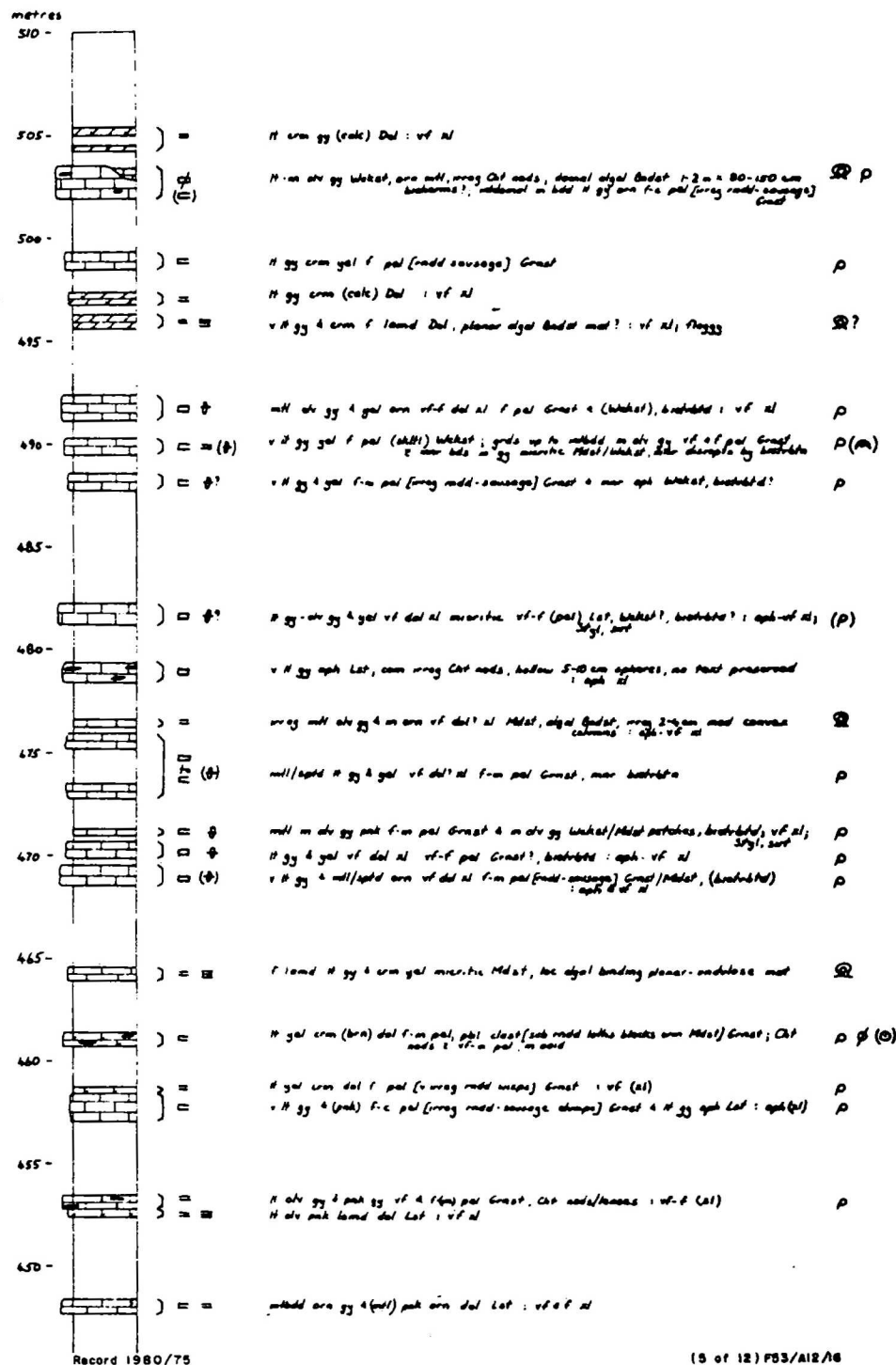


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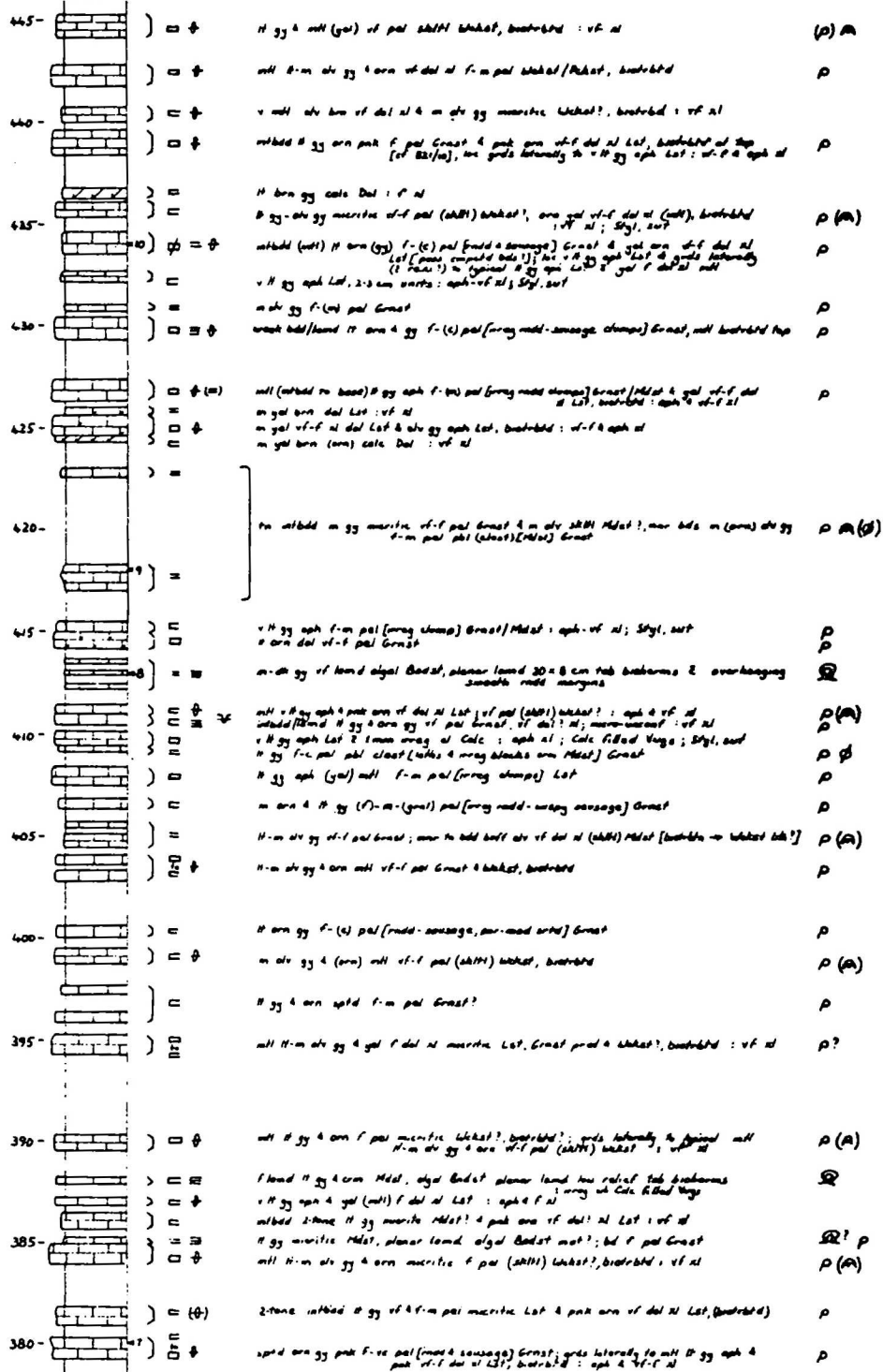
Record 1980/75

