PN-ABS 350
89875

FEASIBILITY STUDY AND MASTER PLANNING
DRAFT FINAL REPORT

FOR

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF TRANSPORTATION AND COMMUNICATIONS
AND
COORDINATING COUNCIL OF THE PHILIPPINE ASSISTANCE PROGRAM

CAGAYAN DE ORO - ILIGAN AIRPORT

VOLUME III — GEOTECHNICAL REPORT

Prepared by:

LOUIS BERGER INTERNATIONAL, INC.

in association with

LOCKWOOD GREENE INTERNATIONAL, INC.

GLOBETROTTERS ENGINEERING CORPORATION

TRANS-ASIA (PHILS.) INC.

CONSULTANT MANAGEMENT SERVICES, INC.

ERNST & YOUNG

Under
U.S. Agency for International Development
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September 1991

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October 4, 1991

Mr. Alex Sundermann, P.E.
Project Officer/Office of Capital Projects
USAID/Manila
18F, Ramon Magsaysay Center
1680 Roxas Boulevard
Manila, Philippines

Subject: **DRAFT FINAL REPORT**

Project: **DELIVERY ORDER NO. LBII-03**
FEASIBILITY STUDY AND MASTER PLANNING
CAGAYAN DE ORO - ILIGAN CORRIDOR AIRPORT
PHILIPPINE ASSISTANCE PROGRAM SUPPORT
CONTRACT NO. 492-0452-C-00-0099-00

Dear Mr. Sundermann:

Pursuant to Section V.C. of the Scope of Work for the subject Delivery Order Contract, we are pleased to submit herewith for your review and comment three (3) copies of the Draft Final Report for the Cagayan de Oro - Iligan Airport Study. The report is arranged in three Volumes:

Volume I:	Feasibility Study
Volume II:	Master Plan
Volume III:	Geotechnical Report

In accordance with our previous discussions, we are concurrently distributing copies of this report as per the attached distribution list.

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By copy of this letter, we request that the recipient agencies named on the attached list review this Draft Final Report and direct any comments or inquiries to the following office:

Undersecretary Mr. Rogelio L. Singson
Executive Director, CCPAP
Room 1400, 14F, Multi-storey Building
Central Bank Complex
A. Mabini Street, Ermita, Manila

We further request that a briefing meeting be scheduled for this project at your convenience, but preferably within ten (10) days of receipt of this document. In the meantime, we shall proceed with our own in-house review of the report in preparation for submission of the Final Report.

Should you have any questions, or require further information, please feel free to contact this office.

Very truly yours,
LOUIS BERGER INTERNATIONAL, INC.

WILLIAM J. PARENTE
PAPS Project Manager

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Team Leader

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FEASIBILITY STUDY AND MASTER PLANNING
CAGAYAN DE ORO — ILIGAN AIRPORT

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Acronyms and Abbreviations

AH *Auger Hole*

BOT *Build-Operate-Transfer*

CBR *California Bearing Ratio*
cc *cubic centimeter*

g *gram*
G *grading*
GOP *Government of the Philippines*

LL *Liquid Limit*

m *meter*
MDD *Maximum Dry Density*

NMC *Normal Moisture Content*

OML *Optimal Moisture Content*

PI *Plastic Index*
PL *Plastic Limit*

TP *Test Pit*

W_N *Water Content (%) - Normal*
W_P *Water Content (%) at Liquid Limit*
W_L *Water Content (%) at Plastic Limit*

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EXECUTIVE SUMMARY

This study examines the alternative airport facilities for meeting the future needs for the agricultural and industrial development of the Cagayan de Oro-Iligan Corridor, in North-Central Mindanao. The technically adequate sites for airport development are identified, and their feasibility determined, based on economic criteria. An airport master plan is developed for the site chosen as the most appropriate, from both technical and economic standards.

The Corridor is a major growth area in Mindanao, and includes the provinces of Bukidnon, Misamis Oriental, Lanao del Norte, Lanao del Sur (excluding Malabang), and the island province of Camiguin. The total Corridor population is about three million, and the area covers 1.8 million hectares. The two main cities are Cagayan de Oro, located toward the eastern side of the Corridor, and Iligan, located on the western side. Both are major industrial and commercial centers, surrounded by a rich agricultural region, with primary production including a wide variety of high valued-added fruits and vegetables, fish, and meat, along with staples such as corn and rice. The area is relatively free from typhoons, and has potential for new agribusiness ventures, such as cut flowers and ferns, in addition to the expansion of more traditional high-valued primary products.

There are currently two commercial airports in the region: the Cagayan de Oro (Lumbia) Airport, 8 kilometers SSW of the central business district of Cagayan de Oro City; and the Iligan (Balo-i) Airport, 17 kilometers SSW of Iligan City. Together they generate nearly 350,000 emplanements/year, a number expected to grow, under conservative assumptions, to about 650,000 by the end of the 20-year study period, in 2011.

Both airports have terrain restrictions that rule out both night flights and wide-body aircraft. Balo-i is limited to receiving turboprop aircraft only, and Lumbia cannot handle wide-body jets. Cargo-handling capacity is virtually non-existent at Balo-i, which handled only 134 tons in 1990, and is severely restricted at Lumbia, where 4,512 tons were handled, despite the ample potential of high value-added shipments in the Corridor. Flight cancellations due to weather at the two terminals, although a small percentage of total flights, are more frequent than they would be at locations nearer sea level, and a number of accidents have occurred in the vicinity of Balo-i, including two crashes of small commercial aircraft with no survivors in a 20-year period.

In addition to the two existing airports, three additional sites were identified where airports could be built in the Corridor. The first, Linamon, lies 15 kilometers SW of Iligan and, except for a somewhat lower altitude, has the same limitations as the existing site at Balo-i. The second, Iponon, is 6 kilometers west of Cagayan de Oro and, aside from lower elevation, has the same limitations as the existing site at Lumbia, although it would reduce access travel distance from the Iligan side by 14 kilometers. Neither the Iponon nor the Linamon alternatives is economically viable. Although construction was initiated at Linamon some years ago, the terrain is so unfavorable for construction that its completion would cost more than a new airport at the Iponon site, making Linamon the least attractive site among the three.

The only site capable of handling wide-body jets is at Laguindingan, located between Cagayan de Oro and Iligan. A runway 2,500 meters x 45 meters could be constructed near sea level with both approaches over water, an ideal situation for aircraft operations. This runway can accommodate the A300 wide-body aircraft, and can, if necessary, be lengthened in the future to accommodate B747s, the largest commercial aircraft presently in use. In relation to the Lumbia Airport which handles 83 percent of current air trips and over 90 percent of air passenger mileage, the Laguindingan site reduces the ground access distance for west-side (Iligan) passengers by 43 kilometers, while increasing the ground access distance for east-side (Cagayan de Oro) passengers by only 29 kilometers.

Although both Lumbia and Balo-i airports could be upgraded to continue handling the type of aircraft they now receive without any capacity problems during the 1992-2011 study period, Laguindingan offers several advantages. Laguindingan can accommodate night flights, reducing the number of days needed to spend a full business day at the destination from the current two or three to only one. Moreover, the additional flight(s) can be added at low marginal cost to the airline(s): crews and planes are available, while the number of night destinations in the Philippines is currently very limited. Second, there would be a minimum of cancellations due to terminal weather on the Corridor side. Thirdly, larger, more comfortable, and more economic aircraft could be used, and these would, for the first time, make significant amounts of cargo space available to local shippers. This would make new investments feasible in agribusiness, industry, and commerce that require a reliable supply of air cargo space.

The Laguindingan alternative would require closure of the two existing airports, as it would be uneconomic to maintain three airports in such close proximity. It would result in increased frequencies, greater capacity aircraft, and night flights, service variables that are expected to increase passenger levels by some 14 percent, to a total of 689,164 in 2011. Iligan passengers would be much better served than at present, except for the short route to Cotabato City, which is currently heavily cross-subsidized from PAL's other routes. Travelers from the Cagayan de Oro side would face longer access distance than at present, but other service variables would be improved. Under the one-airport assumption, the Laguindingan alternative is economically feasible, even under the very high real rate of discount of 15 percent per annum.

Current tariff rates, including the ₱1.50 boarding fee, are so low that maintenance and operation expenses at the two existing airports are not covered by user fees, nor would they be at Laguindingan. The proposed 1992 fee increase, would cover those expenses, without defraying any significant amount of construction costs.

The current Ninoy Aquino International Airport (NAIA) rates, featuring a ₱120 boarding fee, can be used to generate enough revenue to pay back the real value of construction costs (₱738 million), provided no interest is charged, and assuming that the rates are readjusted, as needed, to cover future inflation. The NAIA boarding fee is 80 times the current charges at Lumbia, and 20 times the level proposed for Lumbia and similar airports for 1992. It is equal to 6.6 percent of the price of the Cagayan de Oro-Manila trip, and to much higher percentages of ticket prices on shorter routes. Therefore, it is unlikely that a Build-Operate-Transfer (BOT) proposal would attract investments from the private sector to build and operate the proposed Laguindingan Airport.

Nevertheless, adoption of NAIA-level fees and administration by an independent authority could cover all operating and maintenance costs, and defray most of the real costs of construction, exclusive of interest. An alternative means of administration, however, such as administration by a private entity under contract, would be a more viable institutional manner of ensuring that a substantial share of the capital costs are in fact recovered. Contract operation would be more likely to provide guarantees of inflation-based adjustments of airport fees, and would encourage the commercial development of associated services at the terminal, generating additional revenue that could be partially passed on to the airport's public owner by means of revenue-sharing agreements in the contract.

In order to ensure the technical feasibility of the project a physical plan of the Laguindingan Airport was developed. All standards of the International Civil Aviation Organization (ICAO) can be accommodated at the proposed site. The 09/27 (N 85°30′12″ E) runway orientation places both approaches, and circling maneuvers over water, making for ideal, obstruction-free aviation operations.

The lack of obstructions permits Category 1, precision instrument operation which will allow all-weather, 24-hour use of the airport facility. Noise contours, generated for future air traffic levels, indicate that noise impacts will be minor, with most of the effects contained within the airport property. Approach and departing flight paths will be primarily over water, avoiding the major population centers.

The relatively sparsely populated area around the site minimizes the social impact of the airport project itself, although 50 families will have to be relocated. However, when an airport is constructed in a new area, rapid development usually occurs around the airport. A comprehensive zoning and master plan should be developed for the area to ensure that the necessary infrastructure is in place to support this development. Public hearings and consultations with area officials is an effective way of gaining public support for the project.

Once the decision is made to precede with the project a number of project tasks must be addressed immediately. These include land acquisition (purchase, lease, continued private ownership); geotechnical investigations; meteorological monitoring; and, the formulation of an engineering contracting strategy.

Three general approaches to the engineering implementation of the project are possible:

- Design-Build, under which a single contractor is selected to both design and build the project;
- Design-Award-Construct, the traditional approach under which the final design is performed under one contract and then a competitive selection of construction contractors is made, based on the final design; and,
- Fast Track, under which construction is begun prior to the completion of the final design (can be applied to either the Design-Build or the Design-Award-Construct approaches).

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Given the scale of the airport project, the likely budgetary constraints, and the schedule requirements, as well as normal governmental contracting practices, the traditional Design-Award-Construct approach is likely to be the preferred method of implementation.

A variety of contractual arrangements are possible under the design-award-construct approach. Again, based on the specific characteristics and requirements of the project, the preferred contractual approach is likely to be the selection of a General Engineering Consultant (GEC), to perform detailed surveys and final design under the general supervision of the Department of Transportation and Communications and the Air Transportation Office. The GEC would supervise the construction of the airport, to be performed by a separate contractor, or contractors, with the GEC providing all quality control and contract administration services. The GEC can also be used to perform a variety of other functions during the implementation program.

This preliminary master plan and feasibility study is one of the first steps in the process of realizing the goals of the project. Implementation of the Laguindingan Airport will require an integrated, multi-disciplinary effort carefully coordinated by the Department of Transportation and Communications and the Air Transportation Office in order to ensure maximum efficiency.

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CHAPTER 1
PROJECT OVERVIEW

CHAPTER 1

PROJECT OVERVIEW

1.1 INTRODUCTION

It is the policy of the Government of the Philippines (GOP) to spread industrialization to rural areas with high potential for development. In keeping with this policy the GOP approved the Cagayan de Oro Special Development Project which aims to contribute to the regional development by attracting new industries and investments to Northern Mindanao. The focus of the project is the development of the Cagayan de Oro-Iligan Industrial Corridor—the area from Claveria and Jasaan to the east of Cagayan de Oro to Kalambugan to the west of Iligan City. An element that is essential for the development of the Corridor into an industrial/agro-industrial center is the improvement of air transportation facilities.

1.2 GOALS AND OBJECTIVES

The Cagayan de Oro-Iligan Airport Feasibility Study and Master Plan has been conducted under the auspices of the Coordinating Council of the Philippine Assistance Program, for the Department of Transportation and Communications, to determine an airport facility that will meet the future agricultural and industrial development of the Cagayan de Oro-Iligan Corridor. The study was funded by the U.S. Agency for International Development.

The primary objectives of this study are to:

- evaluate the existing Corridor airport facilities to determine upgrades required to meet international standards and their capability of meeting the air traffic demand over the 1991-2011 study period;
- identify other sites, within the Corridor, capable of supporting international standard airport development;
- evaluate the existing airports and identified sites to determine the development alternative which is technically feasible and best meets the needs of the Corridor;
- perform detailed economic and financial analyses of the preferred alternative to determine its viability;
- investigate potential financing methods and sources;
- prepare an airport master plan of the general layout of the preferred alternative;
- produce a preliminary (10%) design of the proposed airport; and
- develop an implementation action plan.

1.3 ORGANIZATION OF THE REPORT

The Cagayan de Oro-Iligan Airport Study is organized into three volumes, namely: Feasibility Study; Master Plan; and the Geotechnical Report. Chapters are arranged within each volume as follows:

VOLUME I — FEASIBILITY STUDY

Chapter 1 provides an overview of the goals, objectives, and organization of the Cagayan de Oro-Iligan Airport Study.

Chapter 2 presents the socio-economic setting of the airport service area including economic structure, population, and trends and prospects for growth in the five provinces making up the service area.

Chapter 3 discusses the present transportation systems in the airport service area. The chapter focuses on the aviation sector in its analysis.

Chapter 4 examines the existing air transport facilities; the Cagayan de Oro and the Iligan airports. Includes an inventory of existing facilities, operations and conditions at the airports and their vicinities.

Chapter 5 discusses the screening process used in the selection of five candidate sites: Cagayan de Oro Airport, Iligan Airport, the Iponon site, the Laguindingan site, and the Linamon site. Compares relative advantages and disadvantages of sites with respect to airport development and presents alternative airport development strategies.

Chapter 6 presents forecast of commercial aviation activity at the airport(s), including passengers, cargo, aircraft movements, and peaking patterns. Forecasts were made for the Cagayan de Oro Airport, the Iligan Airport, and a new Corridor airport.

Chapter 7 performs comparative economic analyses of sites identified for airport development as a means of narrowing the field of alternatives. Detailed economic and financial analyses of the preferred alternative is presented.

VOLUME II — MASTER PLAN

Chapter 1 provides an overview of the goals, objectives, and organization of the Cagayan de Oro-Iligan Airport Study.

Chapter 2 outlines the planning process, and describes and addresses the purpose and objectives of an airport master plan.

Chapter 3 presents the physical plan and preliminary design of the proposed Laguindingan Airport. Cost estimates for the Laguindingan Airport is also included.

Chapter 4 reviews the existing organizational structure of the Cagayan de Oro and Iligan airports. Based on this review an operations organizational structure for the Laguindingan Airport is developed.

Chapter 5 develops an implementation action plan, including identification of the components of a coordinated implementation strategy and of alternative organizational structures for directing and implementing the airport development program.

VOLUME III — GEOTECHNICAL REPORT

Chapter 1 herein, provides an overview of the goals, objectives, and organization of the Cagayan de Oro-Iligan Airport Study.

Chapter 2 presents the subsurface logs for test pits and auger holes excavated as part of the geotechnical investigation of the airport site. Laboratory test results: MDD and CBR tests; sieve analyses; and aggregate tests of material sources, are also included.

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CHAPTER 2
GEOTECHNICAL INVESTIGATION

CHAPTER 2

GEOTECHNICAL INVESTIGATION

2.1 INTRODUCTION

In conjunction with the Feasibility Study and Master Planning of the Cagayan de Oro-Iligan Airport Project, a preliminary geotechnical investigation was conducted at the Laguindingan site. The purpose of this investigation was to determine the physical and dynamic properties of the subsurface soils for use in the preliminary design of the runway pavement. In addition, aggregate materials sources were identified and analyzed to determine their suitability for use as for subbase, runway base, surfacing and concrete aggregates.

The subsoil and aggregate materials investigation program was conducted between August 1 and August 23, 1991 by Industrial Inspection International, Inc. (III, Inc.) of Manila. A full-time III, Inc. field engineer monitored all the field work. An engineering representative of the Consultant was also present during the sampling and laboratory testing.

2.2 SOILS INVESTIGATION FOR RUNWAY

The subsurface sampling method used was test pits and auger borings. Fourteen test pits were excavated at 250 meter centers along the length of the proposed Laguindingan runway; approximately mid-way between each test pit an auger boring was taken. Test pits were about 1.5 meters x 1.5 meters in plan area and were excavated using handtools (crowbars, pick, shovels) to a depth of between 1.5 and 3.0 metes. Each pit and auger boring was identified by number, station, and offset. Relevant information, such as thickness and condition of the different layer, were recorded for each test pit. Test pit and auger boring locations, with offset data are given in Figure 2-1.

Representative soil samples were taken from each soil layer for laboratory testing; moisture content testing was performed immediately after sampling. Precautions were taken to prevent contamination of the samples taken in each layer by material from the sides of the pits. The sampling size and handling of the specimens were in accordance with American Association of State Highway and Transportation Officials (AASHTO) standards, AASHTO T-0203 and AASHTO T-265.

2.3 MATERIALS INVESTIGATION FOR AGGREGATE SOURCES

Sources of suitable material for subbase, runway base, surfacing and concrete were identified and samples taken. The sampling was performed according to the testpitting procedure described in Section 2.2; potential aggregate source locations is presented in Figure 2-2.

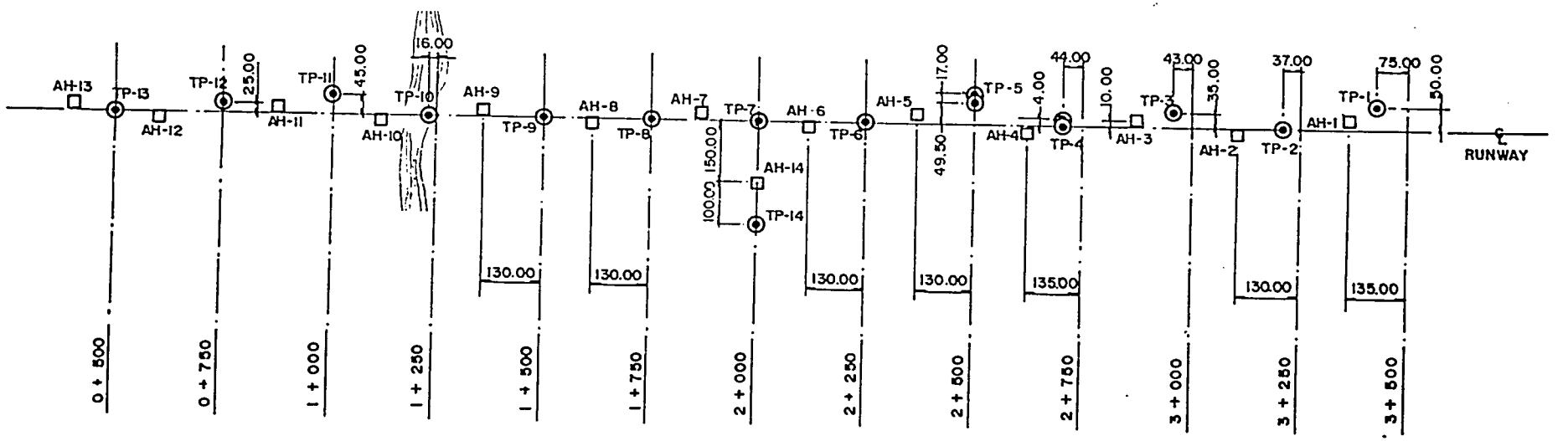
2.4 LABORATORY TESTING PROGRAM

A program of laboratory tests and analyses was developed to measure and appraise the engineering properties of the soils and material samples. American Society for the Testing of Material (ASTM) and AASHTO standards and procedures were used in the preparation and testing of the samples. The laboratory tests performed and the associated AASHTO standards that were followed are given in Table 2-1.

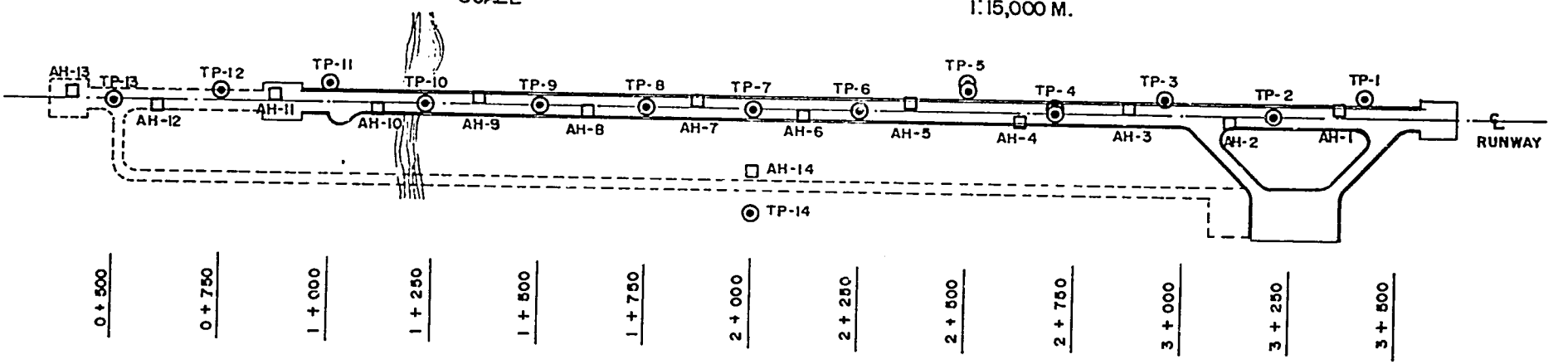
Table 2-1
LABORATORY TESTING PROGRAM

Laboratory Test	Test Standard
Runway Investigation	
Test Pits	
Group Index Soil Classification	AASHTO M145
Atterberg Limit	AASHTO T89 AND T90
Mechanical Analysis	AASHTO T88
Natural Moisture Content	AASHTO T265
California Bearing Ratio (CBR)	AASHTO T193
Auger Holes	
Group Index Soil Classification	AASHTO M145
Atterberg Limits	AASHTO T89 AND T90
Mechanical Analysis	AASHTO T88
Natural Moisture Content	AASHTO T265
Aggregate Sources	
Group Index Soil Classification	AASHTO M145
Atterberg Limits	AASHTO T89 and T90
Mechanical Analysis	AASHTO T88
Soundness	AASHTO T104
Specific Gravity	AASHTO T84 AND T85
Unit Weight	AASHTO T19
Los Angeles Abrasion Test	AASHTO T96

Source: American Association of State Highway Transportation Officials (1990)



TEST PIT/AUGER HOLE (OFFSETS) LOCATION PLAN
SCALE 1:15,000 M.



TEST PIT/AUGER HOLE LOCATION PLAN
SCALE 1:15,000 M.

LEGEND:
⊙ - TEST PIT(TP)
□ - AUGER HOLE(AH)

Source: Soils survey performed for the Consultant by Industrial Inspection International, Inc. (1991)

PHILIPPINE ASSISTANCE PROGRAM SUPPORT UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT CONTRACT NO.: 492-0452-C-00-0099-00	CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT	FIGURE 2-1
LOUIS BERGER INTERNATIONAL, INC. LOCKWOOD GREENE INT'L, INC. TRANS-ASIA (PHILS.) INC. GLOBETROTTERS ENG'G CORP. ERNST & YOUNG CONSULTANT MANAGEMENT SERVICES, INC.	TEST PIT AND AUGER HOLE LOCATIONS AND OFFSETS	

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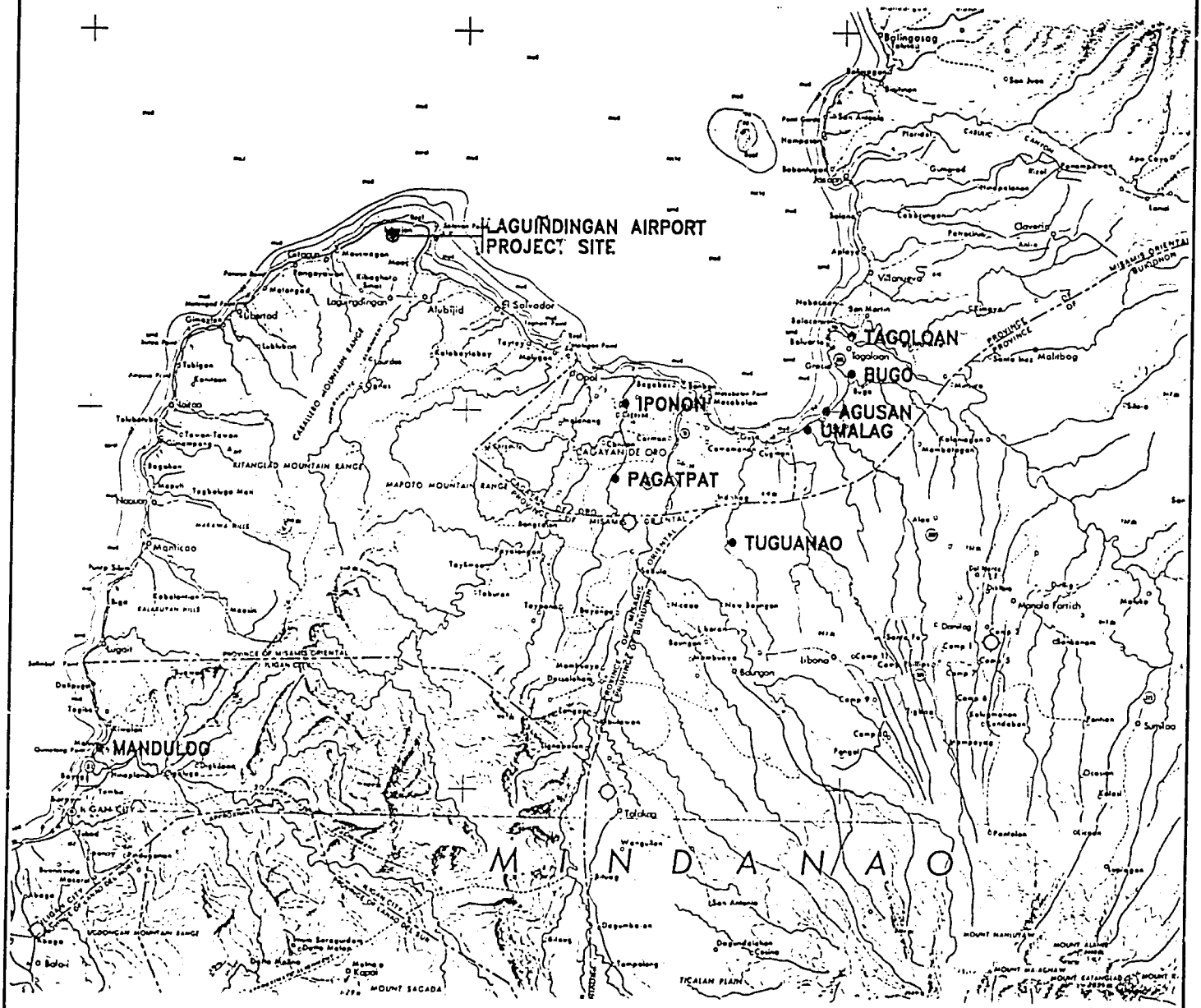

Source: Area maps

PHILIPPINE ASSISTANCE PROGRAM SUPPORT UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT CONTRACT NO.: 492-0452-C-00-0099-00	CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT	FIGURE 2-2
LOUIS BERGER INTERNATIONAL, INC. LOCKWOOD GREENE INT'L, INC. TRANS-ASIA (PHILS.) INC. GLOBETROTTERS ENG'G CORP. ERNST & YOUNG CONSULTANT MANAGEMENT SERVICES, INC.	LOCATION OF AGGREGATE SOURCES	

KEY TO LOGS OF BORING

SYMBOL:

- GRAVEL
- SAND
- CLAY
- SILT
- FAT CLAY

G - GRADING

MDD - MAXIMUM DRY DENSITY

OMC - OPTIMUM MOISTURE CONTENT

CBR - CALIFORNIA BEARING RATIO

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2.5 SUBSURFACE LOGS

2.5.1 TEST PITS

INDUSTRIAL INSPECTION [INT'L.] INC.

CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 20,1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LABUNGKIRIAN, MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

TEST PIT NO : TP-1 STA. 3+485
ELEVATION

DATE : August 2-4,1991
G.W.L. : none

DEPTH (meter)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% MOC	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS	Ws / Wn / Wl (10 20 30 40 50 60 70 80 90 100)
1		Chocolate brown, fat CLAY	A-7-5(17)		41	69	37	32			G	
		Reddish brown, fat CLAY and coral limestone	A-7-5(20)		43	61	31	30			G	
			A-7-5(17)		54	62	39	23			G,CBR	
2		NOTE : Test pit terminated at 1.50 meters depth.										

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INDUSTRIAL INSPECTION [INT'L] INC.

CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 20, 1991

PROJECT : CAGAYAN DE ORO - LIGAN AIRPORT PROJECT

LOCATION : LAGUNDINGAN, MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

TEST PIT NO. TP-2 STA.3+212
ELEVATION

DATE : August 2-4,1991
G.W.L. : none

DEPTH (Meters)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST NO.	% MOIST	LL	PL	PI	MDD g/cm3	OMC %	OTHER TESTS	Wp Wn Wl 10 20 30 40 50 60 70 80 90 100
		Dark brown, fat CLAY	A-7-5(19)		58	62	36	36			G	
1		Mottled brown and reddish brown, fat CLAY and	A-7-5(17)			65	43	22			G, CBR	
2		NOTE : Test pit terminated at 1.70 meters depth.										

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CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 20, 1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN , MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

TEST PIT NO. TP-3 STA. 3+957
ELEVATION

DATE : August 3-4,1991
G.W.L. : none

DEPTH (meters)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST NO.	% MOIST	LL	PL	PI	MDD (g/cc)	OMC %	OTHER TESTS	Wp 10 20 30 40 50 60 70 80 90 100 Wn Wl
1		Reddish brown, lean CLAY	A-6(10)		42	34	18	16			G	
		Reddish to light yellowish brown, CLAYEY CORAL LIMESTONE									CBR	
2		NOTE : Test pit terminated at 1.50 meters depth.										

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INDUSTRIAL INSPECTION [INT'L] INC.

CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 20, 1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN , MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

TEST PIT NO. TP-4 STA. 2+700
ELEVATION

DATE :
G.W.L. : none

DEPTH (meter)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% NMC	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS	Wp 10 20 30 40 50 60 70 80 90 Wn Wl 100
		Chocolate brown, fat CLAY	A-7-5(20)		50	65	36	29			G	
1		Mottled reddish brown, fat CLAY and CORAL LIMESTONE			52	73	37	36			G.CBR	
2		NOTE : Test pit terminated at 1.50 meters depth.										

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MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 20, 1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN , MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

TEST PIT NO. TP-5 STA. 2+485
ELEVATION

DATE : August 4, 1991
G.W.L. : none

DEPTH (meters)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% MOIST	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS	Wn 10 20 30 40 50 60 70 80 90 100 Wp
1		Brown to reddish brown, fat CLAY with traces coral limestone	A-7-5(17)		35	60	27	33			G	
			A-7-5(18)		32	65	29	36			G	
2		NOTE : Test pit terminated at 1.50 meters depth.										

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CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 23, 1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

TEST PIT NO. TP-6 STA. 2+250 DATE : August 2-3, 1991
ELEVATION G.W.L. : none

DEPTH [meter]	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% NMC	LL	PL	PI	MCR gr.cm.	DMC %	OTHER TESTS	Wp Wn WL 10 20 30 40 50 60 70 80 90 100
		Brown, fat CLAY with traces of gravel size coral	A-7-5(20)		50	67	36	33			G	
		Reddish brown, CLAYEY CORAL GRAVEL/CORAL LIMESTONE.	A-2-7(2)		19	51	26	25			G	
1			A-2-7(3)		16	45	22	27			G, CER	
2		NOTE : Test pit terminated at 1.50 meters depth.										

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CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 23, 1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

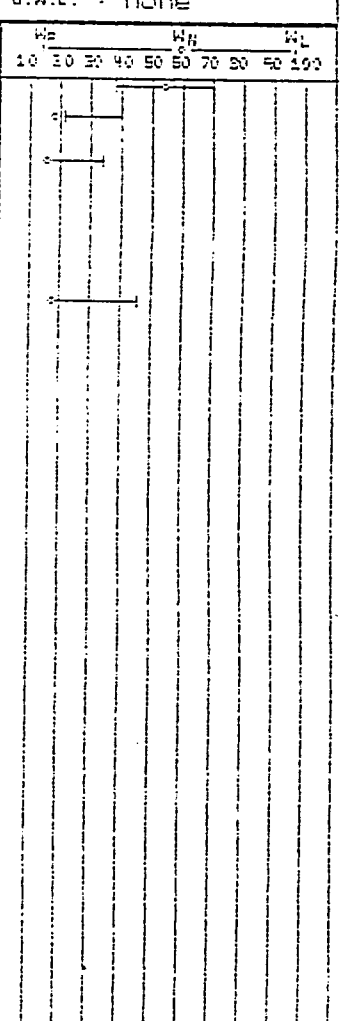
LOCATION : LABUNDONGAN , MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

TEST PIT NO. TP-7 STA. 2+000
ELEVATION

DATE : August 3-4, 1991
G.W.L. : none

DEPTH (meter)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% WMC	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS
1		Chocolate brown, fat CLAY with coral gravels	A-7-5(16)		54	72	29	21			G
		Brown, CLAYEY CORAL/LIMESTONE	A-2-6(1)		19	40	21	19			G
					16	35	17	18			G, CBR
		Mottled brown, light brown to reddish brown SANDY GRAVEL SIZE CORAL with 25% CLAY.	A-6-7(1)		17	46	19	27			G
2		NOTE : Test pit terminated at 1.50 meters depth.									



