273001

GEOLOGICAL PROGNOSIS

CHAT NO. 1 WELL

Bridge Oil Limited,
November 1985.

OR_283A

273002

CONTENTS

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1. INTRODUCTION

The Chat No. 1 well, located in Permit T-15-P, Bass Basin, Tasmania (Fig. 1), 35km east from Squid-1 well, will test the hydrocarbon potential of the Upper Cretaceous to Oligocene section of the central-eastern area of the Bass Basin. The primary objective of this well is the Paleocene. The well will also provide valuable information as to the sealing capacity of bounding faults in these sand-shale-coal sequences. Furthermore, it will give information about the source rock quality and attained maturation levels.

2.1 SEISMIC INTERPRETATION

The Chat prospect was originally recognised on the HB7SA-218A line. In April 1985 a one kilometre grid was shot over the Chat area. The detailed mapping, which consists of new and old data, has confirmed that fault-dependent closure exists at Upper Paleocene level, while Mid. Paleocene to Lower Cretaceous levels do not show any significant closures. A four-way dip closure at the Basement level is off-set to the southeast of the shallower structural closures, and therefore suggests that Mid-Tertiary compression was responsible for re-juvenation of the Chat structure and creation of the Eocene and Upper Paleocene closures. (Fig. 10)

Correlation of Demon's Bluff shale from the Squid-1 well towards the Chat structure indicates definite thinnning of this unit. Also, it becomes sandier towards the depositional edge near the Chat area. Therefore, relying on Demon's Bluff shale for a regional seal should be regarded as high risk.

2.2 SEISMIC TIME STRUCTURE MAPS

The Chat structure was mapped at 8 levels :

1. Top EOCM (Fig. 2)
2. Top Paleocene (Fig. 3)
3. Upper Paleocene (Fig. 4)
4. Mid Paleocene (Fig. 5)
5. Lower Paleocene (Fig. 6)
6. Upper Cretaceous (Fig. 7)
7. Lower Cretaceous (Fig. 8)
8. Basement (Fig. 9)

The first map was constructed at the Top EOCM reflector level. The scale is 1:25,000 and the contour interval is 0.01 seconds. This map confirmed a fault dependent closure of 10 sq. km. or approx. 2,500 ac. with vertical closure of approx. 200 ft.

The second and third maps were constructed at the Top and Upper Paleocene (at 1:25,000 scale and the contour interval 0.01 seconds). Both maps confirmed fault dependent closure of 10 sq. km. or approximately 2,500 ac. with vertical closure approx. 200 ft.

The other maps (Figs. 5 - 8) did not show any significant closure at the Chat structure below Mid Paleocene level.

2.3 REPRESENTATIVE SEISMIC LINE

The Chat-1 well is located on Seismic line BB85-40 at shot point 170 (enclosure 1). This seismic line was recorded by Bridge Oil in April 1985 and processed by Western Geophysical in Singapore in June 1985.

This seismic line shows fault dependent structure between s.p. 130 and s.p. 180 at Eocene - Upper Paleocene levels and large structure at Basement level. Estimated seismic tops for Chat-1 well are :

	Time(sec)	Depth(feet)
Water Depth	-	269
Top EUCM	1.08	4,010
Near Top Paleocene	1.28	4,840
Upper Paleocene	1.51	6,200
Mid. Paleocene	1.76	7,630
Lower Paleocene	2.02	9,240
Top Upper Cretaceous	2.14	9,850
Basement	2.18	10,040

3.1 GEOLOGICAL SETTING

Within the southeastern confines of the Bass Basin, the earliest sediment accumulation dates to the Early Cretaceous when large thicknesses of fine-grained, volcaniclastic sediments accumulated in a broadly subsiding depression accompanied by minor faulting. A magmatic arc system which extended along the eastern margin of the Australian Plate during Jurassic-Early Cretaceous time was probably the major sediment source. Asymmetric rifting, and rapid subsidence of half grabens commenced during the early Late Cretaceous. Coarse clastic sediments shed from tectonically active fault scarps graded laterally from alluvial fan to fluvial, deltaic, and lacustrine facies.

Considerably less tectonic activity took place since the Late Cretaceous. Slower basin-wide subsidence prevailed and sediments were derived from the margins as well as from elevated intra-basin areas. These reworked, or second generation sediments were deposited under fluvial, delta plain and lacustrine conditions, and this is what constitutes the primary objective of Chat No. 1. Minor marine transgressions may have taken place.

Regional structural readjustments, accompanied by accelerated late Eocence sediment loading, triggered a marine transgression from the northwest. Basal Oligocene coarse clastics were derived from the southern basin margin and are overlain by widespread mudstones, marl and limestones deposited during the remainder of the Oligocene and Miocene periods. Marine carbonate shelf conditions prevailed thereafter.

Objective reservoir sands interbedded with shales of potential source rock quality have been identified within the Upper Cretaceous, Paleocene, Eocene and Oligocene section.

3.2 OBJECTIVE SECTION

The objective section of the Chat No. 1 well consists of the sand, shale and coal sequence of the Eastern View Group of Eocene to Upper Cretaceous age. The top of this section is predicted, on the basis of seisic data, to be at a depth of 1,200 meters, relative to mean sea level, at the proposed well location. A similar stratigraphic sequence was tested in the Pelican wells and Yolla No. 1, and was found to contain several gas/condensate and oil intervals.

The anticipated stratigraphic section is detailed in Enclosure 2.

4. OPENHOLE LOGGING AND FORMATION EVALUATION

The following suite of logs and wireline formation test program has been specifically designed to evaluate the hydrocarbon potential of the Chat prospect.

The first run of logs will take place before the 13-3/8" surface casing is put in place.

Run # 1 Interval 243 - 914m.KB
DIL-LSS-CAL-GR-SP
Velocity Survey

The second run of logs will take place at total depth.

Run # 2 Interval 914m.KB - T.D.
DIL-LSS-CAL-GR-SP
LDT-CNL-GR-CAL
MLL-GR-CAL
Velocity Survey

Should hydrocarbons be present, in addition the following tools will be run as required.