(4 of 12) F53/A12/16

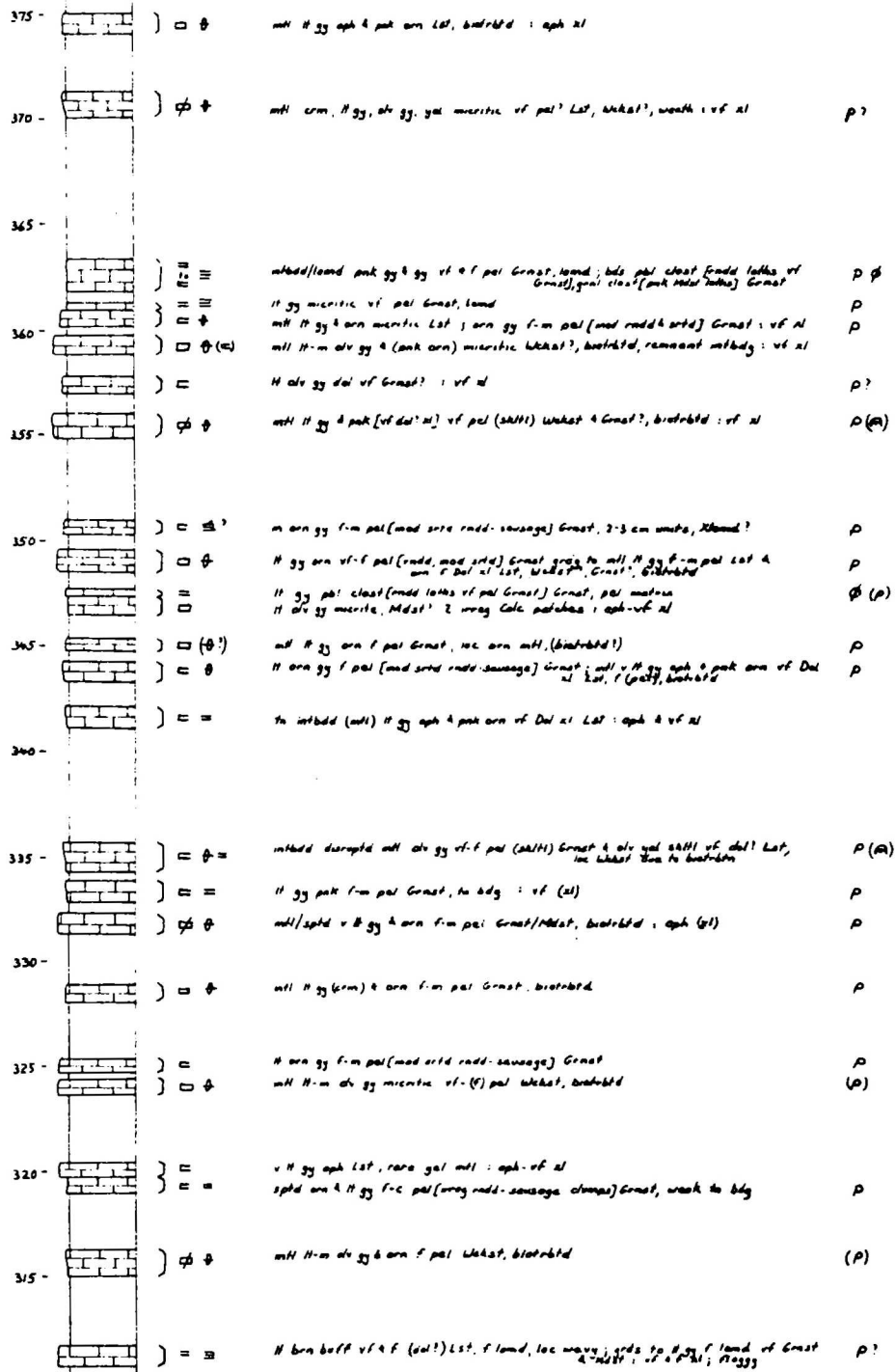
TOBERMORY Sheet Area
SECTION GEO 821



TOBERMORY Sheet Area
SECTION GEO 821



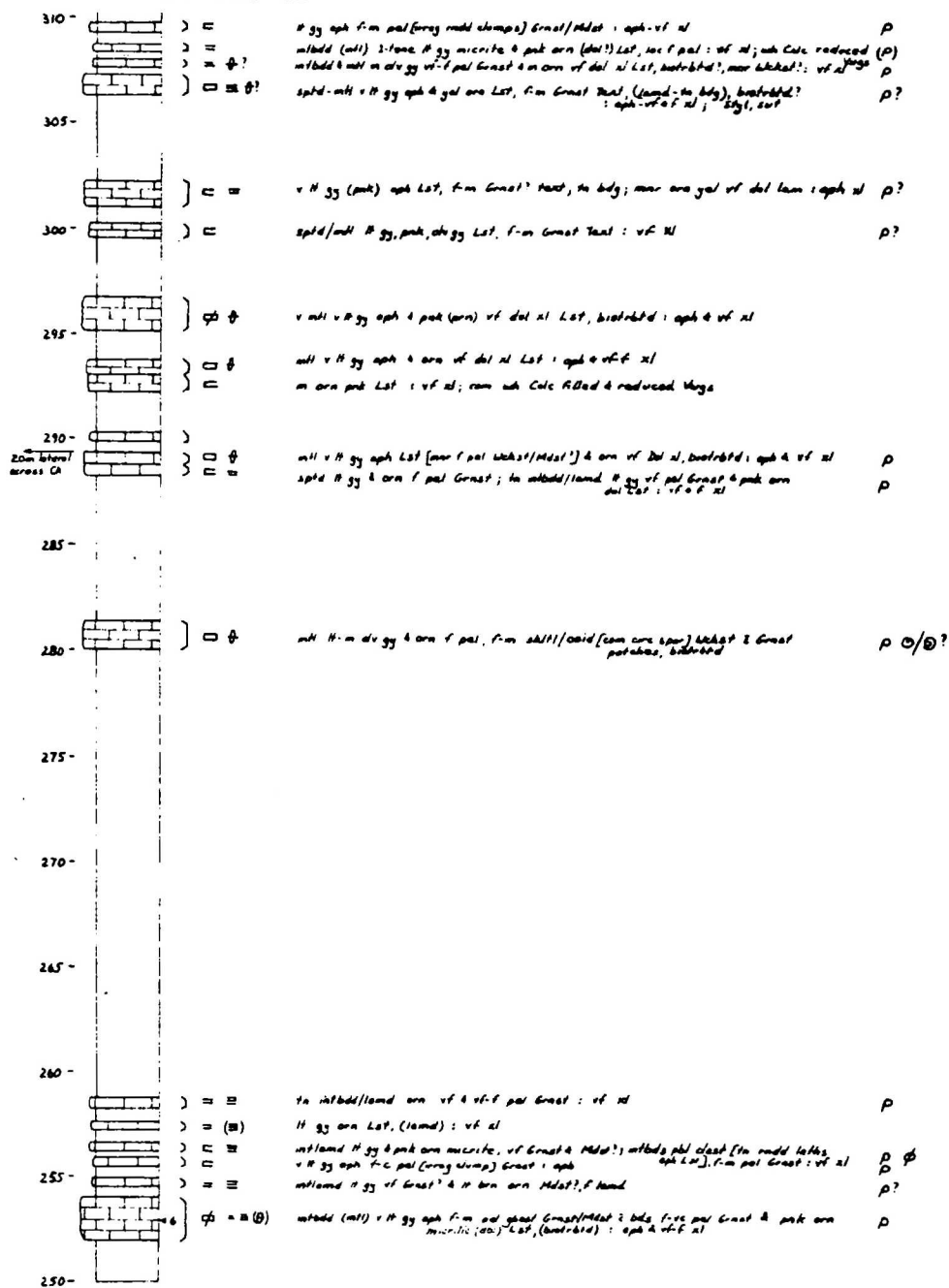
TOBERMORY Sheet Area
SECTION GEO 821



Record 1980/75

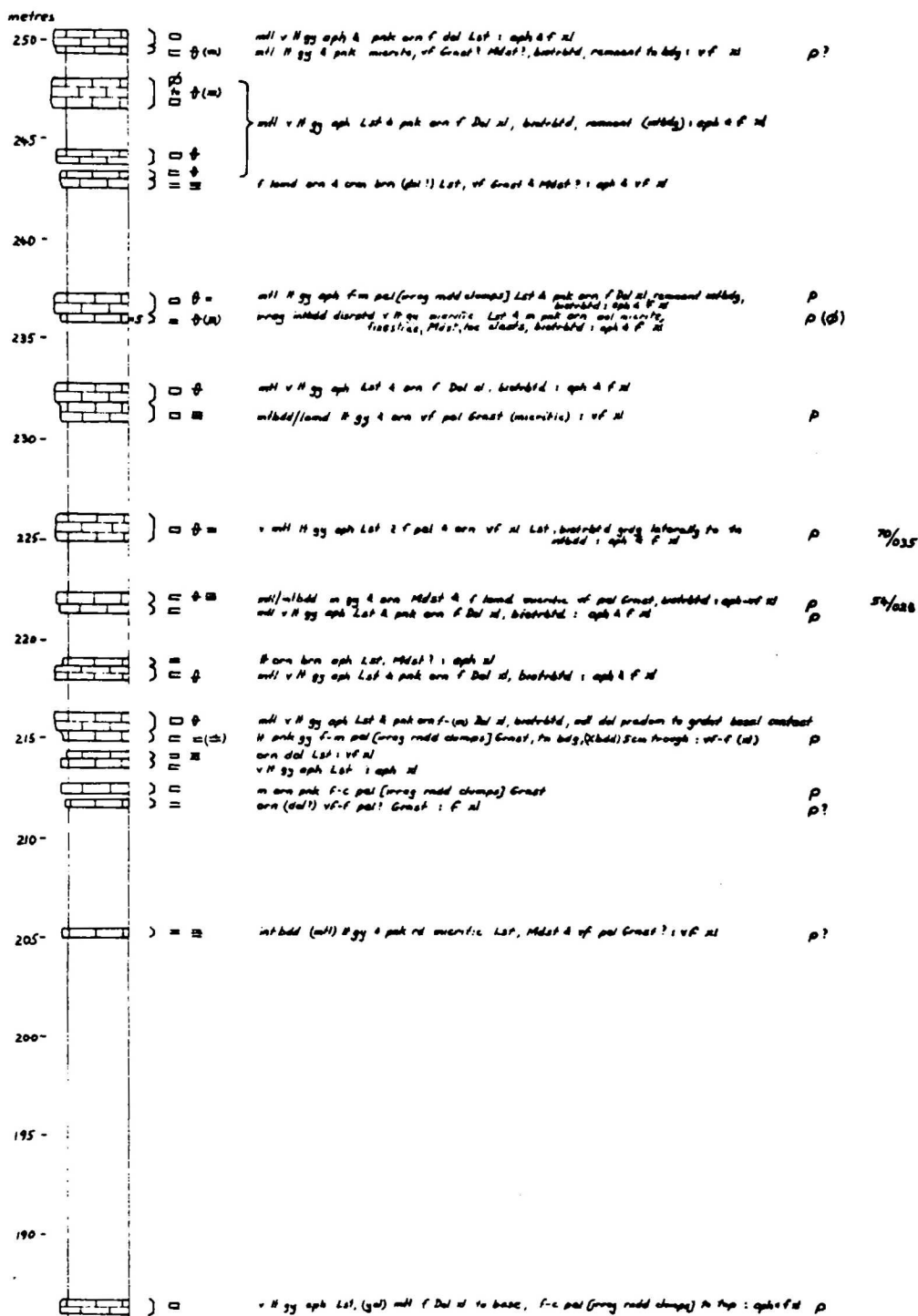
(7 of 12) F53/A12/16

TOBERMORY Sheet Area
SECTION GEO 821

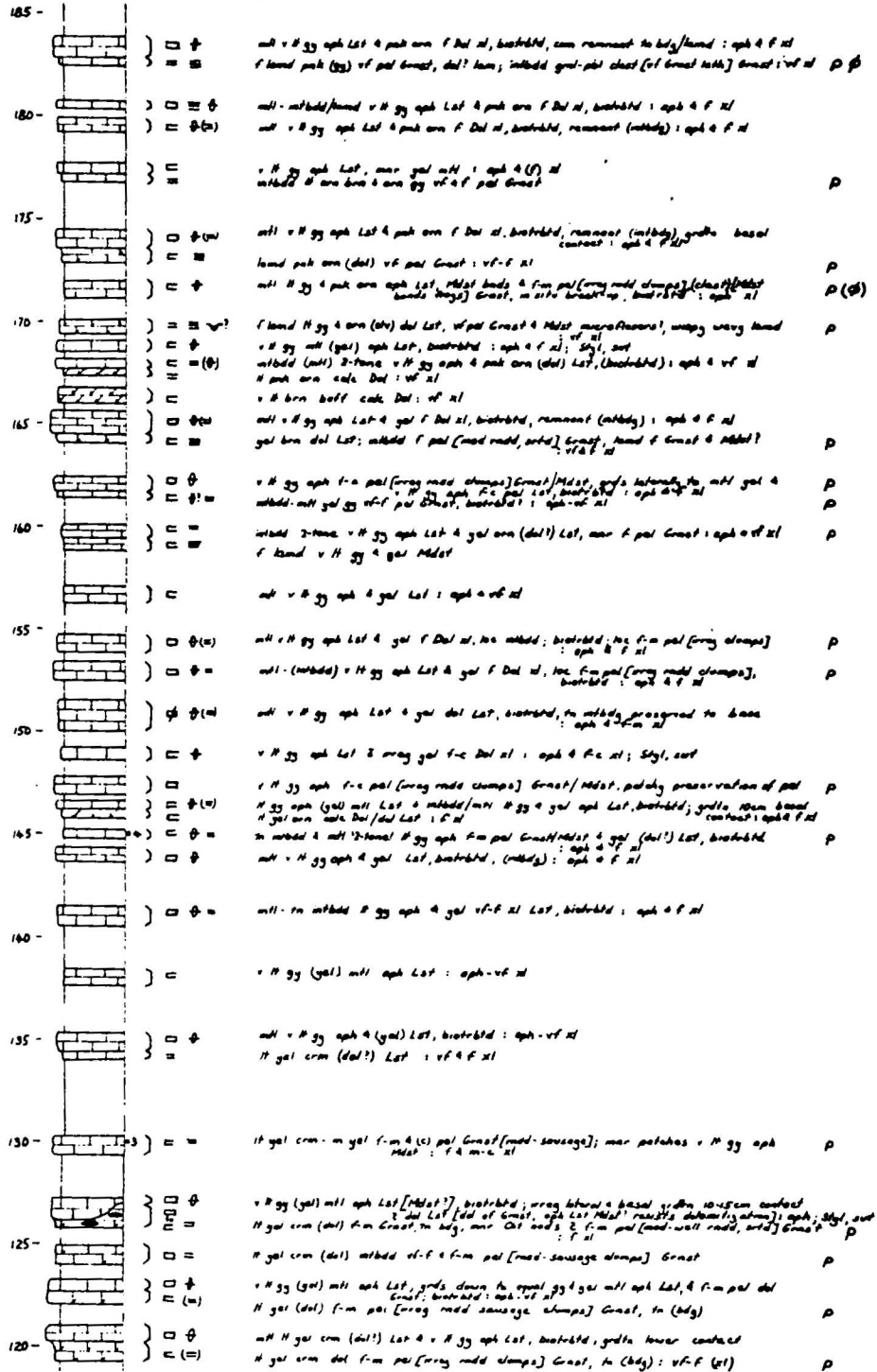


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SECTION GEO 821



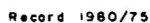
TOBERMORY Sheet Area
SECTION GEO 821



Record 1980/75

(10 of 12) F53/A12/16

64

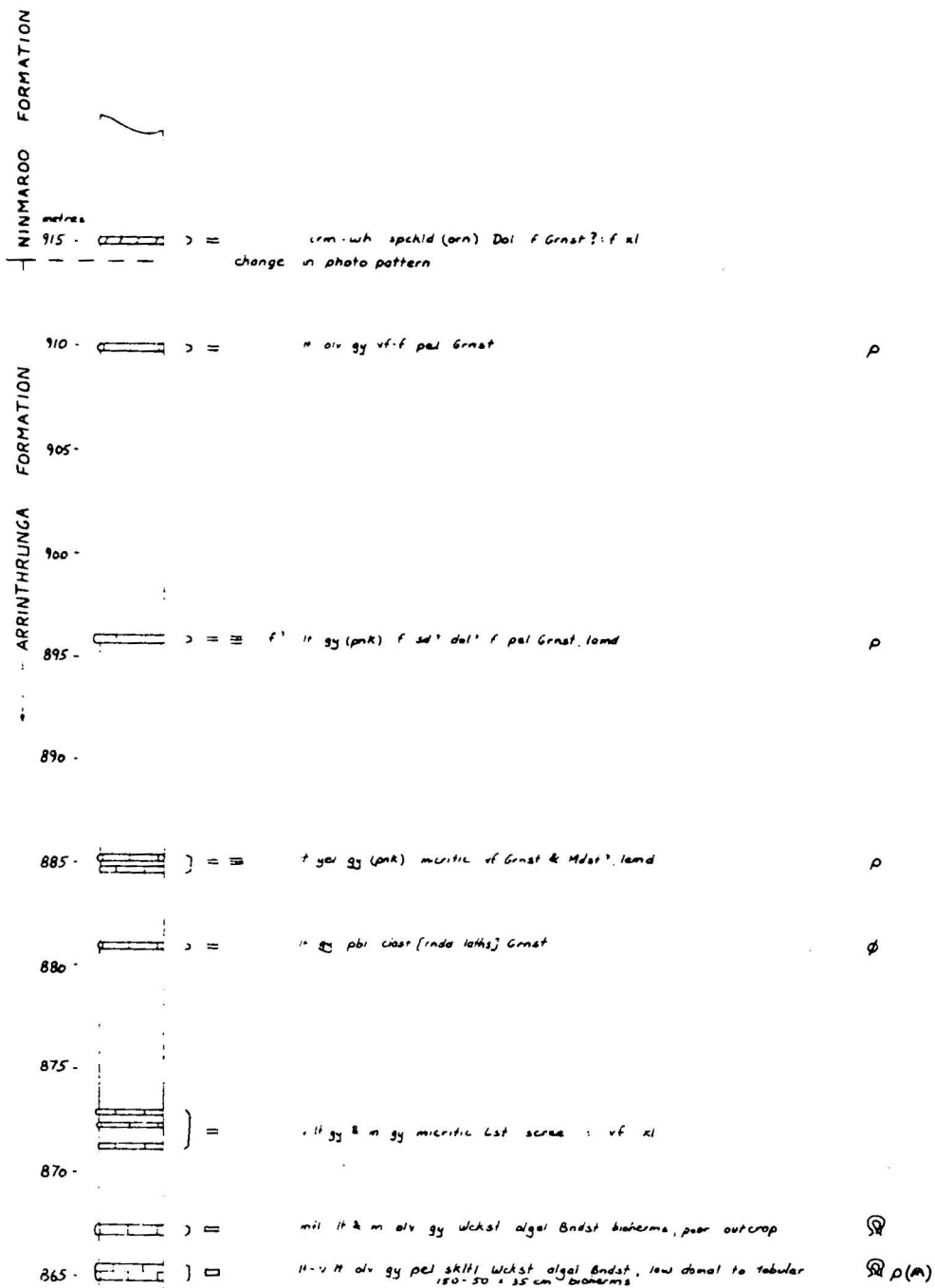


50 - } = = } =

Record 1980/75

(12 of 12) F53/A12/16

TOBERMORY Sheet Area
SECTION GEO 822



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SECTION GEO 822

860-

 = $\equiv$ thin bedded lt olv gy micritic v.f. pal Grnst & pink yel Mdst, lense p

855-

850-

845-

840-

835-

830-

825-

820-

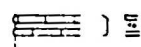
815-

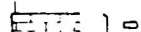
810-

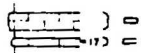
805-

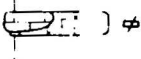
800-

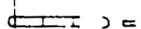
795-

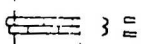
 = $\equiv$ mid lt & m olv gy f. pal (skil) Wkst & tn bedd olv gy micritic f. pal Grnst, p(A) ?
pass algal Bndst bioherms & mltibiohermal beds

 = $\equiv$ mid olv gy & yel micritic - aph ist. pass algal Bndst bioherms p?