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MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 23, 1991

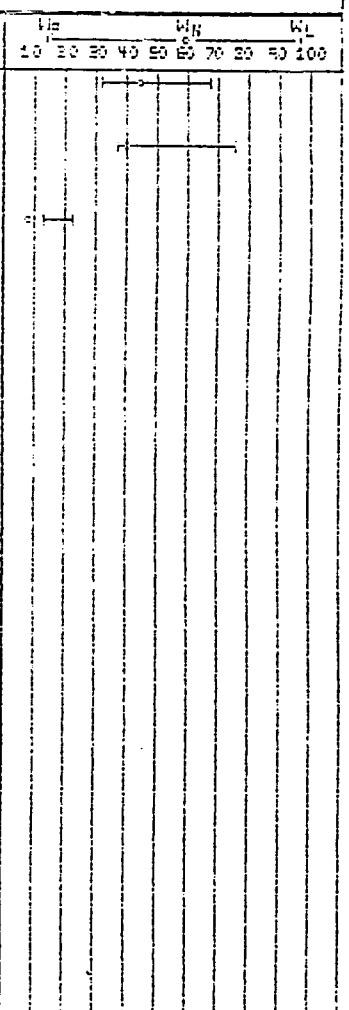
PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

TEST PIT NO. TP-2 STA. 1+750 DATE : August 3-4,1991
ELEVATION G.W.L. : none

DEPTH (meter)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% NMC	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS
		Chocolate brown, fat CLAY with traces of coral limestone gravel.	A-7-5(20)		46	68	33	36			G
			A-7-5(17)		40	76	36	40			G
1		Mottled white, light brown and reddish brown SILTY CORAL LIMESTONE.	A-2-4(0)		9	28	13	9			G, CBR
2		NOTE : Test pit terminated at 1.50 meters depth.									



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MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 23, 1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

TEST PIT NO. TP-9 STA. 1+500
ELEVATION

DATE : August 3-4, 1991
G.W.L. : none

DEPTH (meter)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% NMC	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS	Wp Wy Wl (10 20 30 40 50 60 70 80 90 100)
1		Dark brown, fat CLAY with tree roots & corals.	A-7-5(19)		34	62	35	27			G	
		Mottled brown and reddish brown, SANDY CORAL GRAVEL & CLAY with tree roots and limestone.	A-7-6(3)		26	48	27	21			G	
		Mottled light yellowish brown and brown CLAYEY CORAL GRAVEL/LIMESTONE.	A-2-7(2)		11	42	21	21			G, CBR	
2		NOTE: Test pit terminated at 1.50 meters depth.										

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CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 23, 1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

TEST PIT NO. TP-10 STA. 1+234
ELEVATION

DATE : August 3-4,1991
G.W.L. : none

DEPTH (meter)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% NMC	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS	WP 10 20 30 40 50 60 70 80 90 100 WN WL
		Chocolate brown, fat CLAY	A-7-5(16)		44	57	36	21			G	
		Mottled reddish brown and white LIMESTONE.										
1		Reddish brown, fat CLAY with coral limestone.	A-7-5(20)		53	71	38	33			G, CBR	
2		NOTE : Test pit terminated at 1.70 meters depth.										

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CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 23, 1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

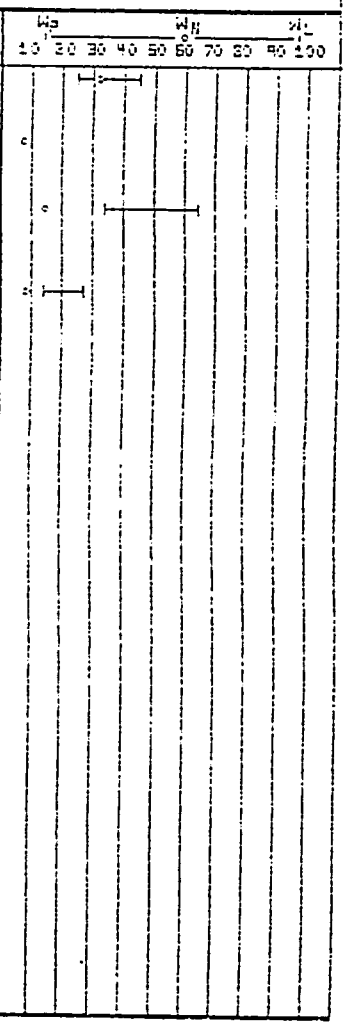
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

TEST PIT NO. TP-11 STA. 1+000
ELEVATION

DATE : August3-4,1991
G.W.L. : none

DEPTH (meter)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% MC	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS
1		Chocolate brown, lean CLAY	A-7-6(14)		31	46	24	22			G
		Mottled brown & reddish brown, CORAL GRAVEL	A-1-a(0)		9	nil	nil	np			G
		Reddish brown & white CLAYEY CORAL LIMESTONE	A-2-7(1)		15	45	23	22			G
		Mottled white & reddish brown CLAYEY CORAL GRAVEL	A-2-6(0)		8	23	14	14			G, CER
2		NOTE : Test pit terminated at 1.50 meters depth.									



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INDUSTRIAL INSPECTION [INT'L] INC.

CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 24, 1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LABUNDINGAN, MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

TEST PIT NO. TP -12 STA. 0+750 DATE : August 3-4,1991
ELEVATION G.W.L. : none

DEPTH (meters)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST NO.	% MOIST	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS	Wp Wn WL 10 20 30 40 50 60 70 80 90 100
		Mottled Reddish Brown and Brown fat CLAY with traces of coral gravel.	A-7-5(20)		25	64	33	31			G	
		Mottled Brown and Yellowish Brown CLAYEY coral gravel.	A-2-6(0)		14	38	22	16			G	
1		Mottled Brown and Reddish Brown CLAYEY coral gravel/coral limestone.	A-2-6(0)		15	33	18	15			G,CBR	
2		NOTE : Auger terminated at 1.50 meters depth.										

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INDUSTRIAL INSPECTION [INT'L] INC.

CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 23, 1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

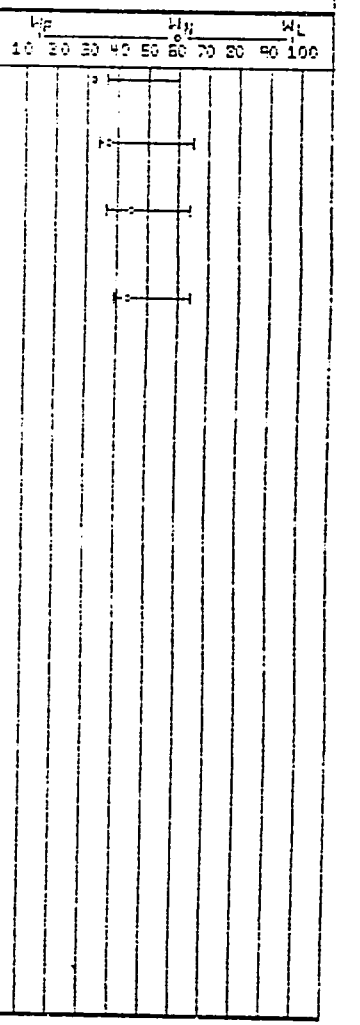
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

TEST PIT NO. TP-13 STA.0+500
ELEVATION

DATE : August 4-5,1991
G.W.L. : none

DEPTH (meter)	LOG	SOIL DESCRIPTION	ASSHTO CLASSIFICATION	TEST No.	% MOIST.	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS
		Reddish Brown, fat CLAY	A-7-5(17)		31	60	27	33			G
			A-7-5(20)		37	66	33	33			G
		Reddish Brown, fat CLAY with traces of fine to coarse sand.			44	65	36	29			G, CBR
1		Reddish Brown, fat CLAY	A-7-5(18)		43	64	39	25			G, CBR
2											
		Light yellowish brown, CORAL LIMESTONE									
3		NOTE : Test pit terminated at 3.00 meters depth.									



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INDUSTRIAL INSPECTION [INT'L] INC.

CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 23, 1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

TEST PIT NO. TP-14 STA. 2+300
ELEVATION

DATE : August 4-5, 1991
G.W.L. : none

DEPTH (Meter)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% NMC	LL	PL	PI	MDD g/cm³	OMC %	OTHER TESTS	Wp Wn WL 10 20 30 40 50 60 70 80 90 100
		Chocolate Brown, CORAL GRAVELLY CLAY	A-7-5(5)		26	66	42	24			G	
		Mottled Brown & Reddish Brown, CLAYEY GRAVEL size CORALS.	A-2-6(1)		16	39	19	20			G	
1			A-2-6(0)		13	29	15	14			G, CBR	
2		NOTE: Test pit terminated at 1.50 meters depth.										

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2.5.2 AUGER BORINGS

INDUSTRIAL INSPECTION [INT'L.] INC.

CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT August 19 ,1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN , MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

AUGER HOLE NO. AH - 1 STA. 0 + 135 DATE : August 7 , 1991
ELEVATION G.W.L. : none

DEPTH (meters)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% MNC	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS	Wp 10 20 30 40 50 60 70 80 90 100 Wn WL
		Chocolate brown , lean CLAY	A - 6(12)		48	39	10	29			G	
1		Reddish brown, GRAVELLY fat CLAY with a little percentage of fine to coarse sand.	A-7-5(11)		32	51	31	20			G	
2		NOTE: Auger terminated at 1.30 meters depth.										

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INDUSTRIAL INSPECTION [INT'L] INC.

CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT: August 19,1991

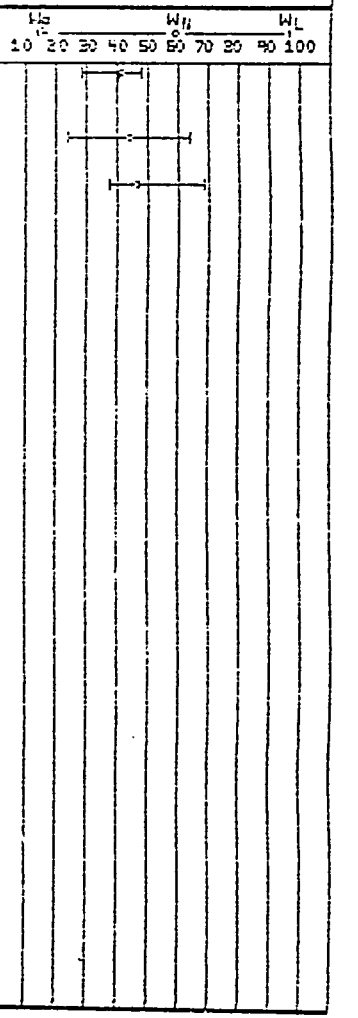
PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN , MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

AUGER HOLE NO. AH - 2 STA. 0+380 DATE : August 5,1991
ELEVATION G.W.L. : none

DEPTH (meter)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% NMC	LL	PL	PI	MDD g/cm³	OMC %	OTHER TESTS
		Reddish brown , lean CLAY	A-7-6(14)		42	49	29	20			G
		Reddish brown , fat CLAY	A-7-6(20)		44	63	24	39			G
		Reddish brown , fat CLAY with traces of gravel size corals.	A-7-5(20)		47	69	38	31			G
1											
		NOTE: Auger terminated at 1.30 meters depth.									
2											



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INDUSTRIAL INSPECTION [INT'L] INC.

CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1271 PHILIPPINES

DATE OF REPORT AUGUST 21, 1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LABUNCINGAN, MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

AUGER HOLE No. AH - 3 STA. 2+875 DATE : August 5,1991
ELEVATION G.W.L. : none

DEPTH [meter]	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% NMC	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS	Wp 10 20 30 40 50 60 70 80 90 100 WL
		Reddish Brown, fat CLAY.	A-7-5(18)		40	61	36	25			G	
			A-7-5(19)		43	65	38	27			G	
1		Reddish Brown, lean CLAY.	A-7-5(10)		41	47	35	12			G	
2		NOTE: Auger terminated at 1.30 meters depth.										

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INDUSTRIAL INSPECTION [INT'L] INC.

CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 21, 1991

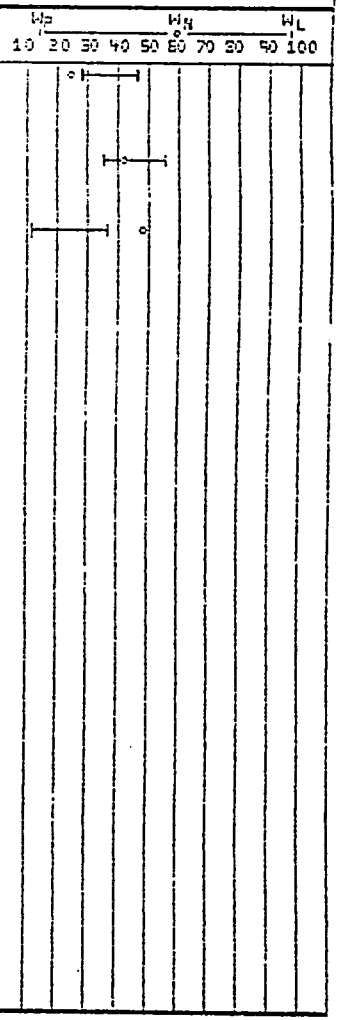
PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN , MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

BORE HOLE NO. AH-4 STA. 2+615 DATE : August 5,1991
ELEVATION G.W.L. : none

DEPTH (meter)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% NMC	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS
		Mottled Brown and Reddish Brown lean CLAY.	A-7-6(12)		25	46	28	18			G
		Reddish Brown fat CLAY.	A-7-5(15)		48	55	35	20			G
1		Reddish Brown lean CLAY with some gravel size corals.	A-7-5(10)		48	37	11	6			G
2		NOTE : Auger terminated at 1.25 meters depth.									



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CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 21, 1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

BORER HOLE NO. AP-5 STA. 3+370 DATE : August 5,1991
ELEVATION G.W.L. : none

DEPTH (meter)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% NMC	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS	Wp 10 20 30 40 50 60 70 80 90 100 Wn Wl
		Mottled Brown and Reddish Brown CLAYEY SILT with traces of gravel and tree roots.	A-5(9)		40	46	36	10			G	
1		Reddish Brown SANDY fat CLAY with traces of gravel size corals.	A-7-5(10)		28	59	39	20			G	
2		NOTE: Auger terminated at 1.15 meters depth.										

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INDUSTRIAL INSPECTION [INT'L] INC.

CONTRACTOR'S LICENSE No 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 21 ,1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN , MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

BORE HOLE NO. AH- 6 STA . 24120 DATE : August 6,1991
ELEVATION G.W.L. : none

DEPTH [meter]	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% NMC	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS	W_P 10 20 30 40	W_N 50 60 70 80	W_L 90 100
		Chocolate Brown fat CLAYEY gravel size corals with small percentage of fine to coarse sand.	A-7-5(9)		24	72	42	31			G			
		Mottled brown and Reddish Brown CLAYEY gravel size corals.	A-2-7(1)		12	42	22	31			G			
1		Mottled Brown and Reddish Brown lean CLAYEY SAND with traces of gravel size corals.	A-6(1)		15	30	19	12			G			
2		NOTE : Auger terminated at 1.35 meters depth.												

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INDUSTRIAL INSPECTION [INT'L.] INC.

CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 21, 1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN , MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

AUGER HOLE NO. AH - 7 STA.1+875 DATE : August 6,1991
ELEVATION G.W.L. : none

DEPTH (meter)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% NMC	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS	Ws Wn WL 10 20 30 40 50 60 70 80 90 100
1		Dark Brown fat CLAY with traces of gravel and tree roots.	A-7-5(15)		35	71	46	25			G	
		Brown CLAYEY SANDY gravel size corals.	A-2-6(0)		14	40	23	17			G	
		Mottled Brown and Reddish Brown CLAYEY SANDY gravel size corals.	A-7-6(8)		28	51	27	24			G	
2		NOTE : Auger terminated at 1.50 meters depth.										

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CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 2 3 ,1991

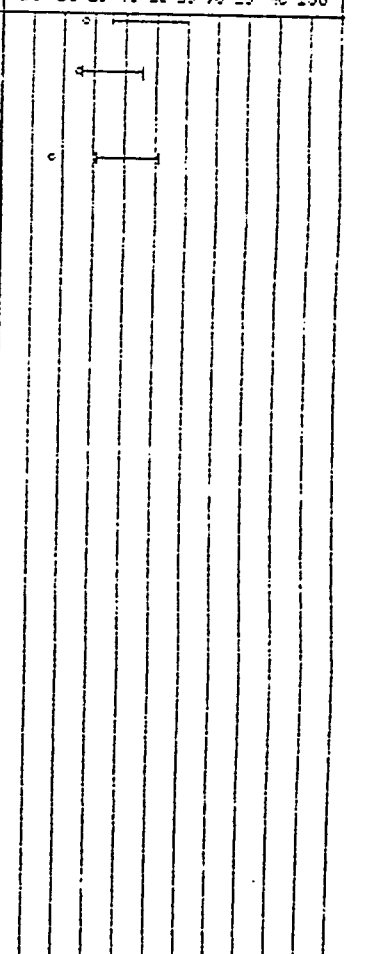
PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINGINGAN, MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

AUGER HOLE NO. AH - 8 STA. 1+620 DATE : August 6,1991
ELEVATION G.W.L. : none

DEPTH (Meter)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% WMC	LL	PL	PI	MDD g/cm³	OMC %	OTHER TESTS
		Mottled Brown and Reddish Brown fat CLAY with gravel size corals.	A-7-5(3)		37	60	35	25			G
		Brown CLAYEY SANDY gravel size corals.	A-2-7(1)		25	46	26	20			G
1		Brown CLAYEY SANDY gravel size corals.	A-2-7(0)		17	51	31	20			G
2		NOTE : Auger terminated at 1.35 meters depth.									



BEST AVAILABLE DOCUMENT

46

INDUSTRIAL INSPECTION [INT'L] INC.

CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 2 3,1991

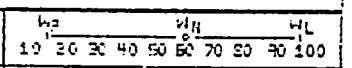
PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

AUGER HOLE NO. AH - 9 STA. 14370 DATE : August 6,1991
ELEVATION G.W.L. : none

DEPTH (meter)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% NMC	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS
		Chocolate Brown fat CLAY with tree roots.	A-7-6(19)		51	64	26	28			G
			A-7-5(18)		53	67	32	35			G
		Mottled dark Brown and Reddish Brown fat CLAY with coral limestone/coral gravel.	A-7-5(12)		23	85	38	47			G
		NOTE : Auger terminated at 1.15 meters depth.									



BEST AVAILABLE DOCUMENT

47

INDUSTRIAL INSPECTION [INT'L] INC.

CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 20, 1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

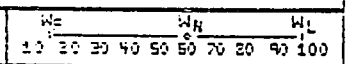
LOCATION : LAGUINDINGAN , MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

AUGER HOLE NO. AH-10 STA. 1+125
ELEVATION

DATE : August 6, 1991
G.W.L. : none

DEPTH (meter)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% NMC	LL	PL	PI	MDR g/cc	OMC %	OTHER TESTS
		Chocolate brown, fat CLAY with some gravel size corals and tree roots.	A-7-5(15)		31	65	34	31			G
		Chocolate brown, fat CLAY	A-7-5(20)		52	63	34	29			G
1		Mottled brown and dark brown, fat CLAY			52	78	43	35			G
2		NOTE : Auger terminated at 1.50 meters depth.									



BEST AVAILABLE DOCUMENT

48

INDUSTRIAL INSPECTION [INT'L] INC.

CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 23,1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

AUGER HOLE NO. AH - 11 STA. 0+875 DATE :August 6,1991
ELEVATION G.W.L. : none

DEPTH (meters)	LOG	SOIL DESCRIPTION	ASSHTO CLASSIFICATION	TEST NO.	% MAC	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS	Wp Wn WL 10 20 30 40 50 60 70 80 90 100
1		Chocolate Brown SANDY fat CLAY with traces of gravel size corals.	A-7-5(18)		38	62	28	34			G	
		Dark Brown GRAVELLY fat CLAY with traces of corals/limestone & fine to coarse sand.	A-7-5(11)		30	61	34	27			G	
		Dark Brown SANDY fat CLAY with gravel size corals.	A-7-6(10)		29	56	29	27			G	
2		NOTE : Auger terminated at 1.50 meters depth.										

BEST AVAILABLE DOCUMENT

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INDUSTRIAL INSPECTION [INT'L] INC.

CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 2 3,1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN - MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

AUGER HOLE NO. AH - 12 STA. 0+685 DATE : August 6,1991
ELEVATION S.W.L. : none

DEPTH (meter)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% NMC	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS	Wp 10 20 30 40 50 60 70 80 90 100 Wn WL
		Reddish Brown fat CLAY with tree roots.	A-7-5(17)		45	68	36	32			G	
1		Reddish Brown fat CLAY.	A-7-5(20)		45	74	36	33			G	
2		NOTE : Auger terminated at 1.50 meters depth.										

BEST AVAILABLE DOCUMENT

50

INDUSTRIAL INSPECTION [INT'L] INC.

CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 23, 1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

AUGER HOLE NO. AH - 13 STA. 0+375 DATE : August 6.1991
ELEVATION S.W.L. : none

DEPTH (meter)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	% MOIS	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS	Wp 10 20 30 40 50 60 70 80 90 100 WL
1		Reddish Brown fat CLAY.	A-7-5(17)		38	57	32	25			G	
		Reddish Brown fat CLAY.	A-7-6(18)		38	56	29	27			G	
2		NOTE : Auger terminated 1.50 meters depth.										

BEST AVAILABLE DOCUMENT

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INDUSTRIAL INSPECTION [INT'L] INC.

CONTRACTOR'S LICENSE No. 3774 (GENERAL ENGINEERING)
MCC P.O. BOX 1071 PHILIPPINES

DATE OF REPORT AUGUST 23, 1991

PROJECT : CAGAYAN DE ORO - ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN , MISAMIS ORIENTAL

SUBSURFACE EXPLORATION LOG

BORE HOLE NO. AH - 14 STA. 2+000
ELEVATION

DATE : August 7, 1991
G.W.L. : none

DEPTH (meter)	LOG	SOIL DESCRIPTION	AASHTO CLASSIFICATION	TEST No.	W/C %	LL	PL	PI	MDD g/cc	OMC %	OTHER TESTS	Wp 10 20 30 40 50 60 70 80 90 100 Wn WL
1		Brown CLAYEY SANDY gravel size corals with traces of fine to coarse sand.	A-2-6(1)		13	39	26	13			G	
		Mottled Brown and Reddish Brown CLAYE SANDY gravel size corals with traces of fine to coarse sand.	A-2-7(3)		18	44	19	25			G	
2		NOTE: Auger terminated at 1.50 meters depth.										

BEST AVAILABLE DOCUMENT

2.6 LABORATORY TEST RESULTS

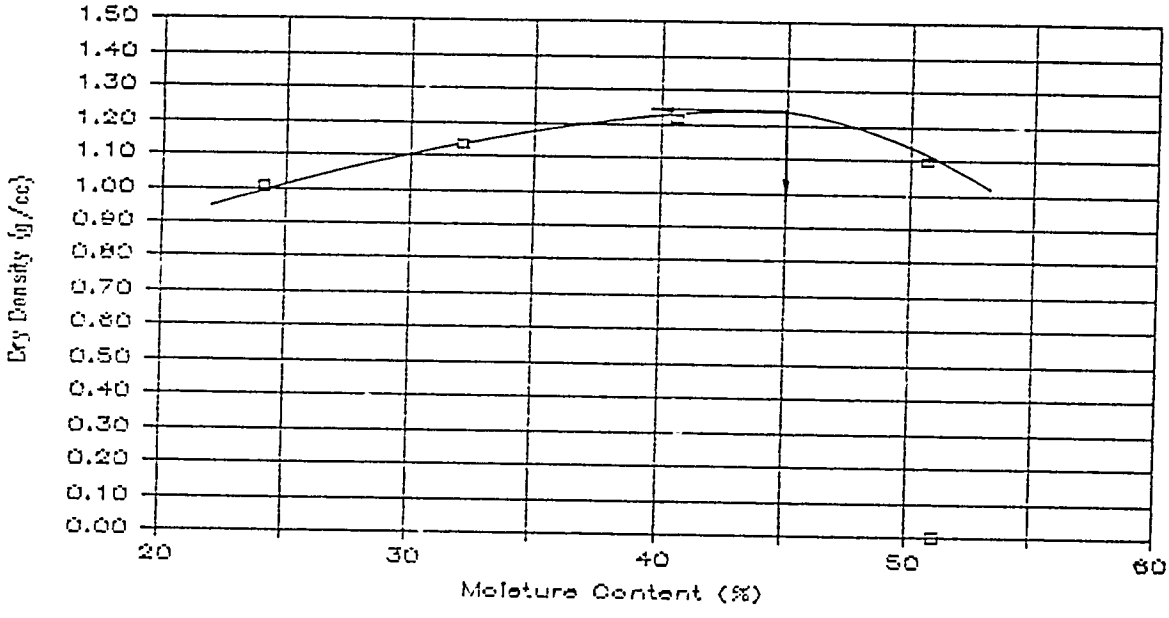
2.6.1 MDD AND CBR TESTS

INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

PROJECT :	Cagayan De Oro Iligan	DATE REPORTED	08/23/91
	Airport Project	TEST NO.:	TP - 1
ADDRESS :	Laguindingan, Misamis Oriental	DEPTH :	0.80-150 M

F I N A L R E P O R T

MOISTURE-DENSITY RELATIONS OF SOIL



Run No.	1	2	3	4	5
Dry Density, g/cc.	1.005	1.134	1.217	1.099	
Moisture Cont., %	24.11	32.13	40.62	50.68	

MAXIMUM DRY DENSITY, g/cc. 1.24

OPTIMUM MOISTURE CONTENT, % 45.00

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INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT : Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP - 1

DEPTH : 0.80-1.50 M

Date Reported: August 23, 1991

FINAL REPORT

GRAPH

10 BLOWS

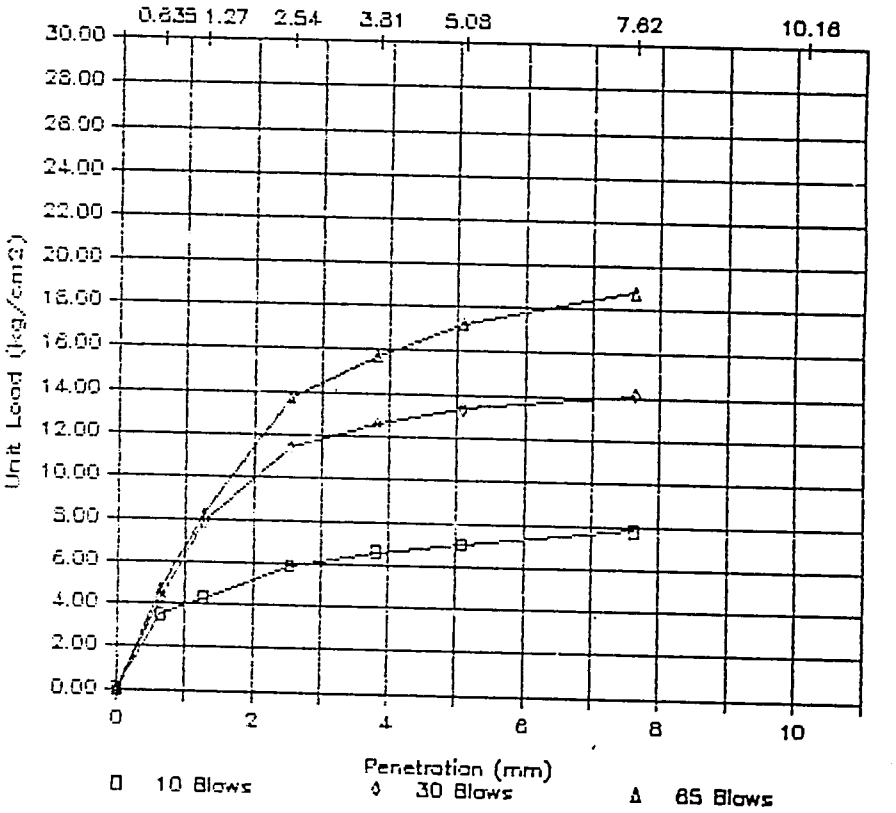
Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	3.52	4.31	5.88	6.66	7.05	7.84	8.226	
Std. Load, kg/cm2			70		105			
C.B.R., %			8.39		6.71			1.060
Corrected CBR, %								

30 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	4.31	7.84	11.36	12.54	13.32	14.10	15.278	
Std. Load, kg/cm2			70		105			
C.B.R., %			16.23		12.68			1.215
Corrected CBR, %			0.00		0.00			

65 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	4.70	8.23	13.71	15.67	17.24	18.80	19.59	
Std. Load, kg/cm2			70		105			
C.B.R., %			19.59		16.42			1.237
Corrected CBR, %			0.00		0.00			



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INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT :Cagayan De Oro Iligan Airport Project

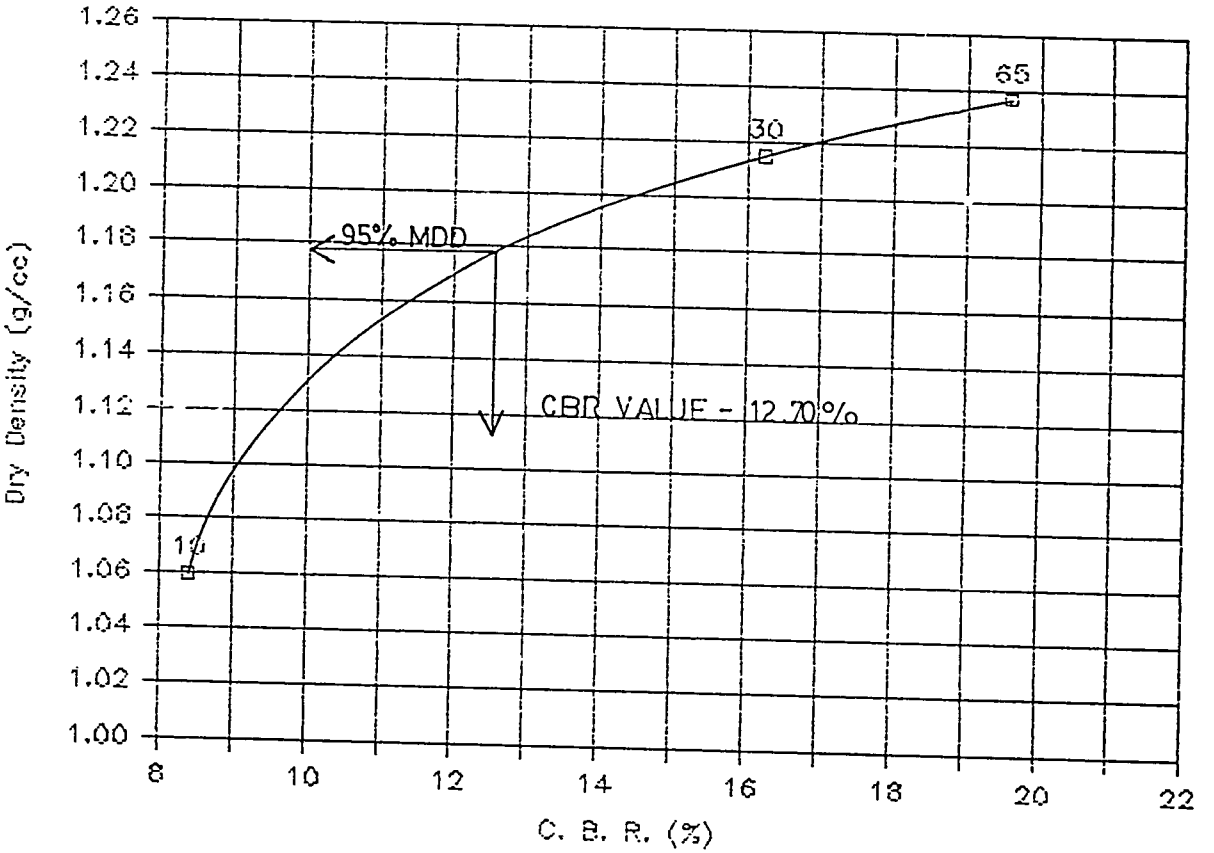
LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP - 1

DEPTH : 0.80-1.50 M

Date Reported: August 23, 1991

DRY DENSITY Vs. C.B.R.