HDT
CST (1 or 2 guns)
RFT

4.1 DRILLING DATA

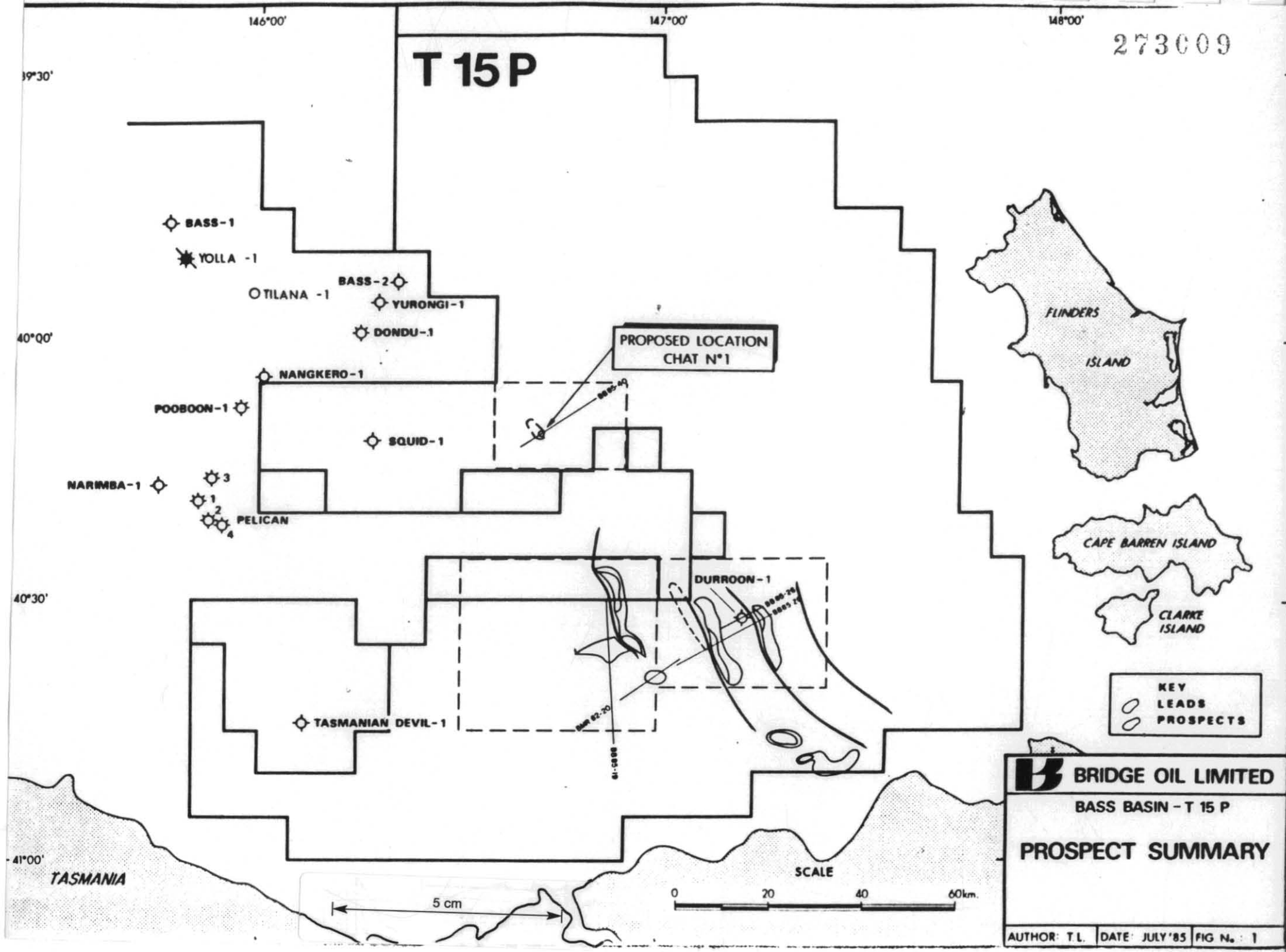
Mud Logging : Continuous from the 20" conductor casing shoe to total depth.

Cuttings: Five sets of washed and dried cuttings will be caught every 10 metres from the conductor casing shoe down to a depth of 1200 metres. Sampling intervals may be varied as dictated by rapid drilling rates. Minimum sample size will have a weight of 100 grams. Sampling rate will be reduced to 3 metres over the interval 1200 metres to total depth.

Conventional Cores : Below the surface casing shoe, conventional cores will be cut only if significant hydrocarbon indications are encountered.

Sidewall Cores: Below the surface casing shoe, sidewall cores will be acquired only if significant hydrocarbon indications are encountered or if required for palynologic analysis.

* * * * * *


T 15 P
146°00'
147°00'
148°00'
39°30'
40°00'
40°30'
41°00'
BASS-1
YOLLA -1
TILANA -1
BASS-2
YURONGI-1
DONDU-1
PROPOSED LOCATION
CHAT N°1
NANGKERO-1
POOBOON-1
SQUID-1
NARIMBA-1
3
1
2
4
PELICAN
DURROON-1
TASMANIAN DEVIL-1
FLINDERS
ISLAND
CAPE BARREN ISLAND
CLARKE
ISLAND
KEY
LEADS
PROSPECTS
TASMANIA
SCALE
0
20
40
60km.
5 cm
BRIDGE OIL LIMITED
BASS BASIN - T 15 P
PROSPECT SUMMARY
AUTHOR: T.L.
DATE: JULY '85
FIG No.: 1