 = $\equiv$ mid lt & m olv gy f. pal (skil) Wkst/Grnst prob algal Bndst bioherm p(A)?
crm on c oord Grnst, wall srt'd

 = $\equiv$ mid lt & m olv gy f. m. pal (skil) Wkst & Grnst algal Bndst domal 150-80cm bioherms, mltibiohermal mtd & 2nd lt olv gy f. m. pal Grnst & yel (ool) Mdst, biohermal: 1cm irreg 'S' flower' mds p(A)

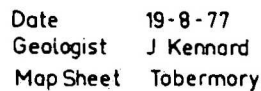
 = $\equiv$ v. lt gy m. (c) pal (irreg clumps) Grnst, planar bed p

 = $\equiv$ v. lt gy aph (pink) Mdst impeld pal clumps?, gradnl 5cm biohermal basal contact p?
sptd yel crm f. m. pal (irreg sausage) Grnst p

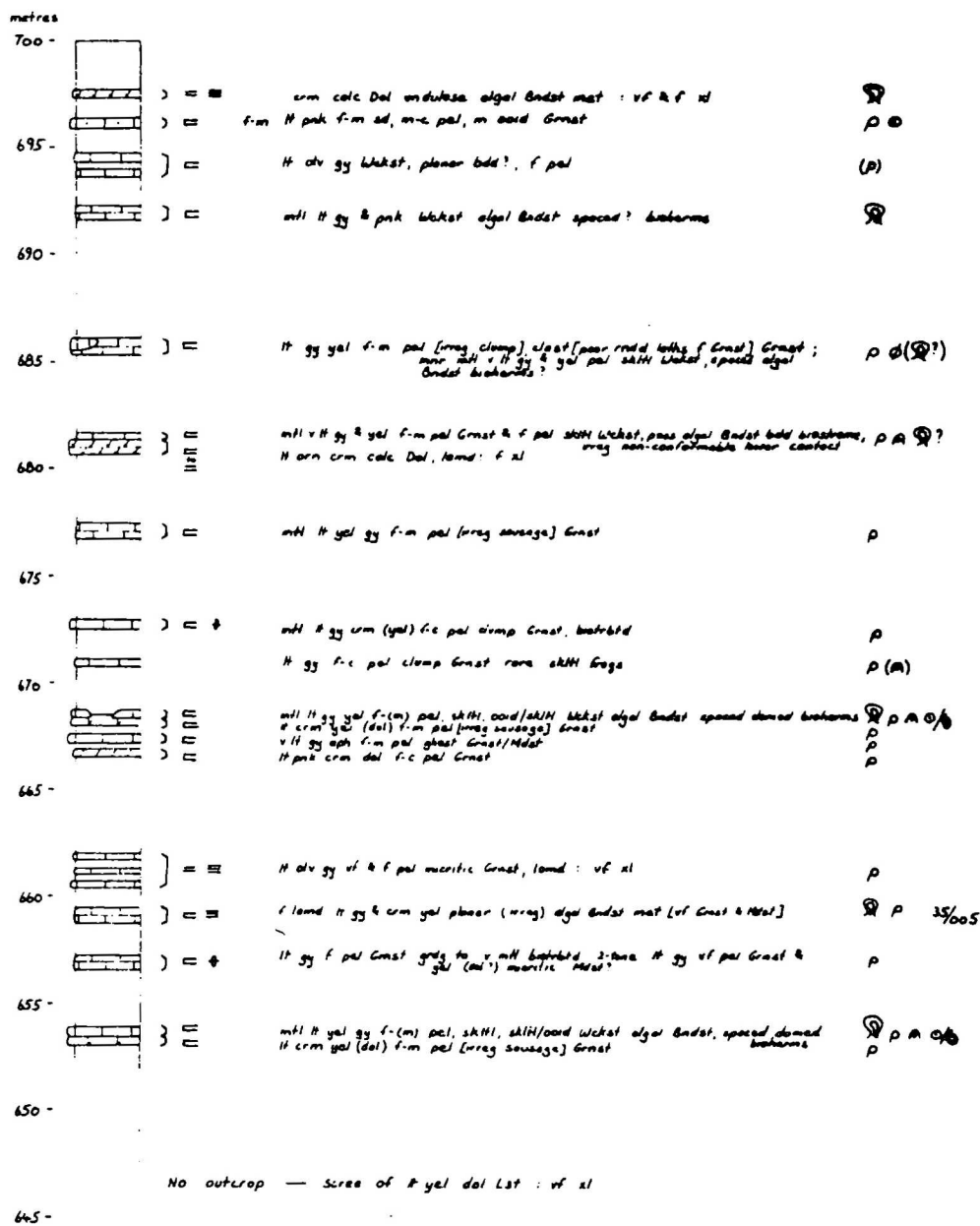
Record 1980/75

(2 of 15) F53/A12/17

SECTION GEO 822



TOBERMORY Sheet Area
SECTION GEO 822



640 -

635 -

630 -

625 -

620 -

615 -

610 -

6. $\left(\frac{1}{2} \right)^2 = \frac{1}{4}$ If you calc Det. of wavy land : v.f. x/

 $\gamma = \frac{m}{V} = \frac{m}{\frac{\pi}{4} D^2 L}$
 mbed 11 gyl of 1.5m per Crust & 11 gyl calc Dol Mdat' found

595 - CHH = "yal gy f-vc pal (mag clump) Grast

6-1-1 = It you go to Lat : f d

$\pi_1(H) \cong \pi_1(H)$ & are algebraic endomorphisms & underlying/initial map $\pi_1(H) \rightarrow \pi_1(H)$

590 - ) = v. lt gy f. - gal pol (marg dump) Const filling in & around spiced algal band

mtl v H gg & pink oph pai dump (rest' biolords' domed brokeners

pink yet f-c per clump of Grass, in Coir filled burrows
v. it gr f-c per clump Grass

It gyzel digit. Budist. closely spaced 20-20 cm. inobermis, planar bed midlateral del f-c L

1. 33 yel planar algal Badai met. plana. (fenestree)
14 33 kurn dol : r'kl

585 - )
1t gy blk f-m pl, shltt, shltt/ood whst/crost algal Endst spaced 60cm

'dand' baxéms

mit 11 gy & orn f-m pel wchst speed algal Bndst domed brehenns

It is a type of interthermal f.m. pel. Grtst
It is a type of pel. skil. w/ktst algal Bndst, spaced 20-60 cm down

brotherms, interbrotherms f-m pal (wray. sausage clump) 6

580 - = *H* val. av. f. m. 30 f. m. val. m. (pond?) Grout

It yal gy f-m sa, f-m pel, m (odd!) Grnst
It vel en f-m pel [urag sa:sa:pe clump] Grnst

if yellow 1-in. pel (magg sausage crump) Grnst
+ olv gy & pink crm f pel sk'n w/Grst olig. Bndst, spaced 10-15 cm down

bioherms with colonial f-m pol [ung-aesag, lump] Crns
mtl it gy & yel f-m pol ghost sigel binder, 1cm (columns), poss domes

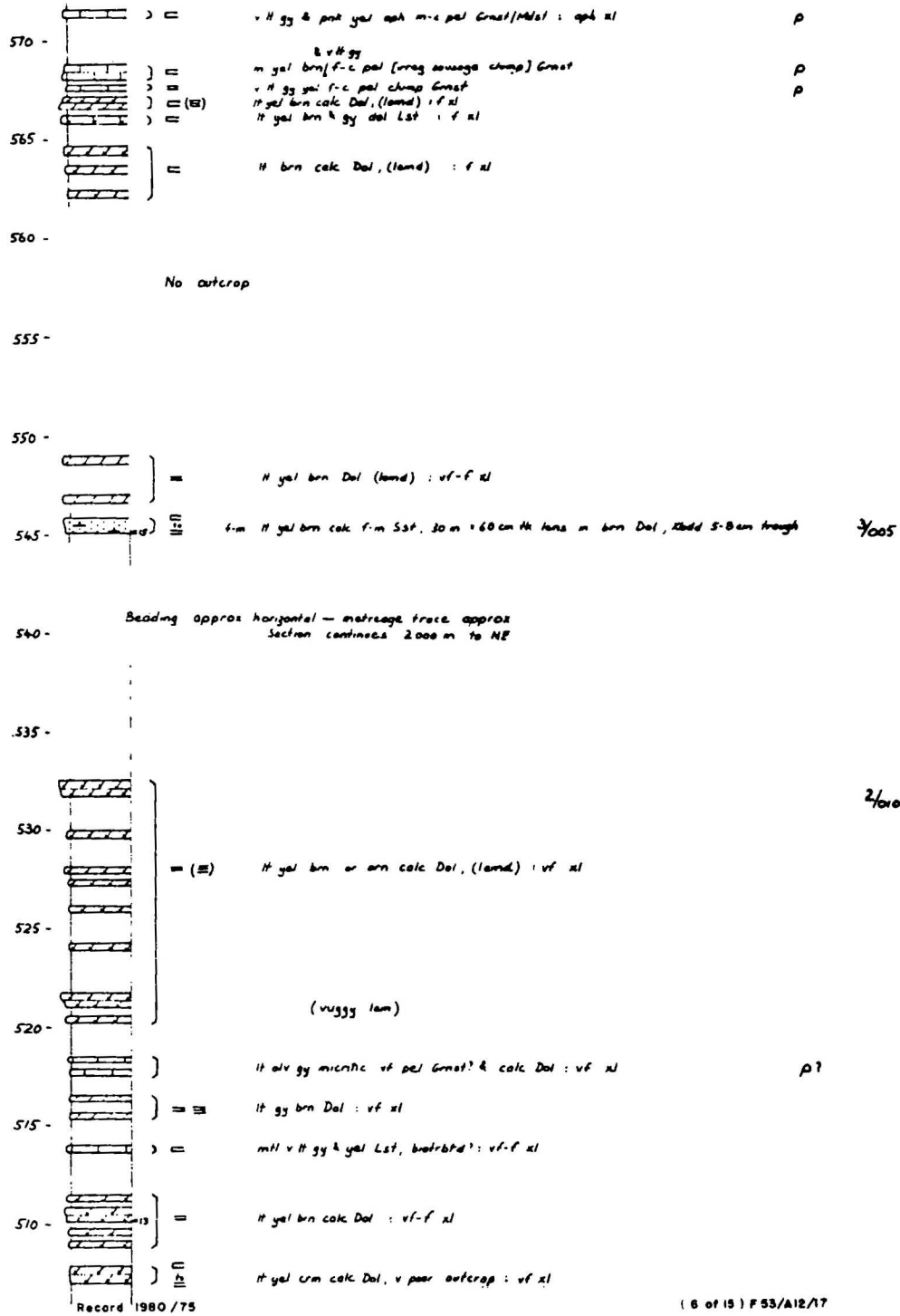
575

575 -  = It qu ank f-c nel [area clama] Graet

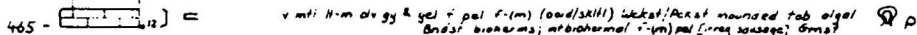
It is v f & f pal Grmat. flosses : v f & f xl