51

INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

PROJECT : Cagayan De Oro Iligan
Airport Project

LOCATION: Laguindingan, Misamis Oriental

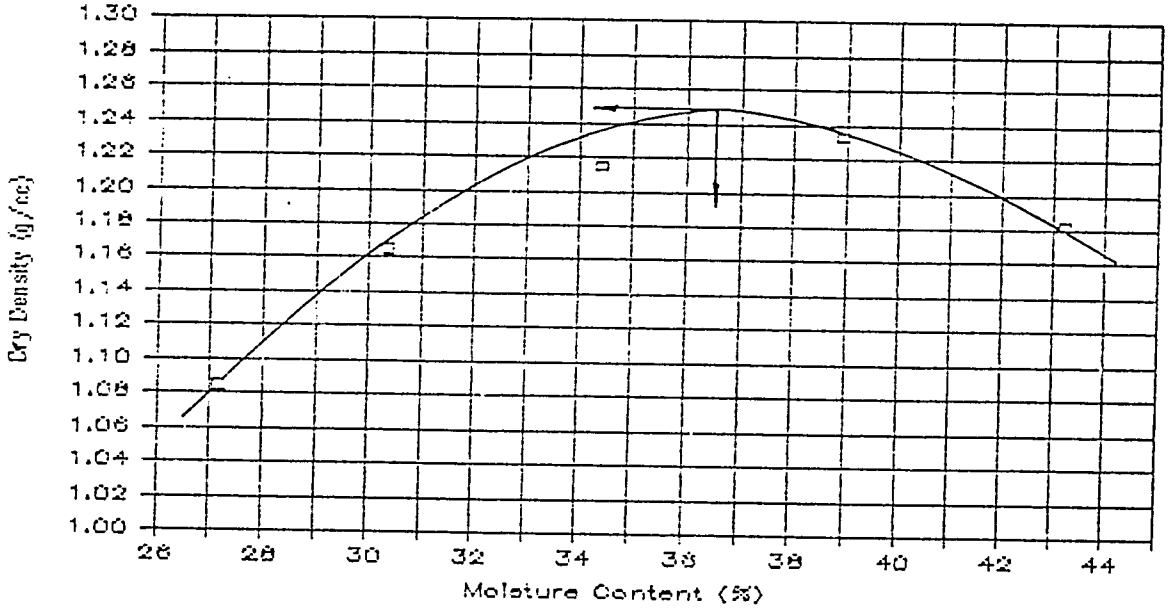
DATE REPORTED 08/23/91

TEST NO.: TP - 2

DEPTH : 0.20-1.70 M

F I N A L R E P O R T

MOISTURE-DENSITY RELATIONS OF SOIL



Run No.	1	2	3	4	5
Dry Density, g/cc.	1.085	1.165	1.215	1.233	1.182
Moisture Cont., %	27.15	30.35	34.41	38.89	43.22

MAXIMUM DRY DENSITY, g/cc. 1.25

OPTIMUM MOISTURE CONTENT, % 36.50

INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT :Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP - 2

DEPTH : 0.20-1.70 M

Date Reported: August 24, 1991

FINAL REPORT

10 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	0.78	0.78	1.96	1.96	2.74	4.70	6.268	
Std. Load, kg/cm2			70		105			
C.B.R., %			2.80		2.61			0.955
Corrected CBR, %								

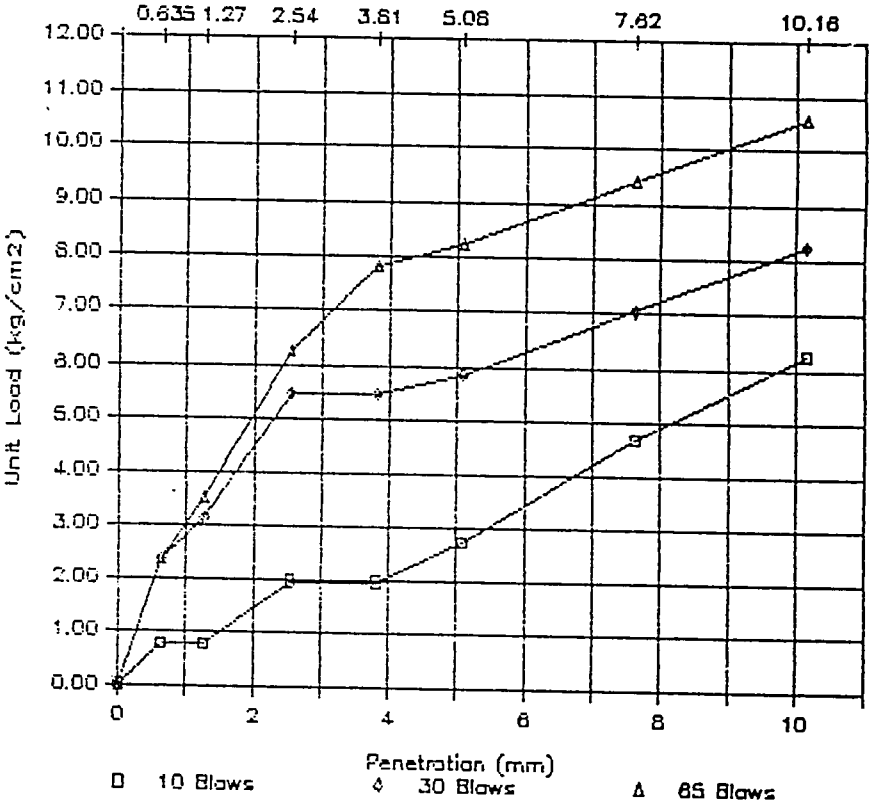
30 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	2.35	3.13	5.48	5.48	5.88	7.05	8.226	
Std. Load, kg/cm2			70		105			
C.B.R., %			7.83		5.60			1.074
Corrected CBR, %			0.00		0.00			

65 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	2.35	3.53	6.27	7.84	8.23	9.40	10.58	
Std. Load, kg/cm2			70		105			
C.B.R., %			8.95		7.83			1.165
Corrected CBR, %			0.00		0.00			

GRAPH



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INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

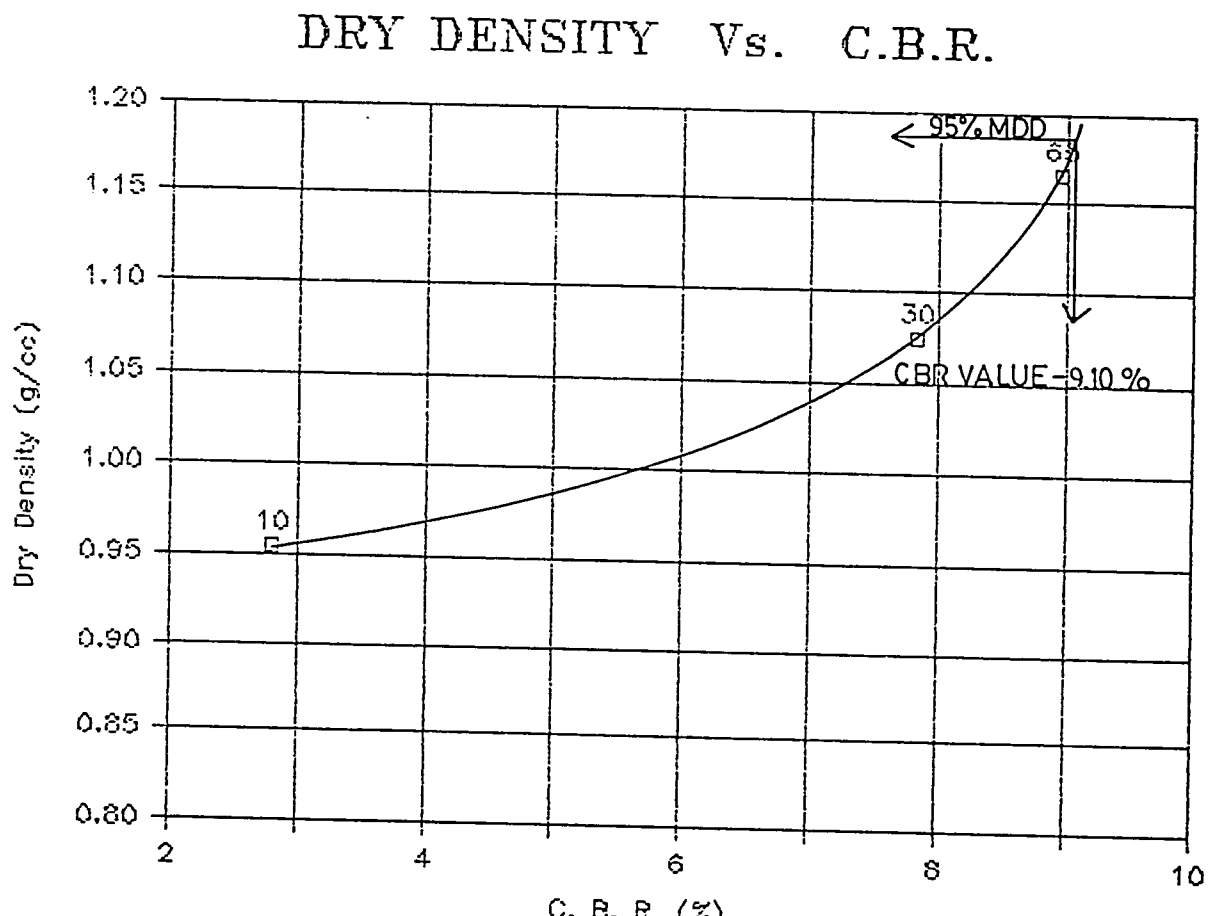
PROJECT :Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP - 2

DEPTH : 0.20-1.70 M

Date Reported: August 24, 1991



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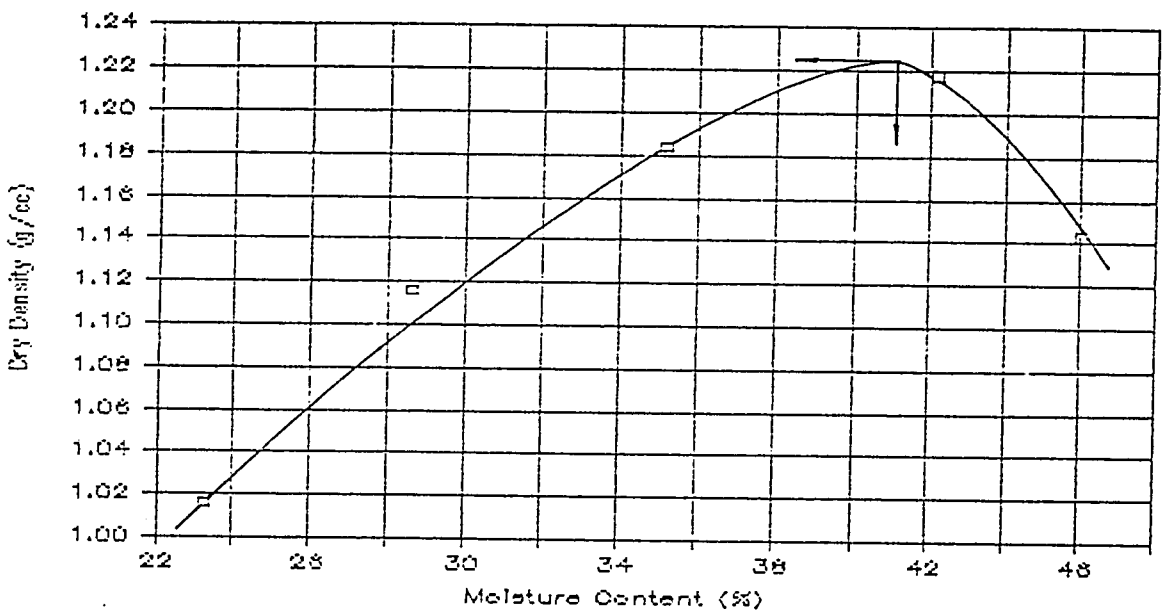
INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

PROJECT : Cagayan De Oro Iligan
Airport Project
LOCATION: Laguindingan, Misamis Oriental

DATE REPORTED 08/23/91
TEST NO.: TP - 3
DEPTH : 1.00-1.50 M

F I N A L R E P O R T

MOISTURE-DENSITY RELATIONS OF SOIL



Run No.	1	2	3	4	5
Dry Density, g/cc.	1.016	1.116	1.184	1.218	1.143
Moisture Cont., %	23.26	28.61	35.18	42.16	46.02

MAXIMUM DRY DENSITY, g/cc. 1.225

OPTIMUM MOISTURE CONTENT, % 41.00

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INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT :Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP - 3

DEPTH : 1.00-1.50 M

Date Reported: August 24, 1991

FINAL REPORT

10 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	1.40	3.53	4.70	5.09	5.48	6.27	6.659	
Std. Load, kg/cm2			70		105			
C.B.R., %			6.72		5.22			1.076
Corrected CBR, %								

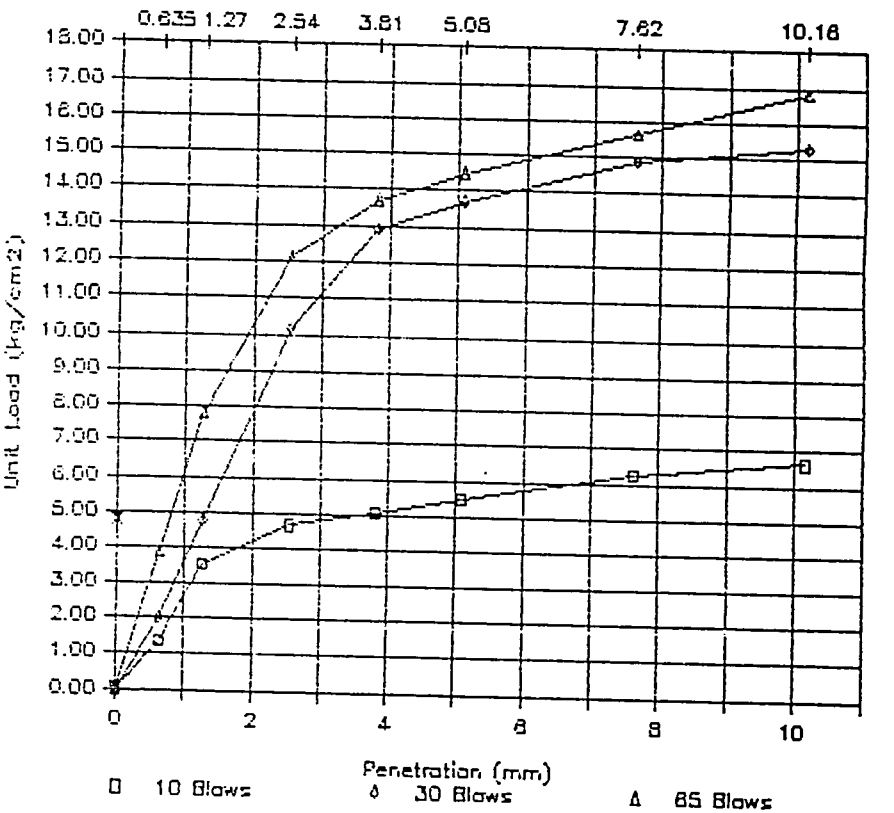
30 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	2.00	4.80	10.19	12.93	13.71	14.89	15.278	
Std. Load, kg/cm2			70		105			
C.B.R., %			14.55		13.06			1.184
Corrected CBR, %			0.00		0.00			

65 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	3.92	7.84	12.14	13.71	14.49	15.67	16.84	
Std. Load, kg/cm2			70		105			
C.B.R., %			17.35		13.80			1.247
Corrected CBR, %			0.00		0.00			

GRAPH



INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

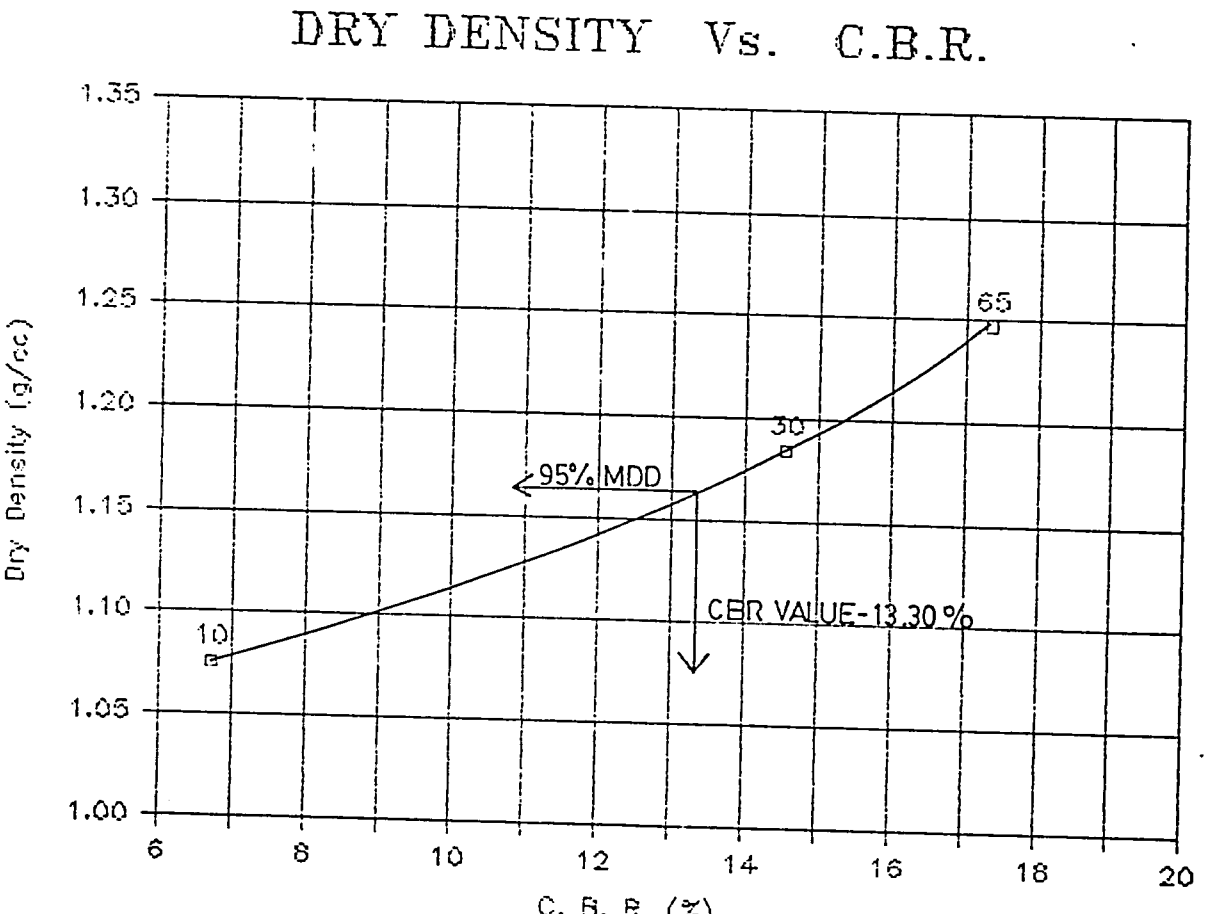
PROJECT :Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP - 3

DEPTH : 1.00-1.50 M

Date Reported: August 24, 1991

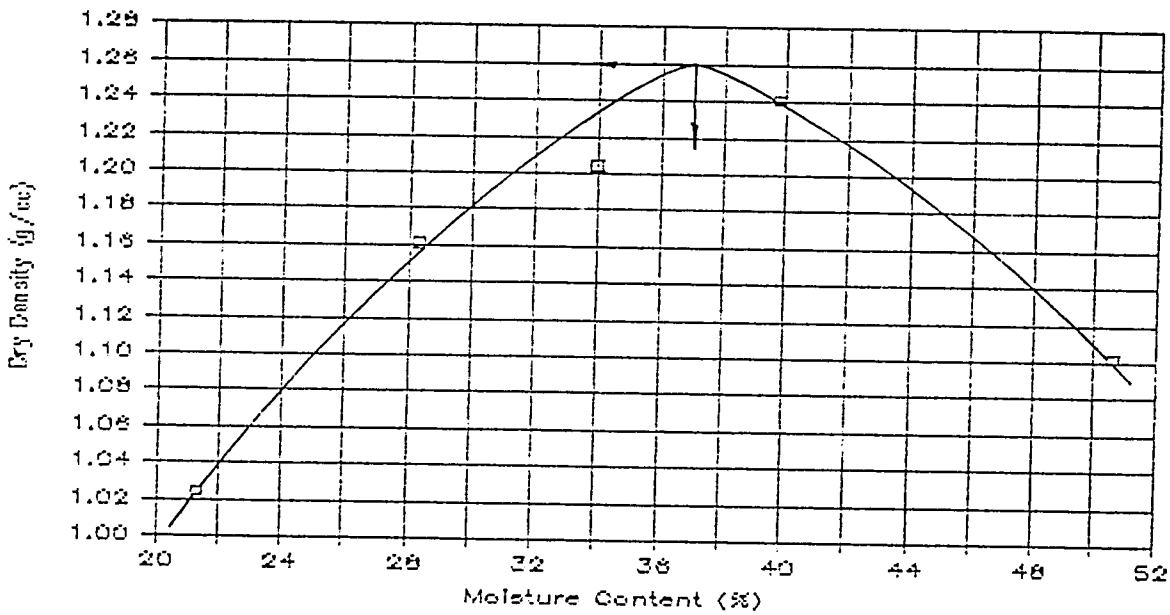


INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

PROJECT :	Cagayan De Oro Iligan	DATE REPORTED	08/24/91
	Airport Project	TEST NO.:	TP - 4
LOCATION:	Laguindingan, Misamis Oriental	DEPTH :	0.80-1.50 M

F I N A L R E P O R T

MOISTURE-DENSITY RELATIONS OF SOIL



Run No.	1	2	3	4	5
Dry Density, g/cc.	1.024	1.161	1.204	1.241	1.102
Moisture Cont., %	21.31	28.31	33.92	39.79	50.60

MAXIMUM DRY DENSITY, g/cc. 1.26

OPTIMUM MOISTURE CONTENT, % 37.00

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INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT :Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP - 4

DEPTH : 0.80-1.50 M

Date Reported: August 24, 1991

FINAL REPORT

10 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	0.53	1.07	1.46	1.70	1.94	2.18	2.43	
Std. Load, kg/cm2			70		105			
C.B.R., %			2.09		1.85			1.062
Corrected CBR, %								

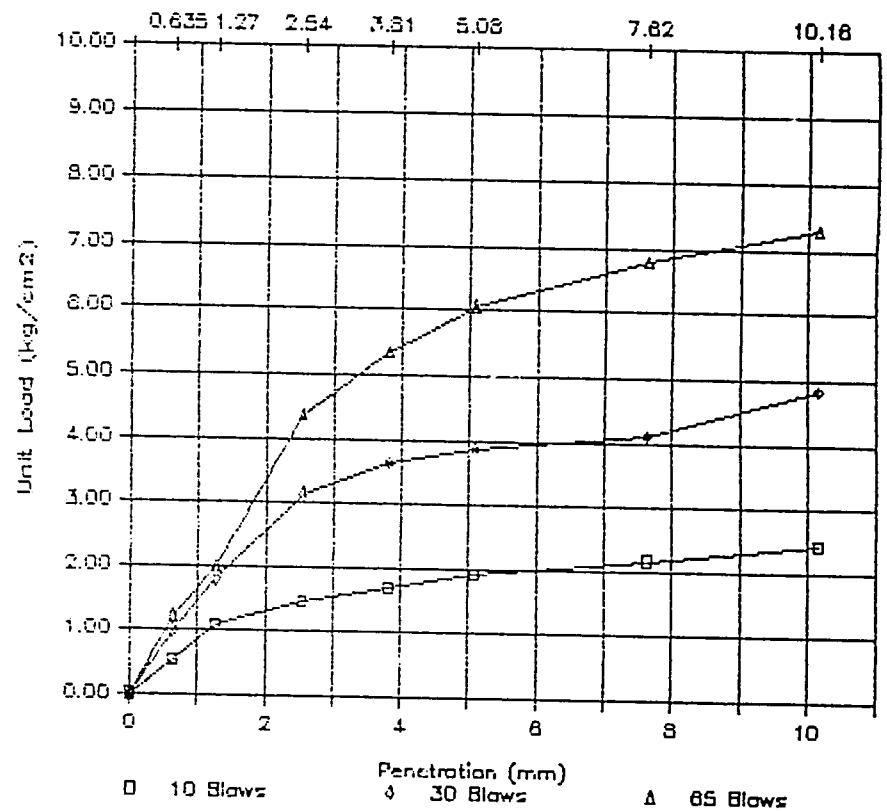
30 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	0.97	1.80	3.15	3.64	3.88	4.12	4.85	
Std. Load, kg/cm2			70		105			
C.B.R., %			4.50		3.70			1.243
Corrected CBR, %			0.00		0.00			

65 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	1.21	2.00	4.37	5.34	6.07	6.79	7.28	
Std. Load, kg/cm2			70		105			
C.B.R., %			6.24		5.78			1.265
Corrected CBR, %			0.00		0.00			

GRAPH



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INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT :Cagayan De Oro Iligan Airport Project

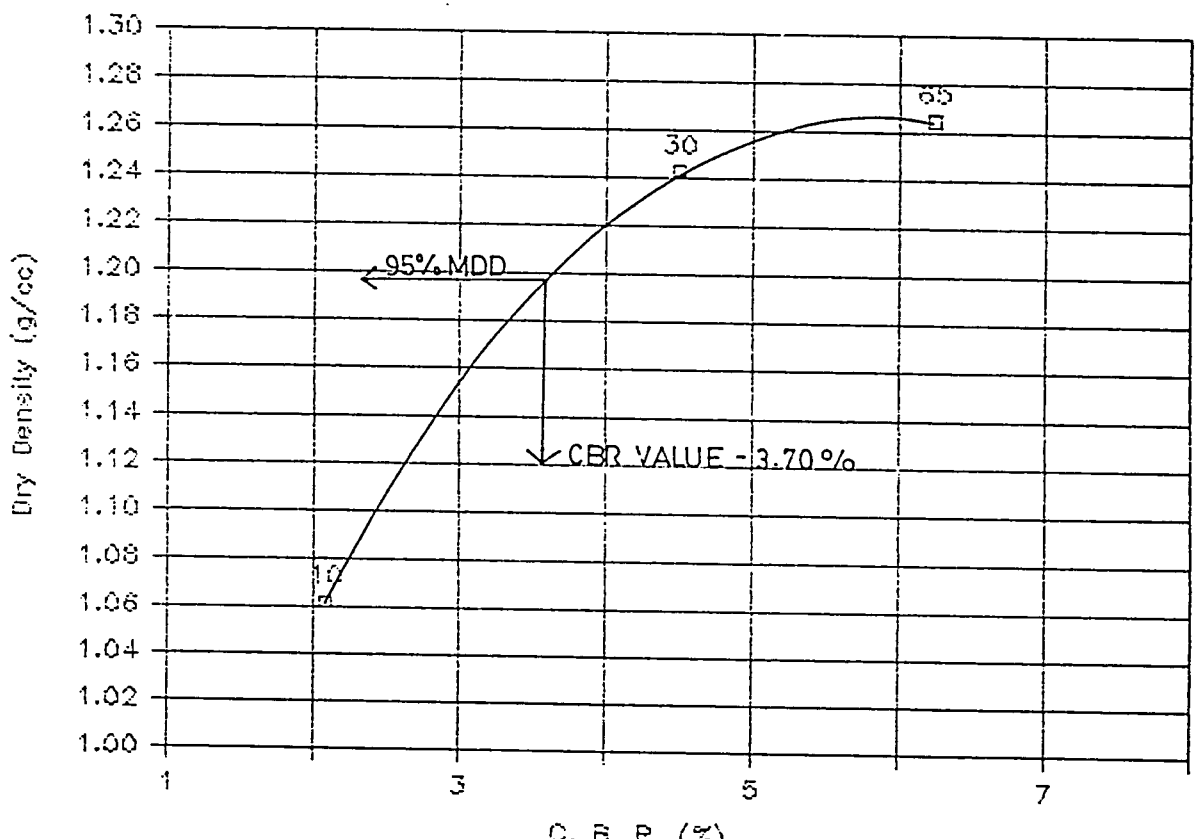
LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP - 4

DEPTH : 0.80-1.50 M

Date Reported: August 24, 1991

DRY DENSITY Vs. C.B.R.



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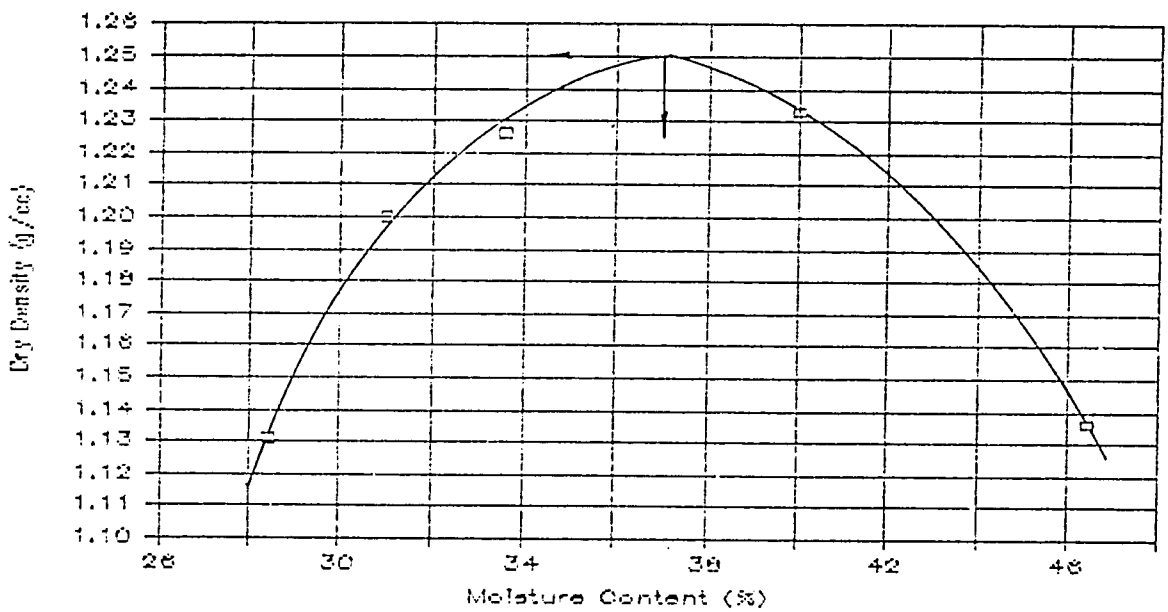
INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

PROJECT :	Cagayan De Oro Iligan	DATE REPORTED	08/23/91
	Airport Project	TEST NO.:	TP - 5
LOCATION:	Laguindingan, Misamis Oriental	DEPTH :	0.70-1.50 M

F I N A L R E P O R T

MOISTURE-DENSITY RELATIONS OF SOIL



Run No.	1	2	3	4	5
Dry Density, g/cc.	1.131	1.200	1.226	1.233	1.136
Moisture Cont., %	28.42	31.00	33.58	40.02	46.44

MAXIMUM DRY DENSITY, g/cc.	1.25
OPTIMUM MOISTURE CONTENT, %	37.00

67

INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT :Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP - 5

DEPTH : 0.70-1.50 M

Date Reported: August 24, 1991

FINAL REPORT

10 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	1.96	2.35	3.92	6.27	7.44	11.36	13.711	
Std. Load, kg/cm2			70		105			
C.B.R., %			5.60		7.09			1.030
Corrected CBR, %								

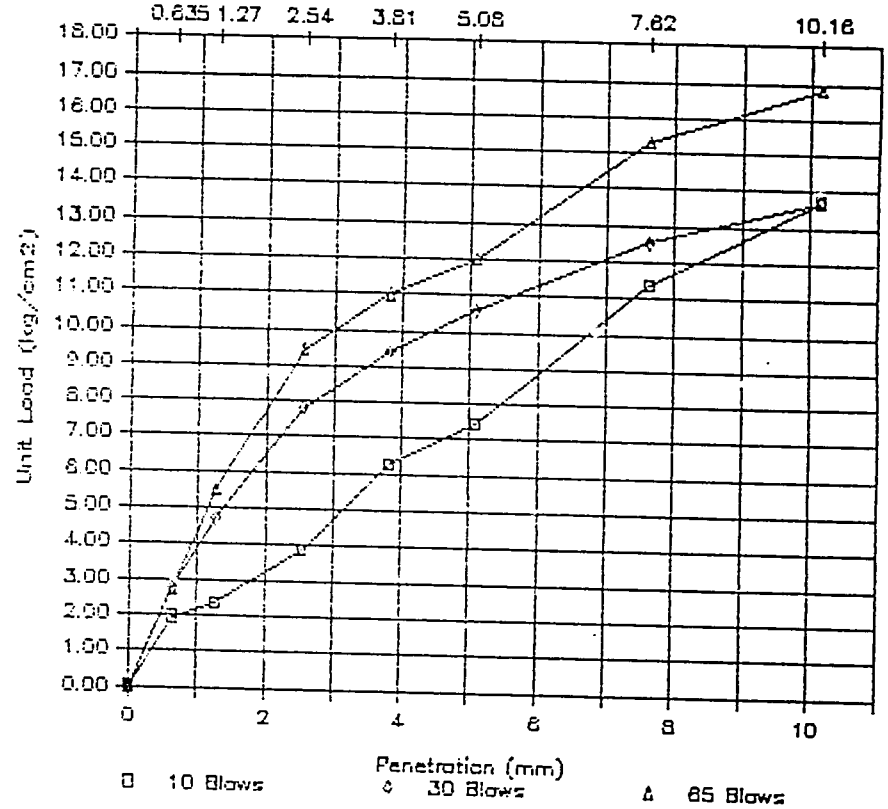
30 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	2.74	4.70	7.84	9.40	10.58	12.54	13.711	
Std. Load, kg/cm2			70		105			
C.B.R., %			11.19		10.07			1.204
Corrected CBR, %			0.00		0.00			

65 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	2.74	5.53	9.44	11.00	12.00	15.28	16.84	
Std. Load, kg/cm2			70		105			
C.B.R., %			13.49		11.43			1.259
Corrected CBR, %			0.00		0.00			

GRAPH



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INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

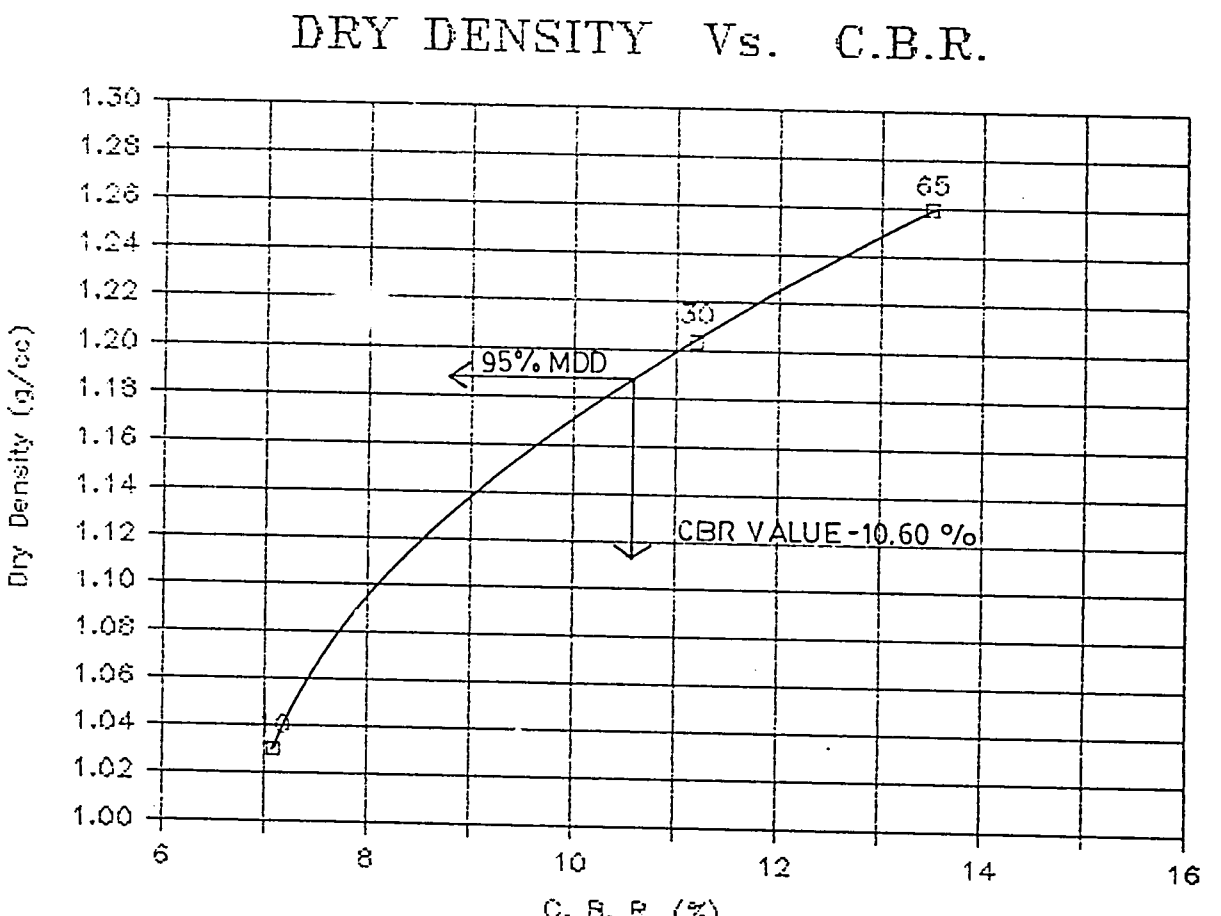
PROJECT :Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP - 5