273010

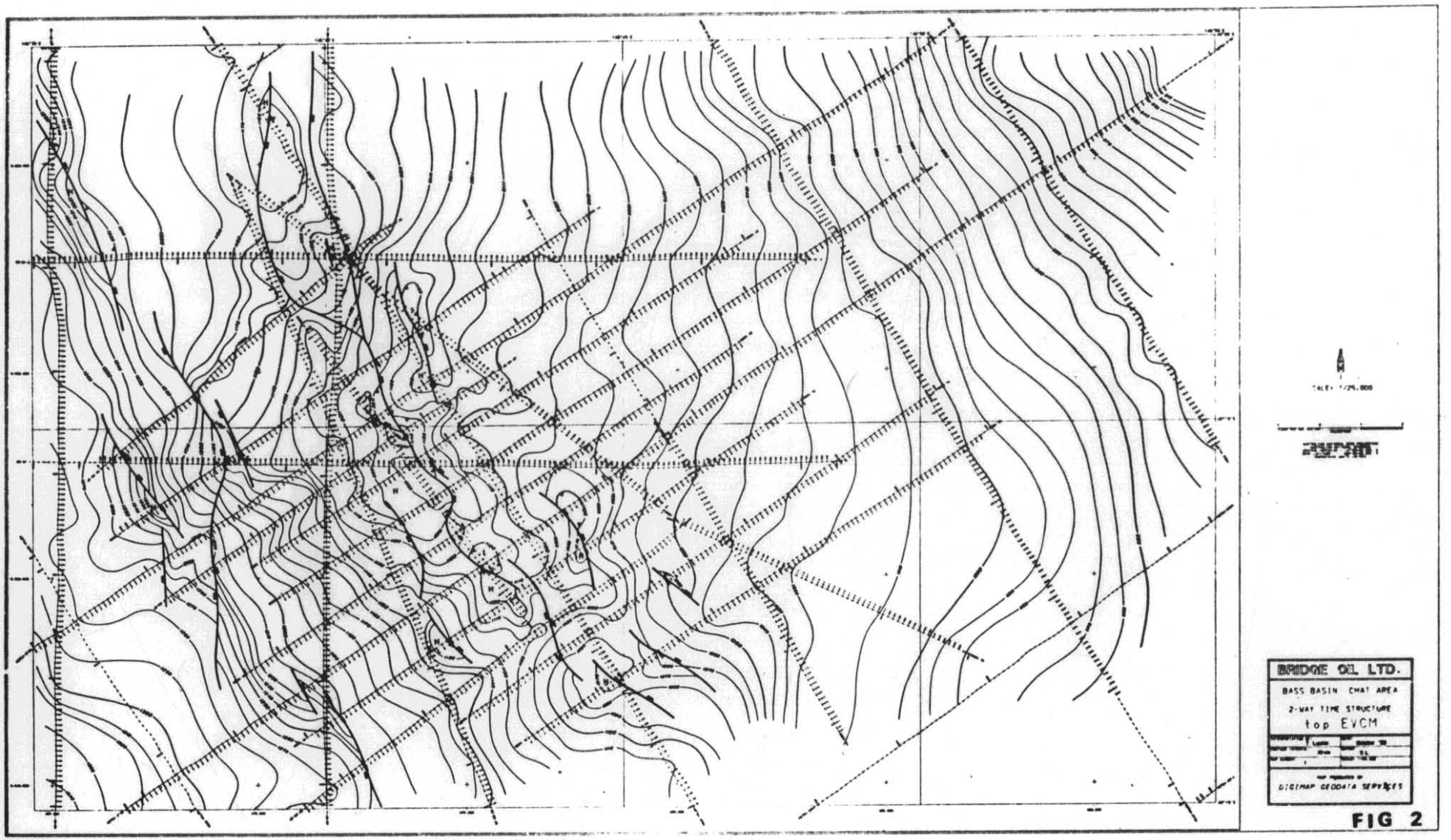


FIG 2

5 cm

273011

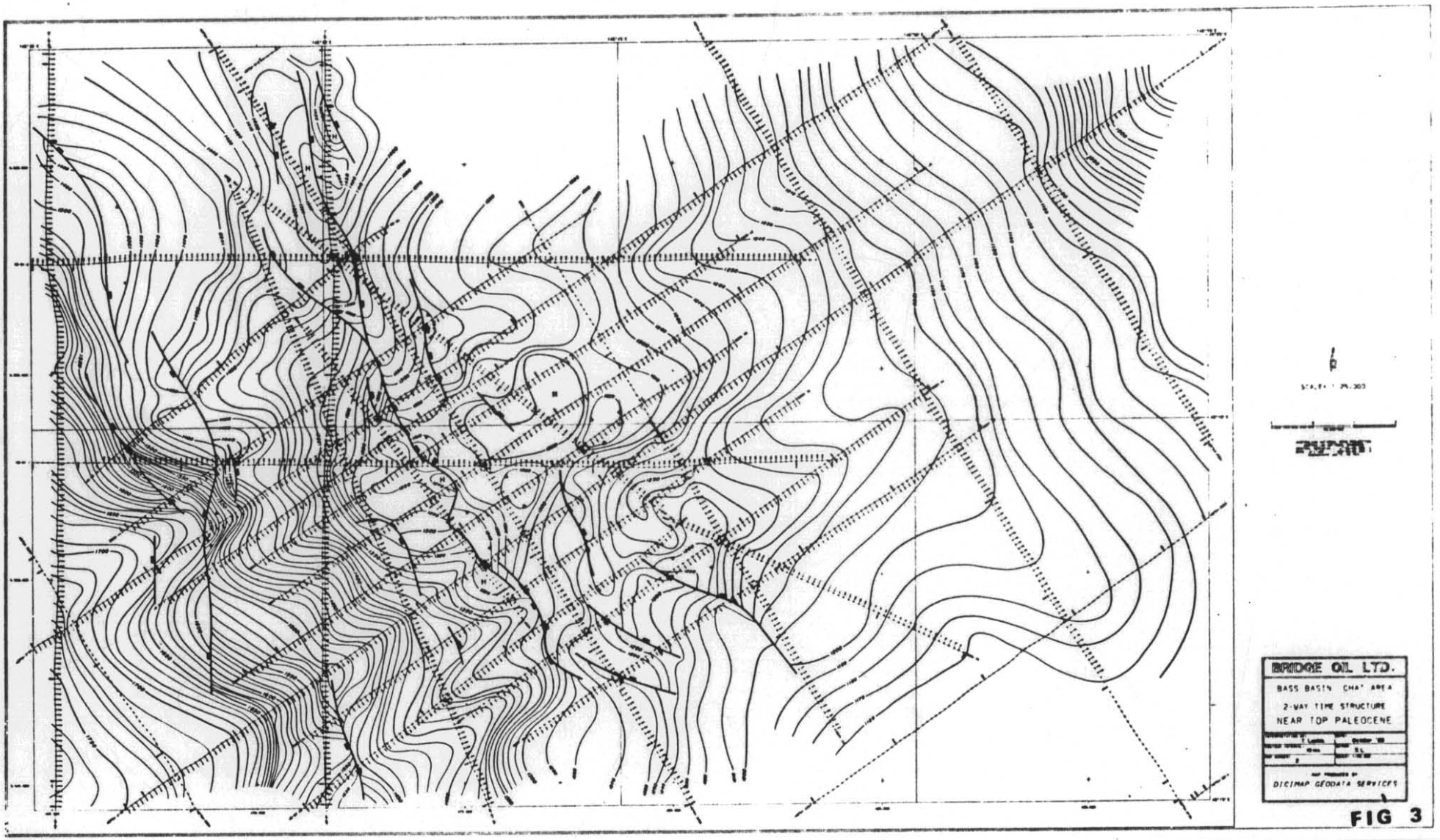


FIG 3

5 cm

273012

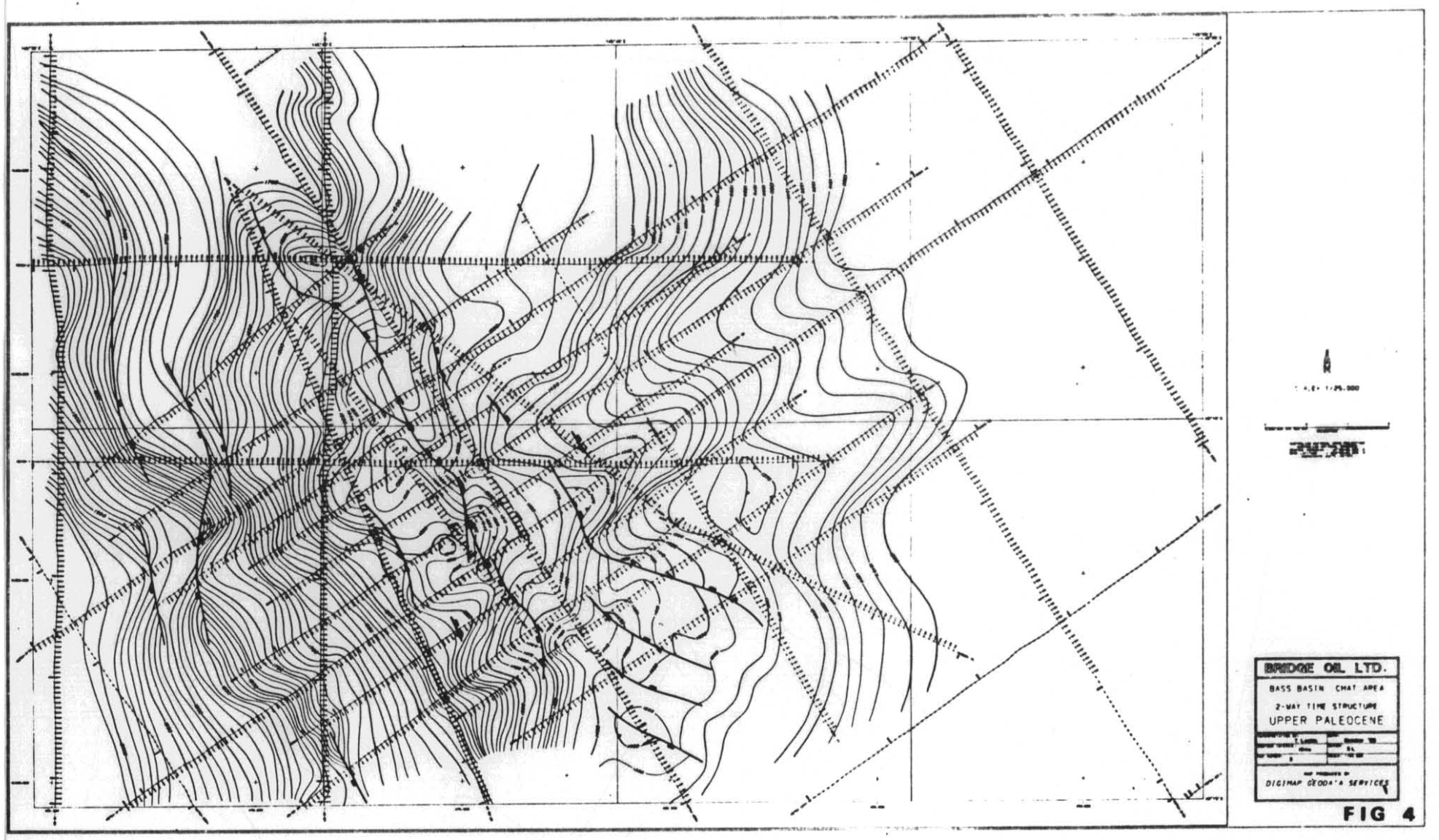


FIG 4

5 cm

273013

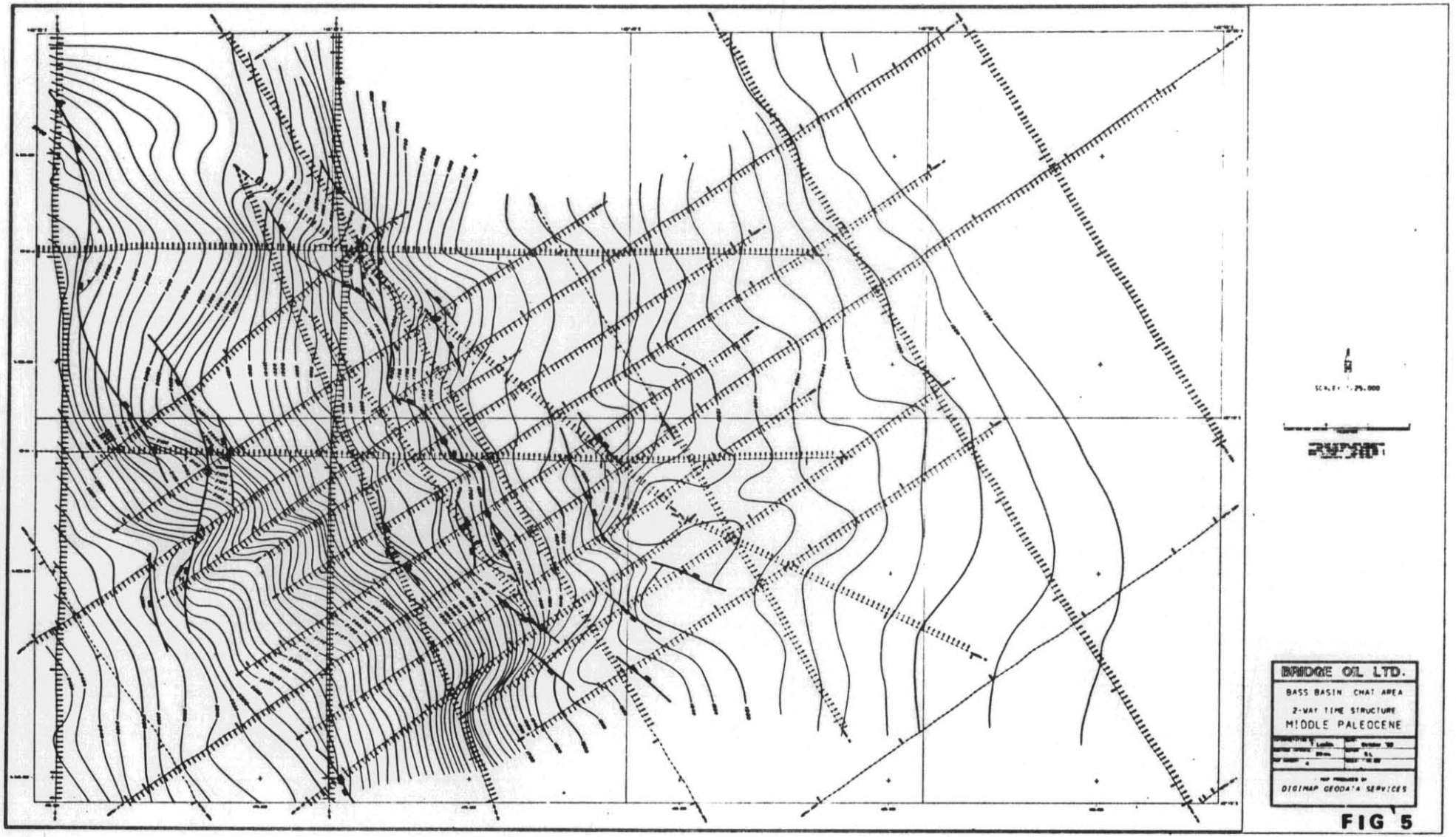


FIG 5

5 cm

273014

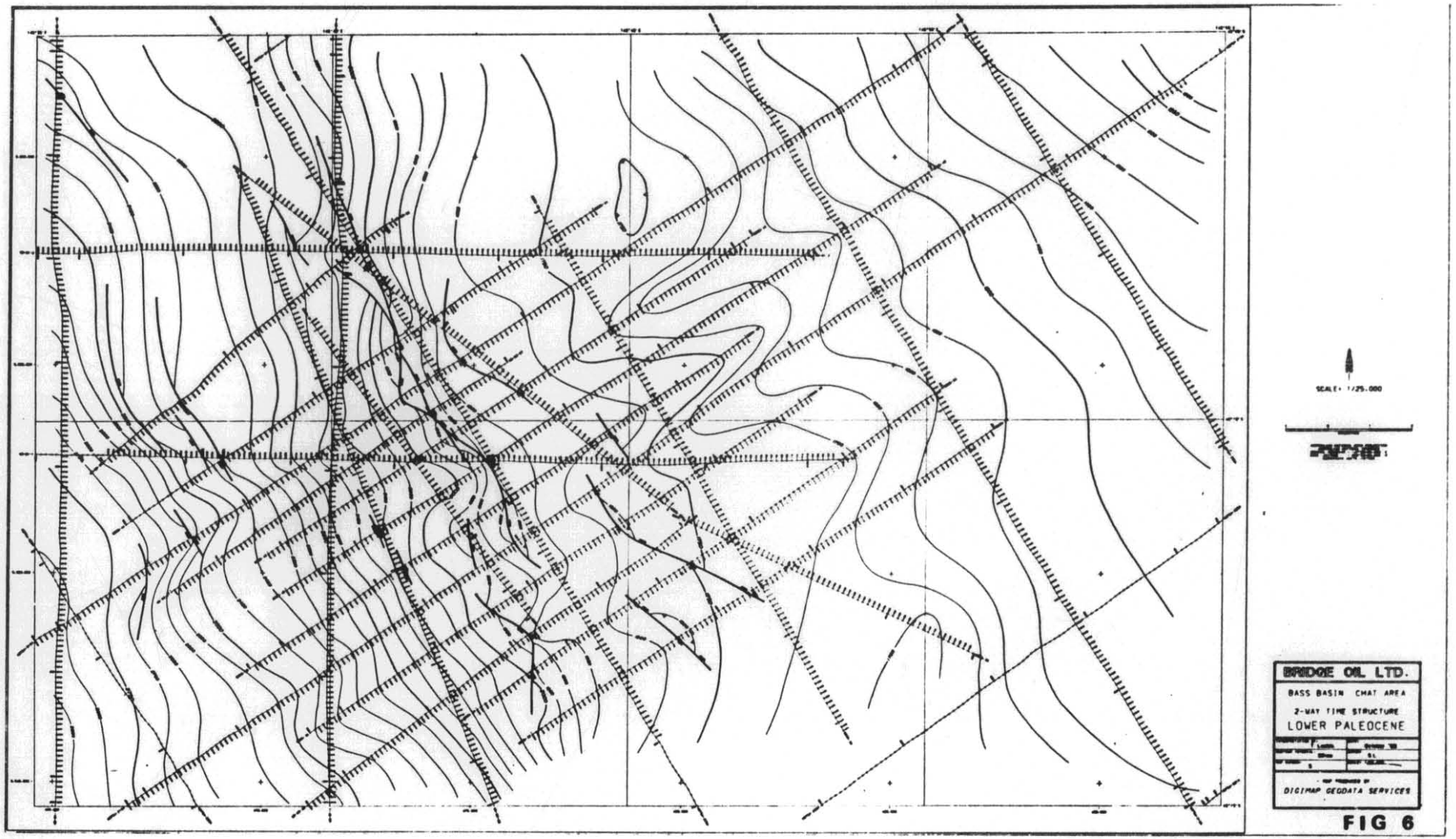