It g₂ v₁ & f pal Gmat, flaggy : v₁ & f x1

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SECTION GEO 822

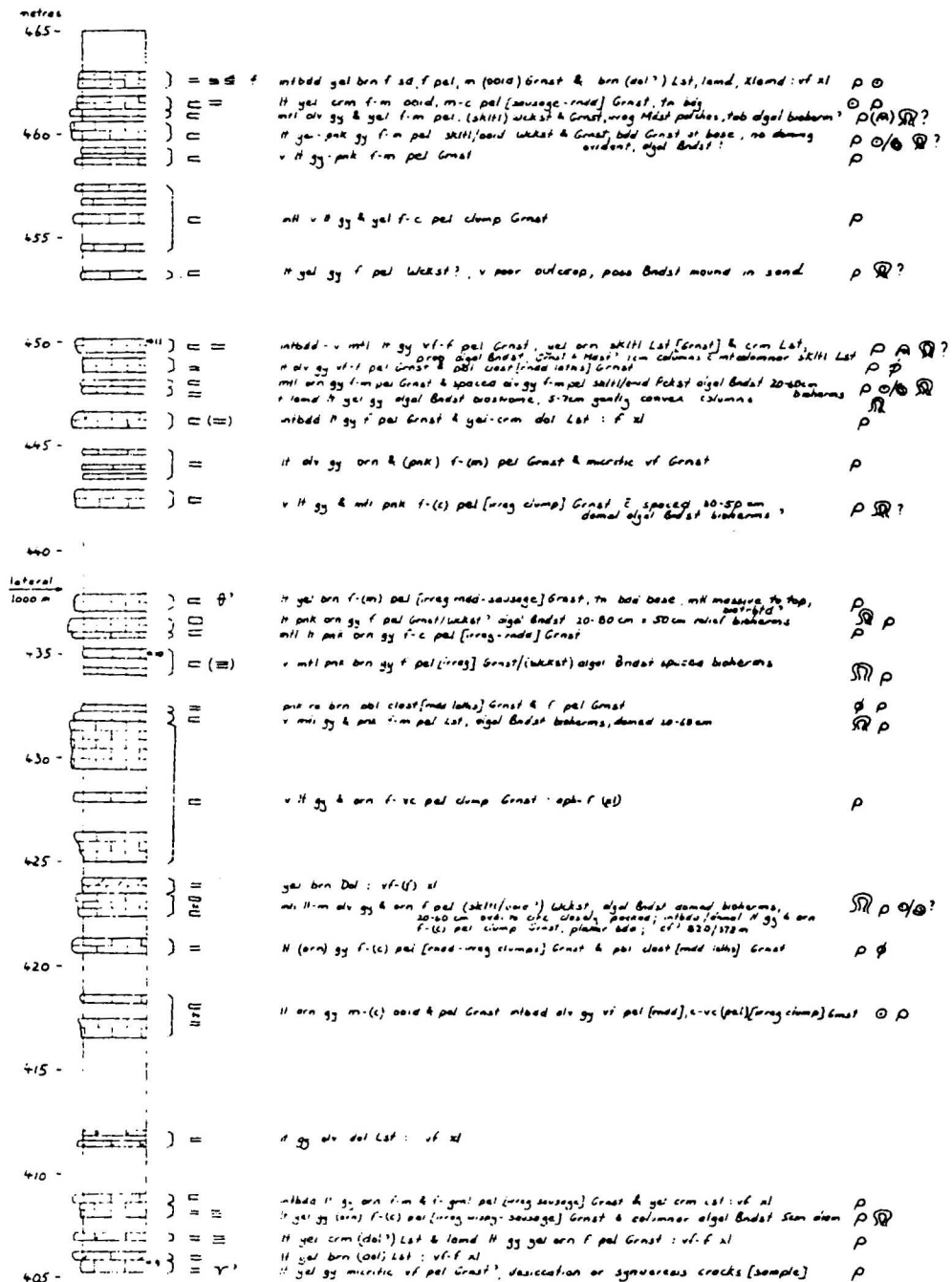


SECTION GEO 822

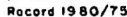


Date 19-8-77
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TOBERMORY Sheet Area
SECTION GEO 822



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SECTION GEO 822



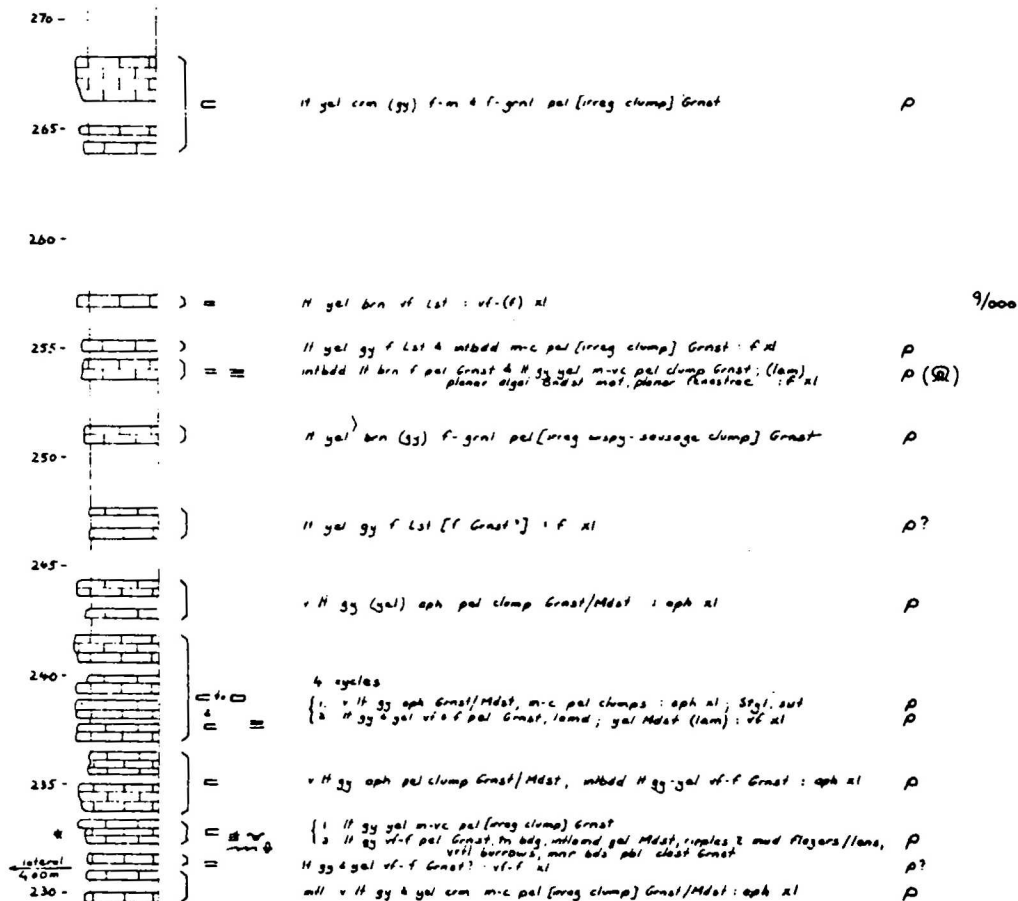
TOBERMORY Sheet Area
SECTION GEO 822

335-		= $\oplus$	mlt olv gy & orn f-(m) pal Grnst, med-poor srted, biotrbtd : vf xl	p
		=	H crm gai & v H gy m-vc pal ghost Lat	p
330-		= ($\equiv$)	gai brn dol vf Grnst?, vf (lamd) : vf xl	
		=	H orn gy micritic vf pal Lat, pass (Mdst) : vf xl	p
		=	mlt H gy & orn crm f-c pal [irreg clump] Grnst	p
325-		= ($\equiv$)	vt gy & gai m-vc pal [irreg clump] Grnst	p
		= ($\equiv$)	H gy pseudocolumnar algal Grnst	p
		= ($\equiv$)	H gai brn f & m-vc pal [irreg clump] Grnst : wh Calc filled irreg Vugs	p
320-		=	vt gy aphan Lat, crm uncolose v in lam & sut 3'gt algal Bndst? aphan vf xl	p?
315-		=	H gai brn Lat : vf f xl	
		= ($\equiv$)	H gy & crm vf lamd micritic vf Grnst & Mdst : vf xl	p?
		= ($\equiv$)	H gai gy vf & f pal Grnst in bed/lamd : vf f xl	p
310-		=	vt H gy & crm gai m-vc pal [irreg clump] Grnst/Mdst : aphan xl	p
		=	H m gai brn (dol?) Lat, f (lamd) : vf xl	
305-		=	m gy & H olv gy micritic vf Grnst? & orn vf Lat; mnr f pal (clast) Grnst	p (p)
		= ($\equiv$)	H gy & orn vf pal Grnst, rare clasts, & Mdst, lamd	p (p)
		= ($\equiv$)	crm-gai vf Dol, weak lamd : vf xl	
300-		=		
		= ($\equiv$)	H gy orn vf f pal Grnst & H gy-orn m-vc pal [irreg clump] Grnst, loc planar algal Bndst mat, planar fenestrate	p (p?)
295-		=	H m olv gy & orn f pal Grnst & Wkst?	p
		=	H gy gai aphan f-c pal ghost Lat	p
		= $\oplus$	mlt olv gy & orn f-c pal [irreg clump] Grnst, biotrbtd & micritic Mdst? Wkst?	p
		= ($\equiv$)	olv brn calc Dol, (lamd) : f xl	
290-		=	gai gy calc Dol : vf f xl	
		=	vt H gy m-c pal [irreg clump] Grnst/Mdst : aphan xl	p
		= ($\equiv$)	H crm Dol & orn dol Lat, (lamd) : vf xl, flaggy	
285-		= $\oplus$	mlt H gy & orn f-(c) pal Grnst, biotrbtd & mlt H gy & orn micritic Mdst? Wkst?, biotrbtd	p
		= $\oplus$	mlt H m olv gy & orn micritic? Mdst & f pal (Grnst), biotrbtd : vf xl	(p)
280-		= γ	gai brn f pal Grnst, tracks & vt H gy aphan Lat : vf & aphan xl	p
		=	vt H gy aphan pal clump Grnst/Mdst : aphan xl	p
		=	mlt/lamd H gy gai vf pal Grnst & gai orn Mdst? rare shth	p (p)
275-		=	vt H gy-gai crm f-vc pal [irreg clump] Grnst	p

Record 1980/75

(10 of 15)-F53/A12/17

TOBERMORY Sheet Area
SECTION GEO 822



Date 19-8-77
Geologist J Kennard
Map Sheet Tobermory

Record 1980/75

[11 of 15] F53/A12/17

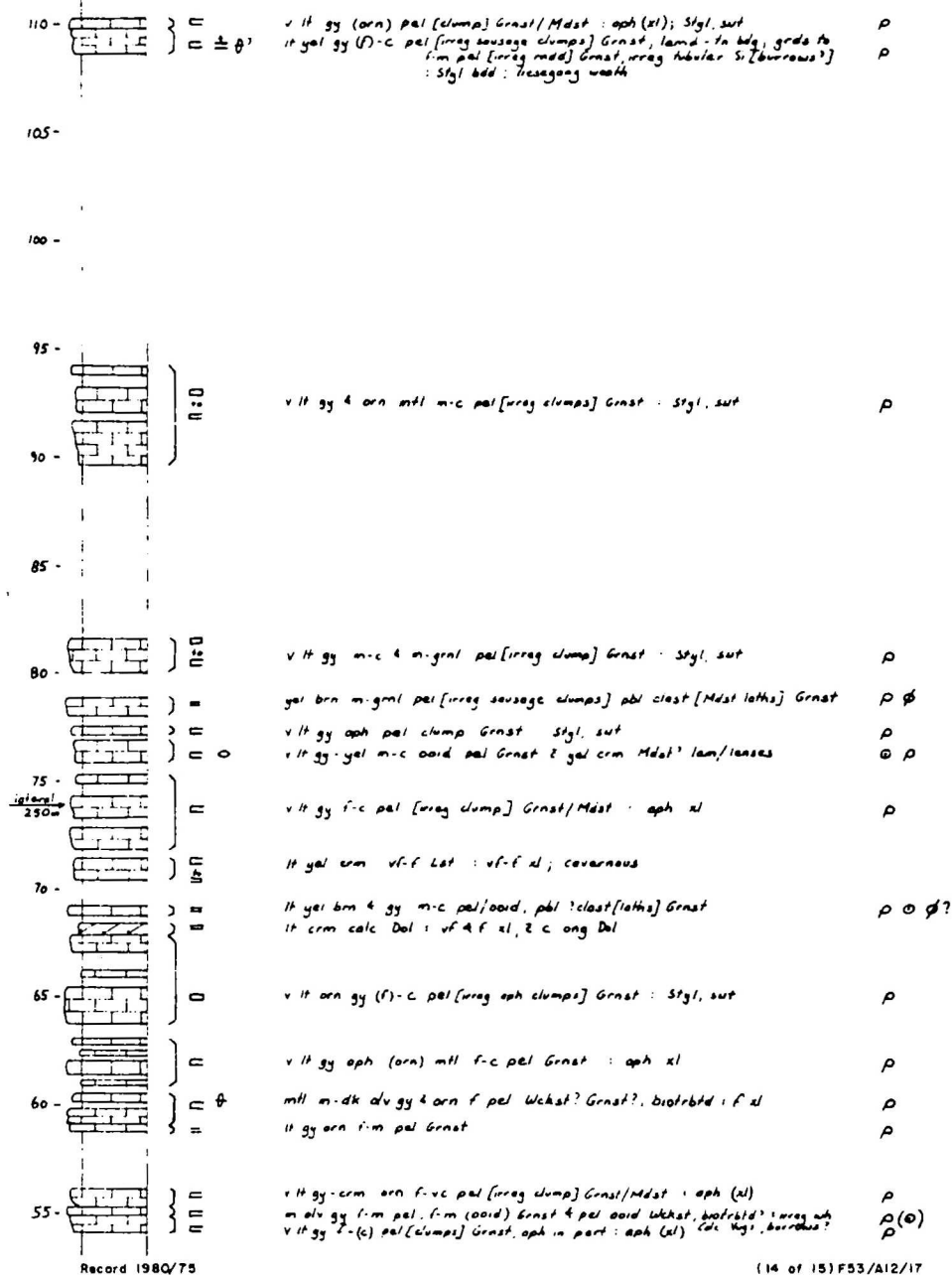
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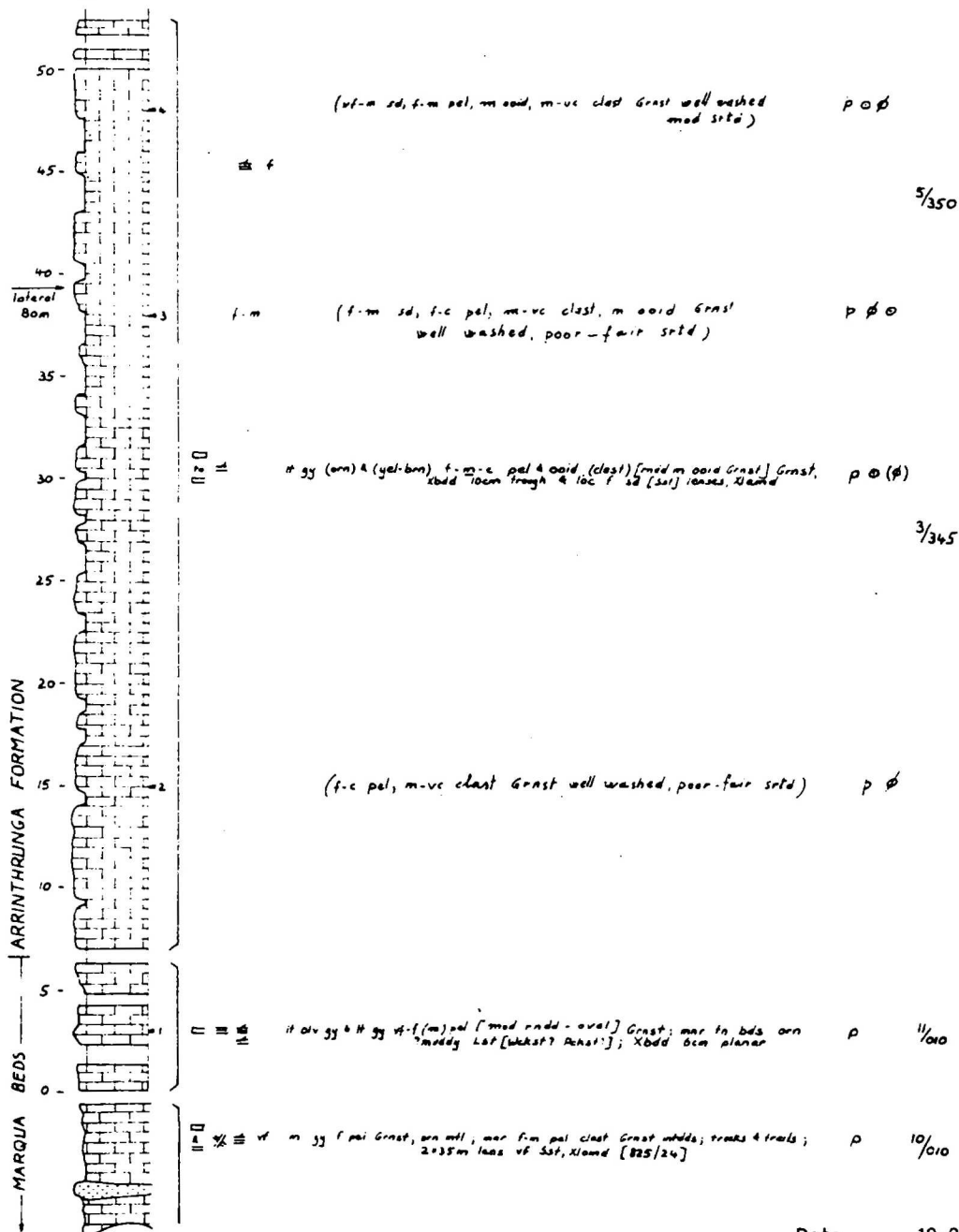
TOBERMORY Sheet Area
SECTION GEO 822



