PROGRESS REPORT #4

SKYLAB PROPOSAL EPN 435

CONTRACT NAS 9-13359

6 November 1974

Principal Investigator: Ernest G. Stoeckeler

Co-Investigators: Raymond G. Woodman and Robert S. Farrell

Title: "Multidisciplinary Analysis for Highway Engineering Purposes"

Imagery received during the last quarter:

(1) 2X prints of S-190B photography, Orbit 83, 14 January 1974, received 12 September 1974;

(2) 4X prints of S-190A photography, Orbit 32, 10 September 1973, received 10 October 1974;

(3) 4X transparencies of S-190A photography, Orbit 83, 14 January 1974, received 23 October 1974.

Additional photography requested but not yet received:

(1) S-192 imagery of 14 January 1974;

(2) 2X S-190B transparencies of 14 January 1974 photography.

Reproductions have been made of some black and white infrared and black and white 70mm S-190A photos of 10 and 21 September 1973 orbits. Color reproductions are desirable, but no suitable method of production has yet been devised. Paper prints have been made of the 4X negatives of 10 September 1973, 21 September 1973 and 14 January 1974 orbit photographs.

Field checks of areas delineated on 10 September 1973 photos of western Maine have substantiated glacial lake sediments detected on SKYLAB. At several locations the nearly exact contact between till soils and lake sediments could be located, based on SKYLAB interpretations. Every location checked

for glacial lake sediments was verified. A 1:250,000 scale map of the lake sediments has been prepared using SKYLAB photography.

Currently, eastern Maine areas are being studied using the S-190A and S-190B photography of 14 January 1974. Surficial features have been studied in detail and delineated using a B & L Zoom 95 Stereoscope. Reconnaisance mapping of the eastern area is nearly completed, using U-2 CIR and larger scale photography available in MDOT files. Maps are at the scale of 1:125,000, the approximate scale of the U-2 CIR (RC-10) photos. Comparisons of detected features on the two maps are being made. No convenient method has yet been developed to allow quantification of results for adequate comparisons of various film products.

SKYLAB photos have been utilized as timely data for the investigation of major stream siltation. Photography of 21 September 1973 and 14 January 1974 allowed the identification of stripping operations associated with Interstate Highway System construction in southern Maine as the source of siltation within a watershed, rather than gravel and borrow pits as originally assumed.

Current land use features bordering fifty miles of Interstate 95 have been updated through analysis of 14 January 1974 SKYLAB photography and 1973 U-2 CIR photography. A format for relative comparisons has not been developed, but one similar to that employed by Erb (1974, SC-08458), modified to MDOT capabilities, may be required.

The attached sheets are tentative lists of land-use categories currently being identified by MDOT regional geologists and others, using various band-film combinations. Evaluation based on excellent (1) to non-detectable (4) will be placed in the columns. All viewing is done using stereo models in twenty-one possible film combinations of the S-190A system for a single scene. Each geologist will analyze regional terrain for which he has accumulated much personal field knowledge and experience. The forms will be further clarified and modified for final report presentation.