DEPTH : 0.70-1.50 M

Date Reported: August 24, 1991



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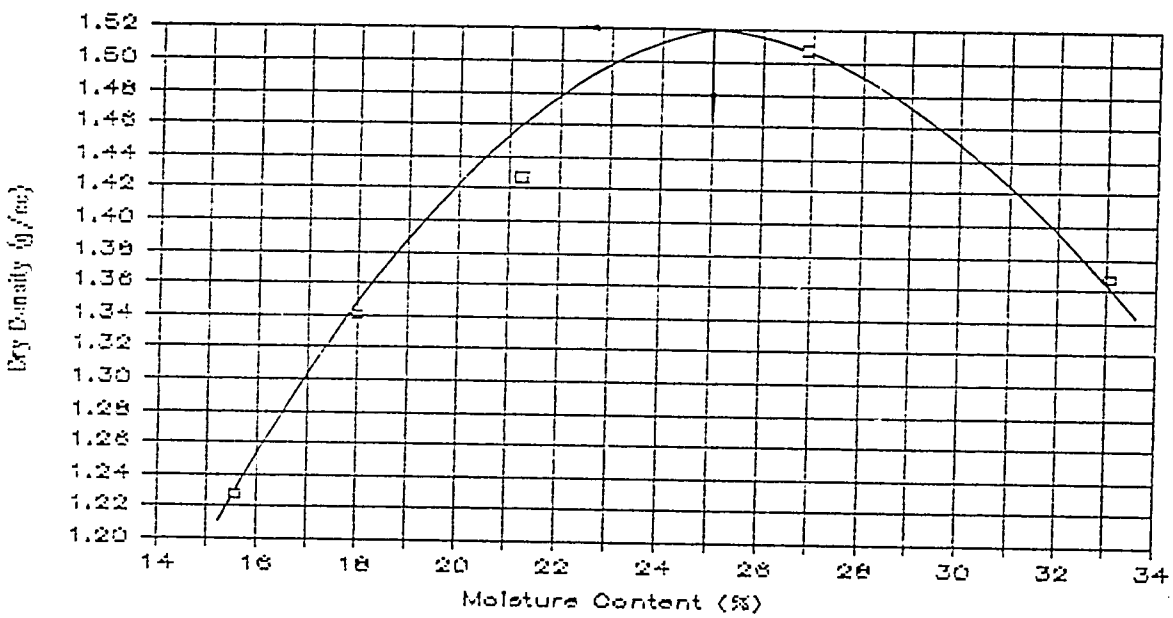
INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

PROJECT : Cagayan De Oro Iligan
Airport Project
LOCATION: Laguindingan, Misamis Oriental

DATE REPORTED 08/23/91
TEST NO.: TP - 6
DEPTH : 0.70-1.50 M

F I N A L R E P O R T

MOISTURE-DENSITY RELATIONS OF SOIL



Run No.	1	2	3	4	5
Dry Density, g/cc.	1.228	1.340	1.427	1.508	1.367
Moisture Cont., %	15.58	18.00	21.26	26.91	33.08

MAXIMUM DRY DENSITY, g/cc. 1.52

OPTIMUM MOISTURE CONTENT, % 25.00

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INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT : Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP - 6

DEPTH : 0.70-1.50 M

Date Reported: August 24, 1991

FINAL REPORT

10 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	3.13	4.70	6.66	7.84	8.23	9.01	9.402	
Std. Load, kg/cm2			70		105			
C.B.R., %			9.51		7.83			1.337
Corrected CBR, %								

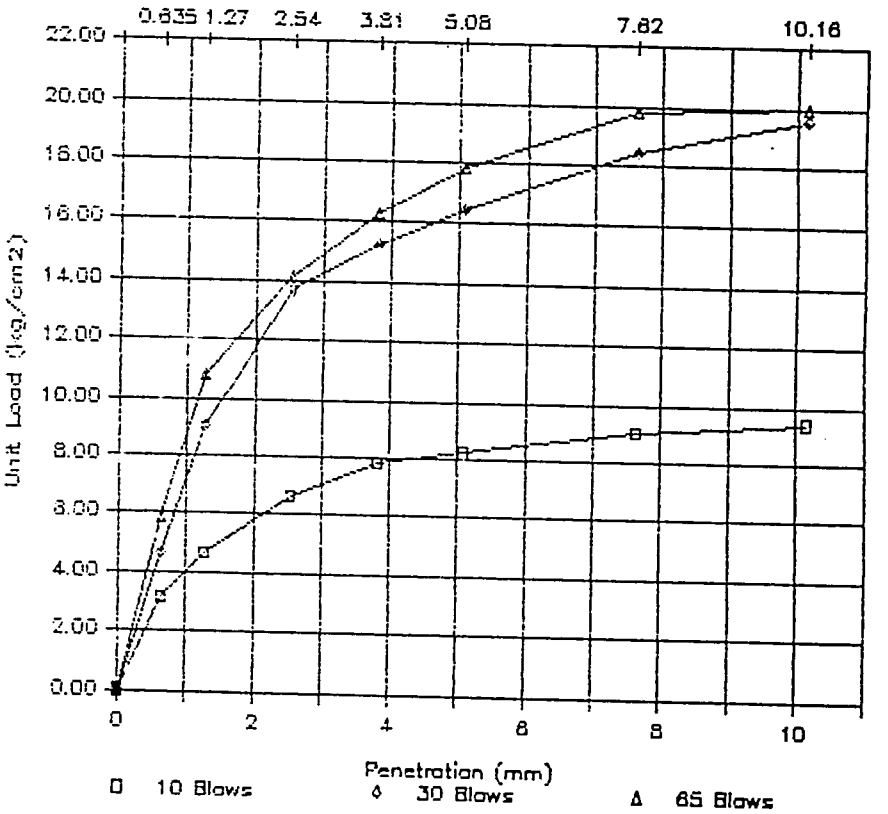
30 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	4.70	9.01	13.71	15.28	16.45	18.41	19.587	
Std. Load, kg/cm2			70		105			
C.B.R., %			19.59		15.67			1.502
Corrected CBR, %			0.00		0.00			

65 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	5.92	10.84	14.14	16.28	17.84	19.80	19.98	
Std. Load, kg/cm2			70		105			
C.B.R., %			20.21		16.99			1.517
Corrected CBR, %			0.00		0.00			

GRAPH



INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT :Cagayan De Oro Iligan Airport Project

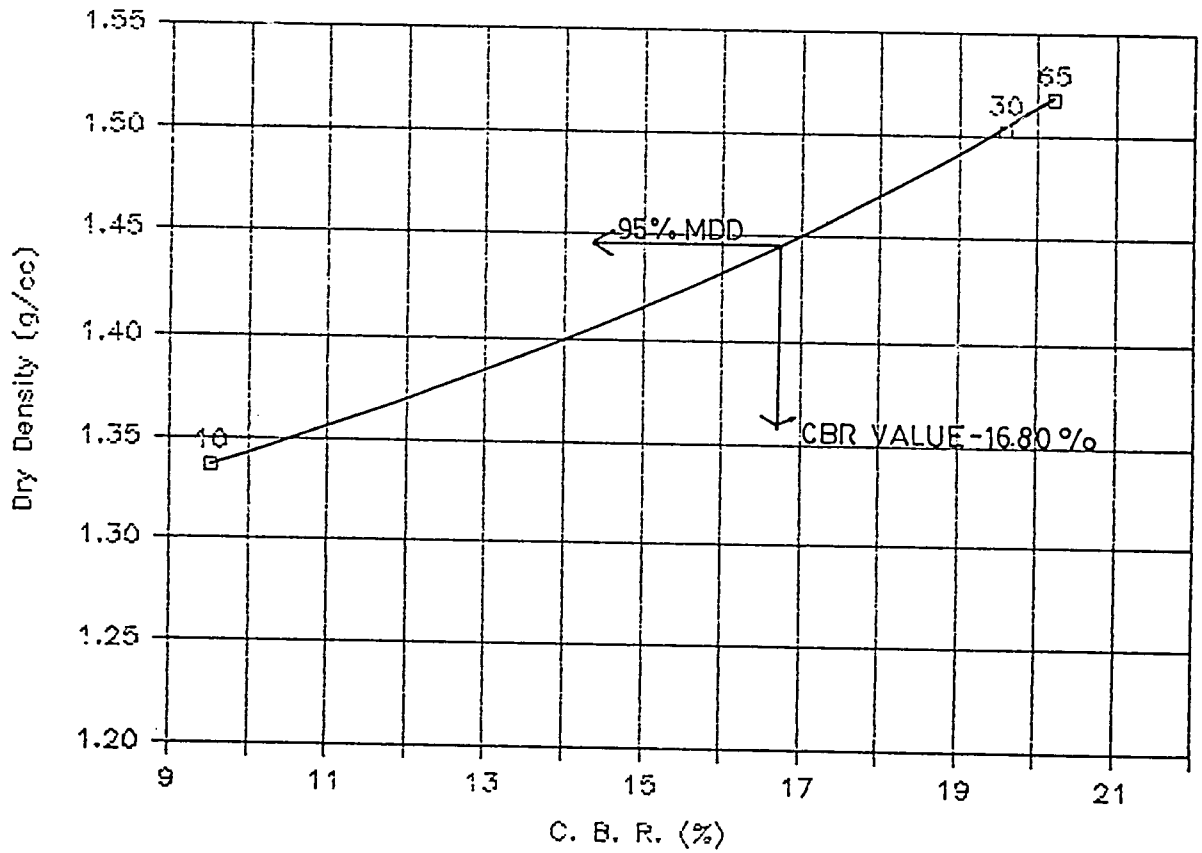
LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP - 6

DEPTH : 0.70-1.50 M

Date Reported: August 24, 1991

DRY DENSITY Vs. C.B.R.



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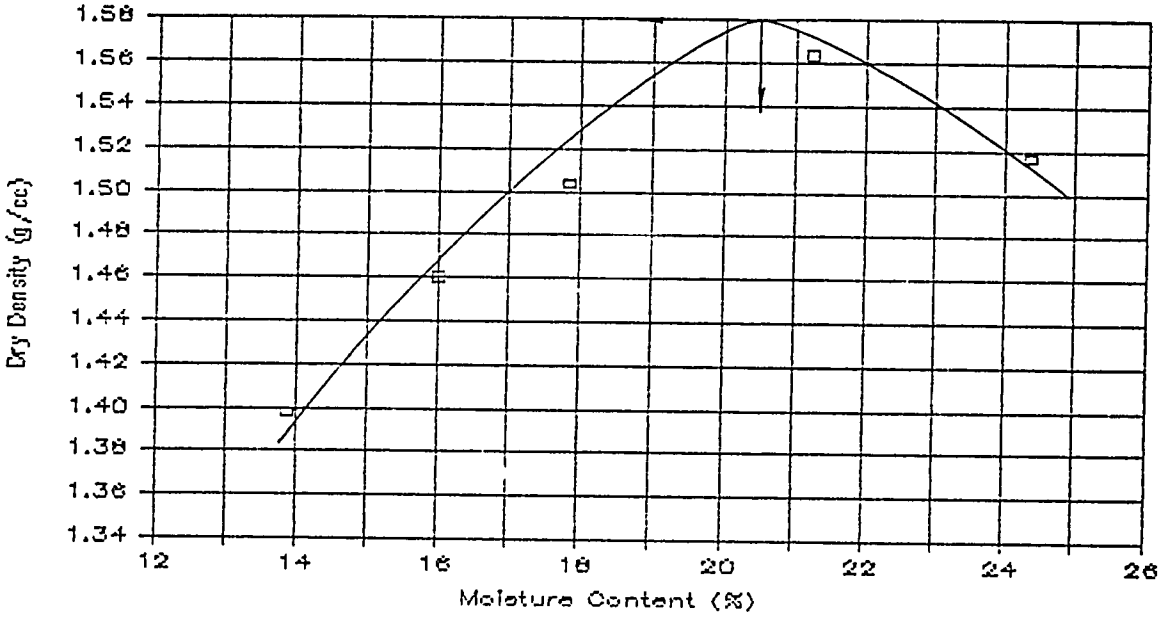
INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

PROJECT :	Cagayan De Oro Iligan	DATE REPORTED	08/23/91
	Airport Project	TEST NO.:	TP - 7
LOCATION:	Laguindingan, Misamis Oriental	DEPTH :	0.50-1.00 M

F I N A L R E P O R T

MOISTURE-DENSITY RELATIONS OF SOIL



Run No.	1	2	3	4	5
Dry Density, g/cc.	1.398	1.460	1.504	1.564	1.517
Moisture Cont., %	13.88	16.00	17.84	21.24	24.35

MAXIMUM DRY DENSITY, g/cc. 1.58

OPTIMUM MOISTURE CONTENT, % 20.50

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INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT :Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP -7

DEPTH : 0.50-1.00M

Date Reported: August 24, 1991

FINAL REPORT

GRAPH

10 BLOWS

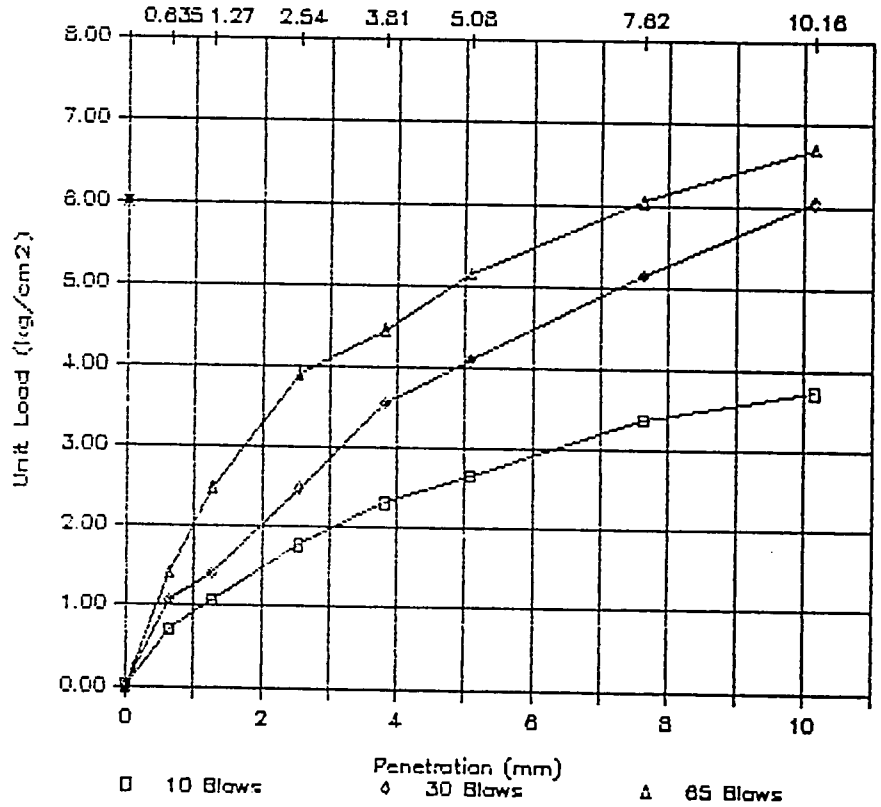
Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	0.71	1.07	1.78	2.31	2.67	3.38	3.74	
Std. Load, kg/cm2			70		105			
C.B.R., %			2.54		2.54			1.382
Corrected CBR, %								

30 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	1.07	1.42	2.49	3.56	4.09	5.16	6.04	
Std. Load, kg/cm2			70		105			
C.B.R., %			3.56		3.90			1.489
Corrected CBR, %			0.00		0.00			

65 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	1.42	2.49	3.91	4.45	5.16	6.04	6.71	
Std. Load, kg/cm2			70		105			
C.B.R., %			5.59		4.91			1.595
Corrected CBR, %			0.00		0.00			



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INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

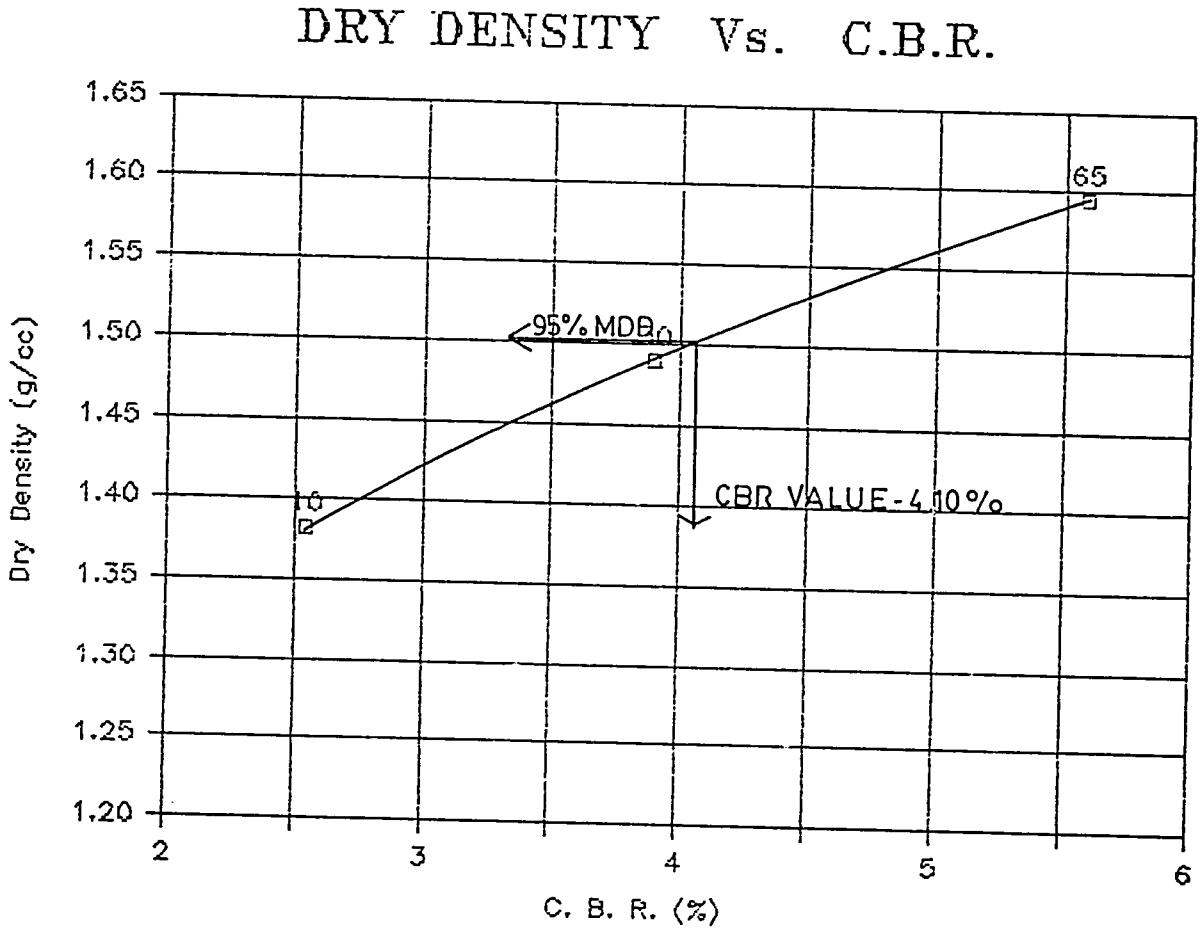
PROJECT :Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP -7

DEPTH : 0.50-1.00 M

Date Reported: August 24, 1991



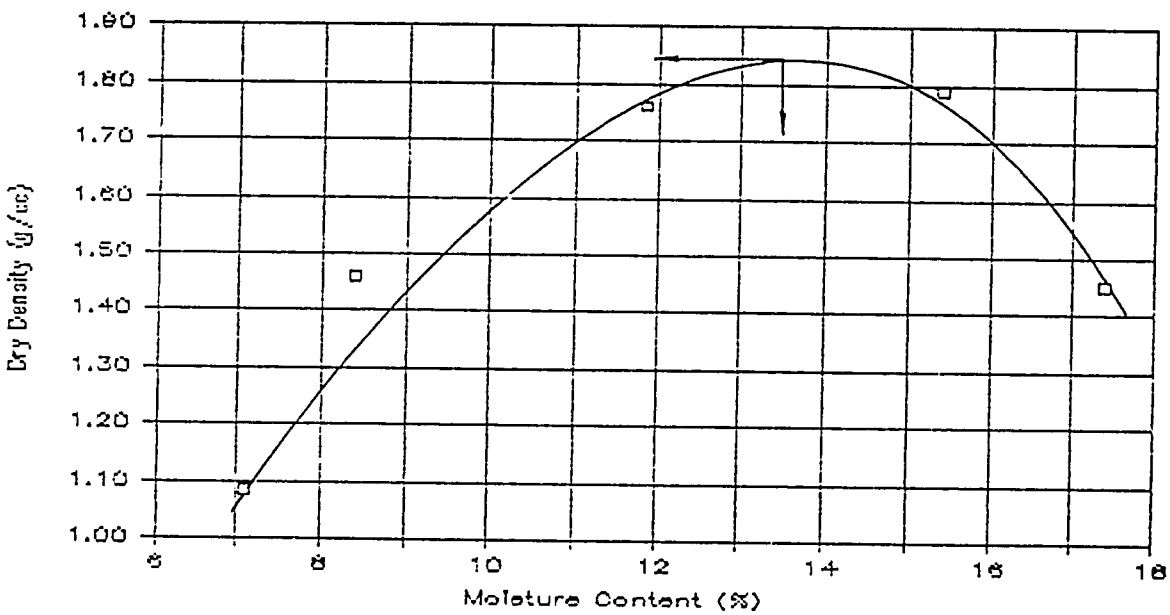
1/5

INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

PROJECT :	Cagayan De Oro Iligan	DATE REPORTED	08/23/91
	Airport Project	TEST NO.:	TP - 8
LOCATION:	Laguindingan, Misamis Oriental	DEPTH :	0.60-1.50 M

F I N A L R E P O R T

MOISTURE-DENSITY RELATIONS OF SOIL



Run No.	1	2	3	4	5
Dry Density, g/cc.	1.085	1.460	1.760	1.790	1.450
Moisture Cont., %	7.09	8.40	11.85	15.40	17.40

MAXIMUM DRY DENSITY, g/cc. 1.84

OPTIMUM MOISTURE CONTENT, % 13.50

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INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT :Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP -8

DEPTH : 0.60-1.50 M

Date Reported: August 24, 1991

FINAL REPORT

10 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	1.25	1.78	2.14	2.49	2.85	3.38	3.91	
Std. Load, kg/cm2			70		105			
C.B.R., %			3.06		2.71			1.525
Corrected CBR, %								

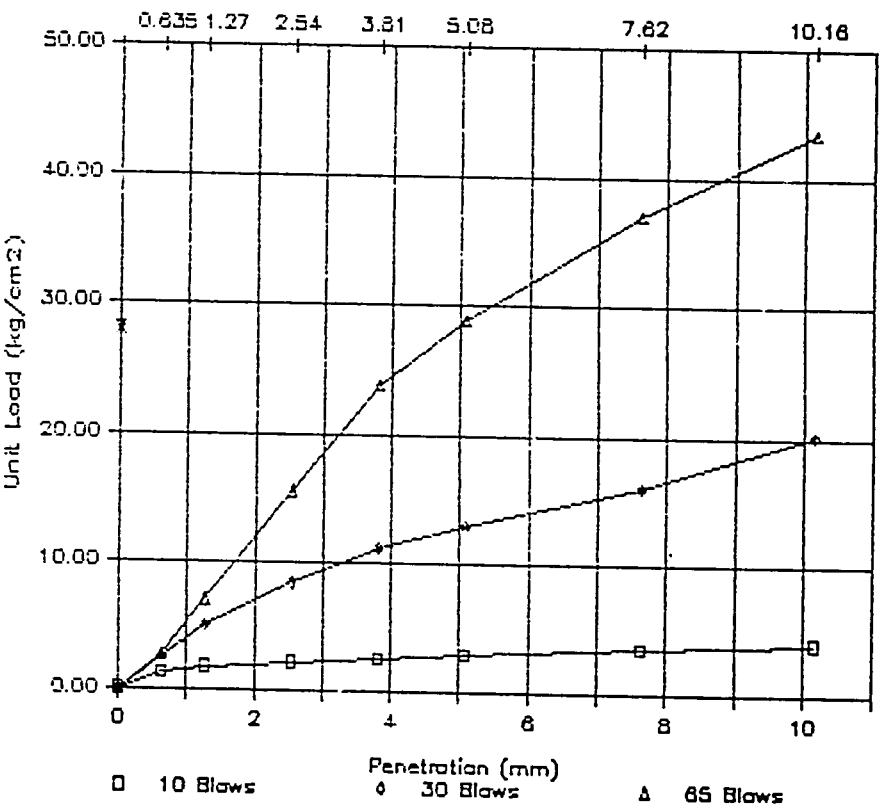
30 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	2.49	4.98	8.39	11.21	12.92	16.10	20.08	
Std. Load, kg/cm2			70		105			
C.B.R., %			11.99		12.30			1.695
Corrected CBR, %			0.00		0.00			

65 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	2.67	7.05	15.60	23.82	28.85	37.01	43.52	
Std. Load, kg/cm2			70		105			
C.B.R., %			22.29		27.48			1.834
Corrected CBR, %			0.00		0.00			

GRAPH



INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT :Cagayan De Oro Iligan Airport Project

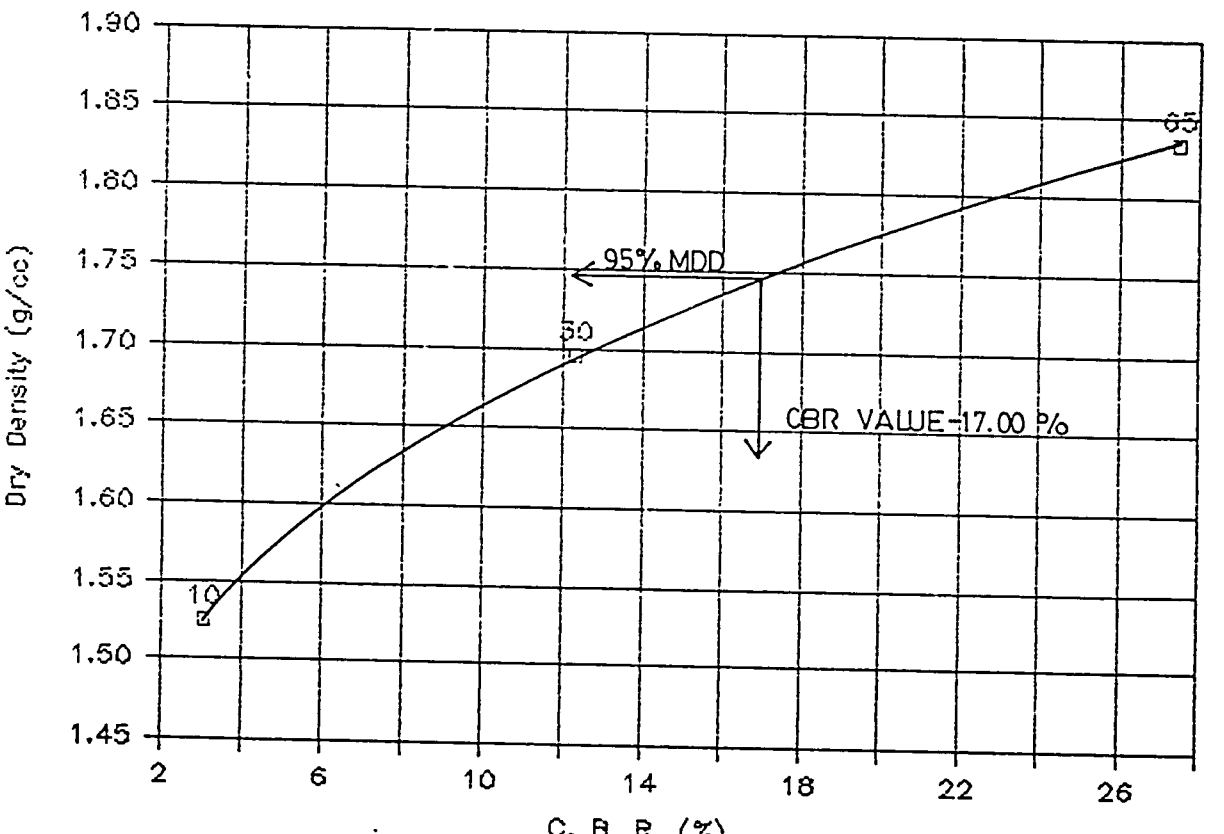
LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP -8

DEPTH : 0.60-1.50 M

Date Reported: August 24, 1991

DRY DENSITY Vs. C.B.R.



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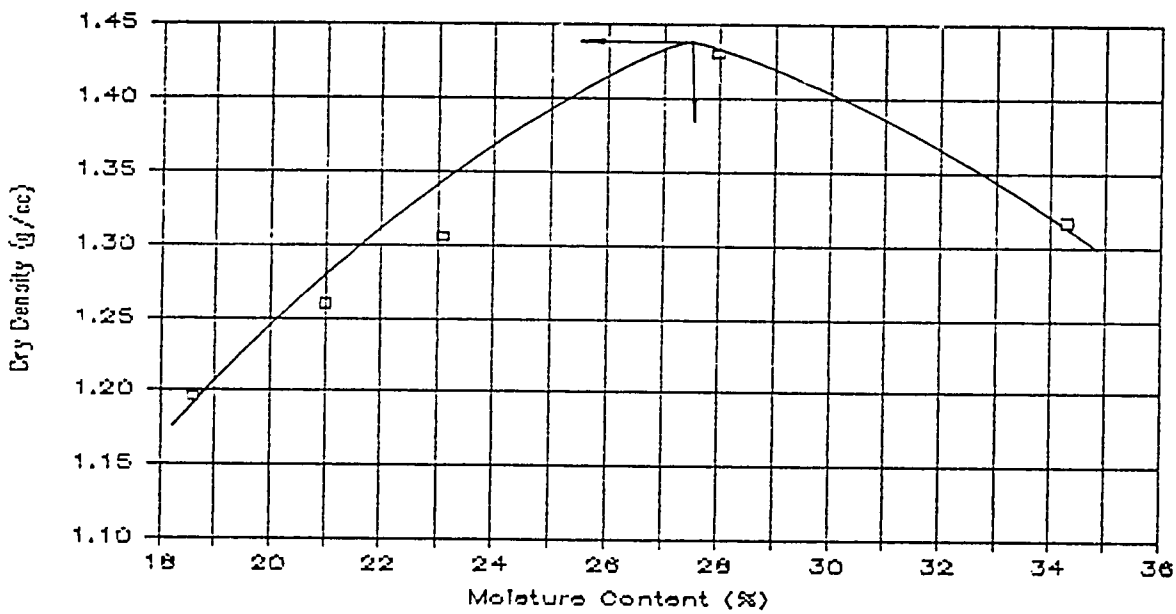
INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

PROJECT :	Cagayan De Oro Iligan	DATE REPORTED	08/23/91
	Airport Project	TEST NO.:	TP - 9
LOCATION:	Laguindingan, Misamis Oriental	DEPTH :	0.70-1.50 M

F I N A L R E P O R T

MOISTURE-DENSITY RELATIONS OF SOIL



Run No.	1	2	3	4	5
Dry Density, g/cc.	1.196	1.260	1.306	1.431	1.317
Moisture Cont., %	18.60	21.00	23.08	27.96	34.29

MAXIMUM DRY DENSITY, g/cc. 1.44

OPTIMUM MOISTURE CONTENT, % 27.50

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INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT : Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP -9

DEPTH : 0.70-1.50 M

Date Reported: August 24, 1991

FINAL REPORT

10 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	1.18	1.57	2.35	2.74	3.13	3.53	3.917	
Std. Load, kg/cm2			70		105			
C.B.R., %			3.36		2.98			1.143
Corrected CBR, %								

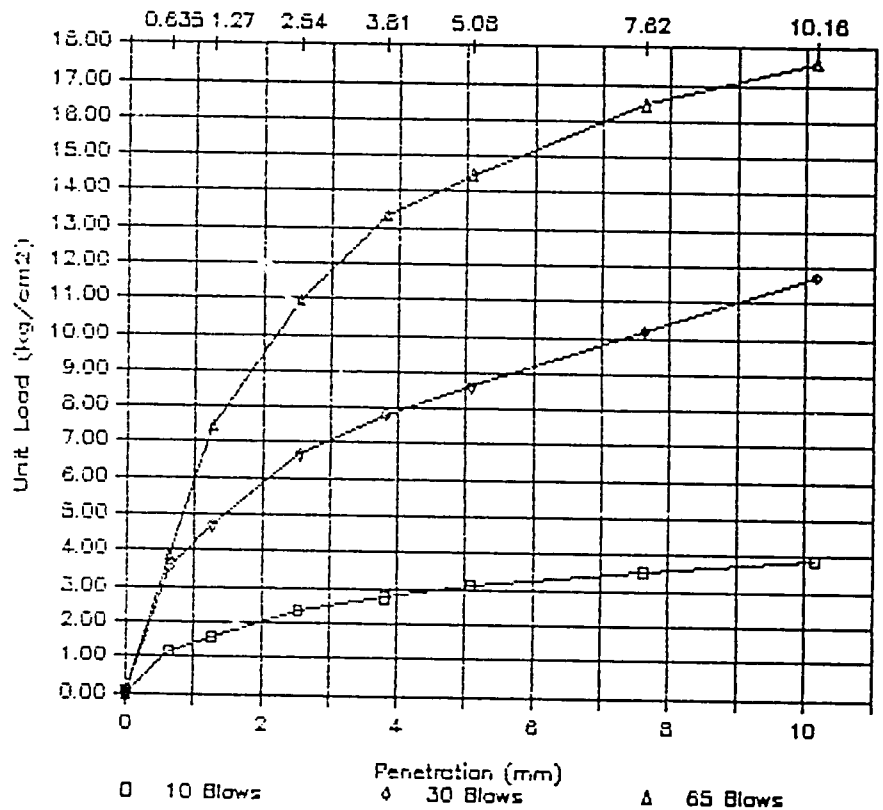
30 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	3.53	4.70	6.66	7.84	8.62	10.19	11.752	
Std. Load, kg/cm2			70		105			
C.B.R., %			9.51		8.21			1.328
Corrected CBR, %			0.00		0.00			

65 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	3.92	7.44	10.97	13.32	14.49	16.45	17.63	
Std. Load, kg/cm2			70		105			
C.B.R., %			15.67		13.80			1.448
Corrected CBR, %			0.00		0.00			

GRAPH



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INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