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SECTION GEO 822

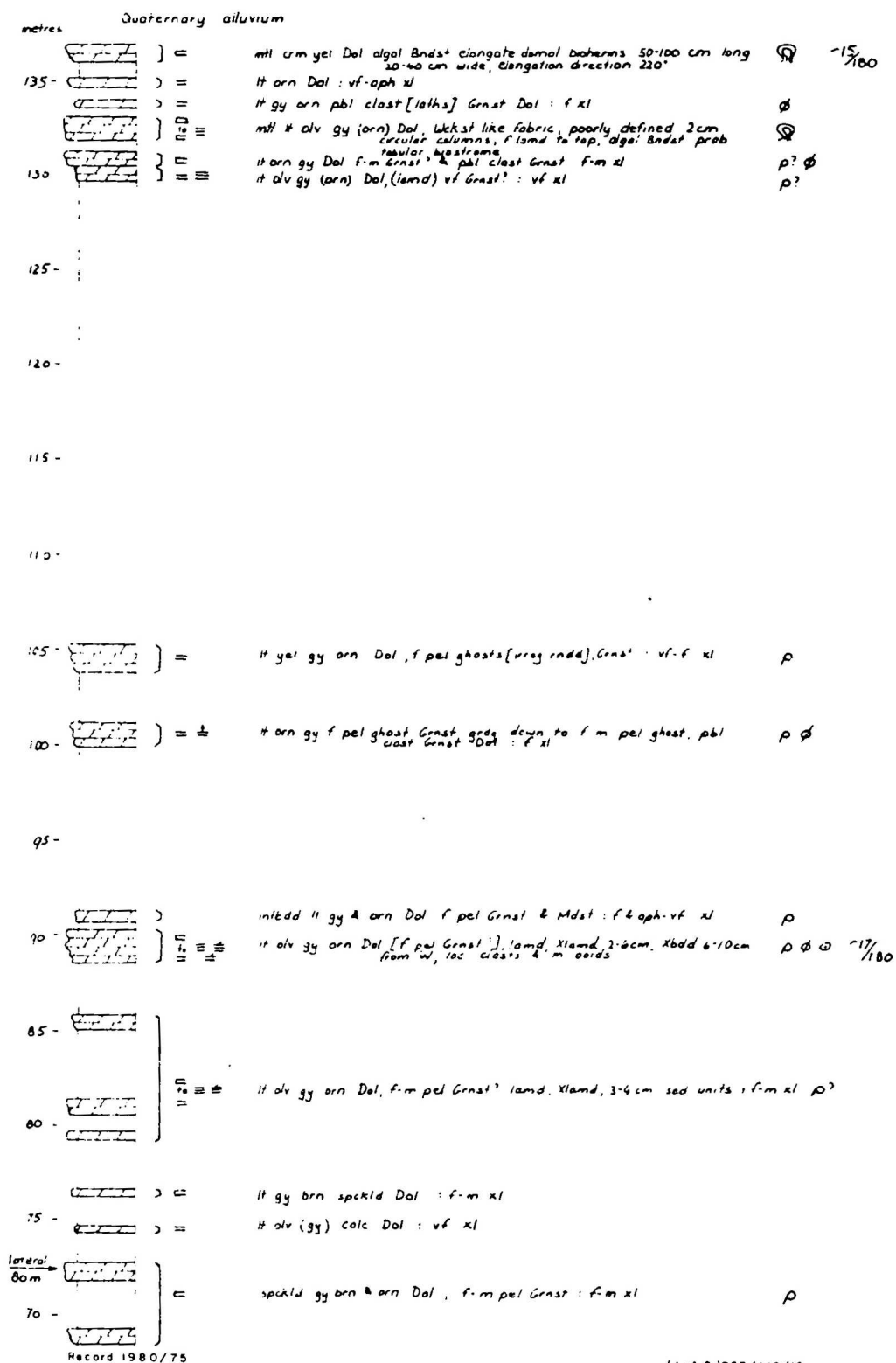


TOBERMORY Sheet Area
SECTION GEO 822

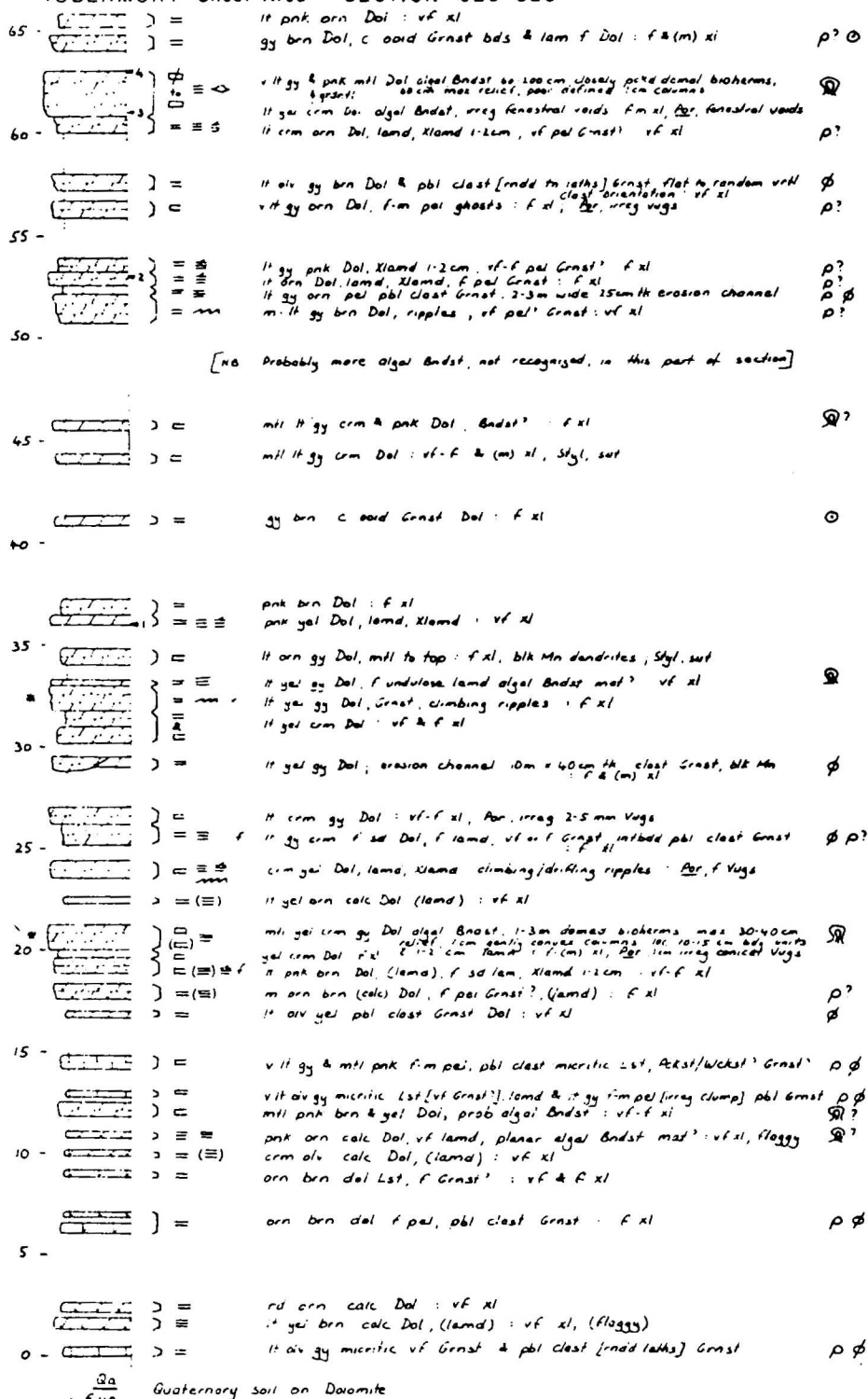


Date 19-8-77
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SECTION GEO 823



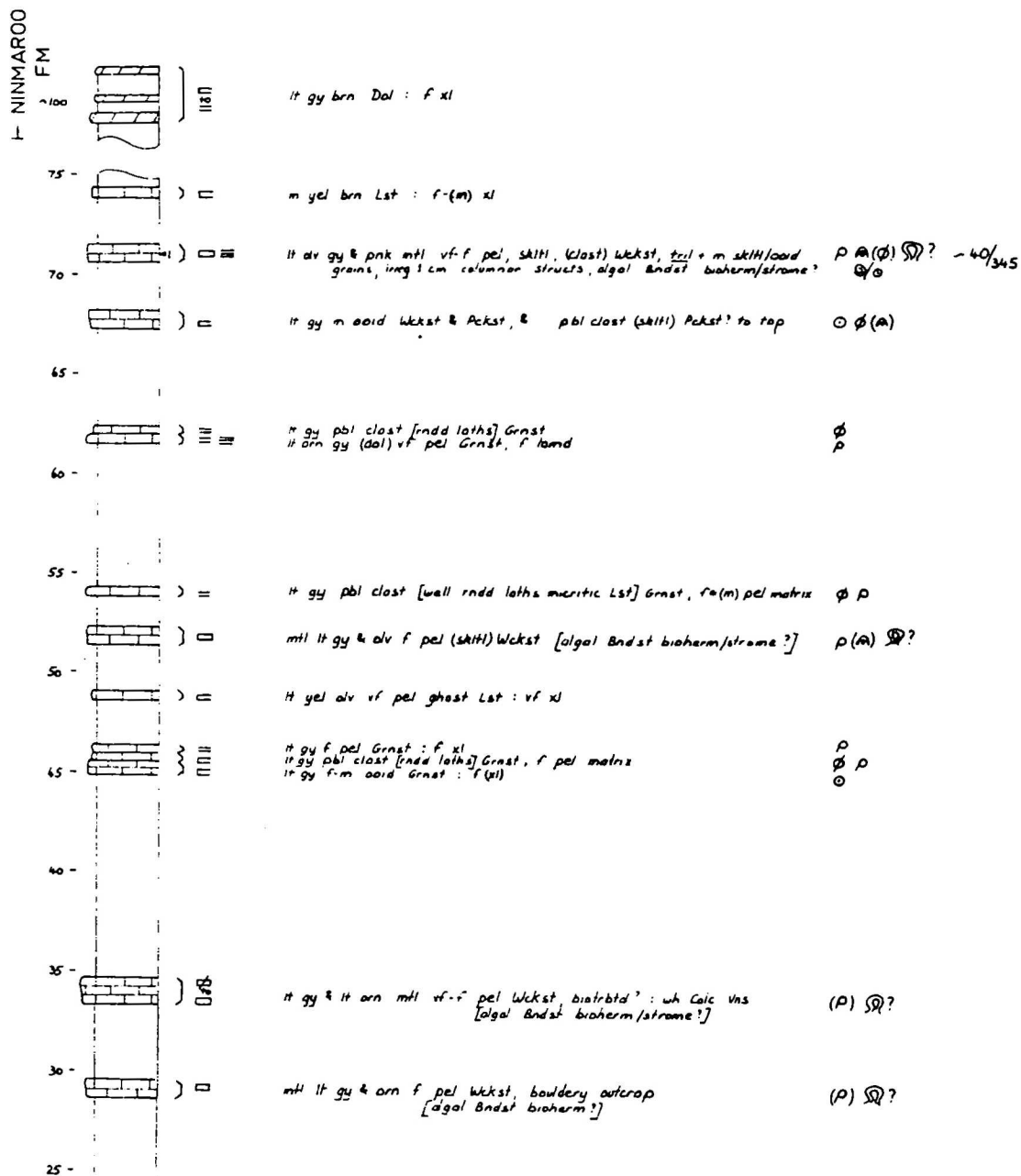
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Record 1980/75