SKYLAB - POINTS OF INTEREST

FOREST

Softwood

Mixedwood

Hardwood

Burns - recent

Cutover areas

Hardwood swamp*

Softwood swamp*

Logging roads

Early coloration areas

Spruce Budworm infestations

~~Potato blight and other diseased agricultural land *~~

Portable saw mills

Yarding areas*

Skidder - logged area*

Mechanical harvester operations*

Blow downs*

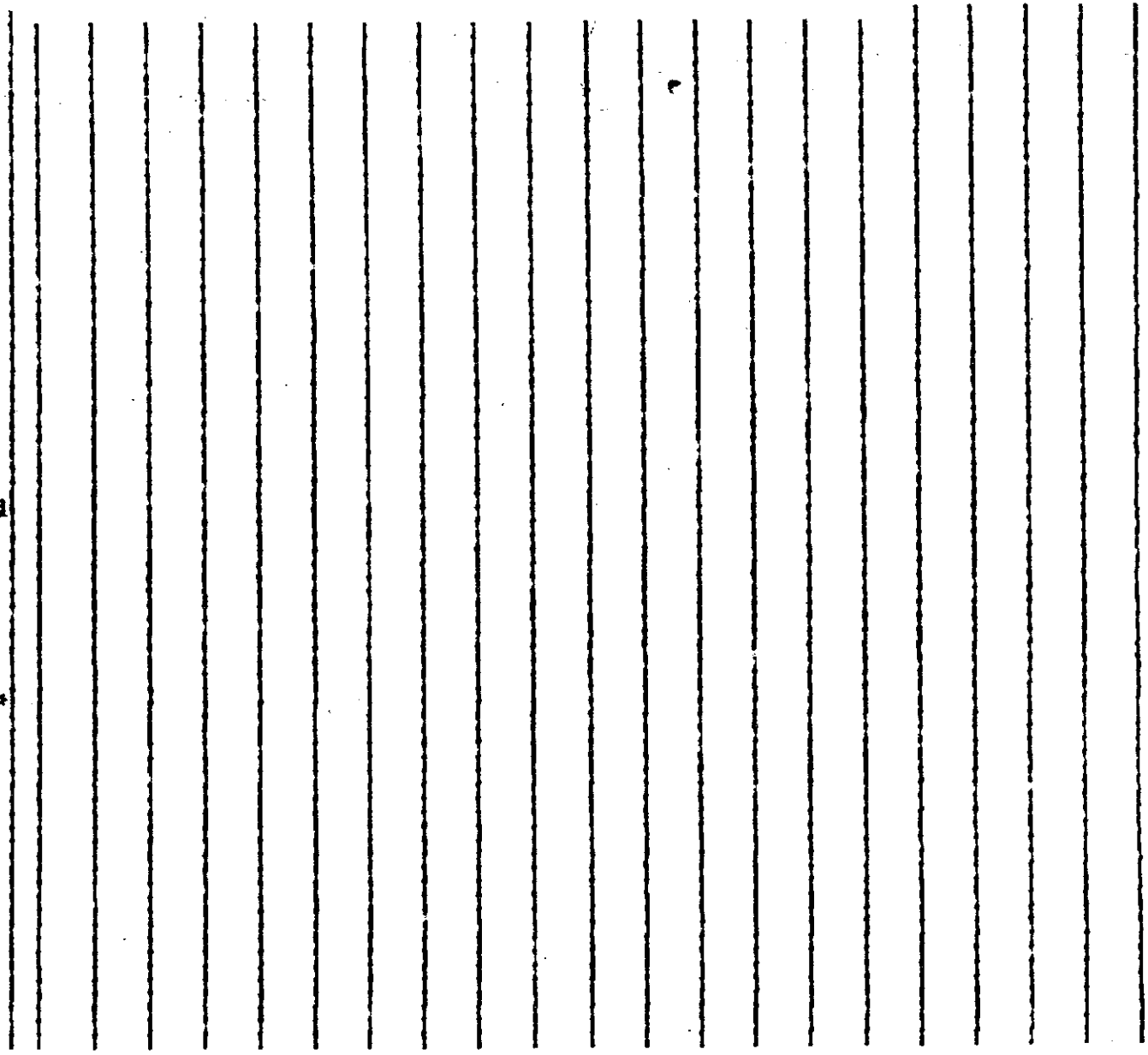
Ice damage to woods*

Winter wood kill*

Damage associated with highways

Other damage

Campsite*