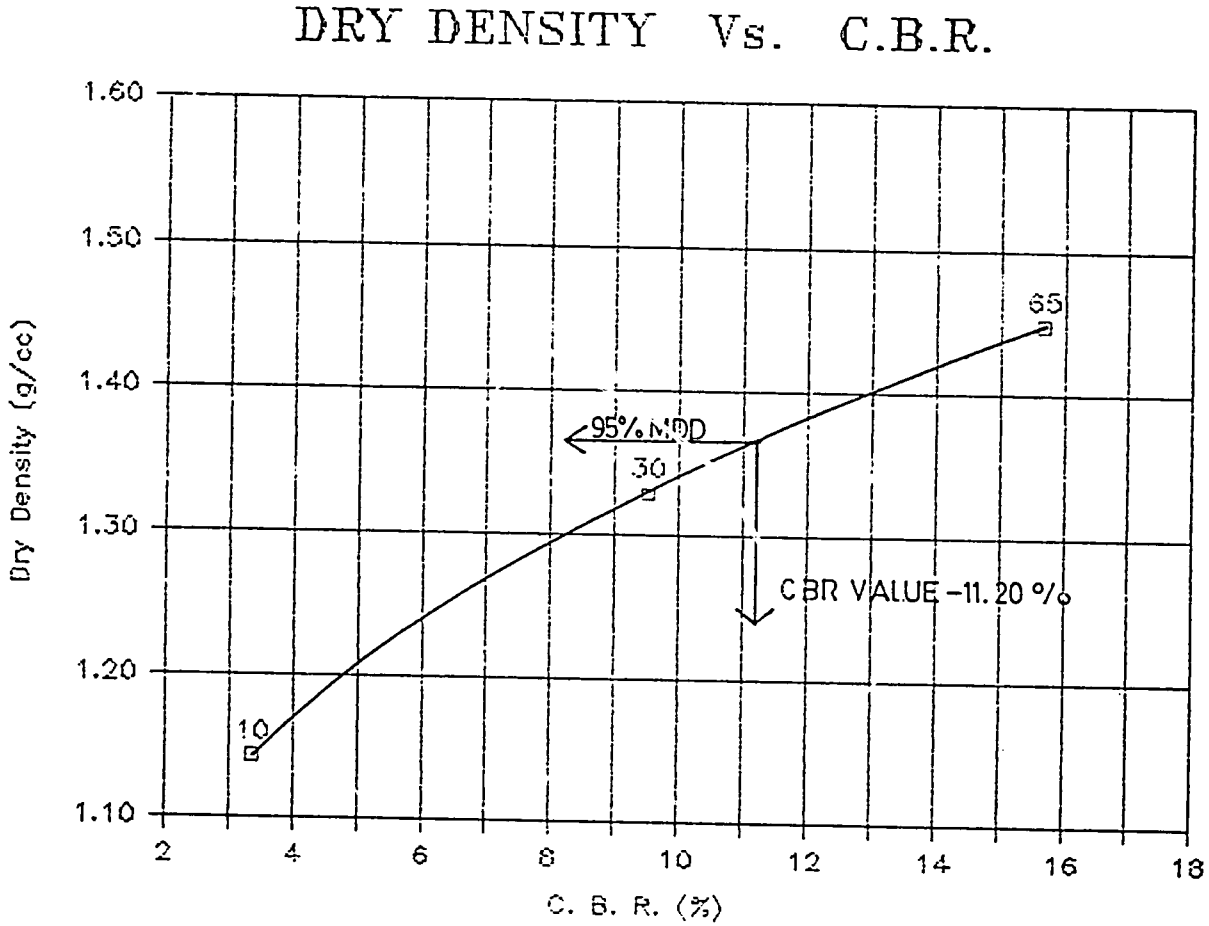
PROJECT :Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP -9

DEPTH : 0.70-1.50 M

Date Reported: August 24, 1991



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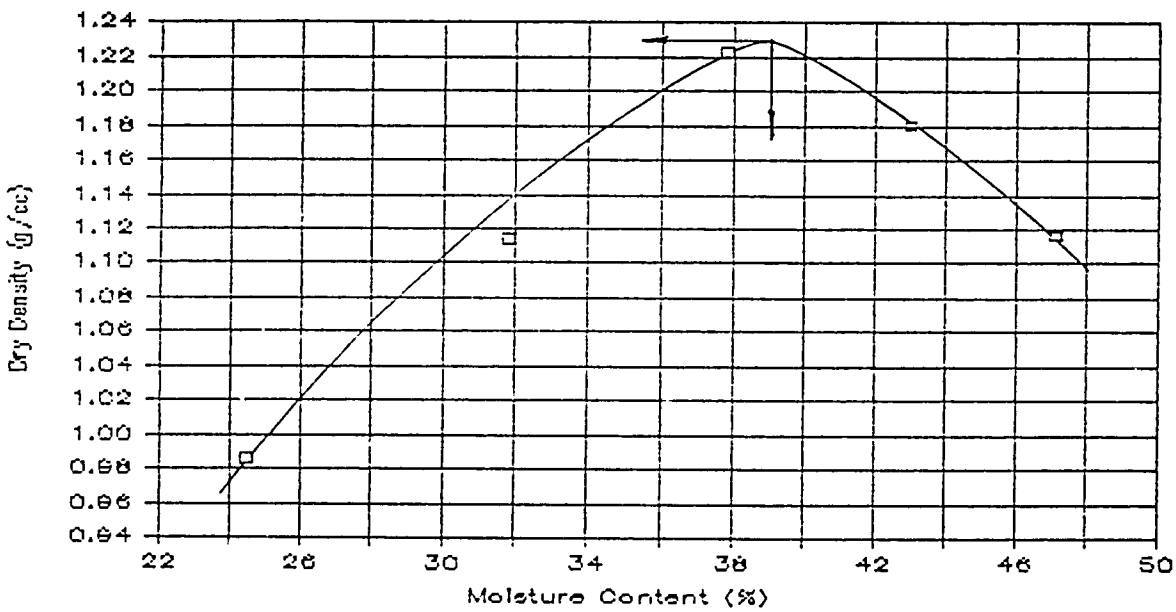
INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

PROJECT :	Cagayan De Oro Iligan	DATE REPORTED	08/23/91
	Airport Project	TEST NO.:	TP - 10
LOCATION:	Laguindingan, Misamis Oriental	DEPTH :	0.70-1.50 M

F I N A L R E P O R T

MOISTURE-DENSITY RELATIONS OF SOIL



Run No.	1	2	3	4	5
Dry Density, g/cc.	0.986	1.114	1.223	1.180	1.116
Moisture Cont., %	24.49	31.81	37.80	43.00	47.08

MAXIMUM DRY DENSITY, g/cc. 1.23

OPTIMUM MOISTURE CONTENT, % 39.00

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INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT :Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP -10

DEPTH : 0.70-1.50 M

Date Reported: August 24, 1991

FINAL REPORT

10 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	0.53	0.71	0.71	0.89	1.07	1.60	1.78	
Std. Load, kg/cm2			70		105			
C.B.R., %			1.01		1.02			1.019
Corrected CBR, %								

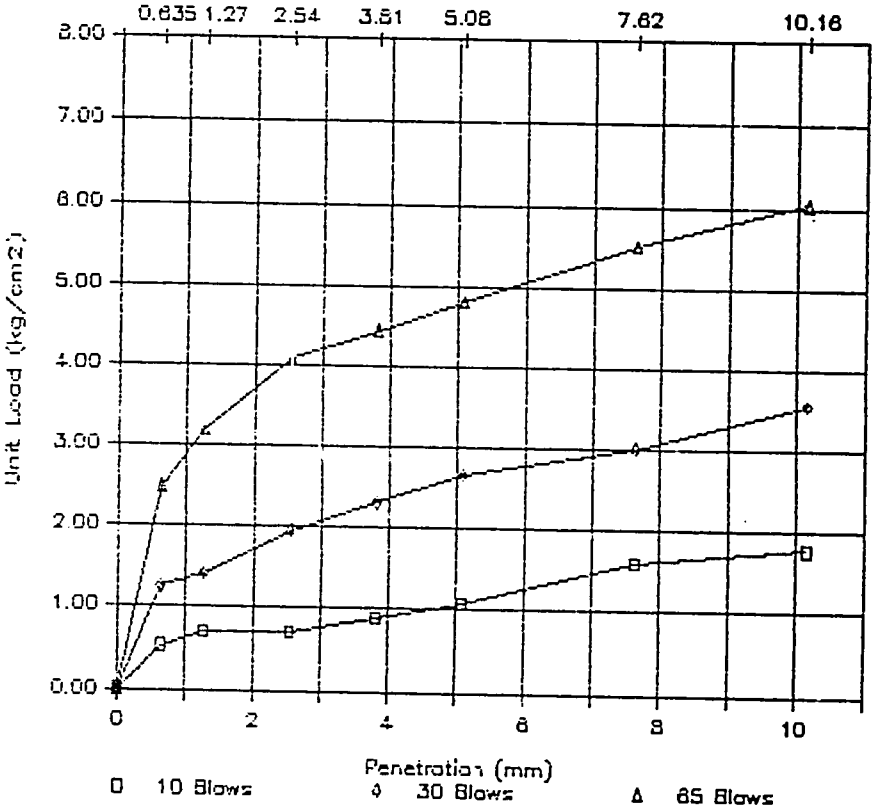
30 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	1.25	1.42	1.96	2.31	2.67	3.02	3.56	
Std. Load, kg/cm2			70		105			
C.B.R., %			2.80		2.54			1.119
Corrected CBR, %			0.00		0.00			

65 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	2.49	3.20	4.09	4.45	4.80	5.52	6.04	
Std. Load, kg/cm2			70		105			
C.B.R., %			5.84		4.57			1.223
Corrected CBR, %			0.00		0.00			

GRAPH



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INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT :Cagayan De Oro Iligan Airport Project

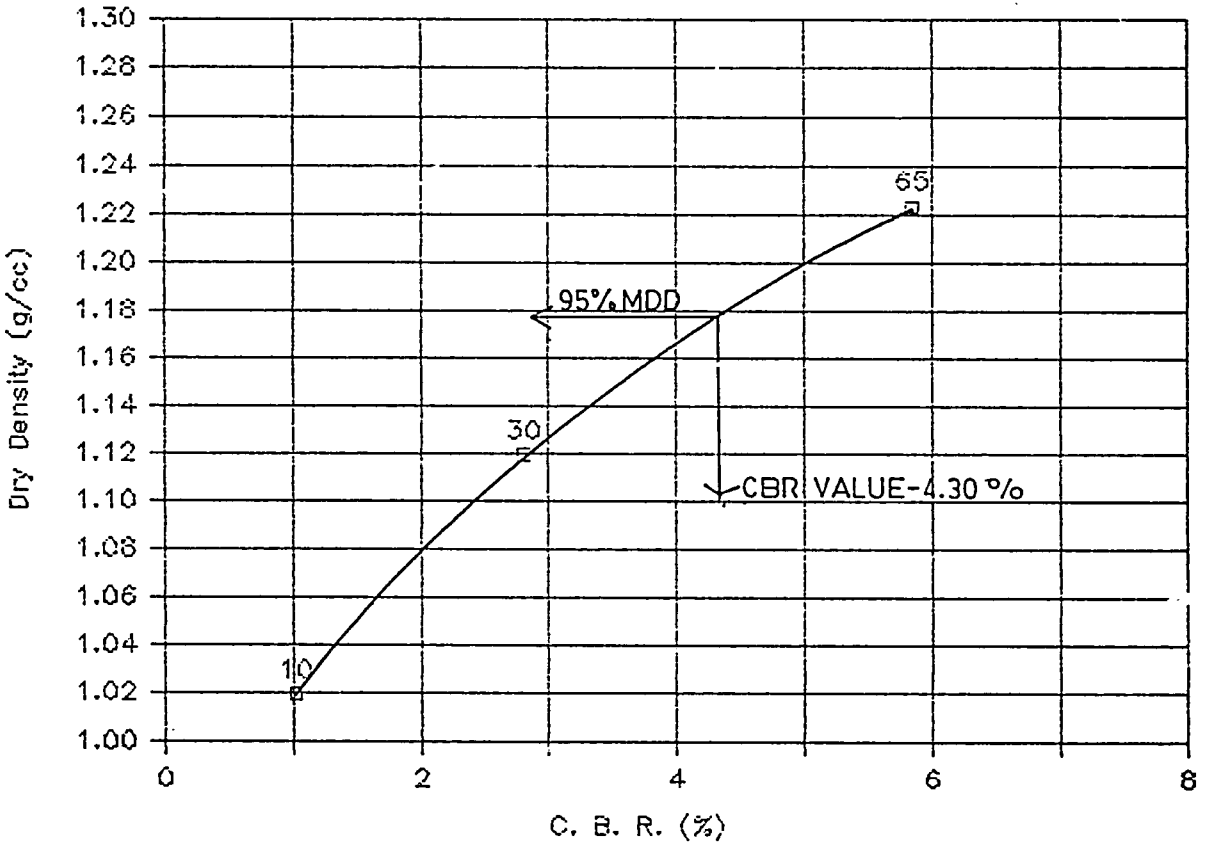
LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP -10

DEPTH : 0.70-1.50 M

Date Reported: August 24, 1991

DRY DENSITY Vs. C.B.R.



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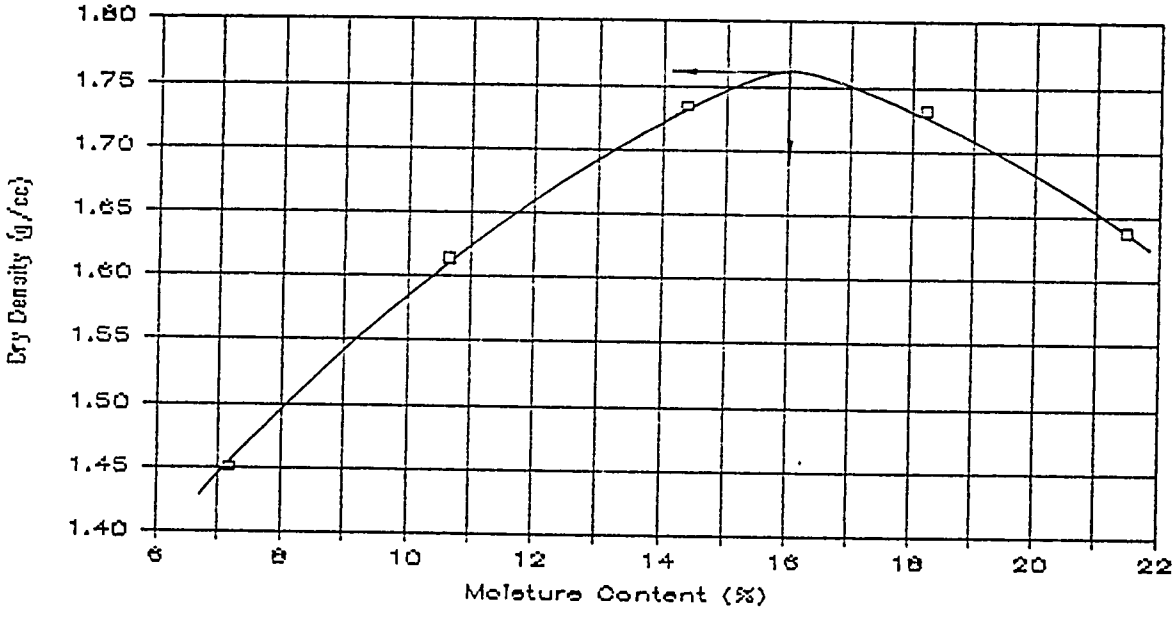
INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

PROJECT :	Cagayan De Oro Iligan	DATE REPORTED	08/23/91
	Airport Project	TEST NO.:	TP - 11
LOCATION:	Laguindingan, Misamis Oriental	DEPTH :	1.00-1.50 M

F I N A L R E P O R T

MOISTURE-DENSITY RELATIONS OF SOIL



Run No.	1	2	3	4	5
Dry Density, g/cc.	1.451	1.614	1.734	1.731	1.638
Moisture Cont., %	7.18	10.65	14.39	18.23	21.48

MAXIMUM DRY DENSITY, g/cc. 1.76

OPTIMUM MOISTURE CONTENT, % 16.00

85

INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT : Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP -11

DEPTH : 1.00-1.50 M

Date Reported: August 24, 1991

FINAL REPORT

10 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	1.96	3.13	4.70	5.48	6.27	7.44	7.835	
Std. Load, kg/cm2			70		105			
C.B.R., %			6.72		5.97			1.510
Corrected CBR, %								

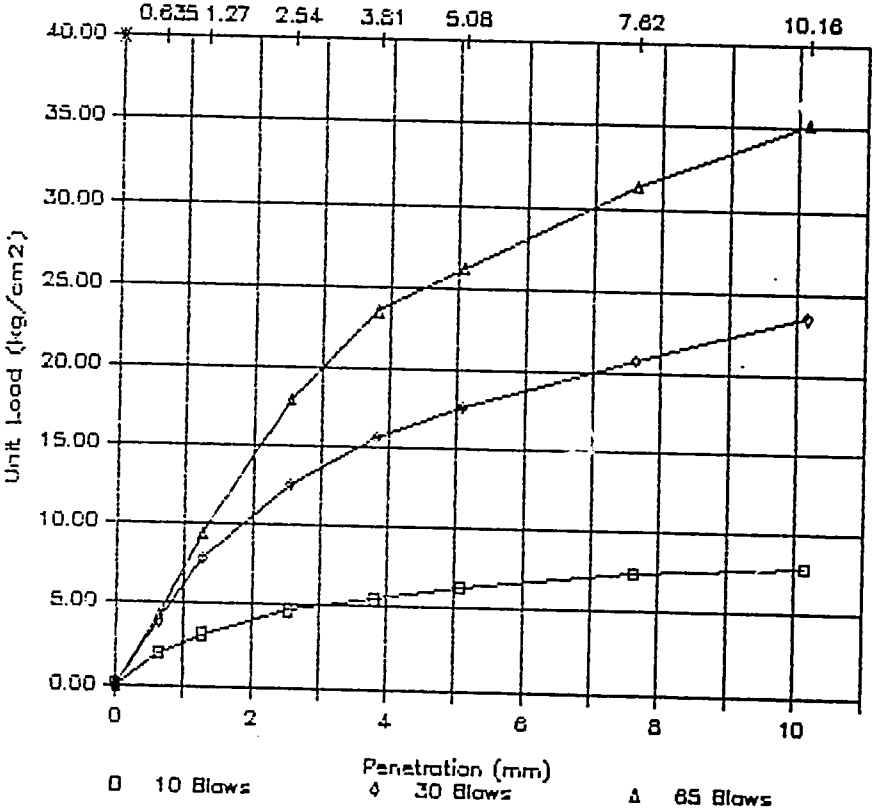
30 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	3.92	7.84	12.54	15.67	17.63	20.76	23.504	
Std. Load, kg/cm2			70		105			
C.B.R., %			17.91		16.79			1.732
Corrected CBR, %			0.00		0.00			

65 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	4.31	9.40	18.02	23.50	26.25	31.34	35.26	
Std. Load, kg/cm2			70		105			
C.B.R., %			25.74		25.00			1.793
Corrected CBR, %			0.00		0.00			

GRAPH



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INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

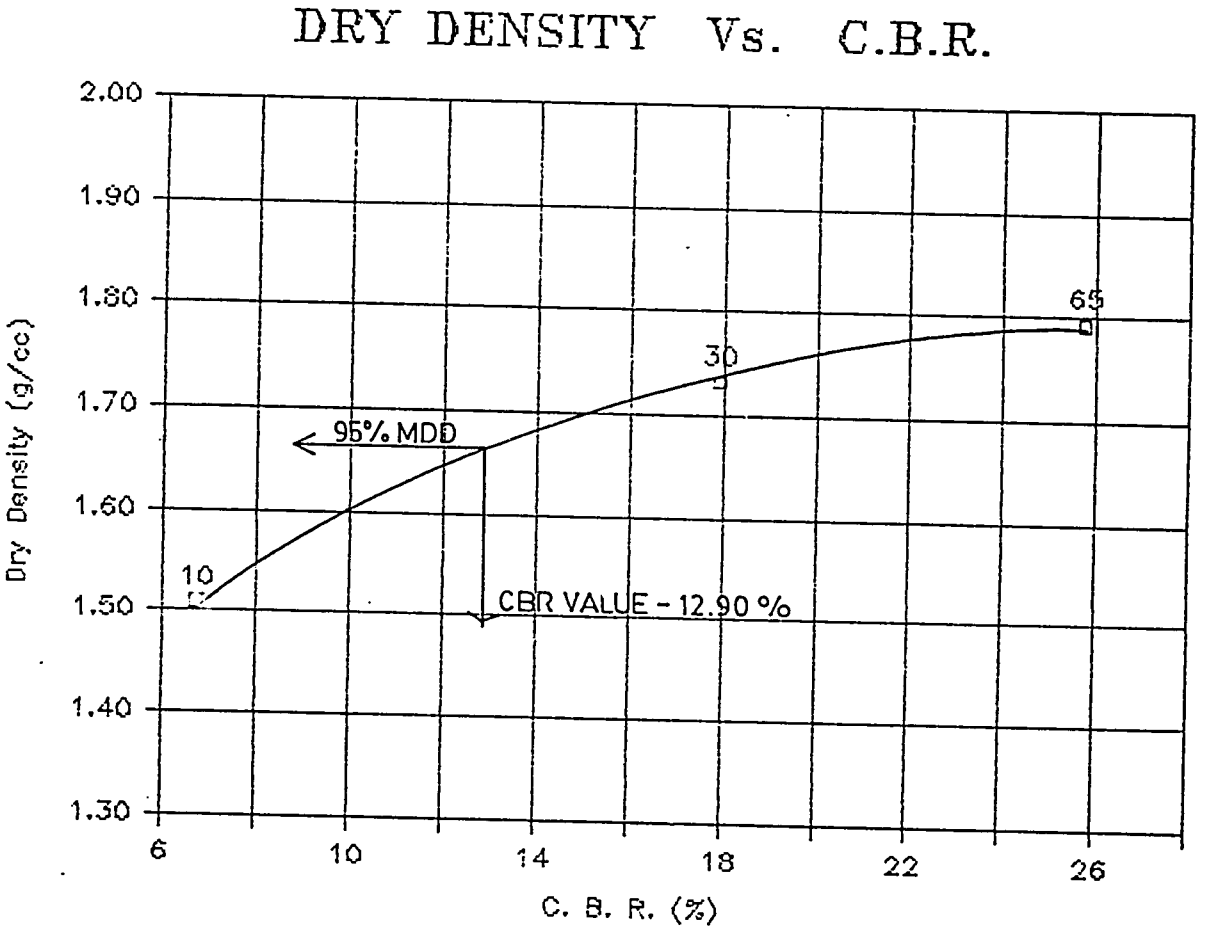
PROJECT :Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP -11

DEPTH : 1.00-1.50 M

Date Reported: August 24, 1991

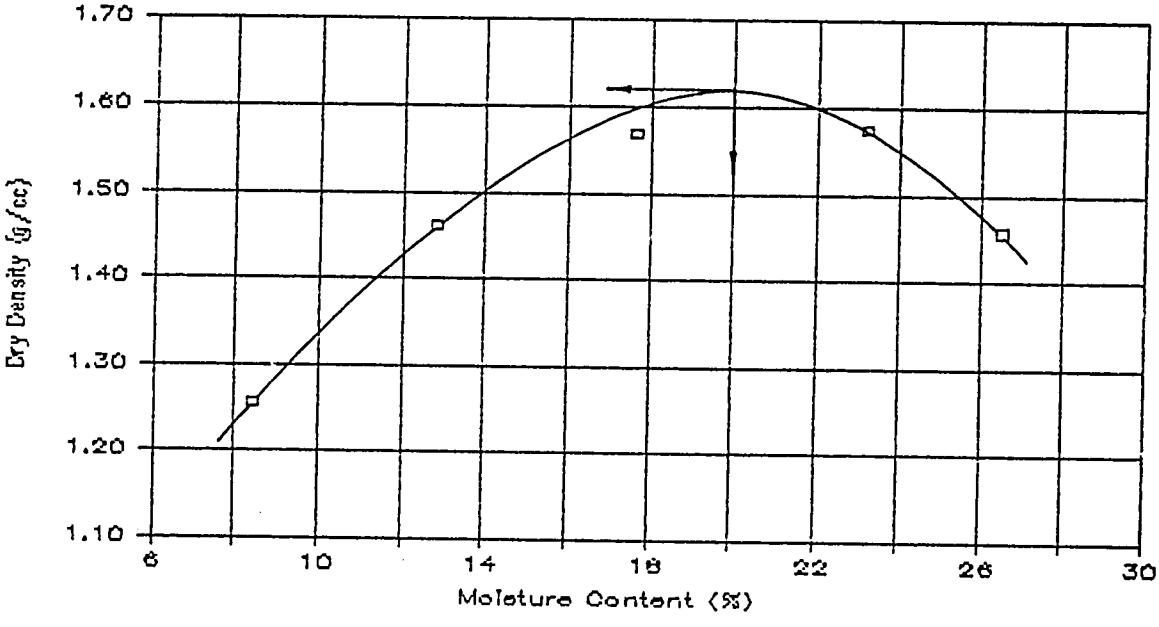


INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

PROJECT :	Cagayan De Oro Iligan	DATE REPORTED	08/24/91
	Airport Project	TEST NO.:	TP - 12
LOCATION:	Laguindingan, Misamis Oriental	DEPTH :	0.80-1.50 M

F I N A L R E P O R T

MOISTURE-DENSITY RELATIONS OF SOIL



Run No.	1	2	3	4	5
Dry Density, g/cc.	1.256	1.461	1.569	1.574	1.457
Moisture Cont., %	8.44	12.83	17.65	23.20	26.51

MAXIMUM DRY DENSITY, g/cc. 1.625

OPTIMUM MOISTURE CONTENT, % 20.00

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INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT : Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP -12

DEPTH : 0.80-1.50 M

Date Reported: August 24, 1991

FINAL REPORT

10 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	0.18	0.36	0.89	1.78	2.49	3.20	4.26	
Std. Load, kg/cm2			70		105			
C.B.R., %			1.27		2.37			1.549
Corrected CBR, %								

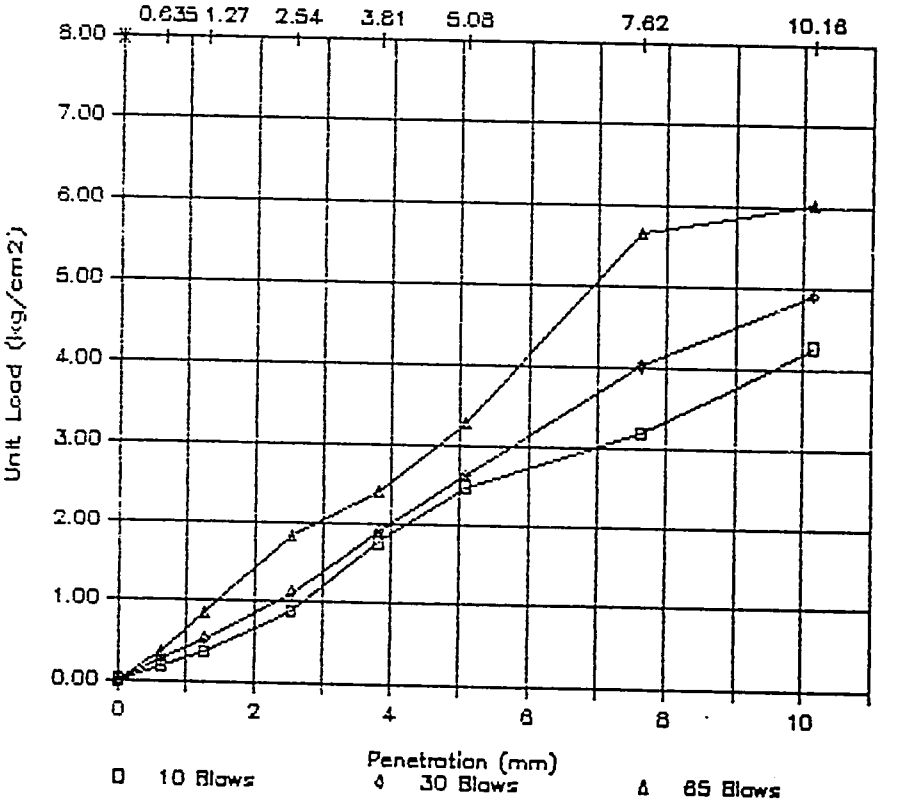
30 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	0.28	0.53	1.12	1.92	2.63	4.02	4.91	
Std. Load, kg/cm2			70		105			
C.B.R., %			1.60		2.50			1.588
Corrected CBR, %			0.00		0.00			

65 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	0.36	0.86	1.85	2.42	3.28	5.66	6.02	
Std. Load, kg/cm2			70		105			
C.B.R., %			2.64		3.12			1.624
Corrected CBR, %			0.00		0.00			

GRAPH



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INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT :Cagayan De Oro Iligan Airport Project

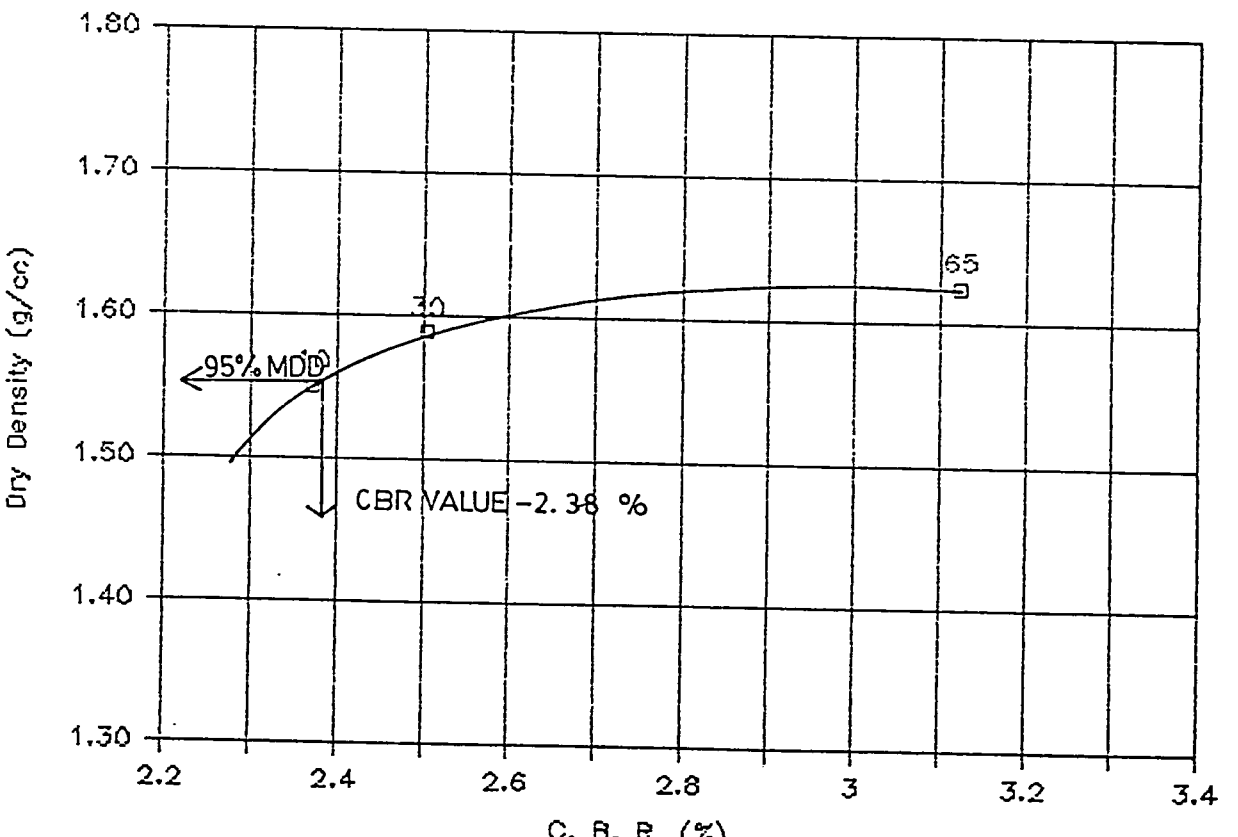
LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP -12

DEPTH : 0.80-1.50 M

Date Reported: August 24, 1991

DRY DENSITY Vs. C.B.R.