Date 25-8-77
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Map Sheet Tobermory
(2 of 2) 153/A12/18

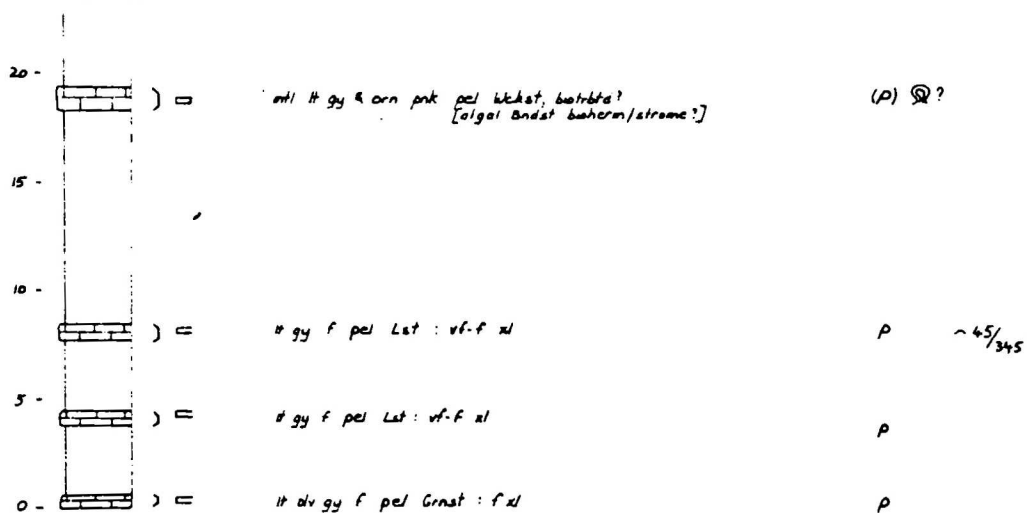
TOBERMORY Sheet Area
SECTION GEO 828



Record 1980/75

(1 of 2) F53/A12/19

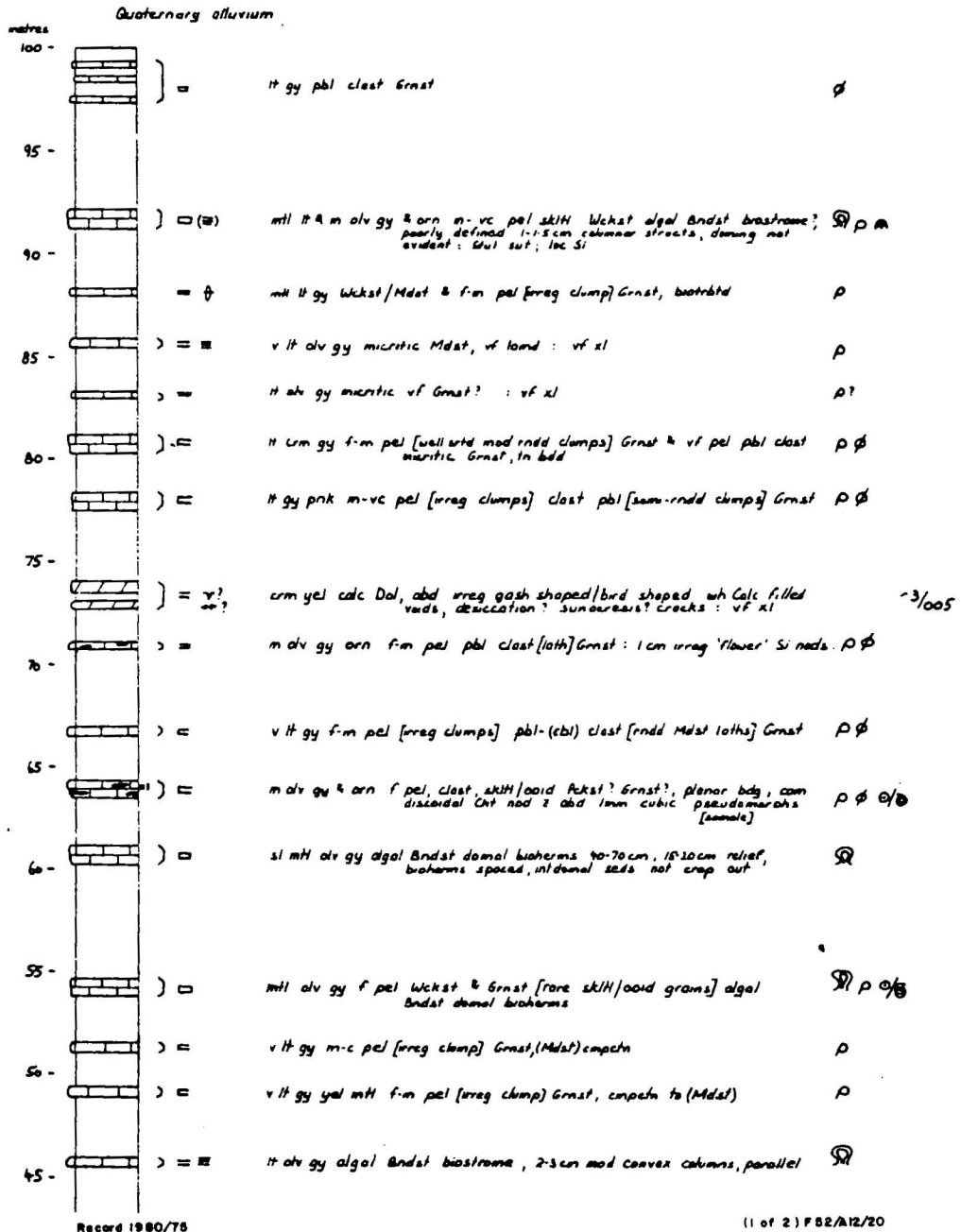
TOBERMORY Sheet Area
SECTION GEO 828



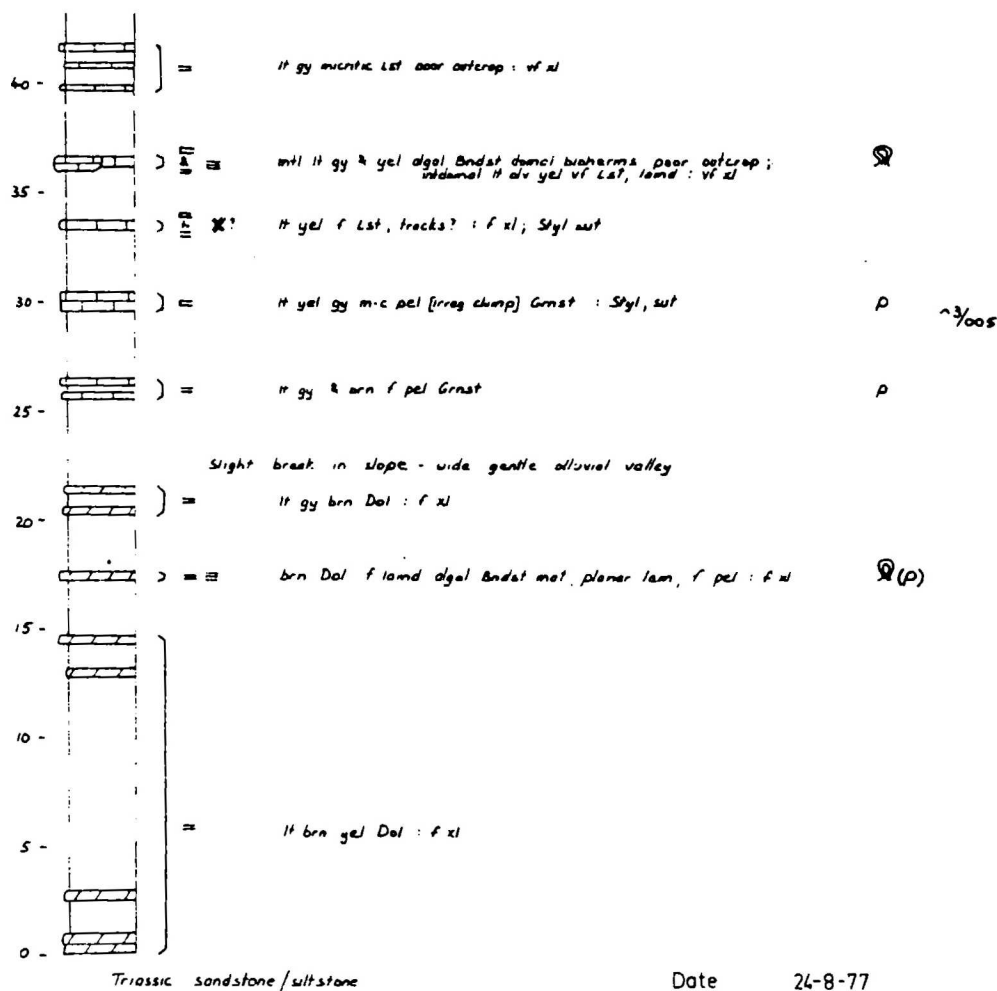
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(2 of 2) F53/A12/19

TOBERMORY Sheet Area
SECTION GEO 829



TOBERMORY Sheet Area
SECTION GEO 829

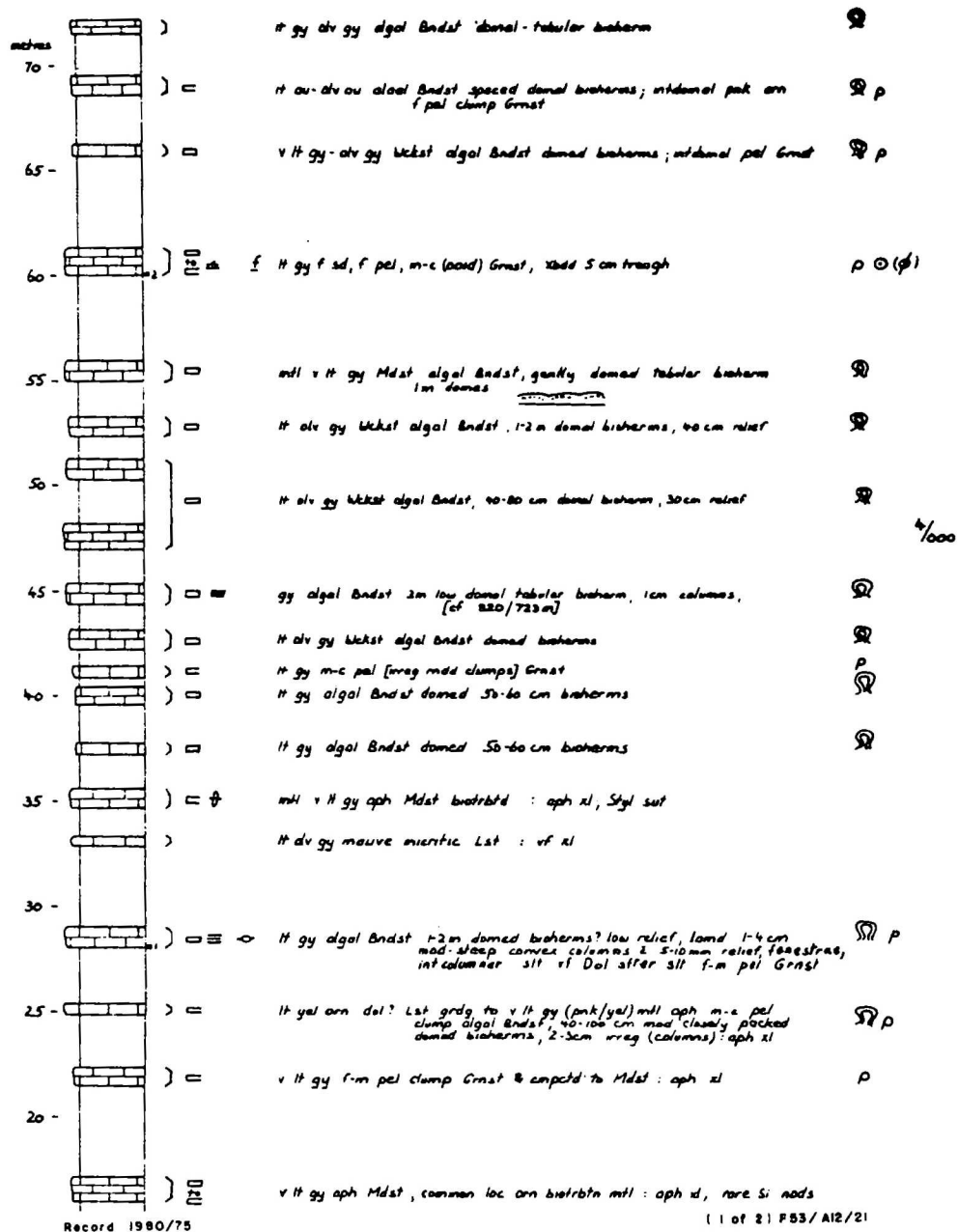


Record 1980/75

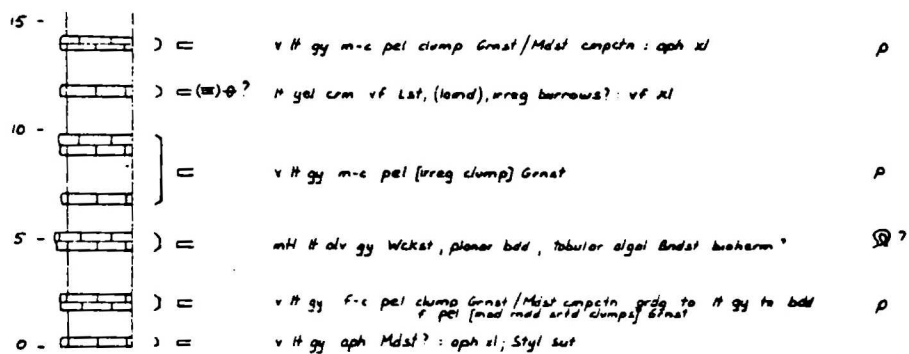
Date 24-8-77
Geologist J Kennard
Map Sheet Tobermory