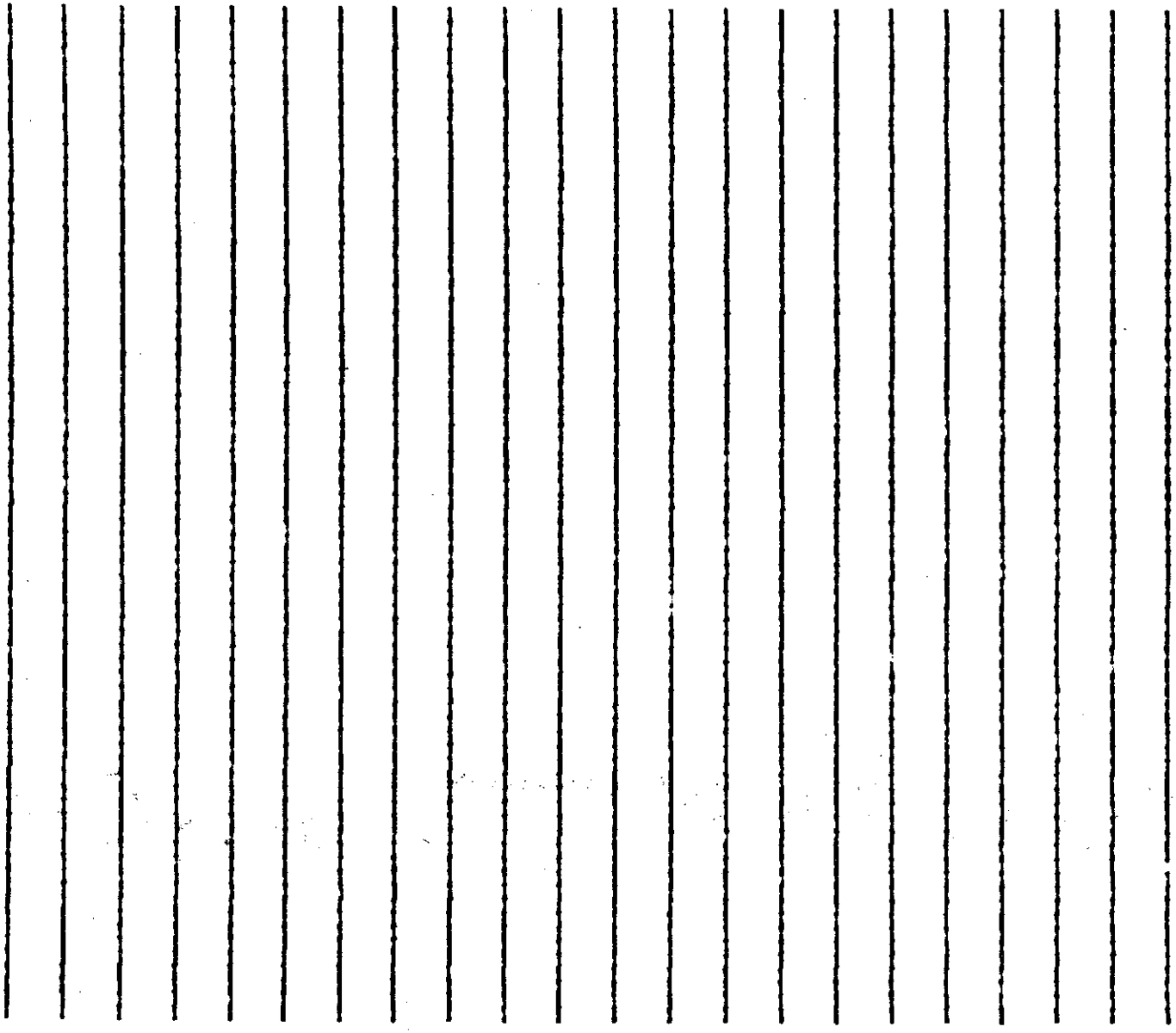
* - Probable sites of low detectability

MARINE

- Rocky shores
- Sandy Shores
- Tidal flats
- Cobble reaches *
- Sand bars
- Seaweed beds
- Submerged ledges *
- Salt spray damage
- Siltation in estuaries & Bays
- Water Quality - pollution *
- Sea shore recreation areas
- Salt water marsh sand

CULTURAL

- Shopping Center
- Pavement types
- Housing developments*
- Industrial parks *
- Villages
- Dumps (Air & Water pollution)*
- Air pollution
- Buildings (size, roof)