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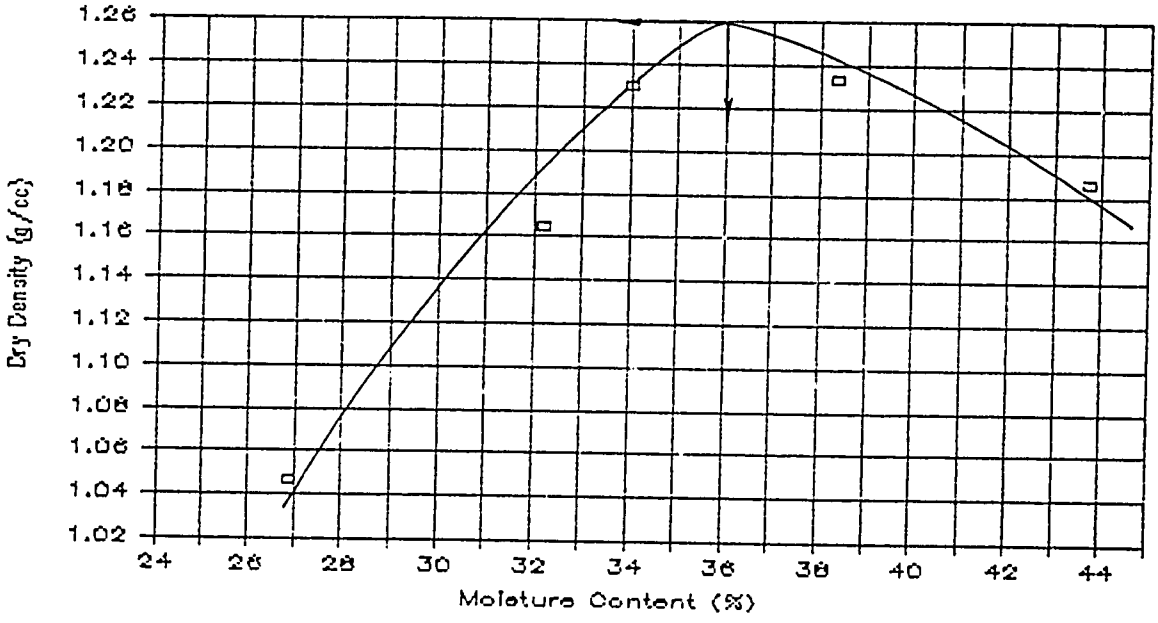
INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

PROJECT : Cagayan De Oro Iligan
Airport Project
LOCATION: Laguindingan, Misamis Oriental

DATE REPORTED 08/23/91
TEST NO.: TP - 13
DEPTH : 1.00-2.50 M

F I N A L R E P O R T

MOISTURE-DENSITY RELATIONS OF SOIL



Run No.	1	2	3	4	5
Dry Density, g/cc.	1.047	1.165	1.230	1.234	1.186
Moisture Cont., %	26.88	32.20	34.00	38.36	43.73

MAXIMUM DRY DENSITY, g/cc. 1.26

OPTIMUM MOISTURE CONTENT, % 36.00

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1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT : Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP -13

DEPTH : 1.00-2.50 M

Date Reported: August 24, 1991

FINAL REPORT

10 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	0.79	0.78	1.18	1.18	1.18	1.57	1.959	
Std. Load, kg/cm2			70		105			
C.B.R., %			1.68		1.12			0.946
Corrected CBR, %								

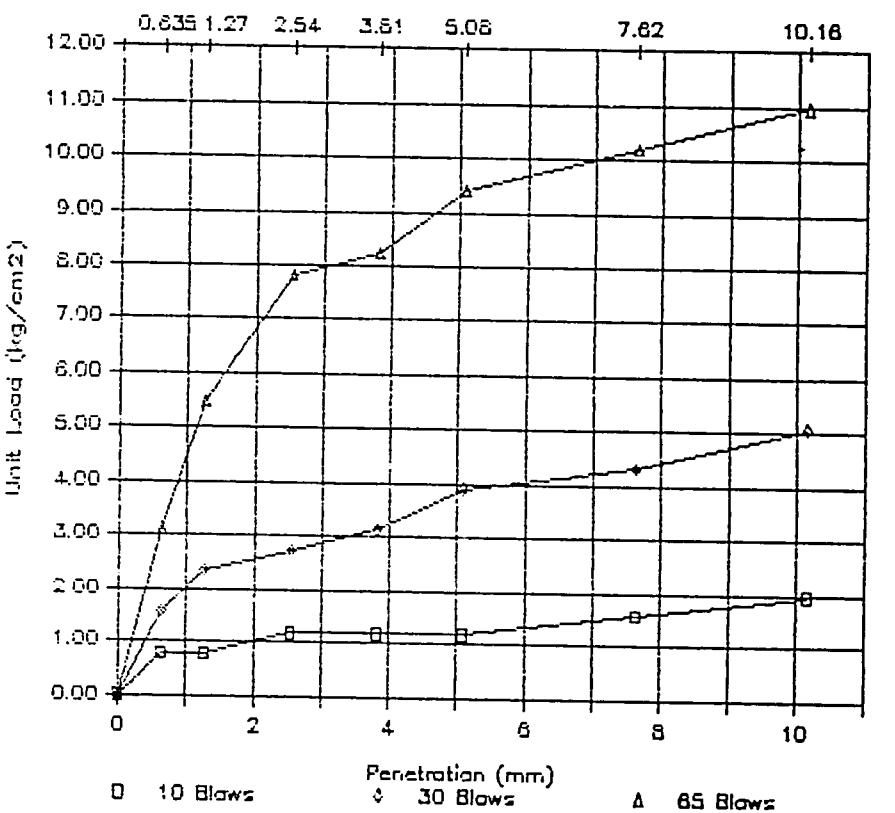
30 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	1.57	2.35	2.74	3.13	3.92	4.31	5.093	
Std. Load, kg/cm2			70		105			
C.B.R., %			3.92		3.73			1.135
Corrected CBR, %			0.00		0.00			

65 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	3.13	5.48	7.84	8.23	9.40	10.19	10.97	
Std. Load, kg/cm2			70		105			
C.B.R., %			11.19		8.95			1.262
Corrected CBR, %			0.00		0.00			

GRAPH



INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT : Cagayan De Oro Iligan Airport Project

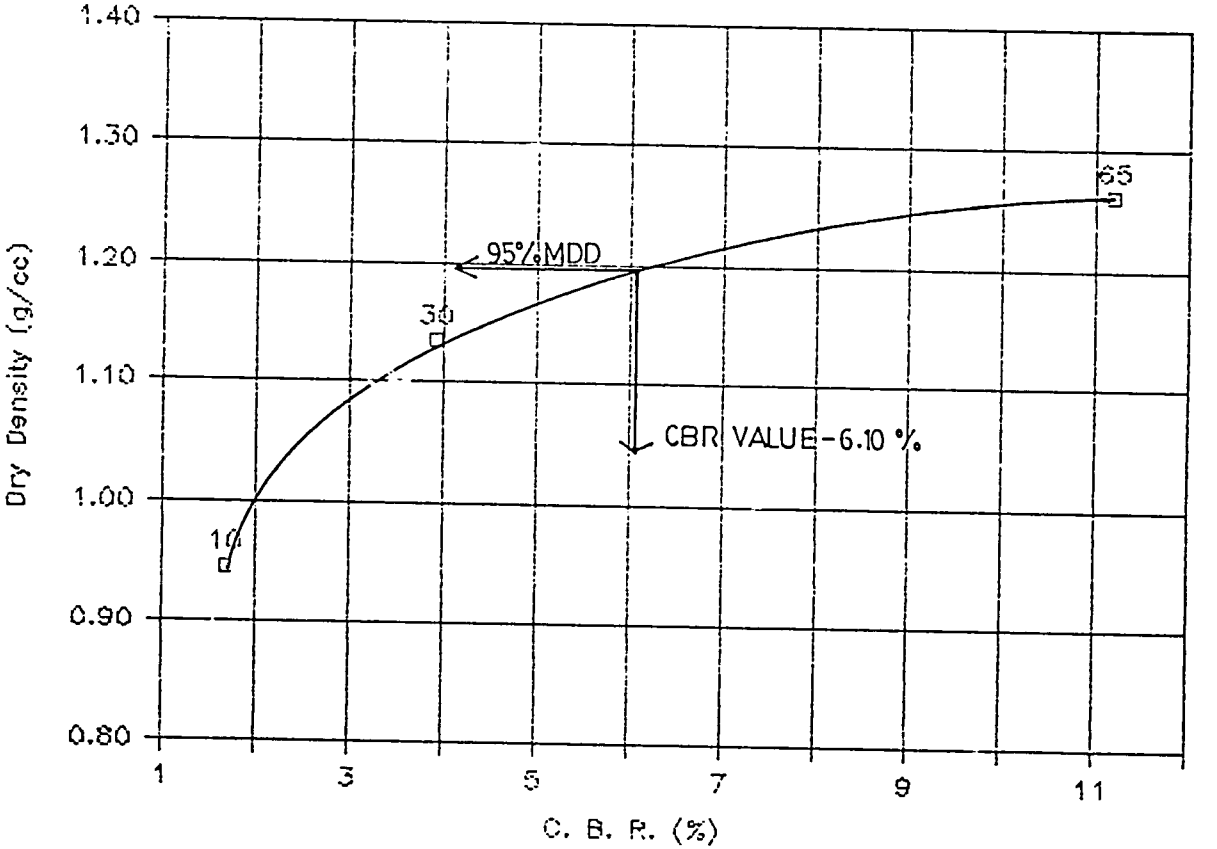
LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP -13

DEPTH : 1.00-2.50 M

Date Reported: August 24, 1991

DRY DENSITY Vs. C.B.R.

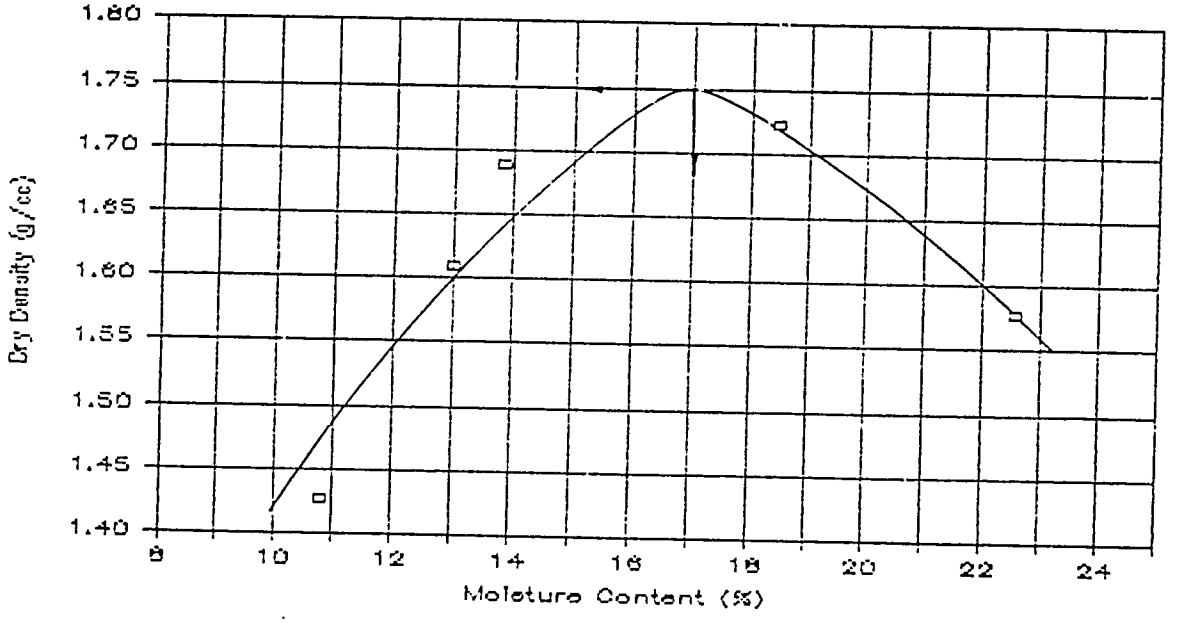


INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

PROJECT :	Cagayan De Oro Iligan	DATE REPORTED	08/24/91
	Airport Project	TEST NO.:	TP - 14
LOCATION:	Laguindingan, Misamis Oriental	DEPTH :	1.00-1.50 M

F I N A L R E P O R T

MOISTURE-DENSITY RELATIONS OF SOIL



Run No.	1	2	3	4	5
Dry Density, g/cc.	1.427	1.610	1.688	1.723	1.578
Moisture Cont., %	10.80	13.00	16.83	18.47	22.57

MAXIMUM DRY DENSITY, g/cc. 1.75

OPTIMUM MOISTURE CONTENT, % 17.00

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INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

PROJECT : Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP -14

DEPTH : 1.00-1.50 M

Date Reported: August 24, 1991

FINAL REPORT

10 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	0.56	1.25	2.15	2.67	3.02	3.20	3.56	
Std. Load, kg/cm2			70		105			
C.B.R., %			3.07		2.88			1.468
Corrected CBR, %								

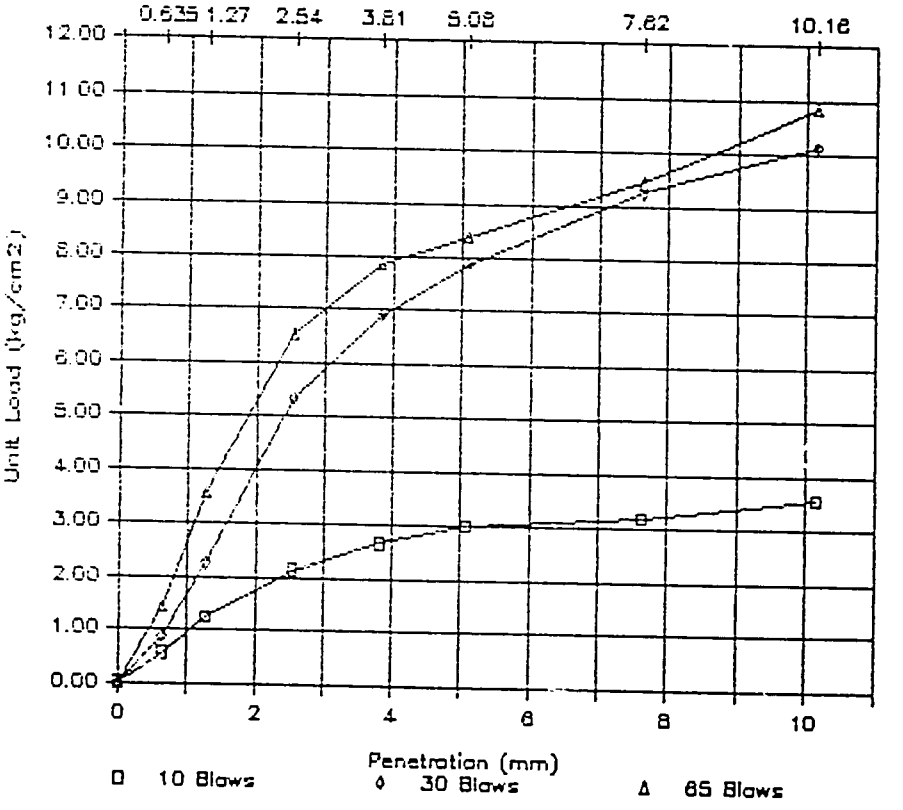
30 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	0.86	2.25	5.34	6.88	7.88	9.25	10.14	
Std. Load, kg/cm2			70		105			
C.B.R., %			7.63		7.50			1.660
Corrected CBR, %			0.00		0.00			

65 BLOWS

Penetration, mm.	0.635	1.27	2.54	3.81	5.08	7.62	10.16	Dry Density g/cc.
Unit Load, kg/cm2	1.42	3.56	6.54	7.88	8.39	9.43	10.85	
Std. Load, kg/cm2			70		105			
C.B.R., %			9.34		7.99			1.757
Corrected CBR, %			0.00		0.00			

GRAPH



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1175 Chino Roces St., Makati, Metro Manila

CALIFORNIA BEARING RATIO
(AASHTO T-99)

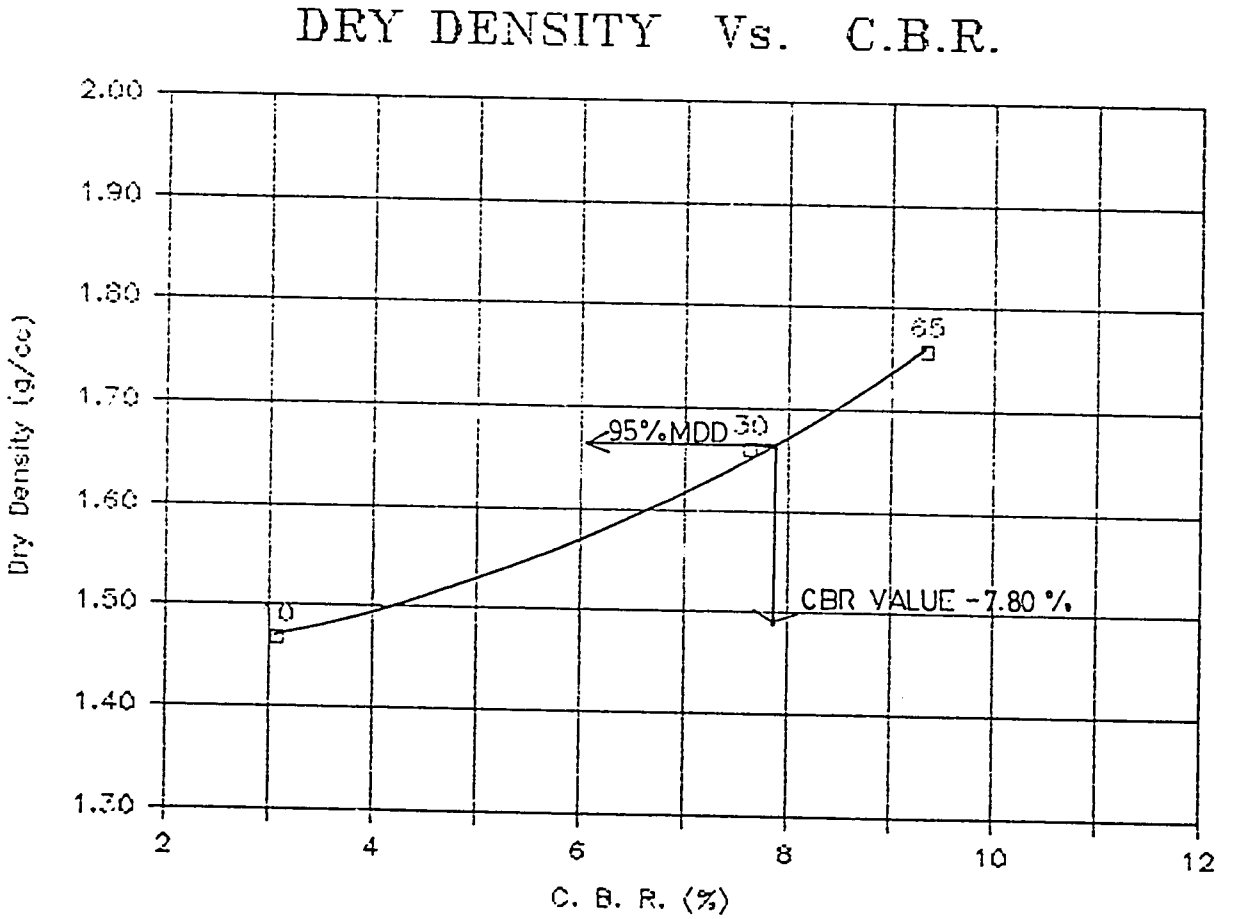
PROJECT :Cagayan De Oro Iligan Airport Project

LOCATION: Laguindingan, Misamis Oriental

TEST NO.: TP -14

DEPTH : 1.00-1.50 M

Date Reported: August 24, 1991



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2.6.2 SIEVE ANALYSIS

2.6.2.1 Test Pits

EXECUTIVE OFFICES & LABORATORIES:
1175 PASONG TAMO ST., MAKATI
METRO MANILA
TEL. NOS. 815-96-26 TO 29
TELEX NO. 63871 PN

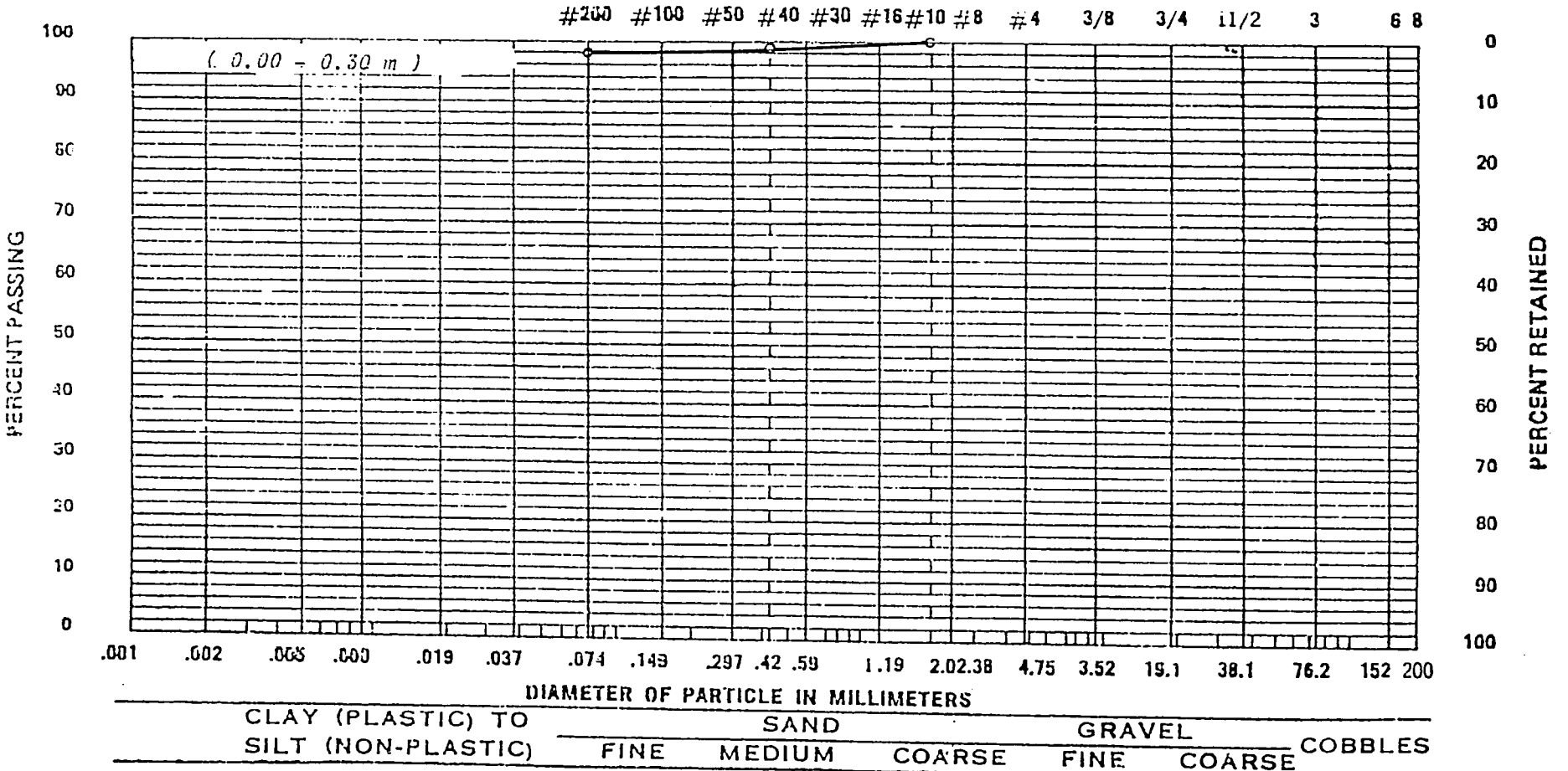
INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
location : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

TEST PIT NUMBER : TP-1



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METRO MANILA
TEL. NOS. 815-06-26 TO 29
TELEX NO. 63871 PN

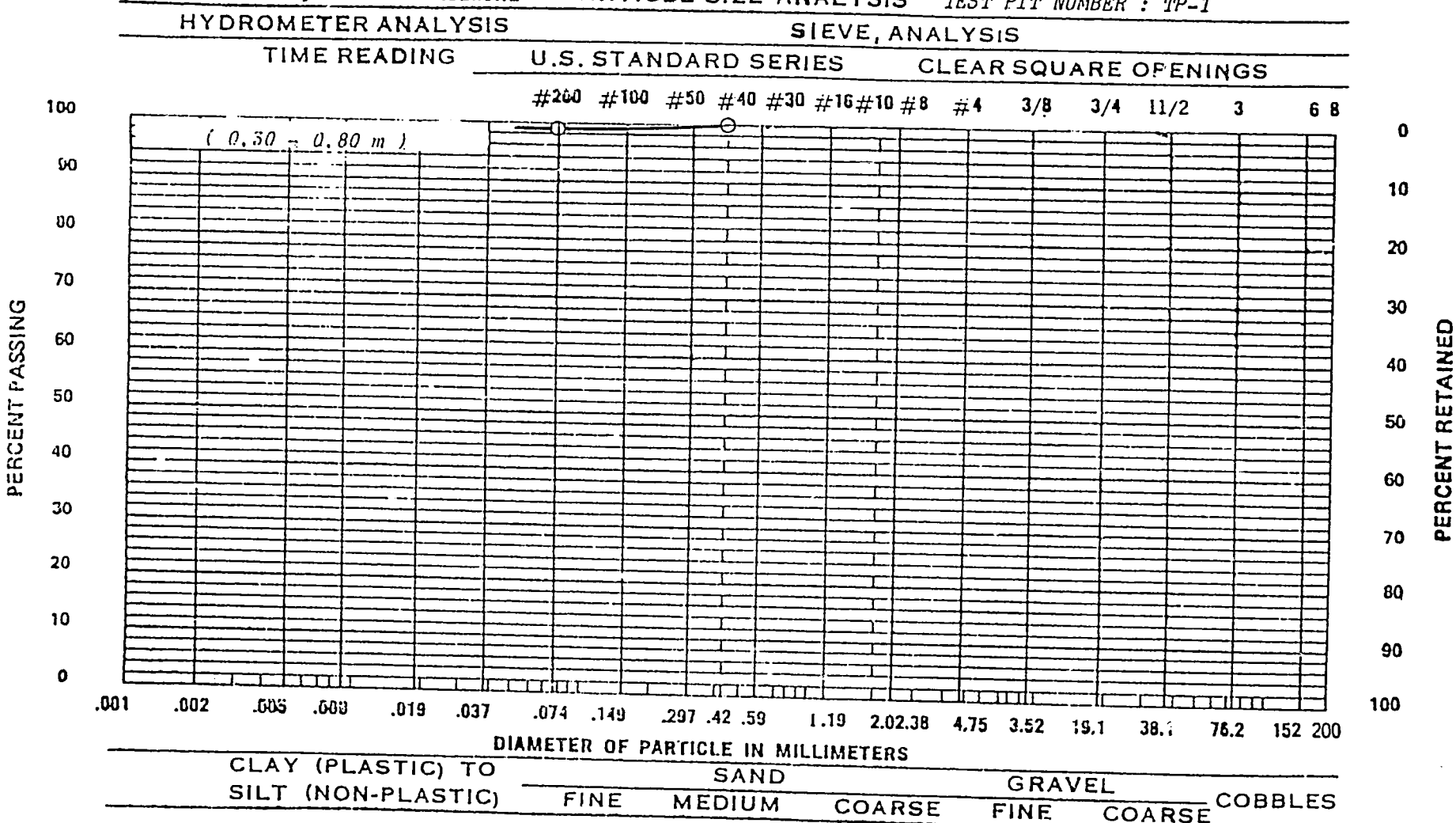
INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

TEST PIT NUMBER : TP-1



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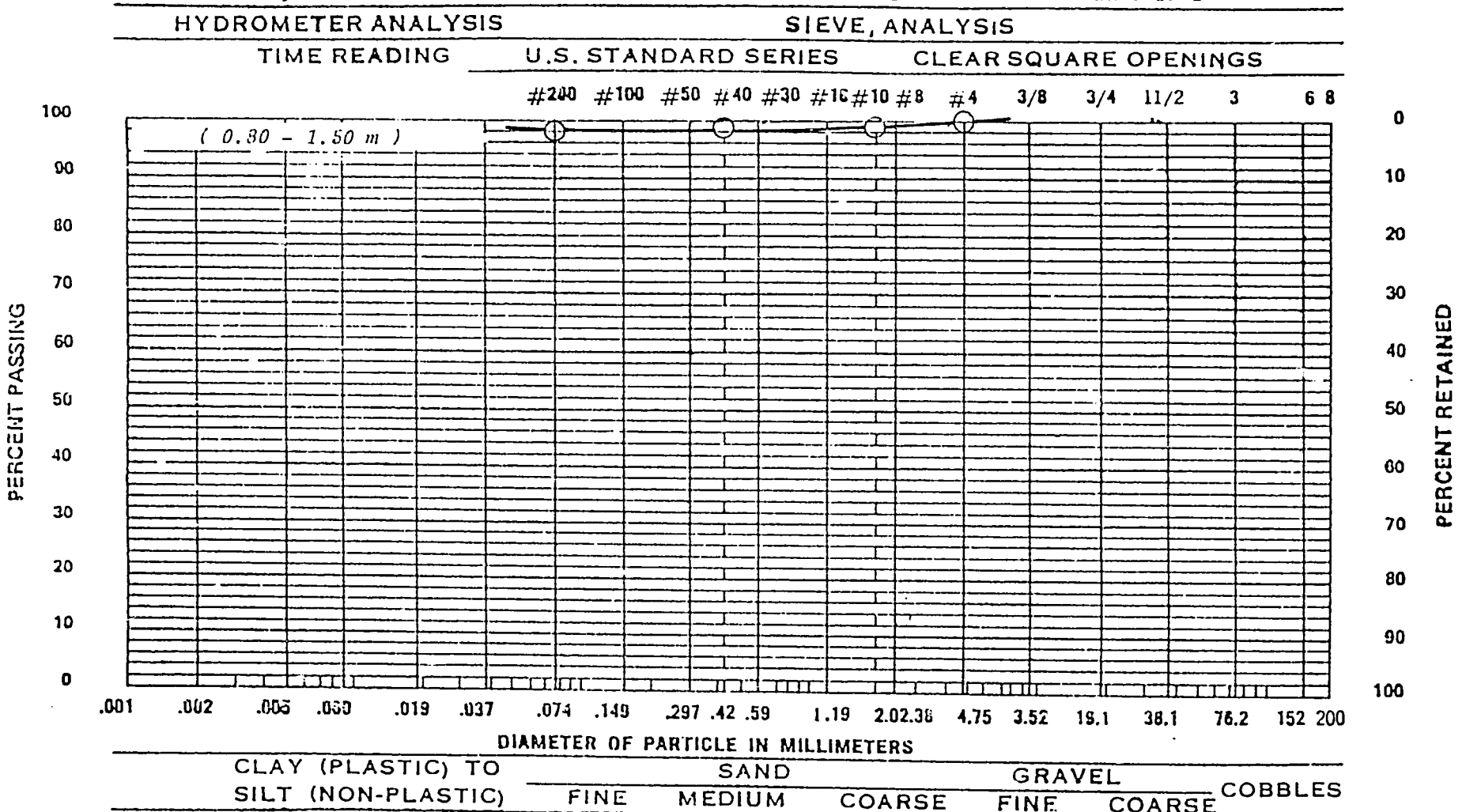
TELEX NO. 63871 PN

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT

LOCATION : LAUINDINGAN, MISAMIS ORIENTAL PARTICLE SIZE ANALYSIS *TEST PIT NUMBER : TP-1*



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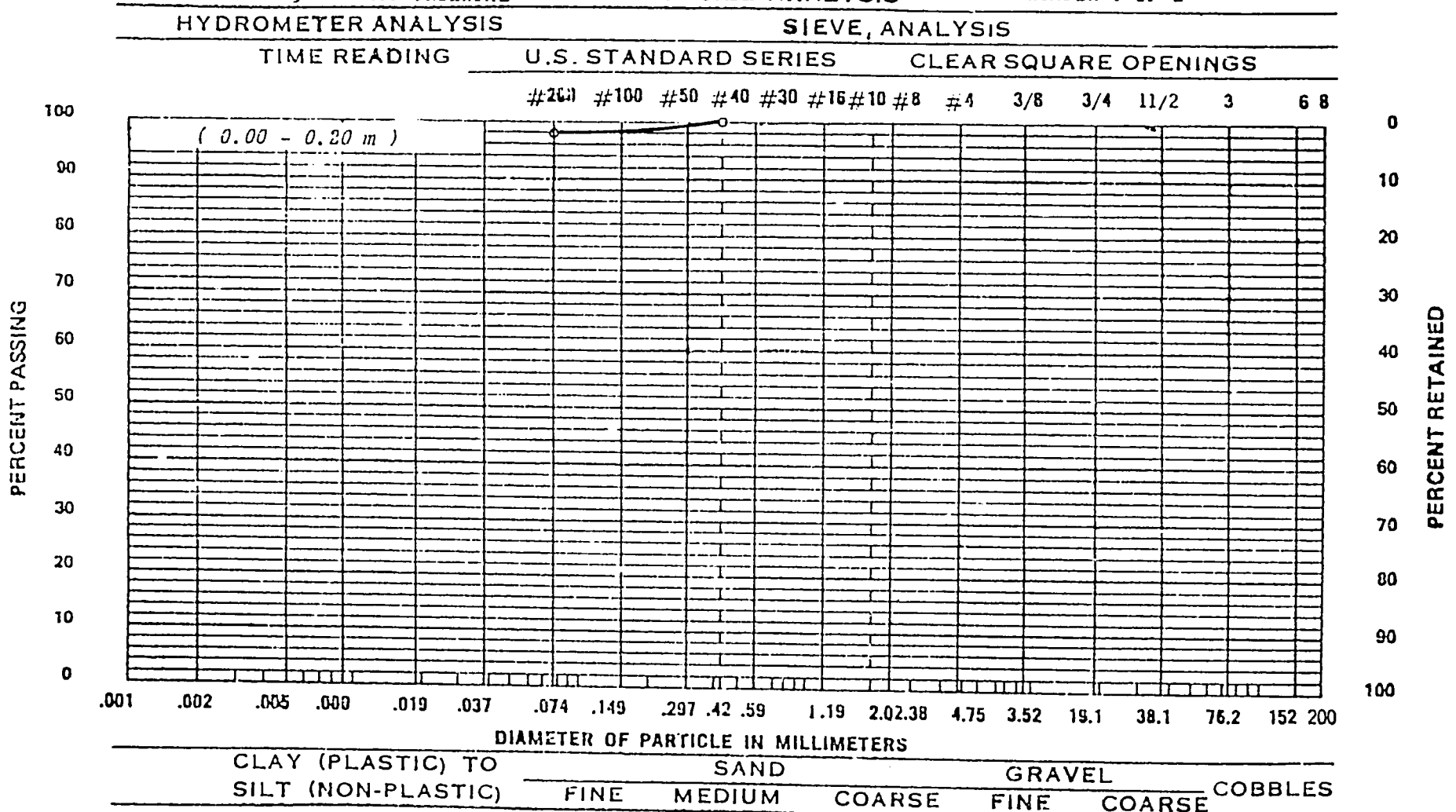
TEL. NOS. 815-96-28 TO 29
TELEX NO. 63871 PN

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL PARTICLE SIZE ANALYSIS *TEST PIT NUMBER : TP-2*



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METRO MANILA
TEL. NOS. 815-08-26 TO 29
TELEX NO. 63671 PN

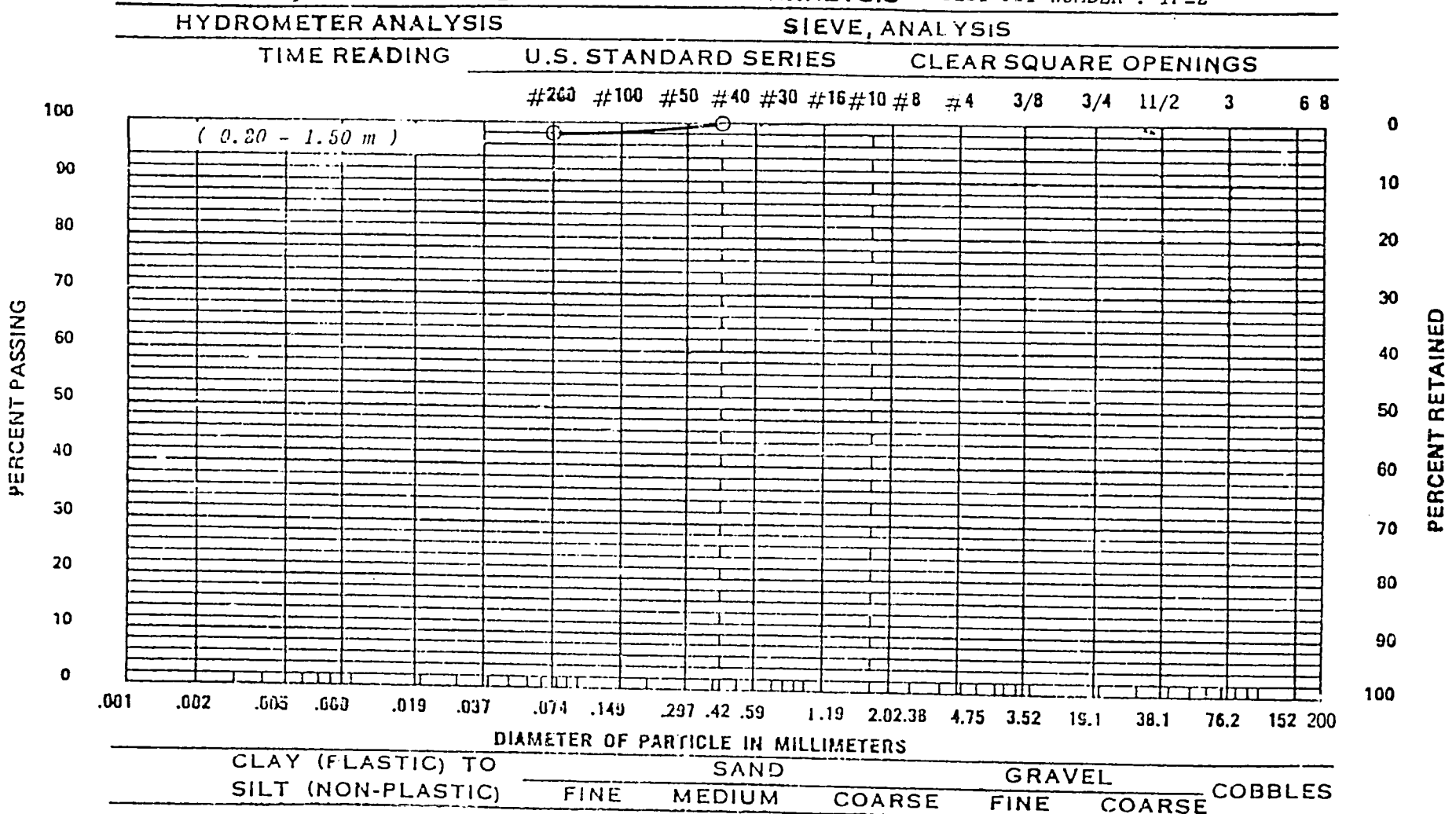
INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