FIG 6

5 cm

273015

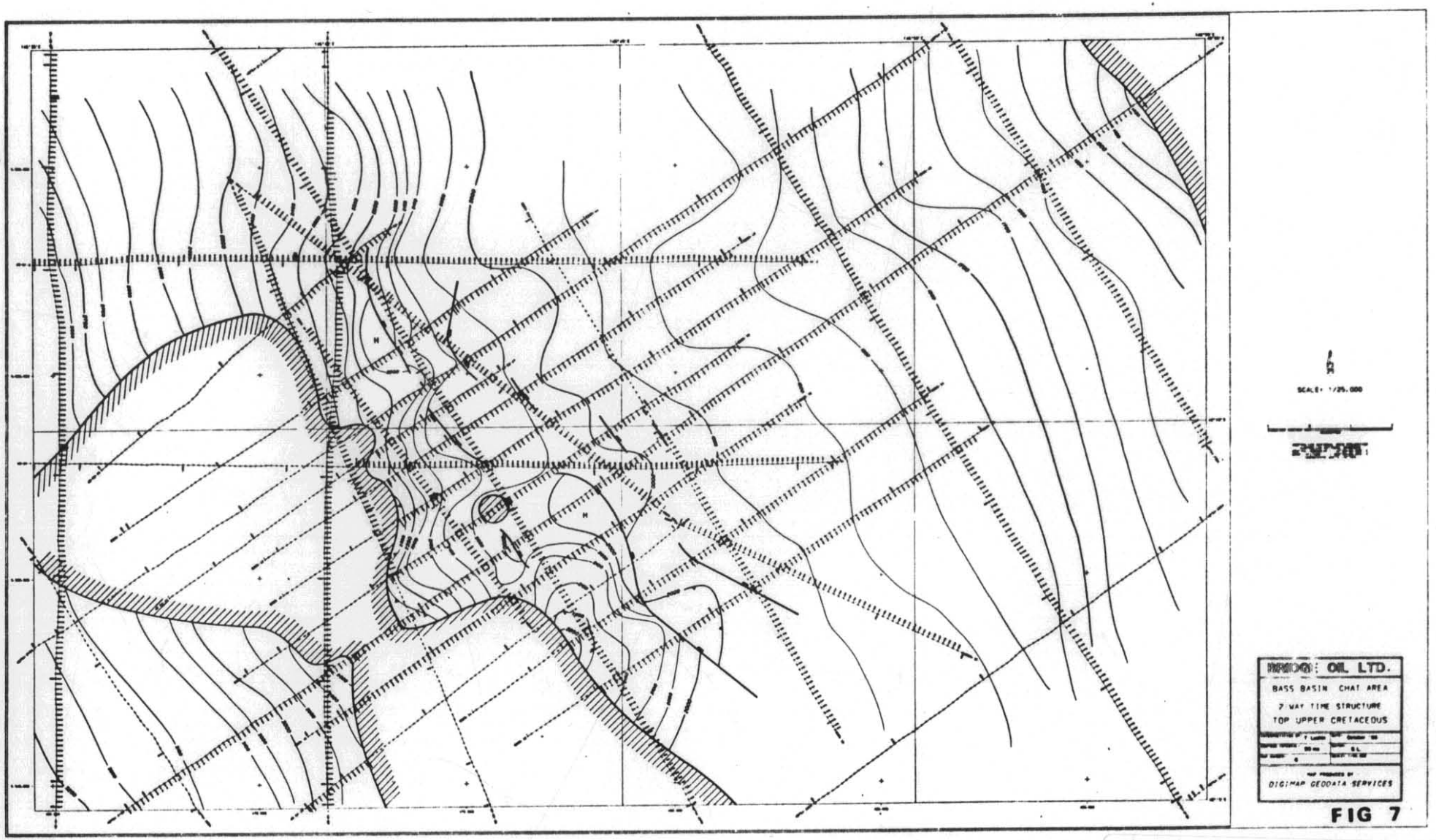


FIG 7

5 cm

273016

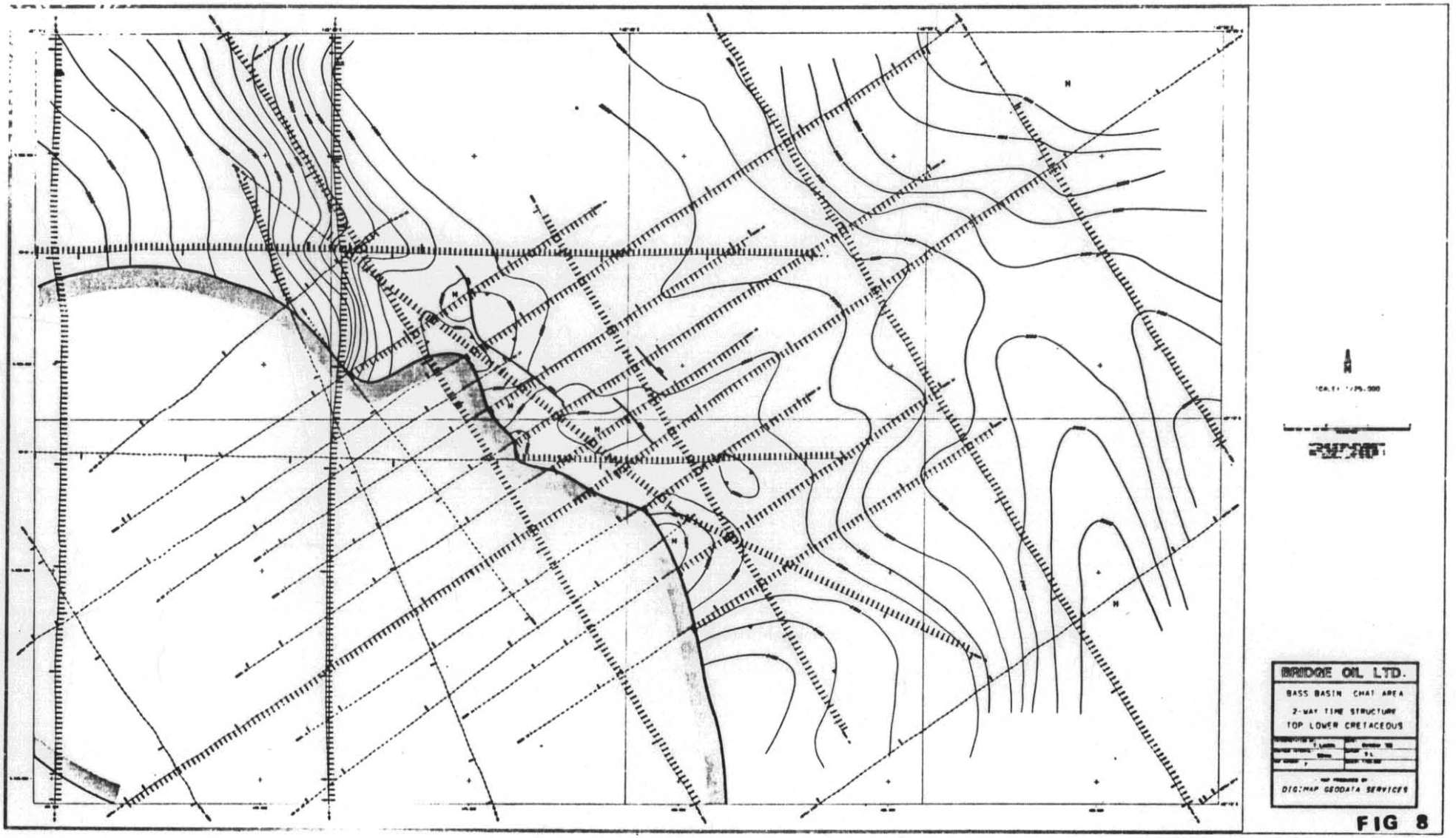


FIG 8

5 cm

273017

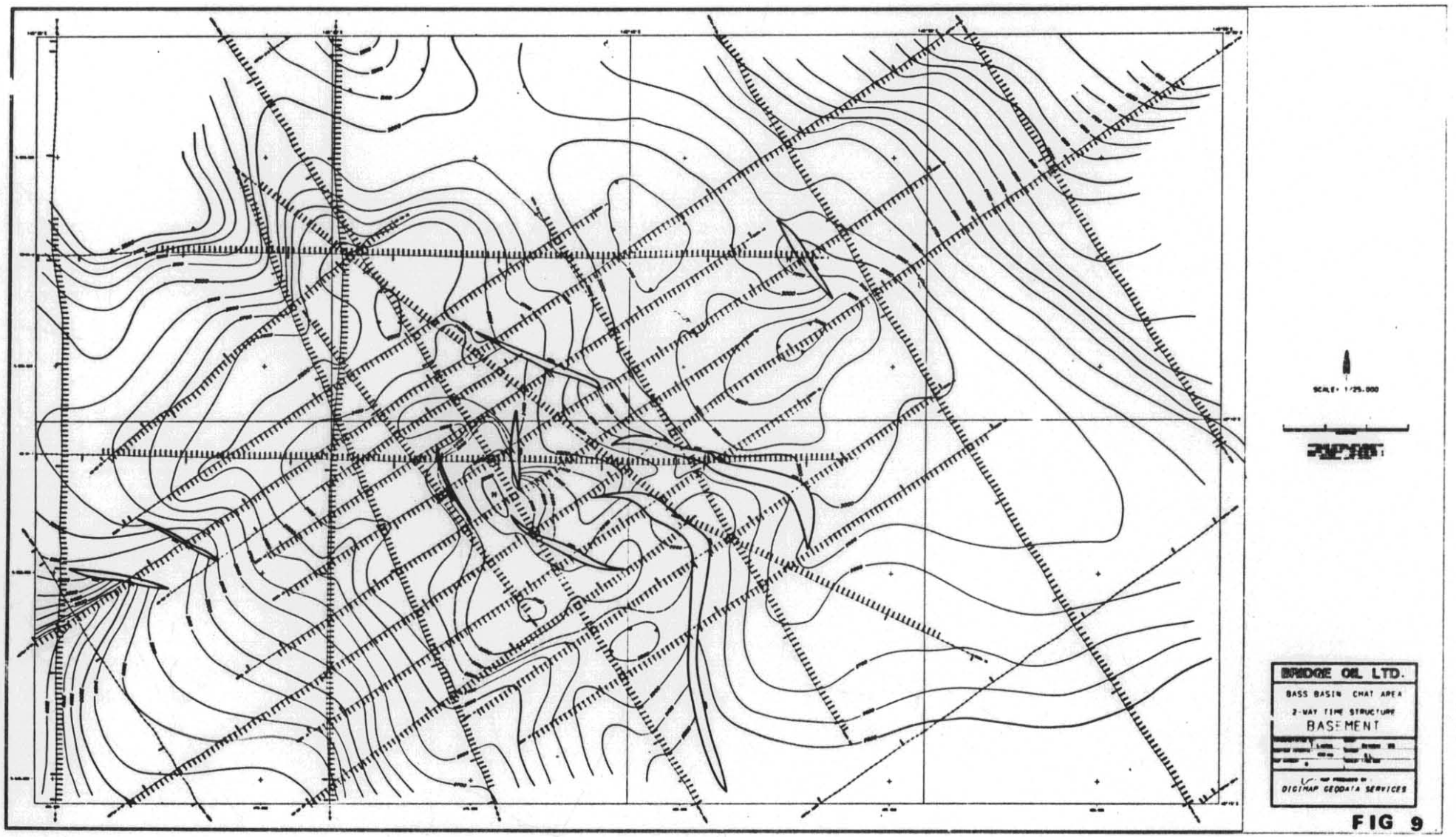


FIG 9

5 cm

273018

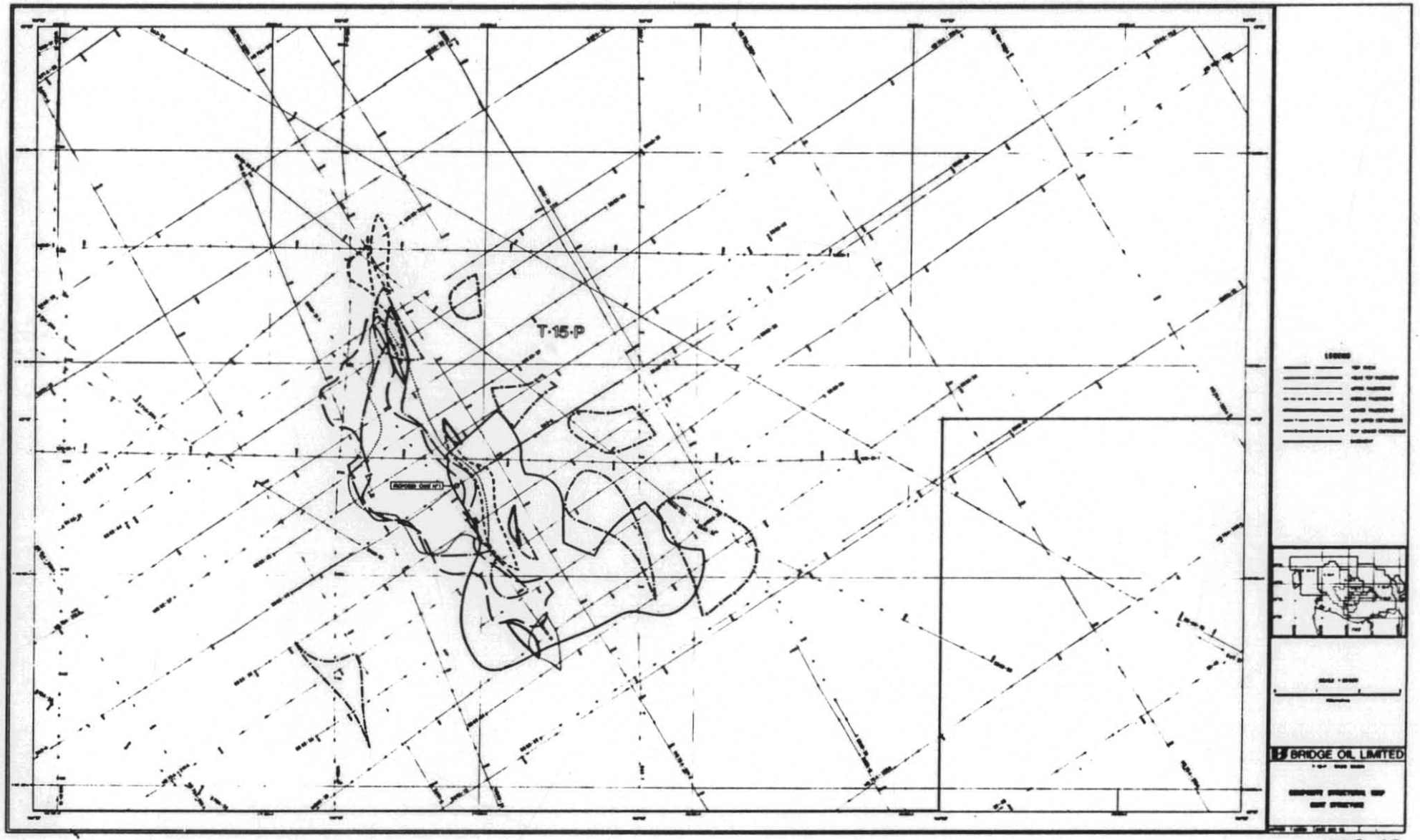


FIG 10

5 cm

Fig 11

COMMONWEALTH OF AUSTRALIA
PETROLEUM (SUBMERGED LANDS)
ACT, 1967 - 1974

STATE OF TASMANIA
PETROLEUM (SUBMERGED LANDS)
ACT, 1967

273019

APPLICATION FOR PERMISSION TO DRILL

To: The Designated Authority,
Department of Mines,
G.P.O. Box 124B,
HOBART. TAS. 7001

BRIDGE OIL LIMITED
(Name of Applicant

Level 33, 60 Margaret St, Sydney, NSW 2000

being the Operator
(State whether permittee, licencee, or operator for)

of Exploration Permit (Production Licence) No. T-15P

situated in the area specified as being adjacent to the State of TASMANIA hereby applies for permission to drill a well.