(2 of 2) 53/412/20

2



TOBERMORY Sheet Area
SECTION GEO 830

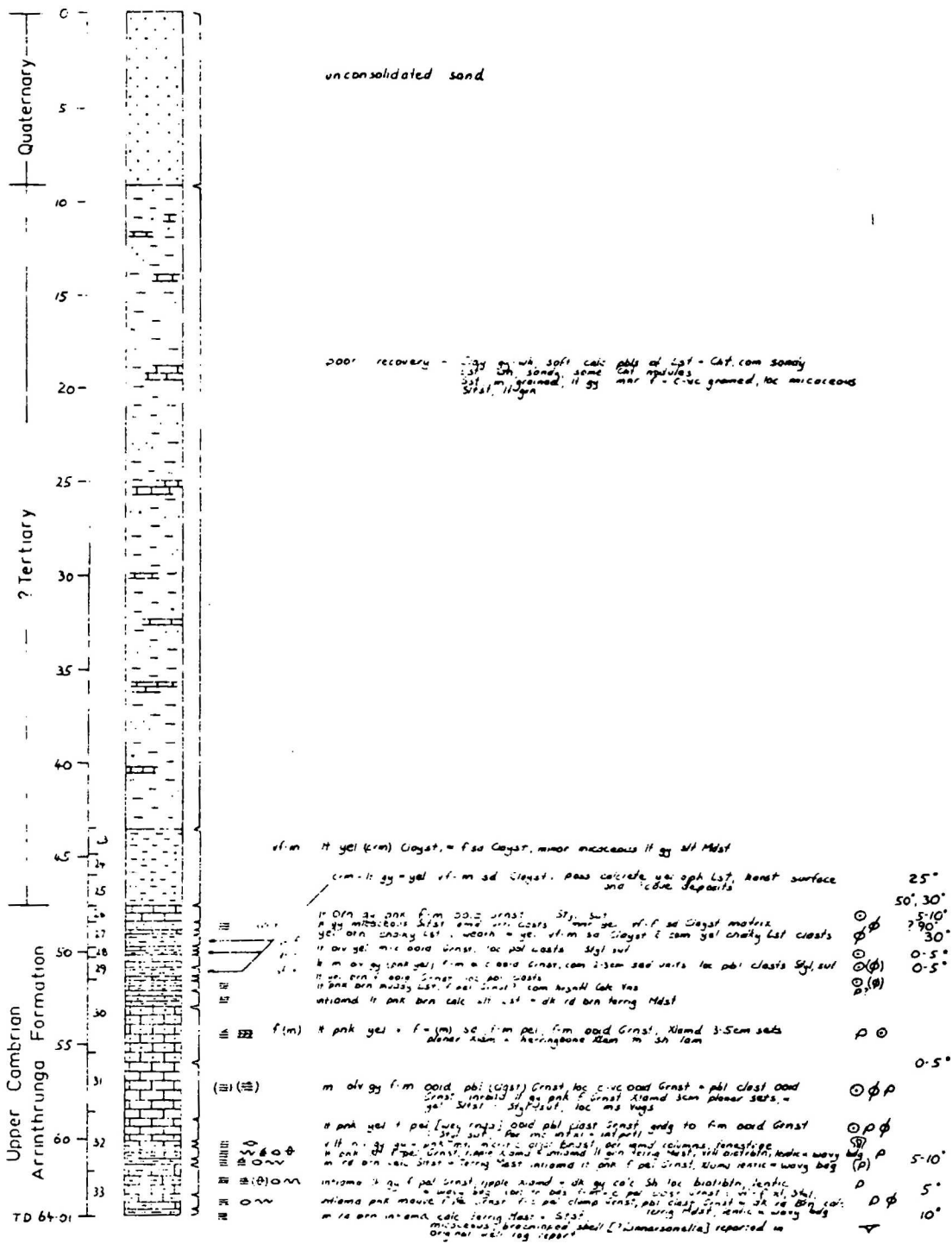


Record 1980/75

Date 24-8-77
Geologist J Kennard
Map Sheet Tobermory

(2 of 2) F53/A12/21

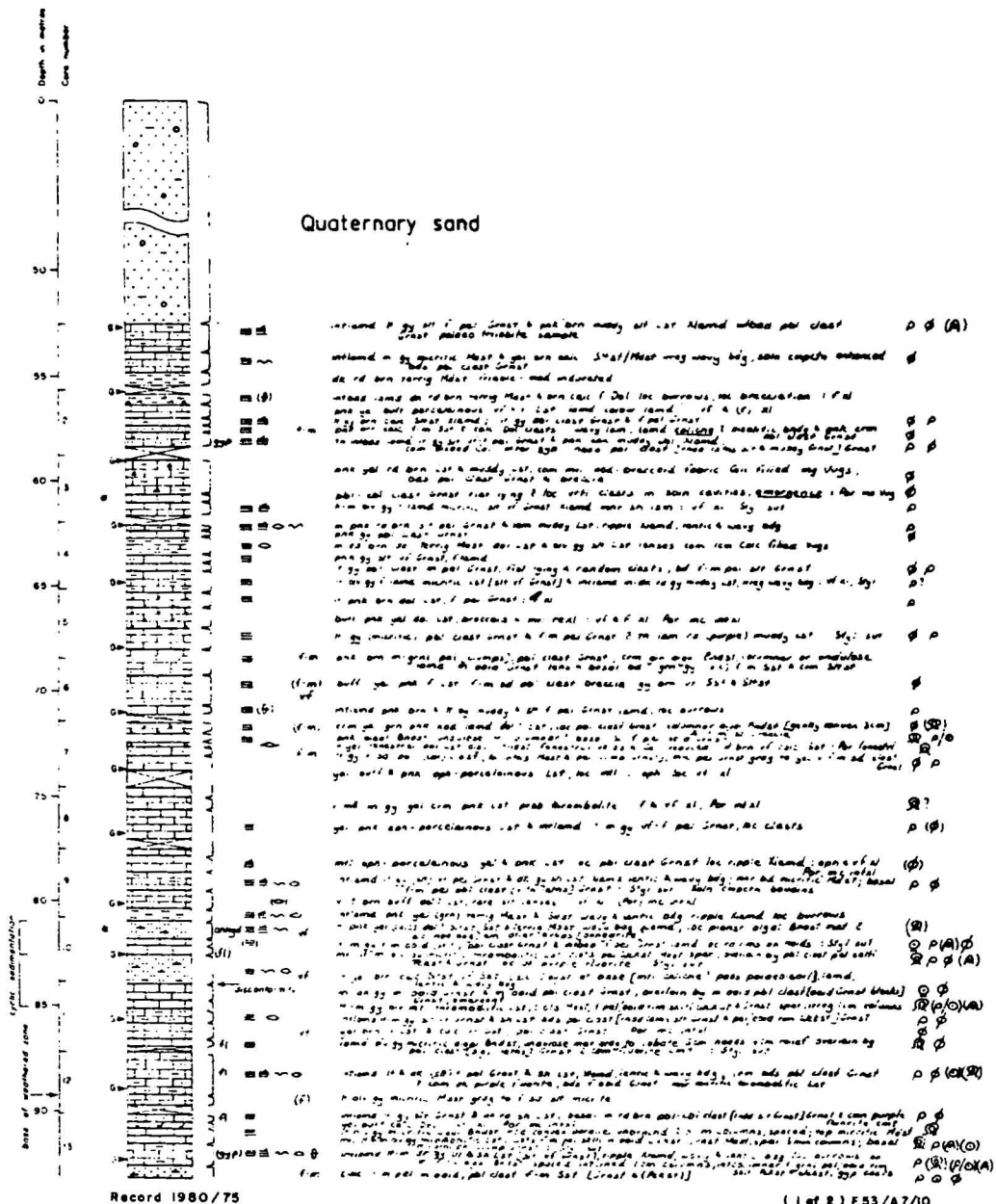
BMR HUCKITTA NO. 1 (Grp No 1)