TEST PIT NUMBER : TP-2



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EXECUTIVE OFFICES & LABORATORIES:
1175 PASONG TAMO ST., MAKATI
METRO MANILA
TEL. NOS. 815-06-26 TO 29
TELEX NO. 63871 PN

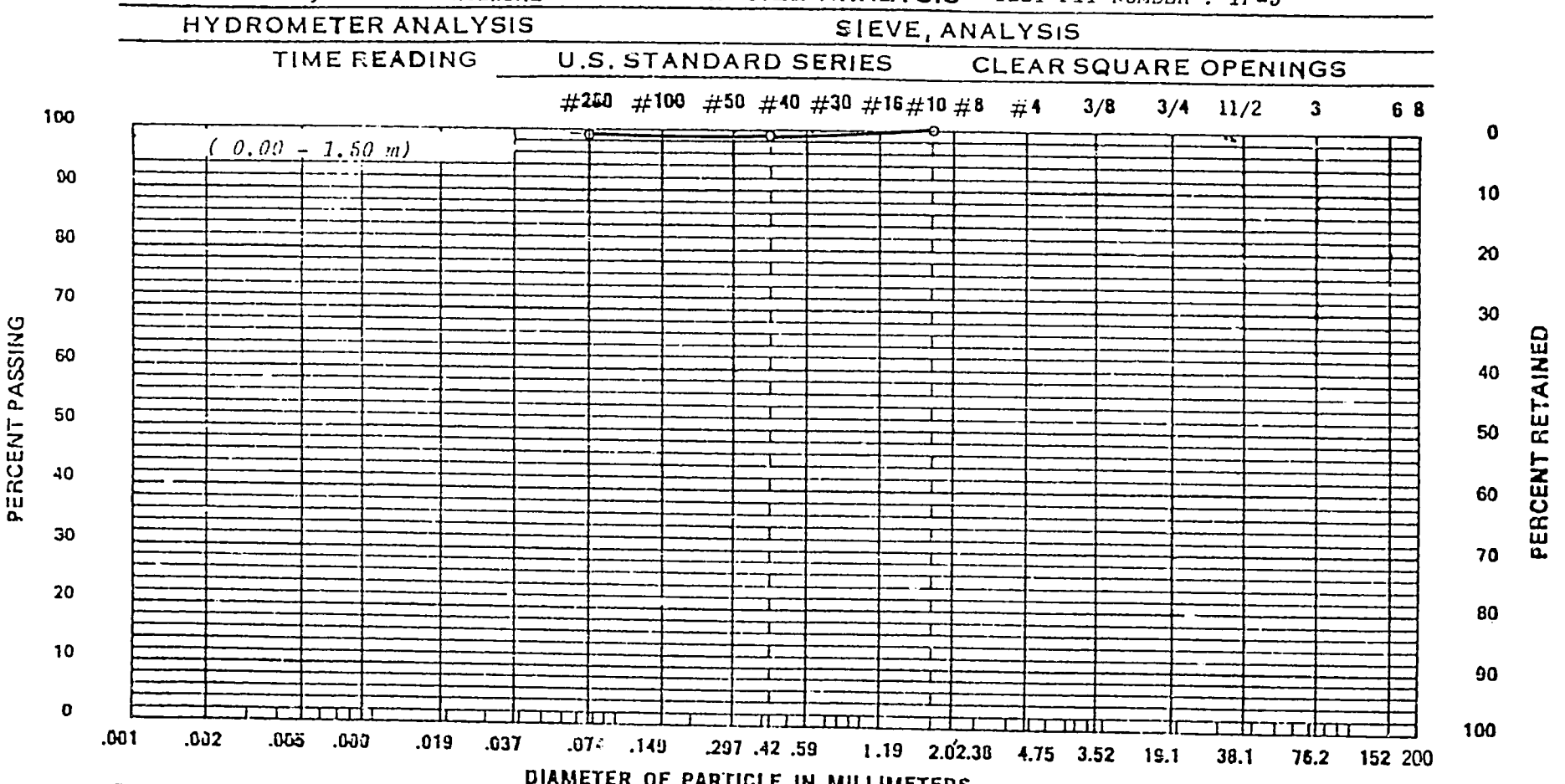
INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

TEST PIT NUMBER : TP-3



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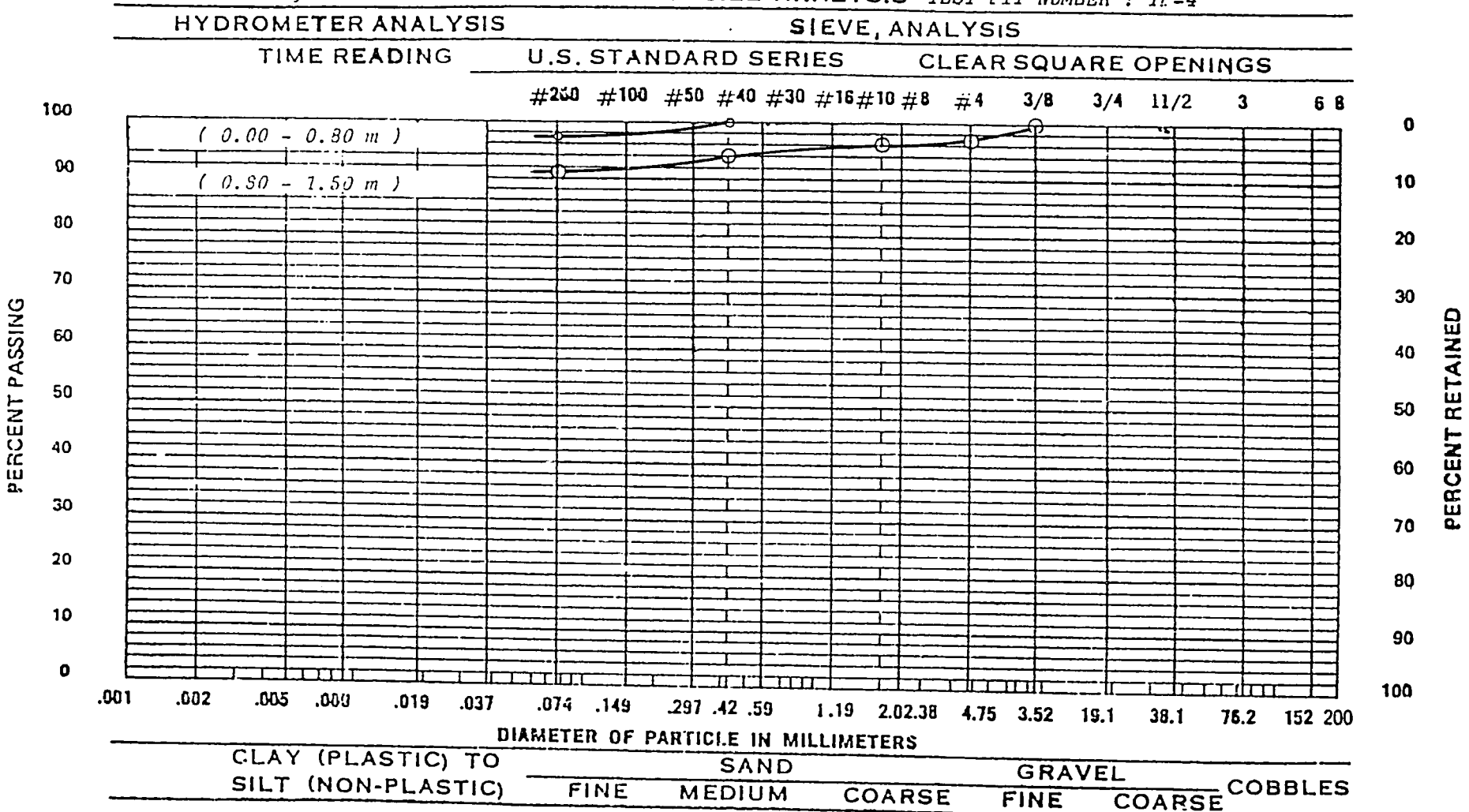
METRO MANILA
TEL. NOS. 815-06-26 TO 29
TELEX NO. 63871 PN

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS *TEST PIT NUMBER : TP-4*



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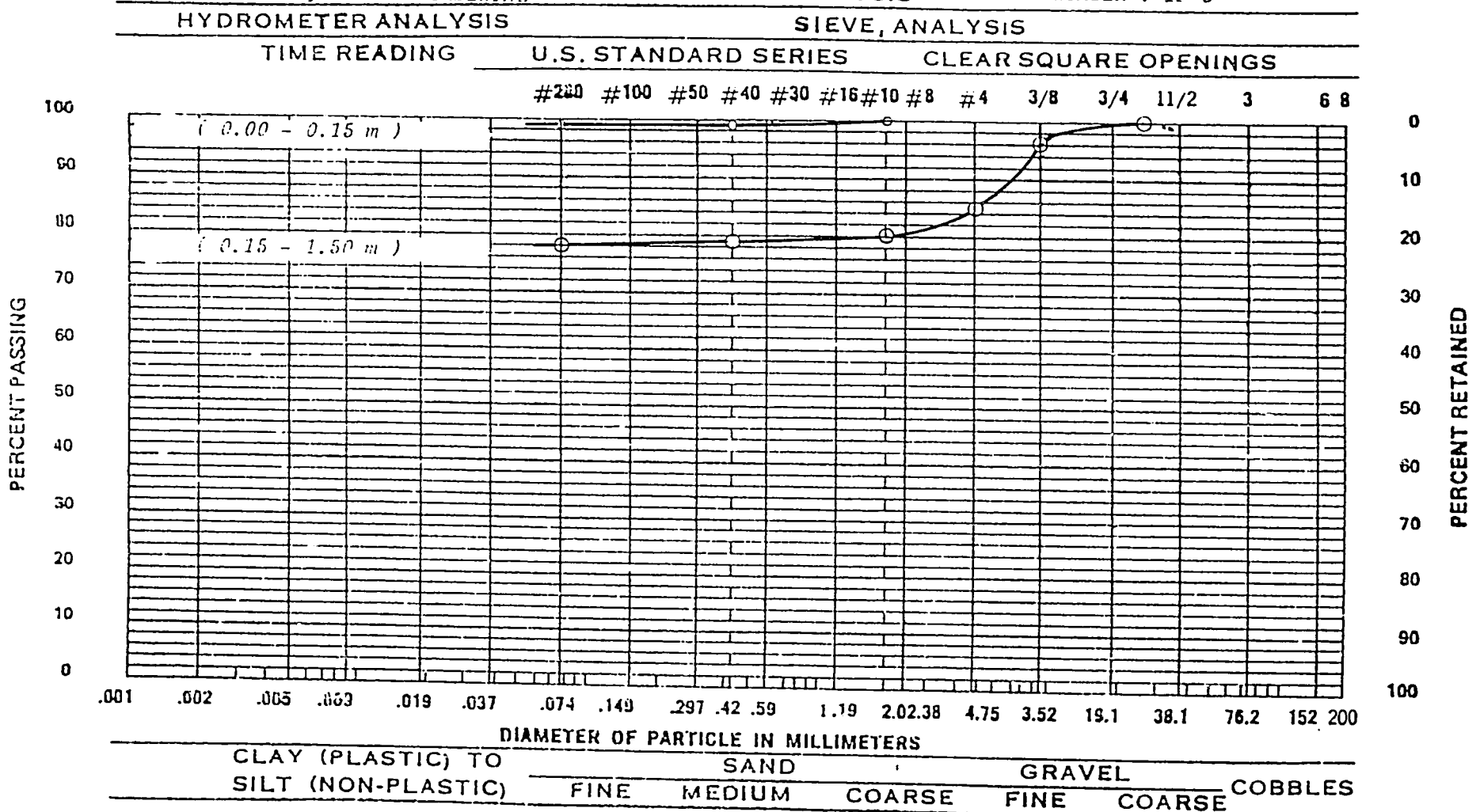
METRO MANILA
TEL. NOS. 815-06-26 TO 29
TELEX NO. 03071 PN

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3773 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL PARTICLE SIZE ANALYSIS *TEST PIT NUMBER : TP-5*



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METRO MANILA
TEL. NOS. 815-06-28 TO 29
TELEX NO. 63671 PN

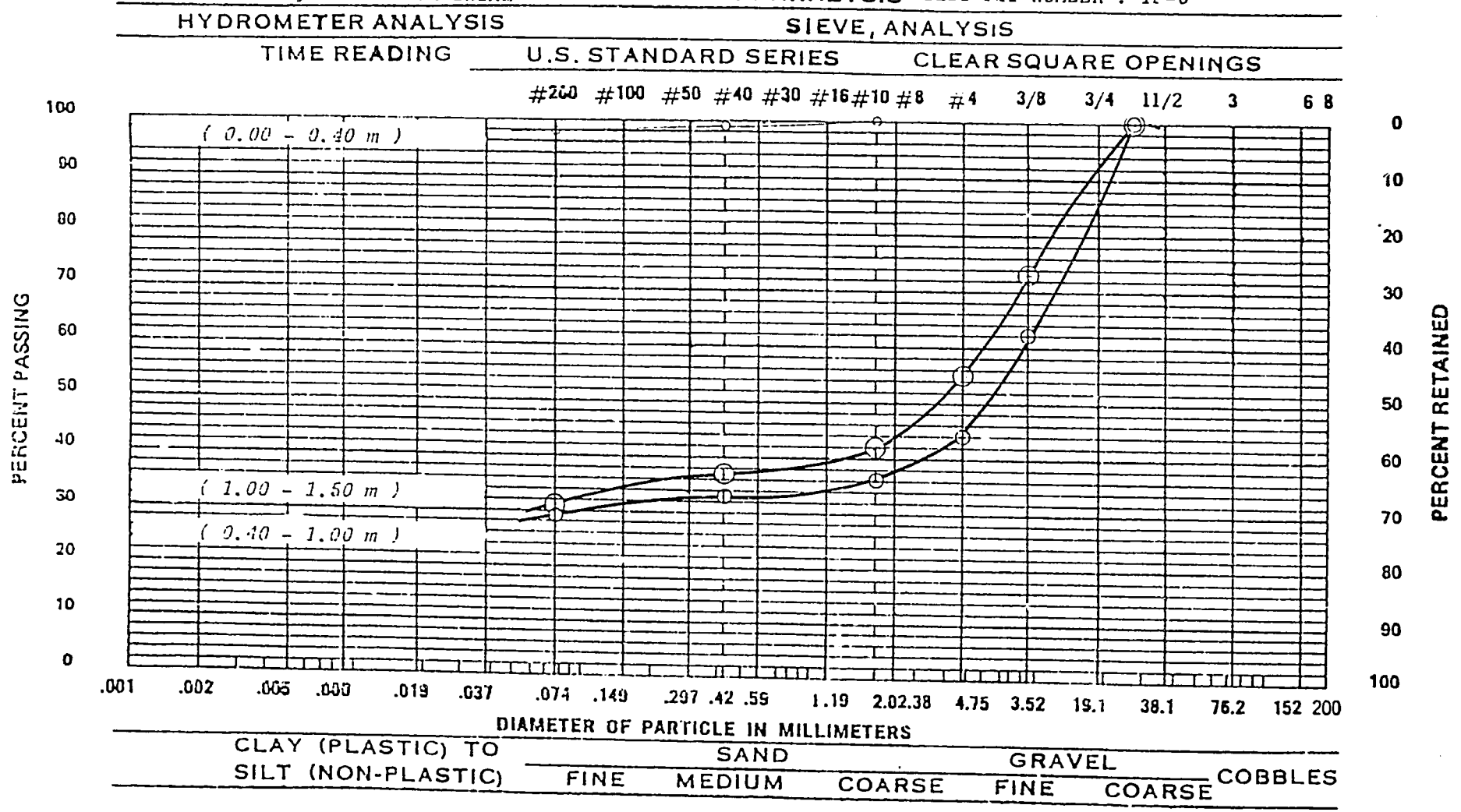
INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

TEST PIT NUMBER : TP-6



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METRO MANILA
TEL. NOS. 815-06-26 TO 29
TELEX NO. 63871 PN

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

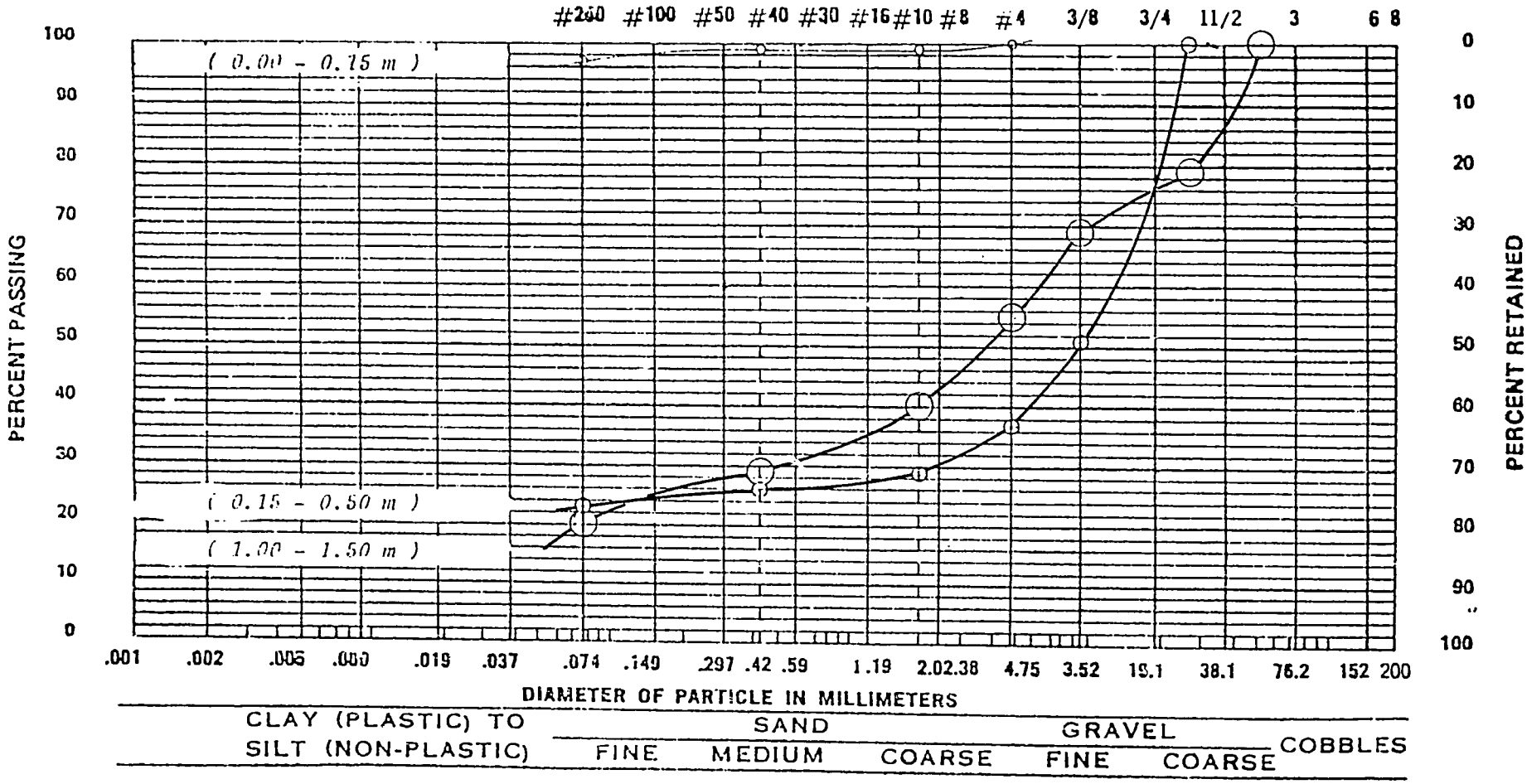
CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT

LOCATION : LAUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

TEST PIT NUMBER : TP-2



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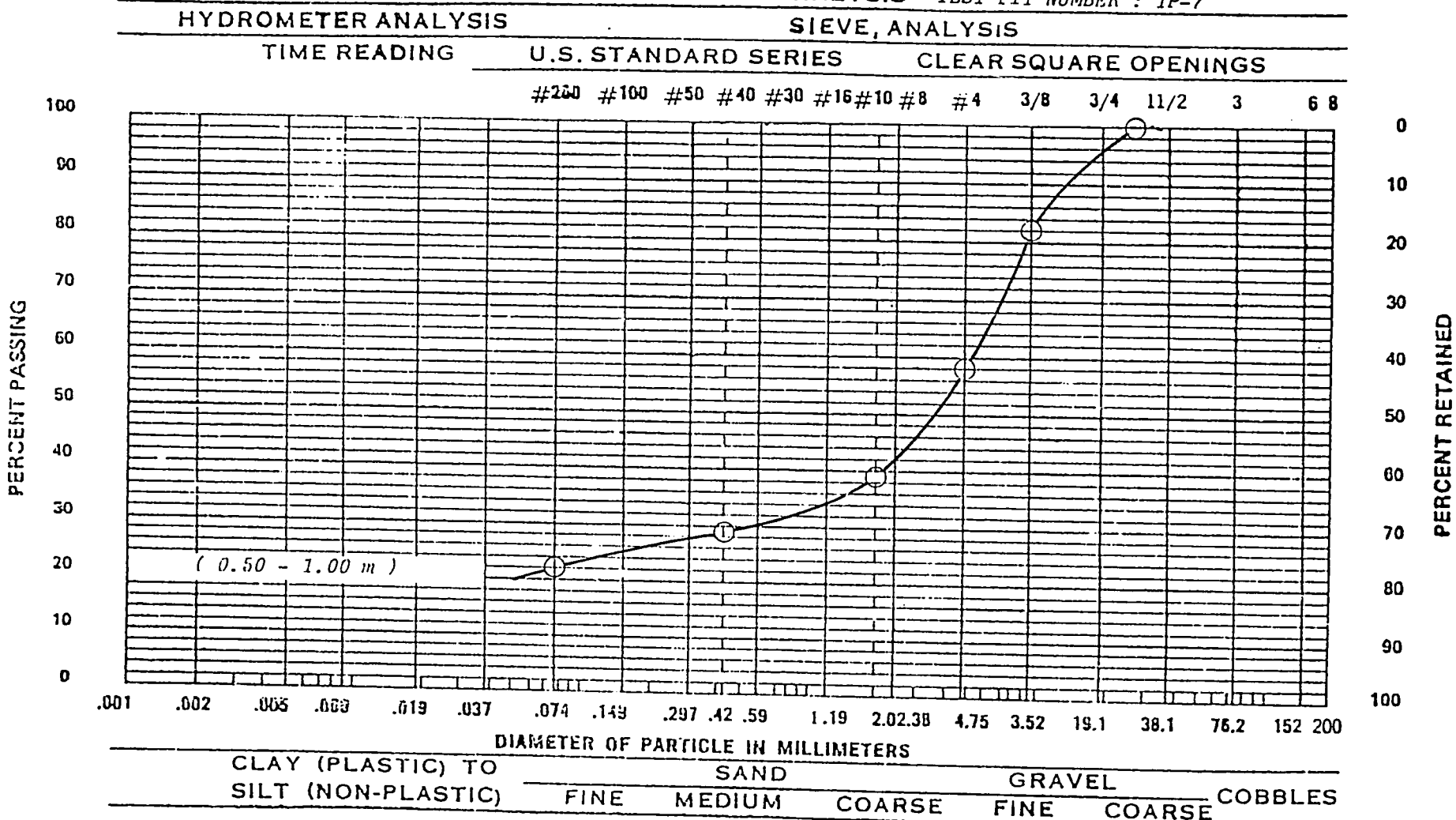
PROJECT : CAGAYAN DE ORO- ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

TEST PIT NUMBER : TP-7



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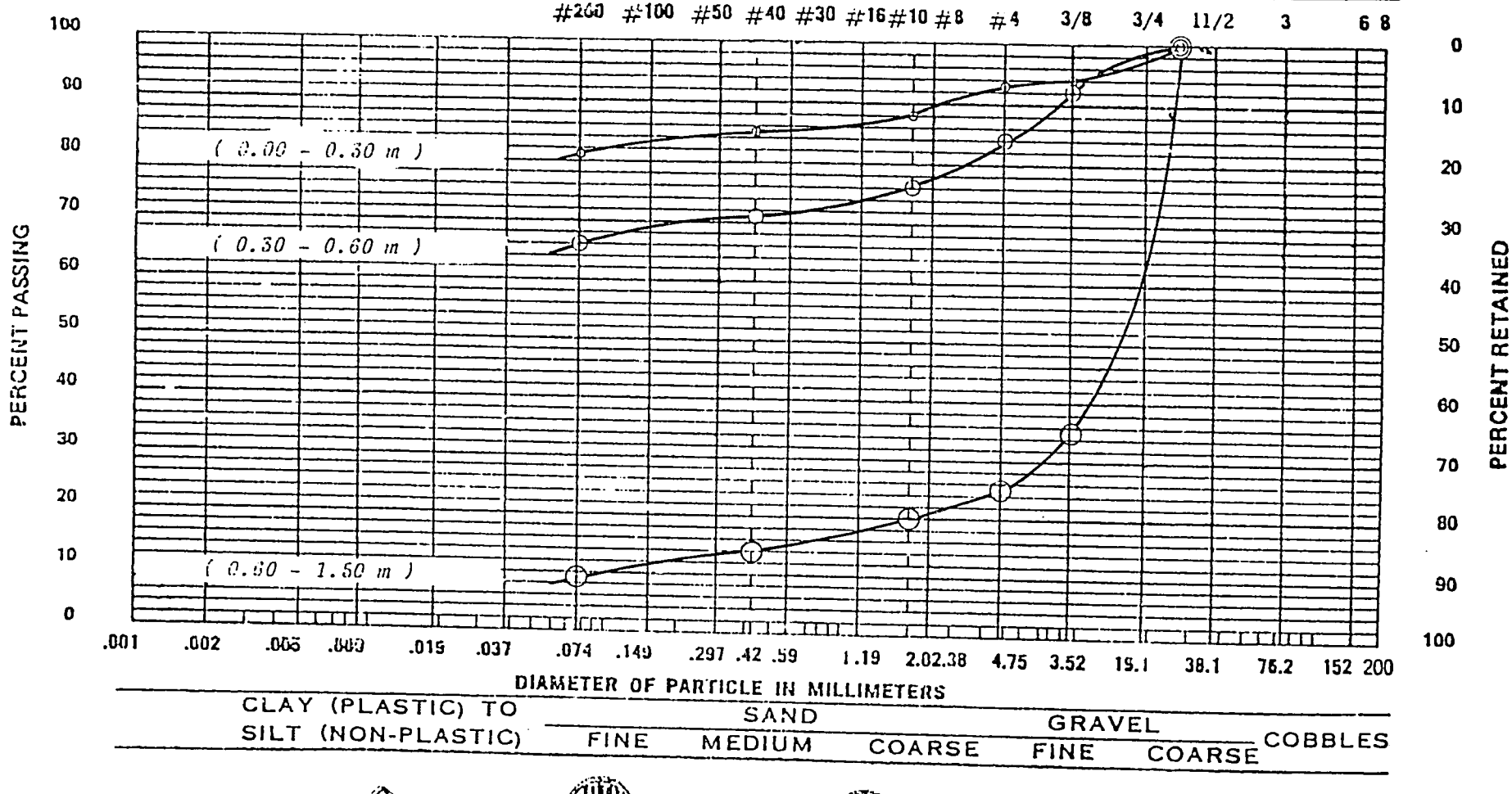
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

TEST PIT NUMBER : TP-8



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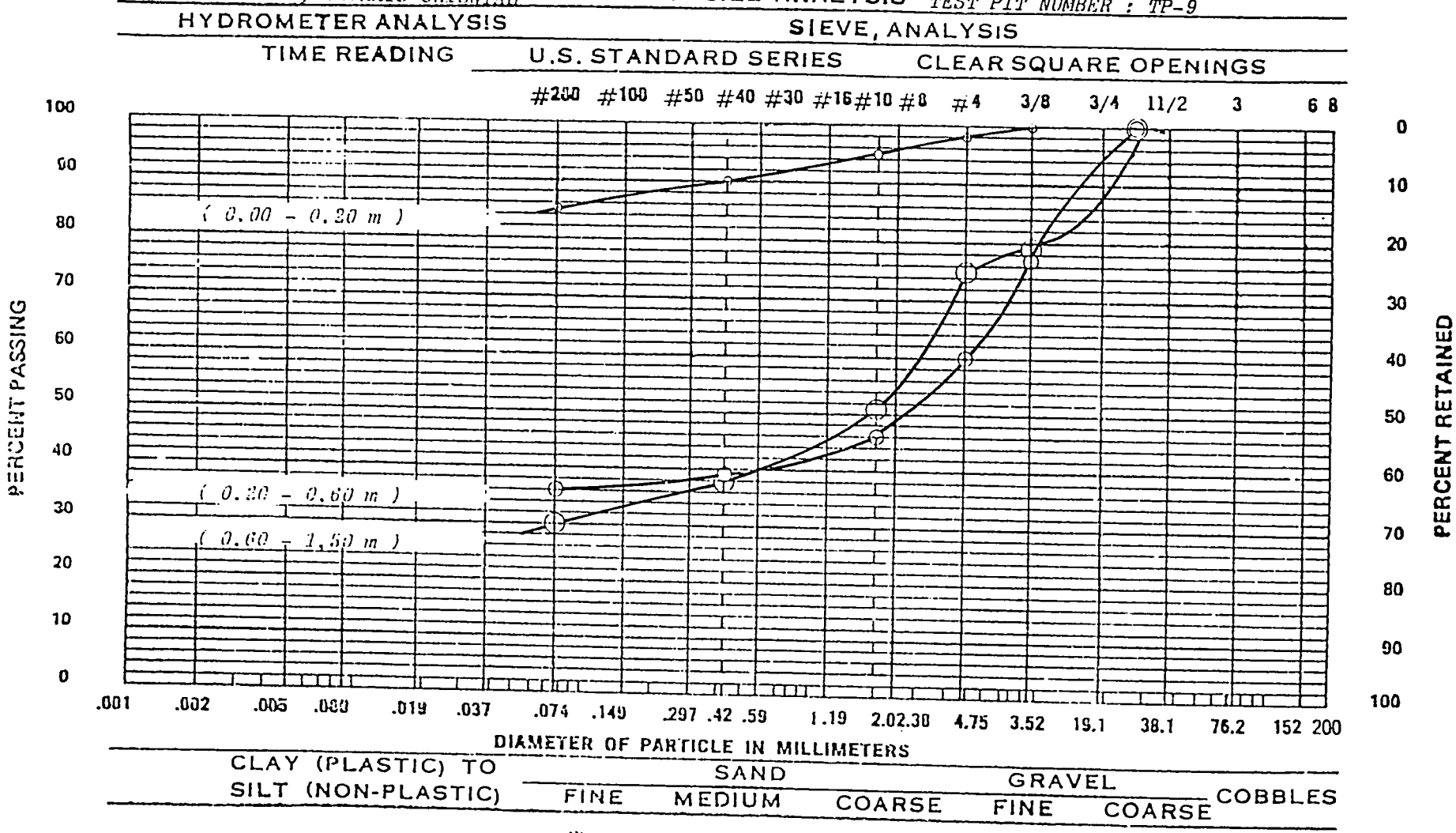
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : IAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

TEST PIT NUMBER : TP-9



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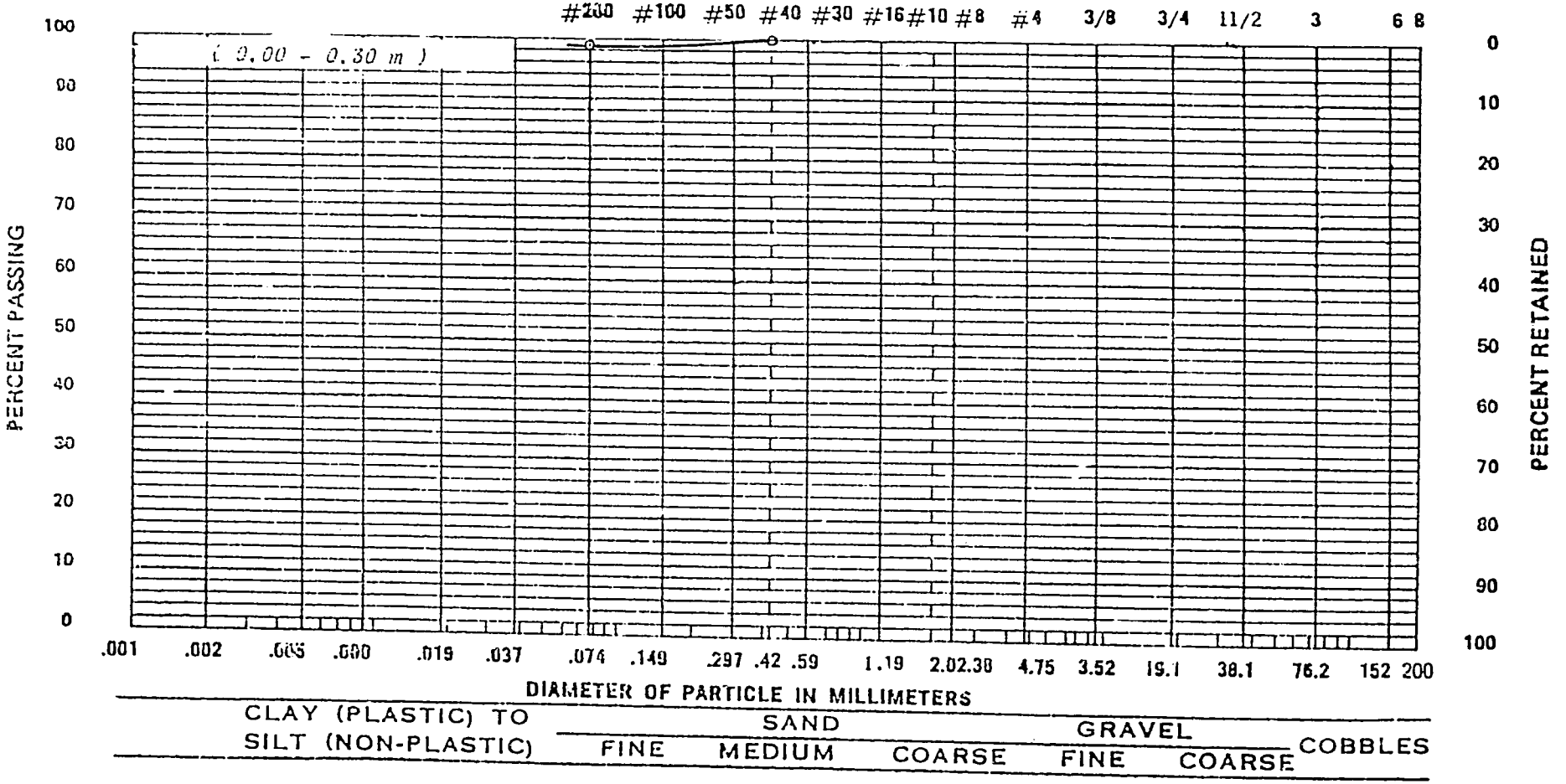
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