The following information is submitted in support of the application.

i. Name of the well Chat No 1

ii. Location (Latitudes and Longitudes) Lat 40° 10' 53.2" E
Long 146° 41' 54.9" S

iii. Block Number 0177

iv. Estimated Cost $9,780,000

v. Name and address of the contractor Atwood Oceanics Australia Pty. Ltd. PO Box 218350, Houston, Texas 77218, USA

vi. Name of drilling vessell Margie

vii. Port from which drilling vessell will operate Welshpool

viii. Scheduled commencement date January 15, 1986

ix. Estimated duration of drilling 30 days

x. Target depth 3048 metres

273020

xi. Copy of technical details of the drilling vessel and drilling equipment together with a detailed Operational Sequences Manual, Emergency Response Plan and seven (7) copies of the Oil Spill Contingency Plan. If above items have not previously been supplied.

xii. Drilling programme to be attached.

xiii. Geological prognosis to be attached.

xiv. Seismic map to be attached, or if previously supplied, reference to the particular survey is to be made.

xv. Location map to be attached.

xvi. Other information it is desired to have considered by the Designated Authority

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Dated at Sydney this 20th day of November 1985

K. Skipper

K. Skipper.....
(Applicant)
Exploration Manager, Bridge Oil Limited

Notes:

1. Seven (7) copies of this application plus item xv. (size A4) together with three (3) copies of items xii, xiii, xiv are to be submitted not less than one (1) month prior to the commencement of operations.

ENCLOSURE 1

MIGRATED SECTION

LINE : BB85-40

S.P. 1 TO 695

NØRTHEAST

DIRECTION SHOT= 057 DEGREES

5 cm

274227

120TRACE 6000% DBS STK DAS MIG RMS BPF

BRIDGE ØIL LIMITED

AREA : BASS BASIN
T-15-P / T-16-P

WESTERN GEOPHYSICAL
DIVISION OF LITTON INDUSTRIES
SINGAPORE DIGITAL CENTRE

RECORDED APRIL 1985
PROCESSED MAY 1985

RECORDING DATA

BOAT

WESTERN ODYSSEY	PARTY 86
NAVIGATION BY	MAXIRAN
MAP LOCATIONS	ANTENNA POSITION

SOURCE

AIR GUN VOLUME	1530 CU/IN
AIR GUN PRESSURE	4600 PSI.
GUN DEPTH	6 M.
S.P. INTERVAL	26.67 M.
POP INTERVAL	26.67 M.
SHOOTING RATE	37.5 POPS/KM.
NO. OF GUNS	19

INSTRUMENTS

SYSTEM	L.R.S. 16
FORMAT	SEG-D (6250 BPI)
FILTERS	12 HZ. 375 HZ.
FILTER SLOPES	12 / 72 DB/OCT
RECORD LENGTH	5 SECONDS
SAMPLE RATE	1 MS.
POLARITY	COMPRESSION NEGATIVE

CABLE

STREAMER	3200 M.
GROUPS	240
GROUP INTERVAL	13.33 M.
LEAD IN	132 M.
CABLE DEPTH	12 M. AVERAGE

ARRAY FORMED SPECIFICATIONS

TRACES	120
TRACE INTERVAL	26.67 M.
FILTERS	12 HZ. 180 HZ.
FILTER SLOPES	6 / 180 DB/OCT
SAMPLE RATE	2 MS.

219.77M — 3173.73M — 1 2 59 60 119 120 — AIR GUN — 132 M

SCALES

HORIZONTAL.. 2.50 IN/KILOMETER
VERTICAL.... 3.75 IN/SECOND
0 — 1 KILOMETER

LEGEND

▼ INTERSECTIONS
W.D. WATER DEPTH
V VELOCITY ANALYSIS

COMMENTS

DATUM PLANE : SEA LEVEL

CORRECTION APPLIED ON FINAL DISPLAY
GUN CORRECTION..... + 0004 MS.
CABLE CORRECTION..... + 0008 MS.
TOTAL CORRECTION..... + 0012 MS.

DISPLAY POLARITY
NEGATIVE NUMBER ON TAPE REPRESENTED BY A TROUGH

PROCESSING SEQUENCE

SAMPLING INTERVAL 4 MS.

FORMAT CONVERSION
INPUT: 120 CHANNELS SEG D ARRAY-FORMED
OUTPUT: WGC CODE 4 FORMAT (FL. PT.)

SIGNATURE DECONVOLUTION
OPERATOR DESIGNED FROM AVERAGE OF RECORDED NEAR FIELD SIGNATURES.

DECONVOLUTION
TYPE-LEAST SQUARES
MINIMUM PHASE INVERSE FILTER
2 WINDOWS

WINDOW #1 (NR OFFSET)	300-3000 MS.
WINDOW #1 STOP TIME VEL	2500 MS.
WINDOW #2 (NR OFFSET)	2500-5000 MS.
WINDOW #2 STOP TIME VEL	5000 MS.
AUTOCORRELATION LENGTH	240 MS.
MINIMUM PREDICTION LAG	12 MS.
OPERATOR LENGTH	232 MS.

COMMON DEPTH POINT SORT

VELOCITY ANALYSIS
2 CDPS/ANALYSIS EVERY ONE KILOMETER

N.M.O. STACK
6000% N.M.O. CORRECTION

RESIDUAL VELOCITY WORK
Q.C. OF STACKING VELOCITIES
RESTACK IF NECESSARY

DECONVOLUTION
TYPE-LEAST SQUARES
MINIMUM PHASE INVERSE FILTER

ONE WINDOW	4950 MS.
AUTOCORRELATION LENGTH	240 MS.
MINIMUM PREDICTION LAG	12 MS.
OPERATOR LENGTH	232 MS.

BANDPASS FILTER 10-90 HZ.

MIGRATION
FD-MIGRATION

RMS GAIN
WINDOW LENGTH 64 MS.- 1024 MS.