Date 12-9-78
Geologist J Kennard
Map Sheet Huckitta
(1 of 1) F53/All/76

Record 1980/79

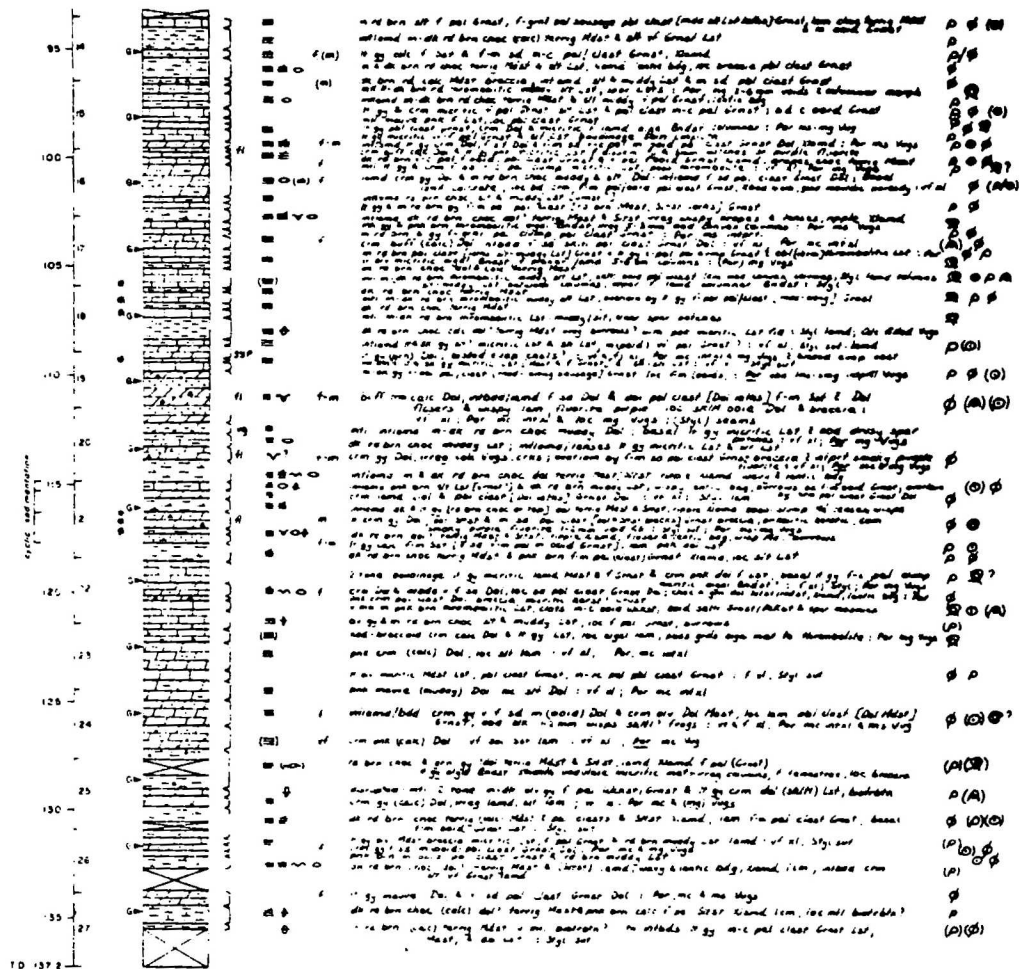
BMR ELKEDRA No 5



Record 1980/75

(1 of 2) F 53 / A 7 / 10

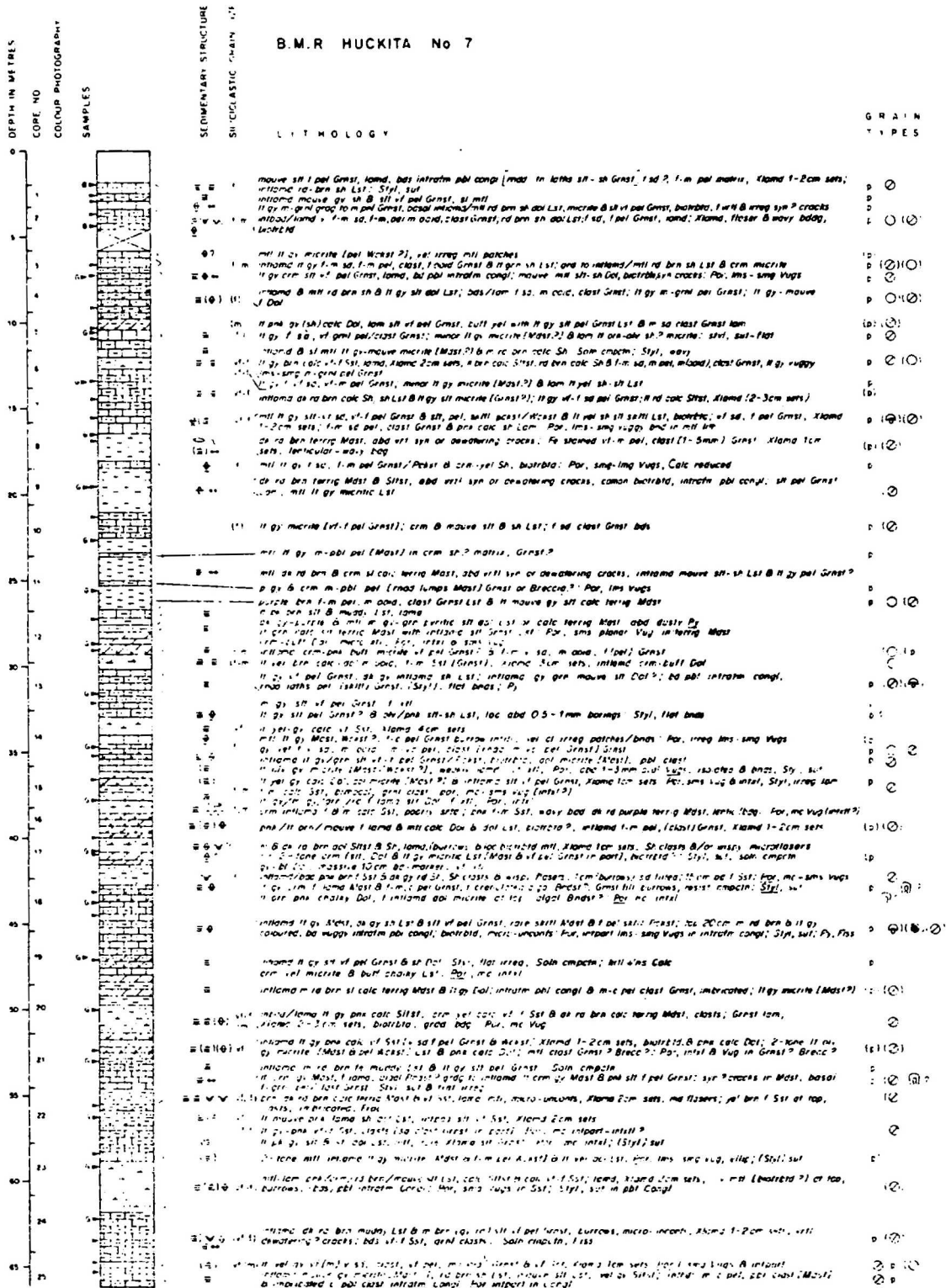
BMR ELKEDRA No. 5



Record 1980/75

Date 14-5 78
Geologist J Kennard
Map Sheet Elkedra
(2 of 2) F53/A7/10

B.M.R HUCKITA No 7

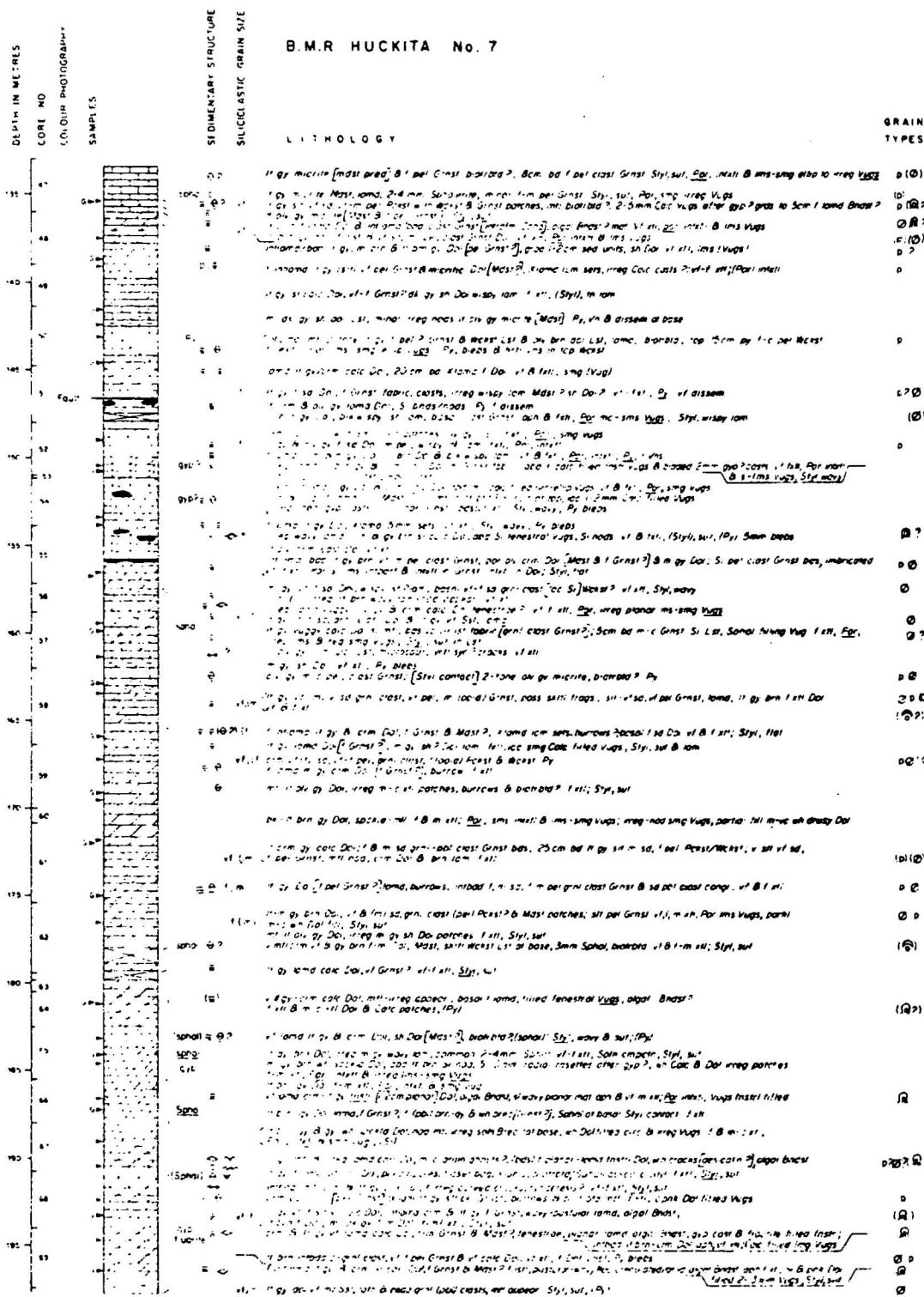


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1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	

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Record 1980/75

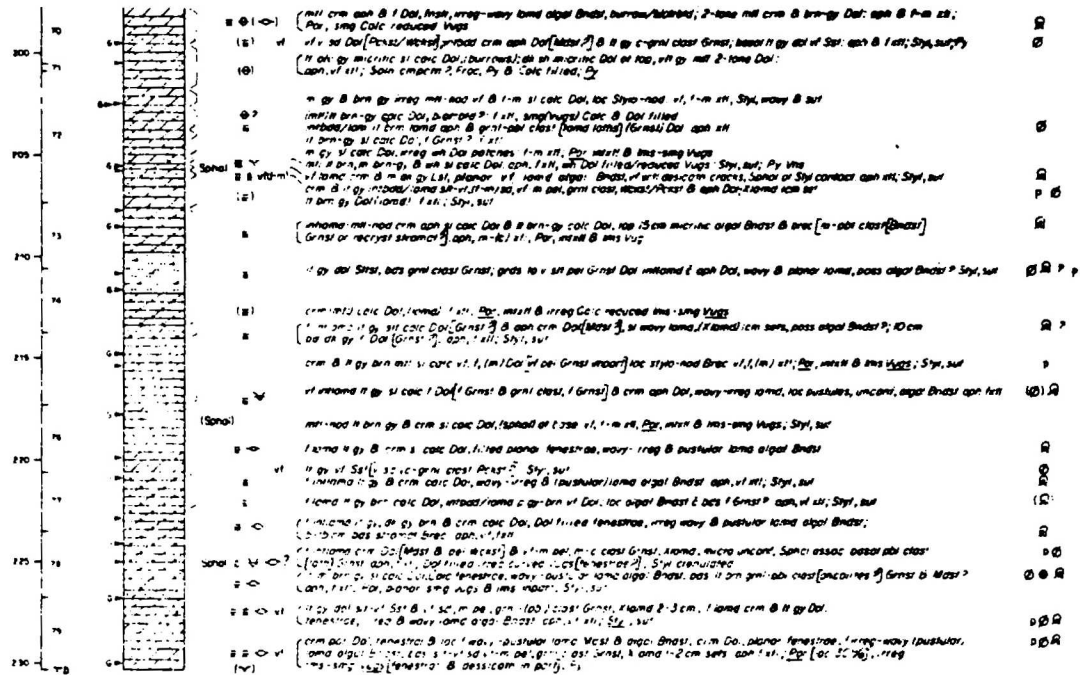
B.M.R. HUCKITA No. 7



Record 1980/75

(3 of 4) F53/All/88

BM R HUCKITTA No. 7



DATE 15 12 76
GEOLOGIST J. Kennard
MAP SHEET HUCKITTA 1 250 000
(4 of 4) F 53/A 11/68

Record 1980/75

B M R. HUCKITA No. 8

LITHOLOGY

GRAIN TYPES

DEPTH IN METRES
CORE NO.
COLOUR PHOTOGRAPH
SAMPLES

SEDIMENTARY STRUCTURE
SUCCLAUSTIC GRAIN SIZE

Gravel, clayey, rd sil ss

1.0-1.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
1.5-2.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
2.0-2.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
2.5-3.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
3.0-3.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)

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3.5-4.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
4.0-4.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
4.5-5.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
5.0-5.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
5.5-6.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)

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6.0-6.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
6.5-7.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
7.0-7.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
7.5-8.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
8.0-8.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)

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8.5-9.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
9.0-9.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
9.5-10.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
10.0-10.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
10.5-11.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)

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11.0-11.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
11.5-12.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
12.0-12.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
12.5-13.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
13.0-13.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)

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13.5-14.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
14.0-14.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
14.5-15.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
15.0-15.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
15.5-16.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)

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16.0-16.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
16.5-17.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
17.0-17.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
17.5-18.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
18.0-18.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)

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18.5-19.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
19.0-19.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
19.5-20.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
20.0-20.5 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)
20.5-21.0 m: silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)

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rd silty ss, sh sil Lst, (Klams), med lam. A burrow fill sil pel Grnst, Klams (10m silty)

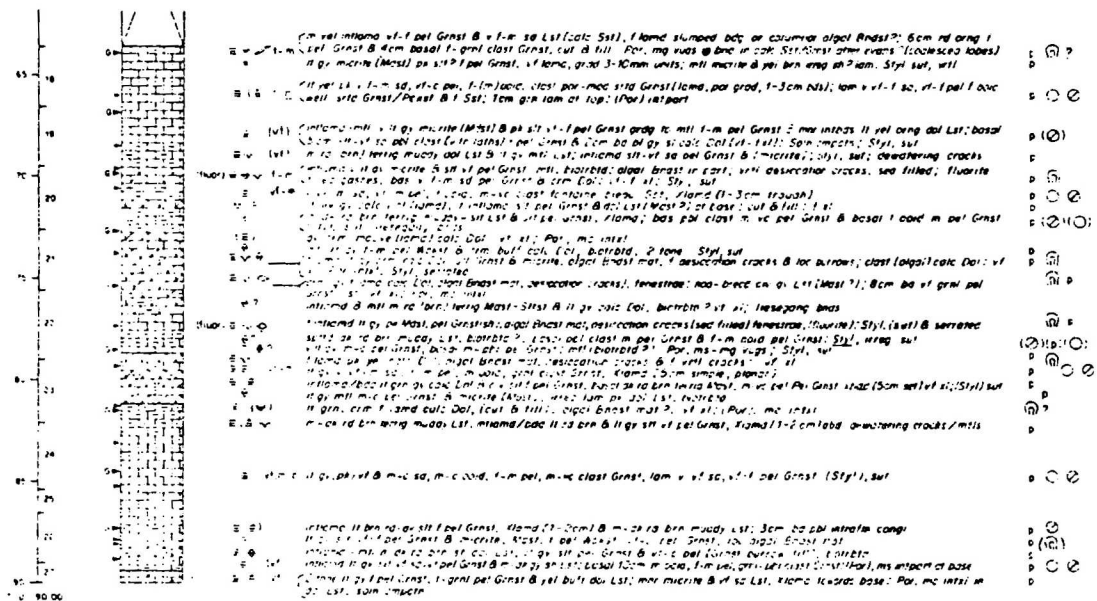
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Cavernous Lst. C much soft suggy red brn clay - fault?

Record 1980/75

(1 of 2) F53/A11/67

B M R HUCKITTA No 8



DATE 6 4 77
GEOLOGIST J Kennard
MAP SHEET Murchie 1 250000

Record 1980/75

(2 of 2) F53 / 414 / 67