AGRICULTURE

Abandoned fields*

Grassland, pasture

Tilled fields

Berryland & spray damage

Crops - potatoes, hay, corn, veg. (if still in ground) *

Farmsteads *

STREAM, LAKES AND PONDS

Water - size

Lakeside developments

Water quality

New flowages

Siltation in lakes and streams *

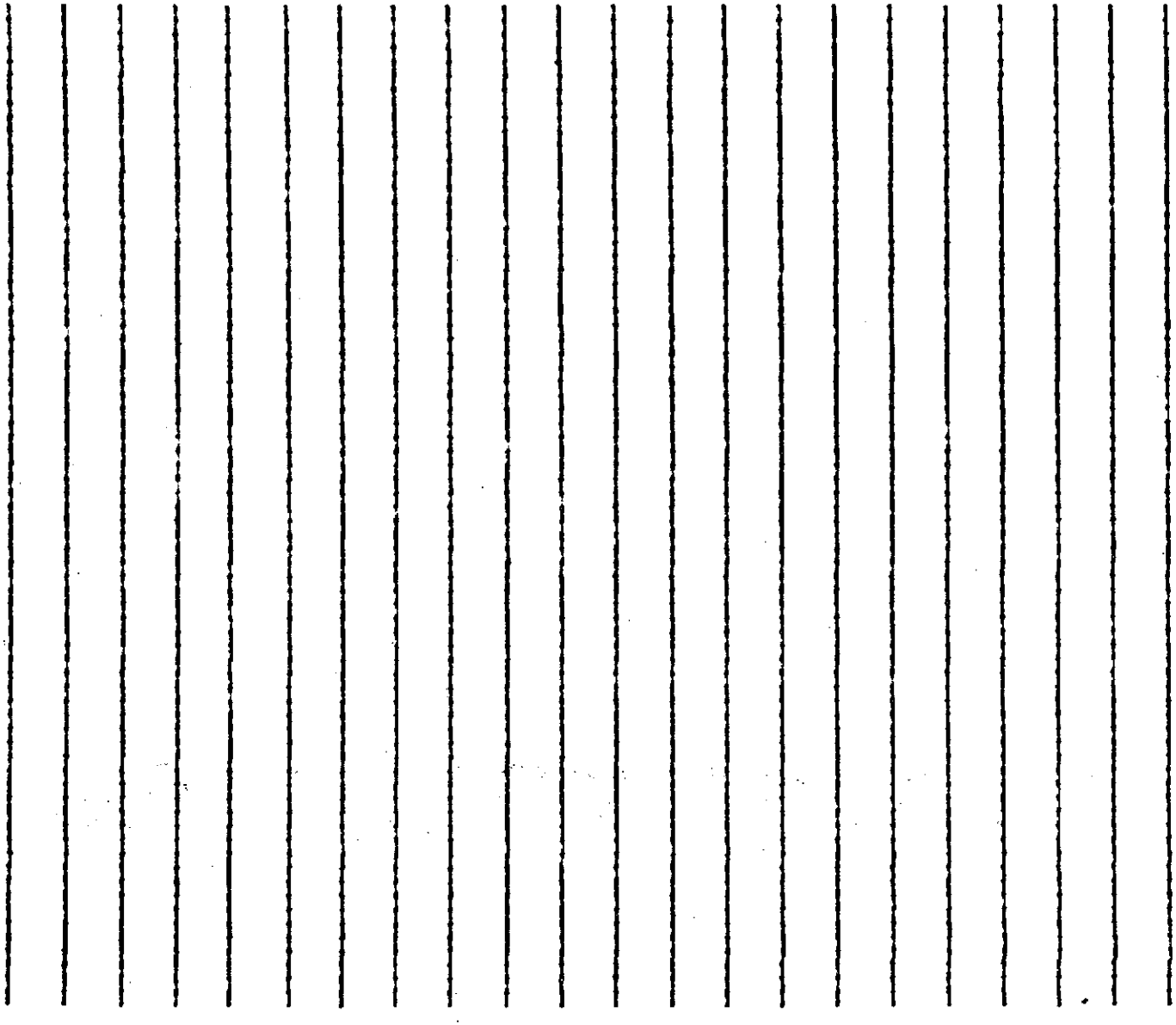
Intermittent water storage areas *

Lake & Stream pollution

Composition of lake & stream beds *

Marshland

Heath



GEOLOGY

Bedrock structures

Igneous contacts *

Glacial land forms

Depth to bedrock *

Major fracture, shear zones

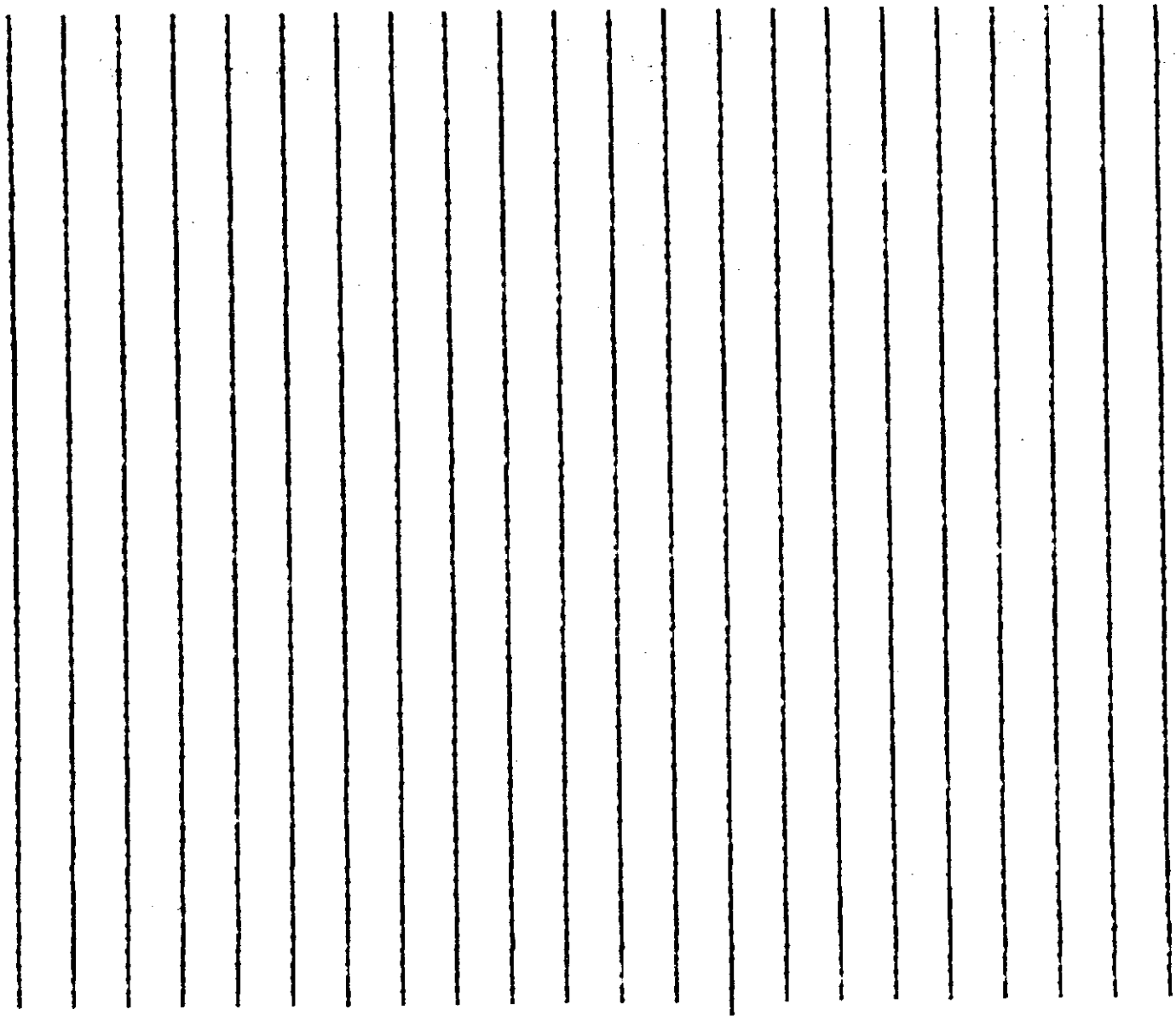
Rock type *

Borrow pits

Bare bedrock

OTHER

Bird concentration areas*



APPENDIX "A"

QUARTERLY
CONTRACTOR FINANCIAL MANAGEMENT REPORT

Contract Number NAS 9- 13359

Contractor: Maine Department of Transportation
Box 1208
Bangor, Maine 04401

Total Estimated Cost: $ 24,580

Task Description: "Multidisciplinary Analysis for Highway Eng. Purposes"

Prepared By: Ken Jacobs Date: 6 November 1974

	MOST RECENT QUARTER	CUMULATIVE TO DATE	ESTIMATED TOTAL
HOURS			
Investigator	40	460	2,400
Other	334	1,320	1,200
Total	374	1,780	3,600
COSTS			
Labor	1,743.42	8,813.21	16,580.
Material	--	--	300.
Data Processing	--	--	--
Travel	80.08	137.14	900.
Equipment Rental	--	--	--
Equipment Purchase	25.74	432.34	560.
All Other	1,255.88	6,359.27	6,240.
Total	3,105.12	15,741.96	24,580.

$24,580.00
15,741.96
8,838.04 Balance October 25, 1974