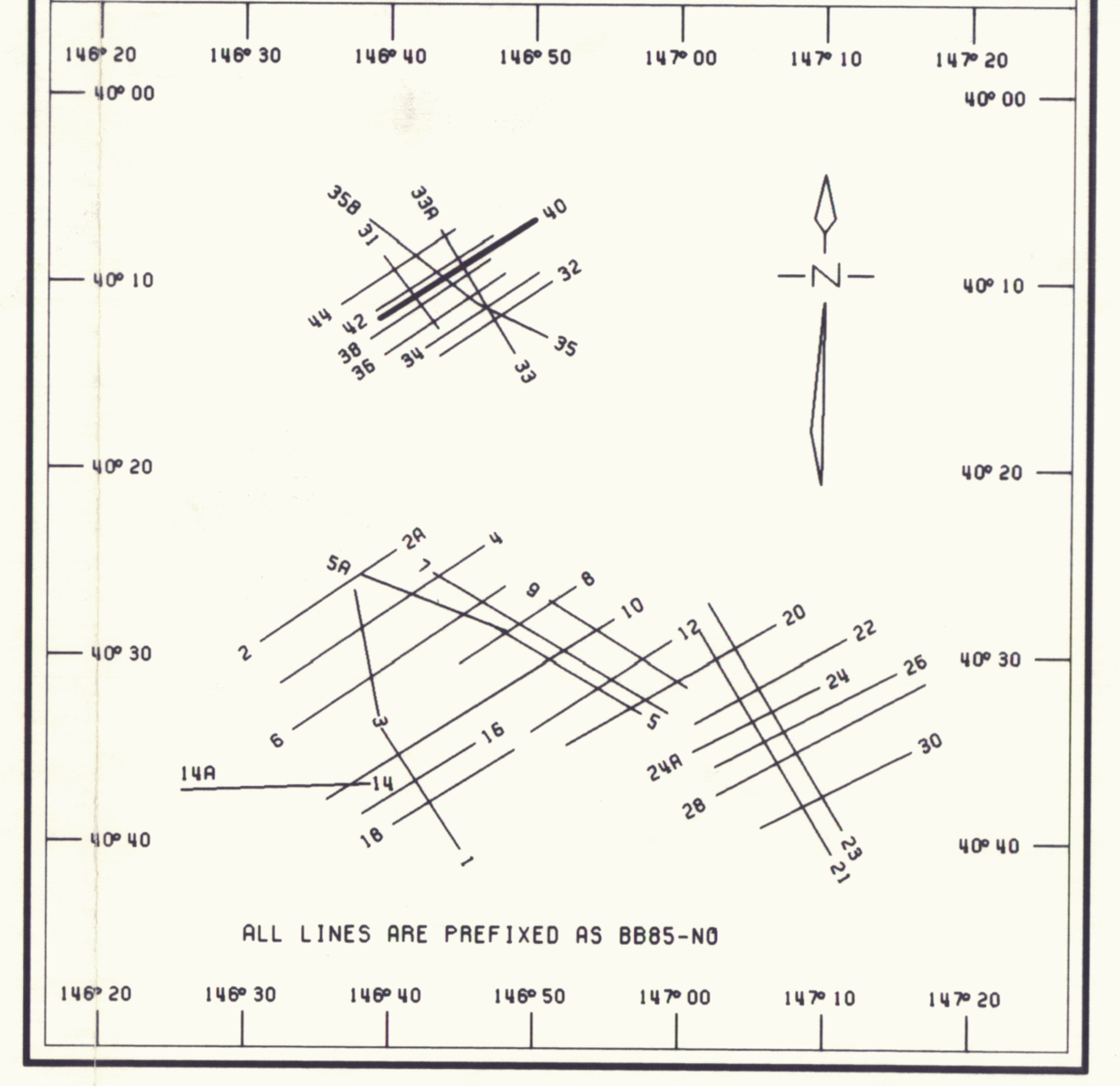
FINAL FILTER

	L.C.	H.C.
SLOPE (DB/OCTAVE)	18	36
TIME OF APPLICATION 0000 - 5000 MS.	10	90

PLAYBACK

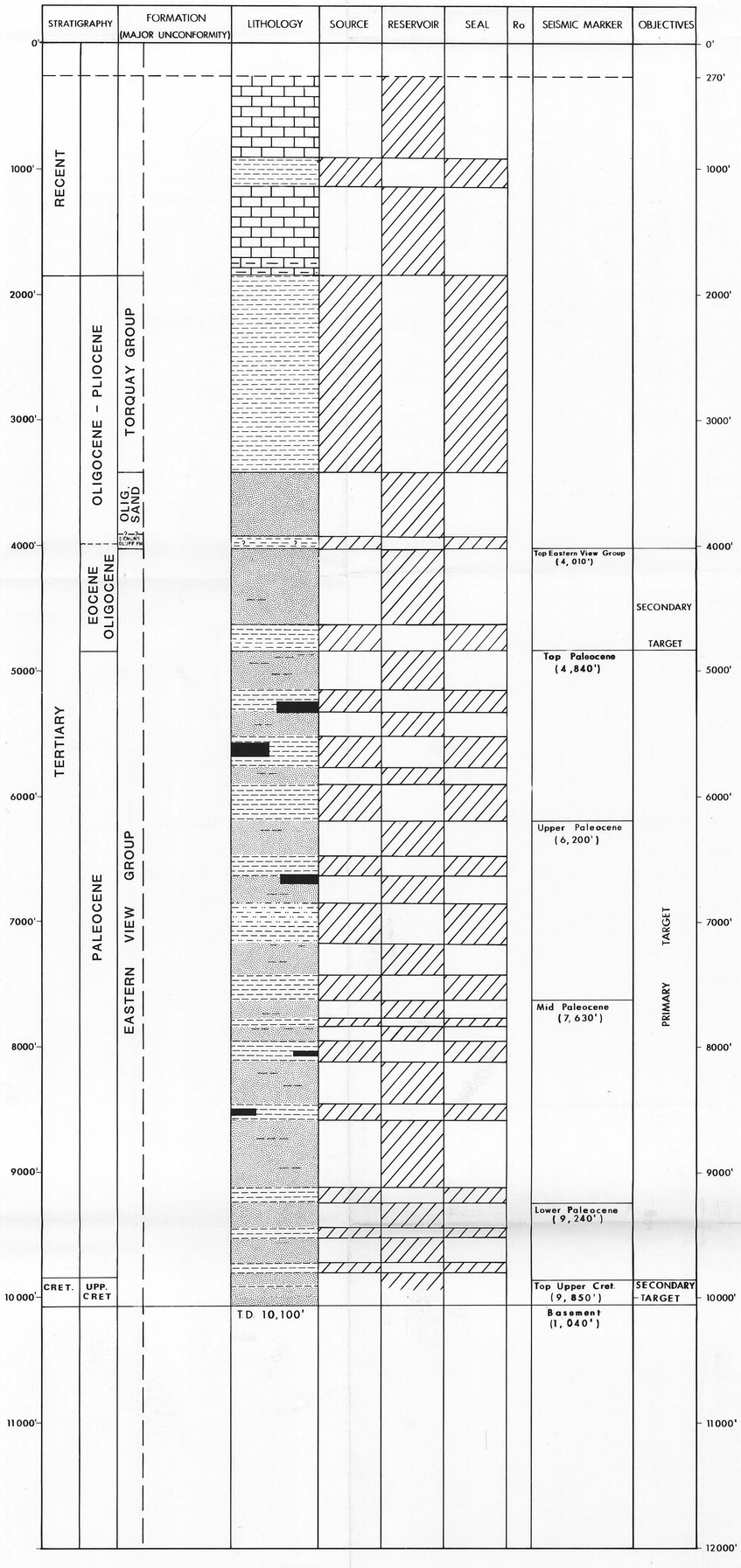
SCALE:	1:15,748
HORIZONTAL	30 TR/IN.
VERTICAL	3.75 IN/SECOND
GEOSPACE GAIN	16 DB.
SAMPLE RATE	4 MS.

LINE LOCATION MAP

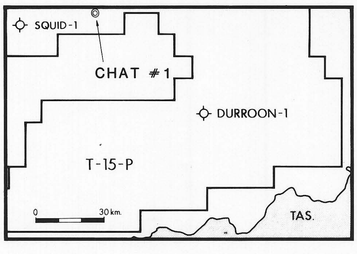


CHAT – 1

PROPOSED LOCATION : LINE BB85-40 S.P. 170
APPROX. LOCATION : 40° 10′ 00″ S 146° 45′ 00″E
WATER DEPTH : 270′
TOTAL DEPTH : 10,100′



273022



BRIDGE OIL LIMITED

CHAT #1

PROGNOSED STRATIGRAPHY

AUTHOR: H.H.	DATE: NOV. '85	
DRAWN BY: B.M.		ENCLOSURE 2

5 cm

OR_283A