TEST PIT NUMBER : TP-10



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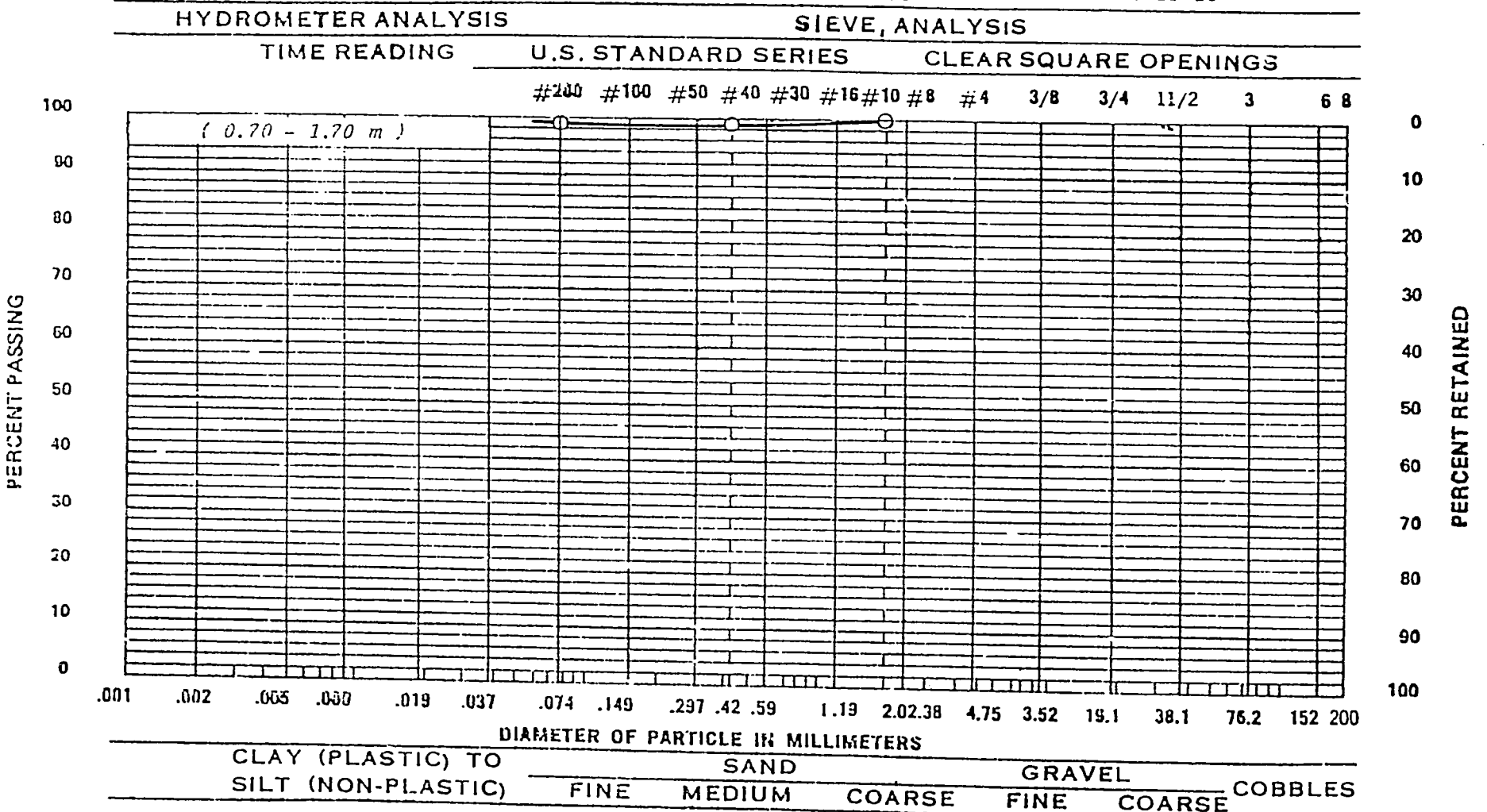
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL PARTICLE SIZE ANALYSIS *TEST PIT NUMBER : TP-10*



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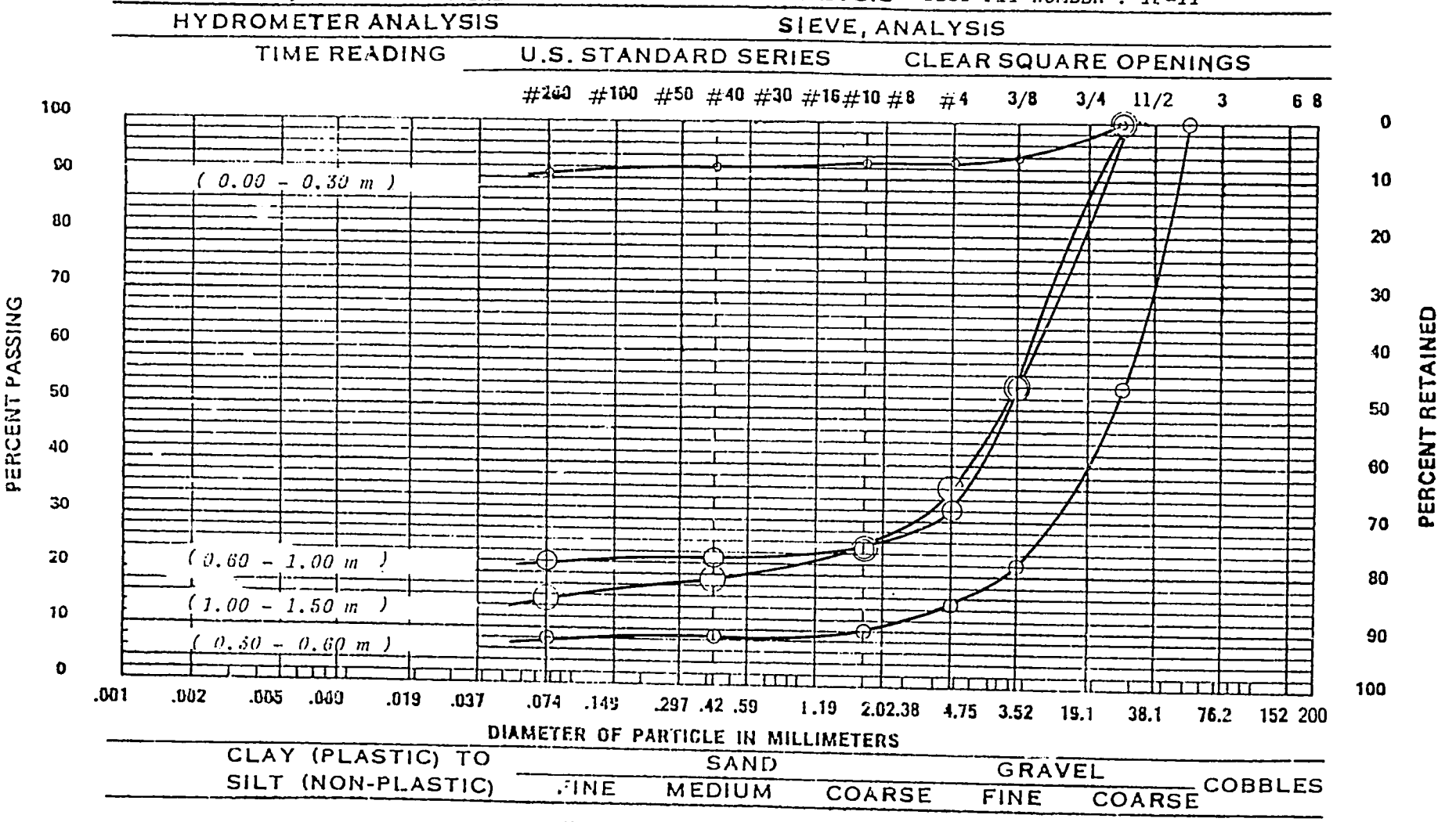
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

TEST PIT NUMBER : TP-11



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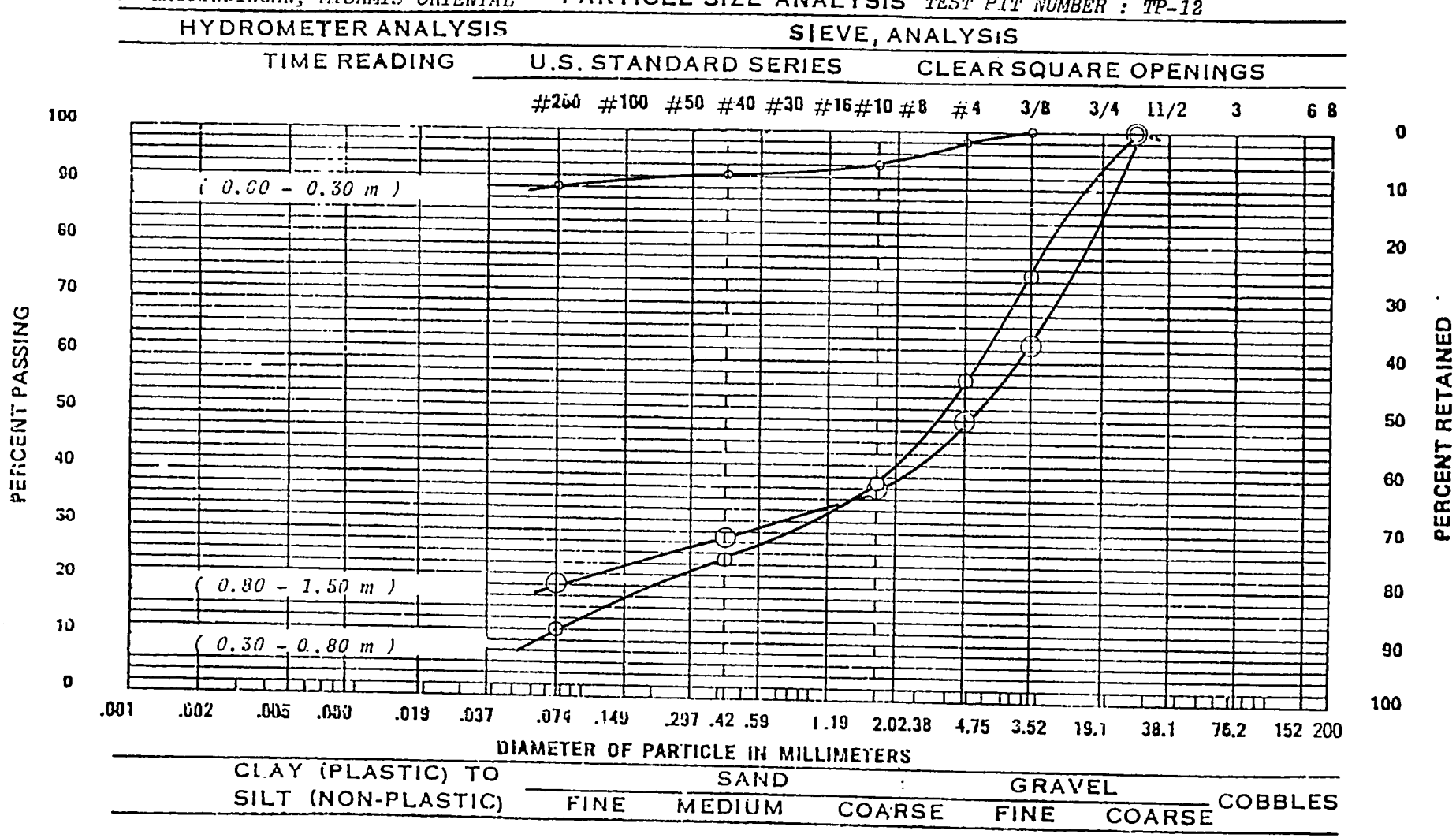
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL PARTICLE SIZE ANALYSIS *TEST PIT NUMBER : TP-12*



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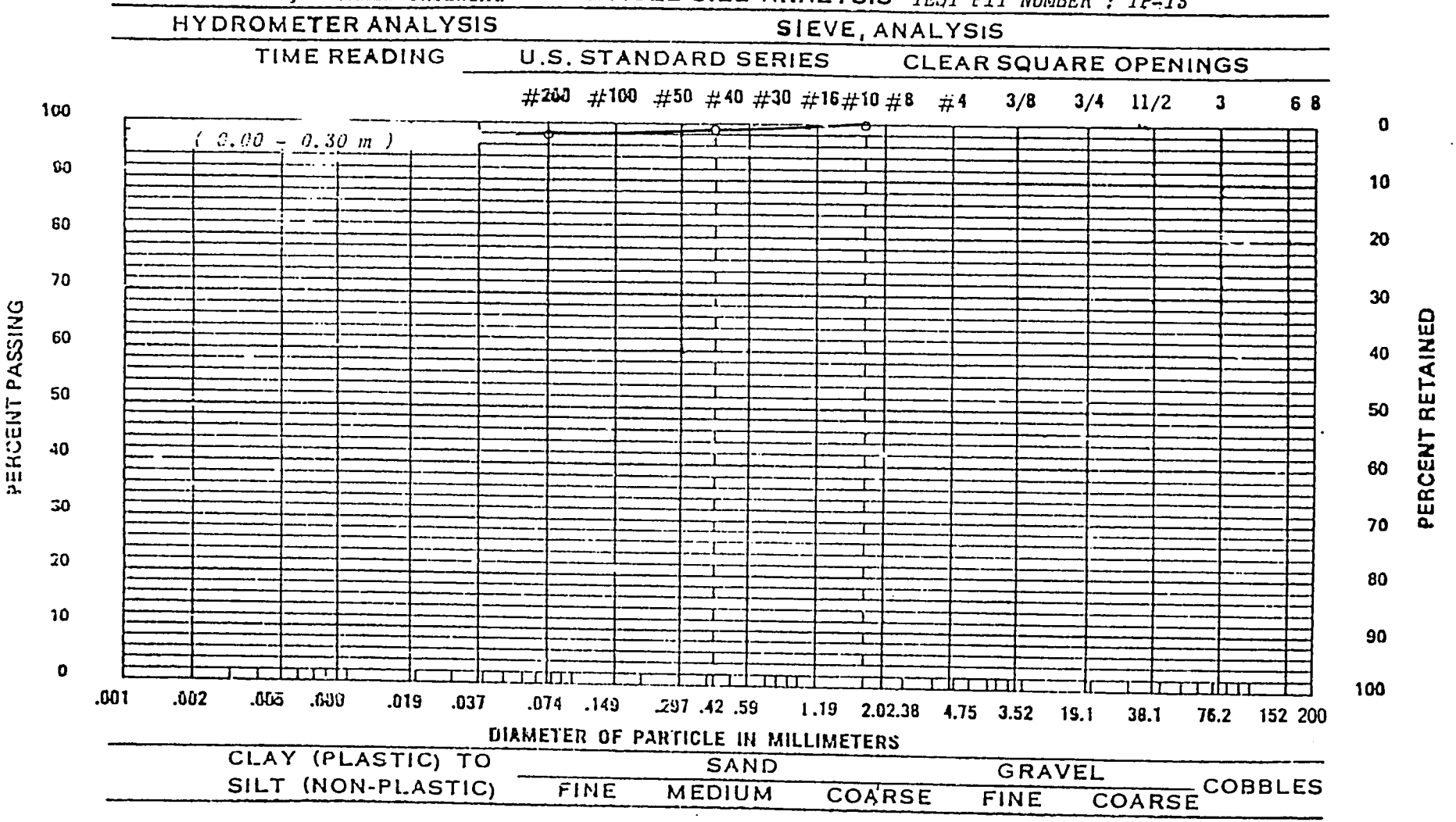
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL PARTICLE SIZE ANALYSIS *TEST PIT NUMBER : TP-13*



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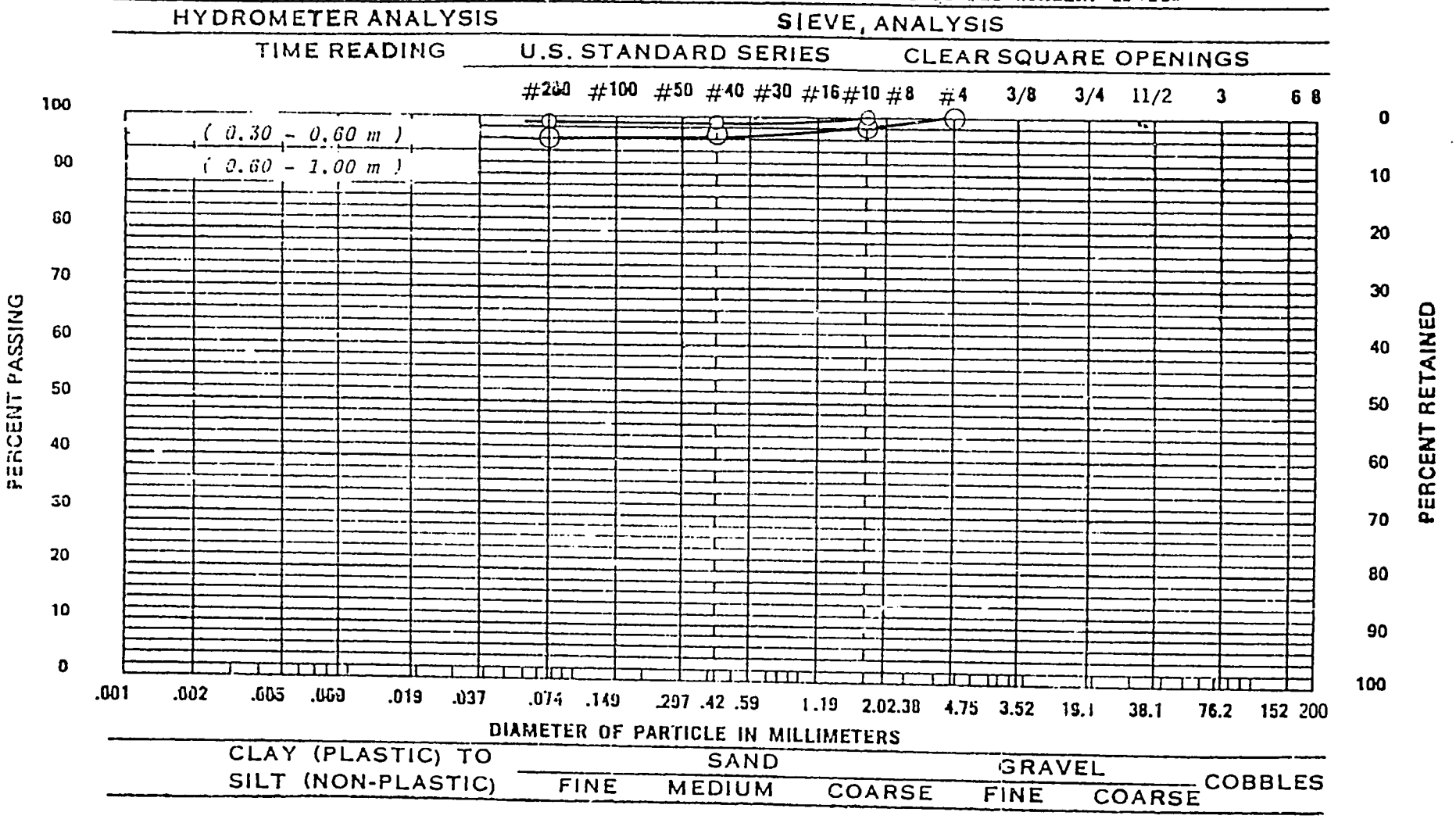
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL PARTICLE SIZE ANALYSIS *TEST PIT NUMBER: TP-13*



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PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT

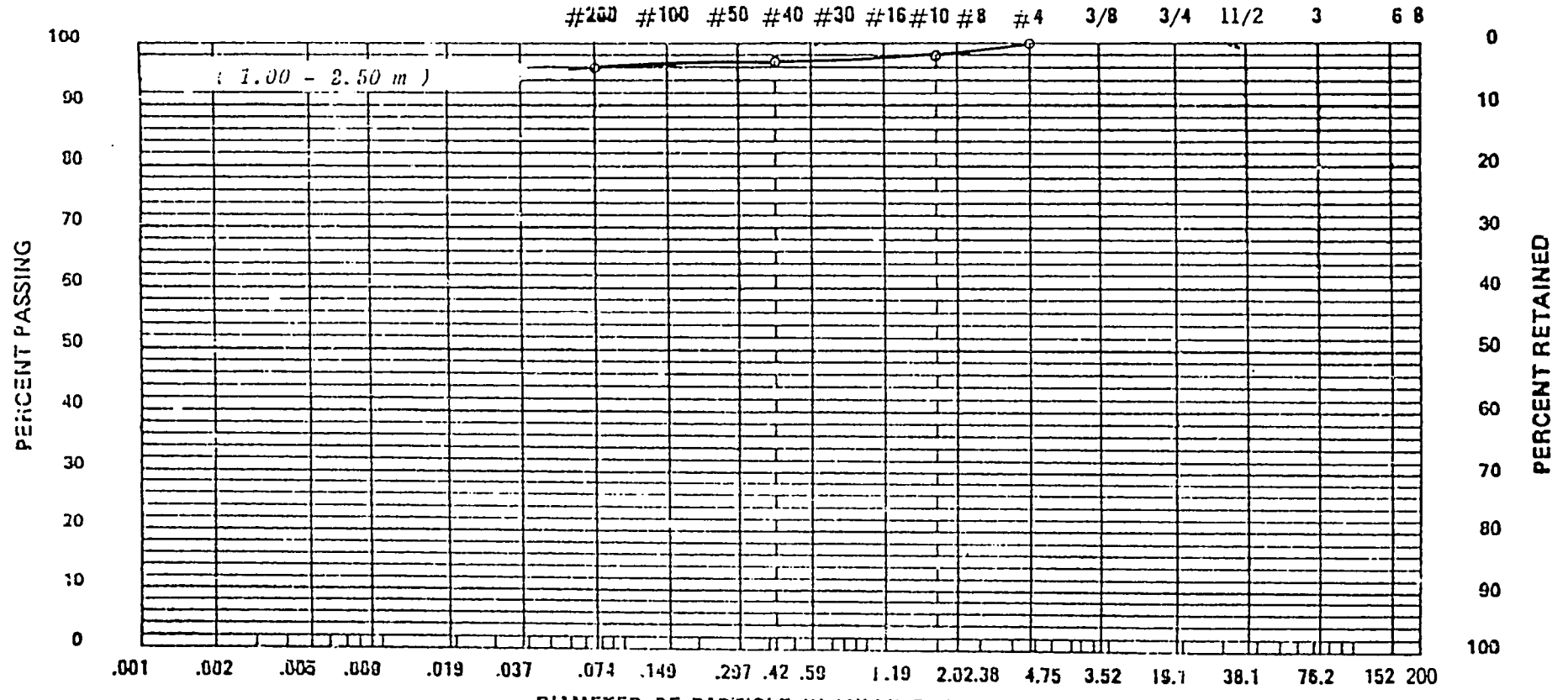
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

TEST PIT NUMBER : TP-13

HYDROMETER ANALYSIS — TIME READING

SIEVE, ANALYSIS — U.S. STANDARD SERIES — CLEAR SQUARE OPENINGS



CLAY (PLASTIC) TO SILT (NON-PLASTIC)	SAND			GRAVEL		COBBLES
	FINE	MEDIUM	COARSE	FINE	COARSE	

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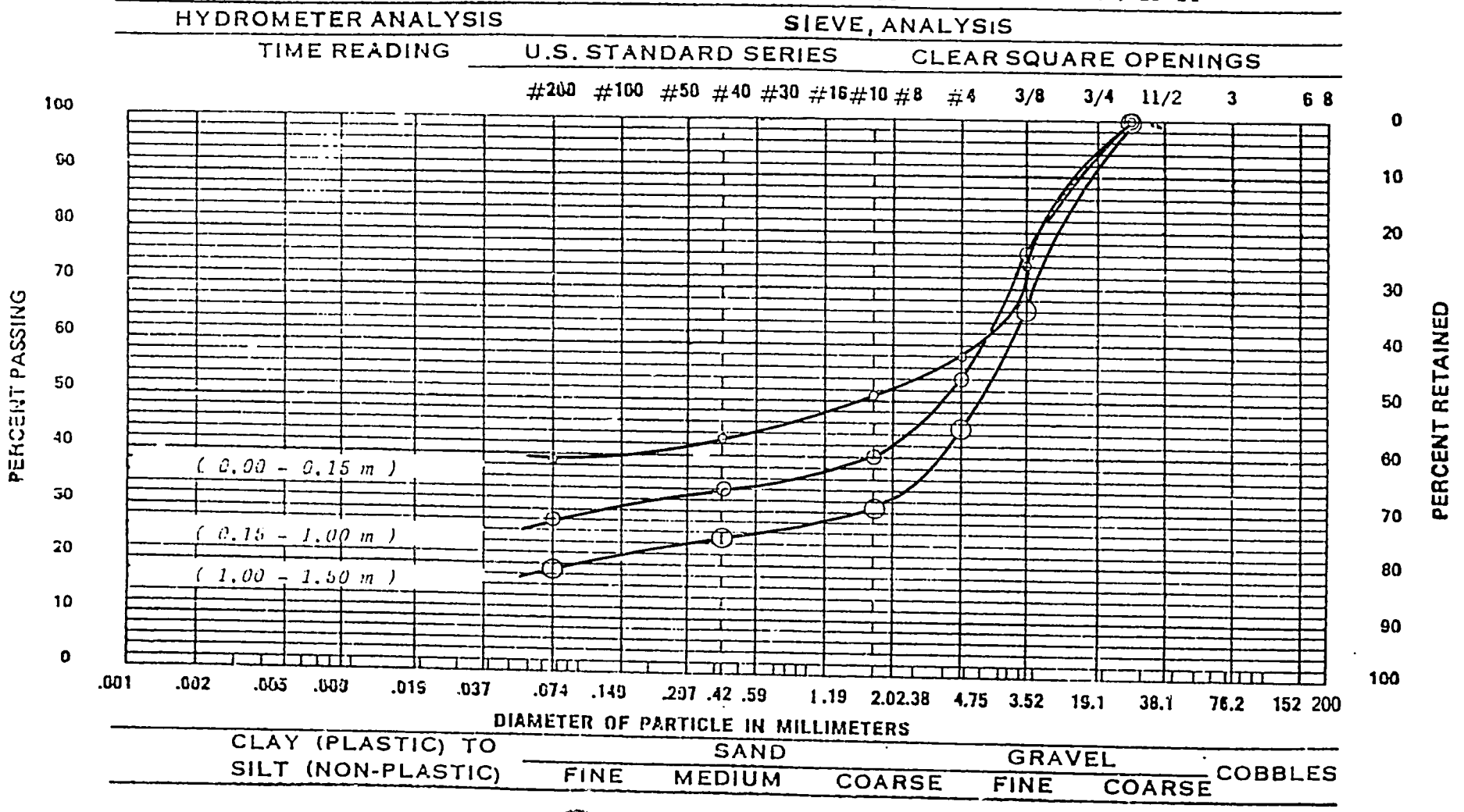
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL PARTICLE SIZE ANALYSIS *TEST PIT NUMBER : TP-14*



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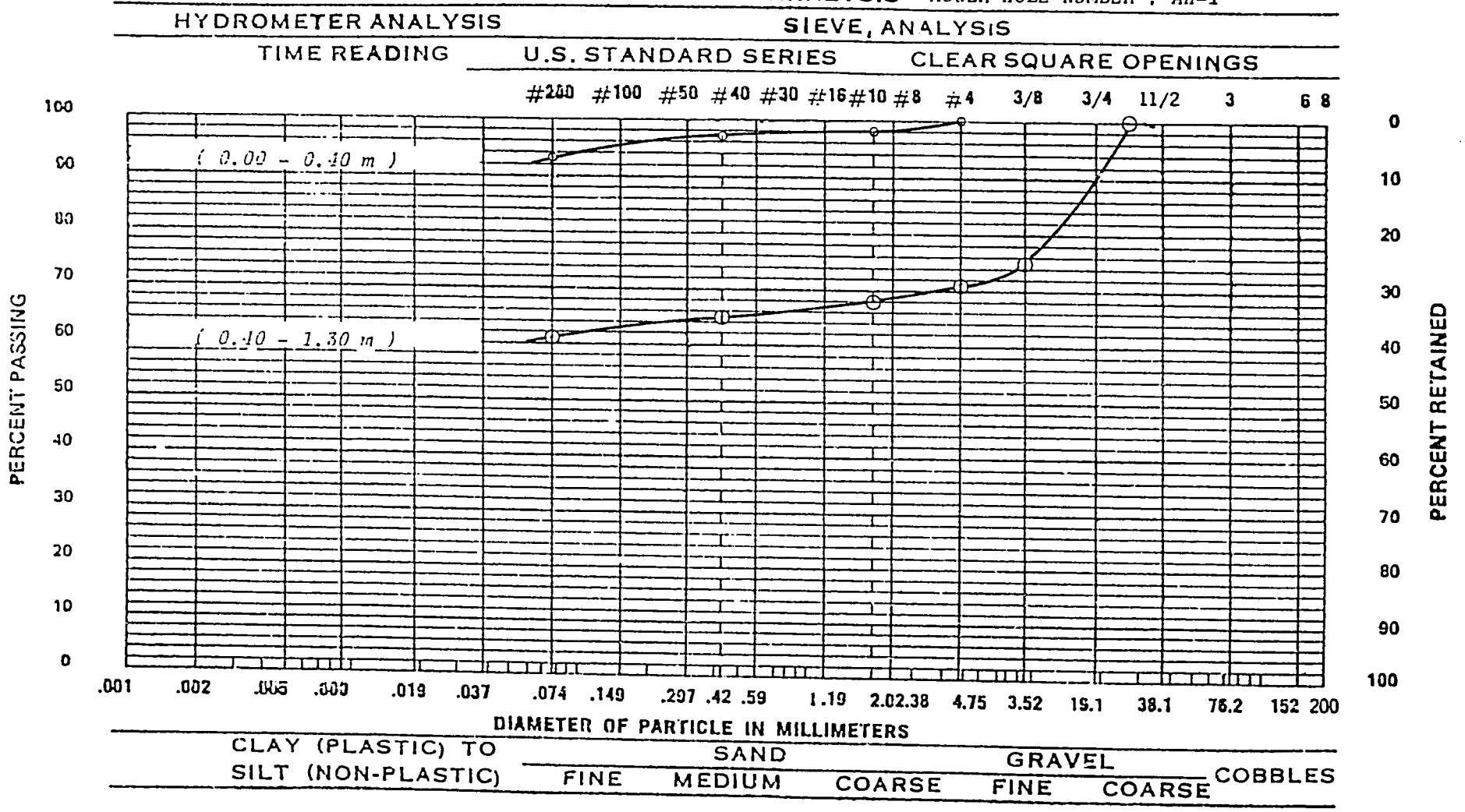
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL PARTICLE SIZE ANALYSIS *AUGER HOLE NUMBER : AH-1*



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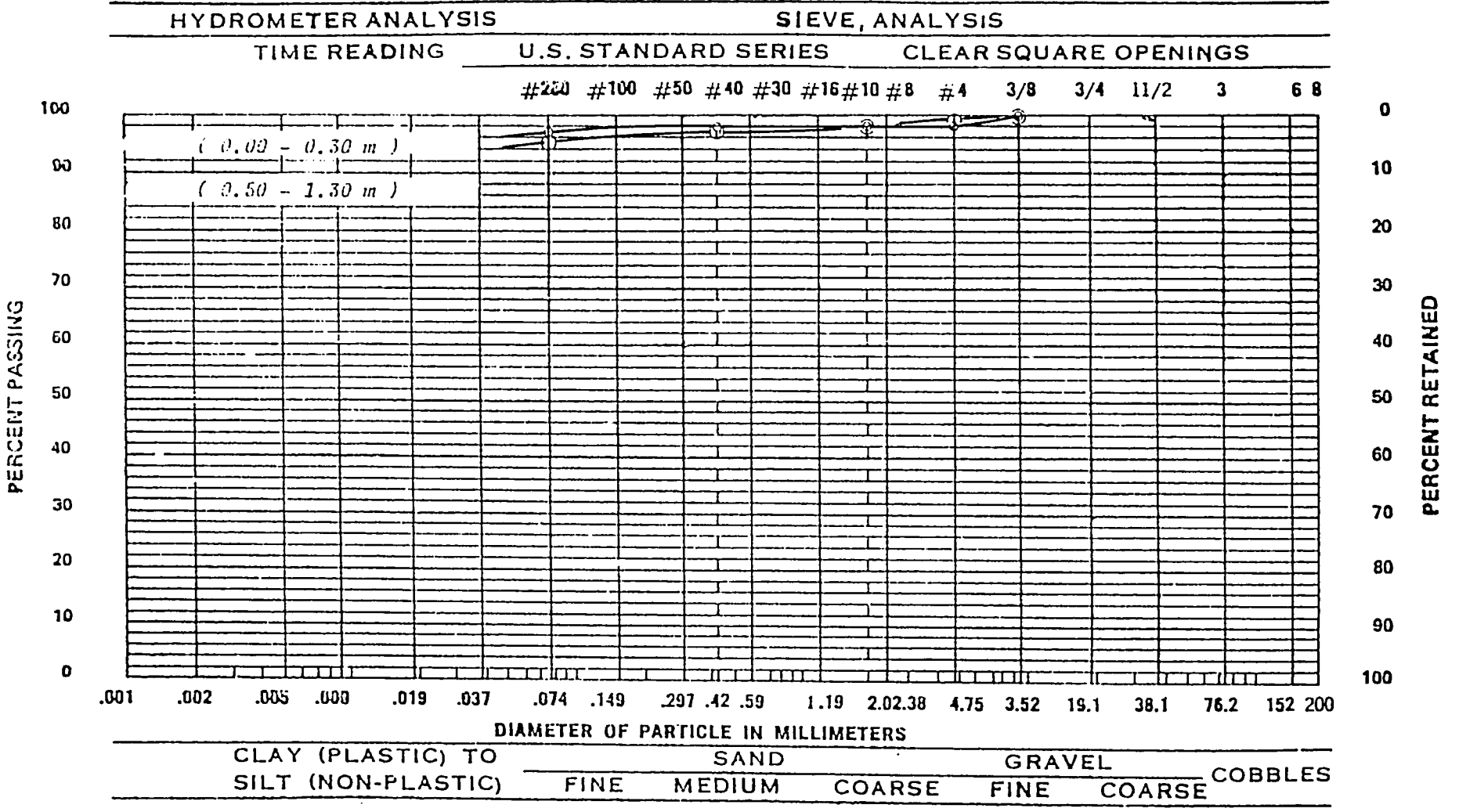
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL PARTICLE SIZE ANALYSIS *AUGER HOLE NUMBER : AH-2*



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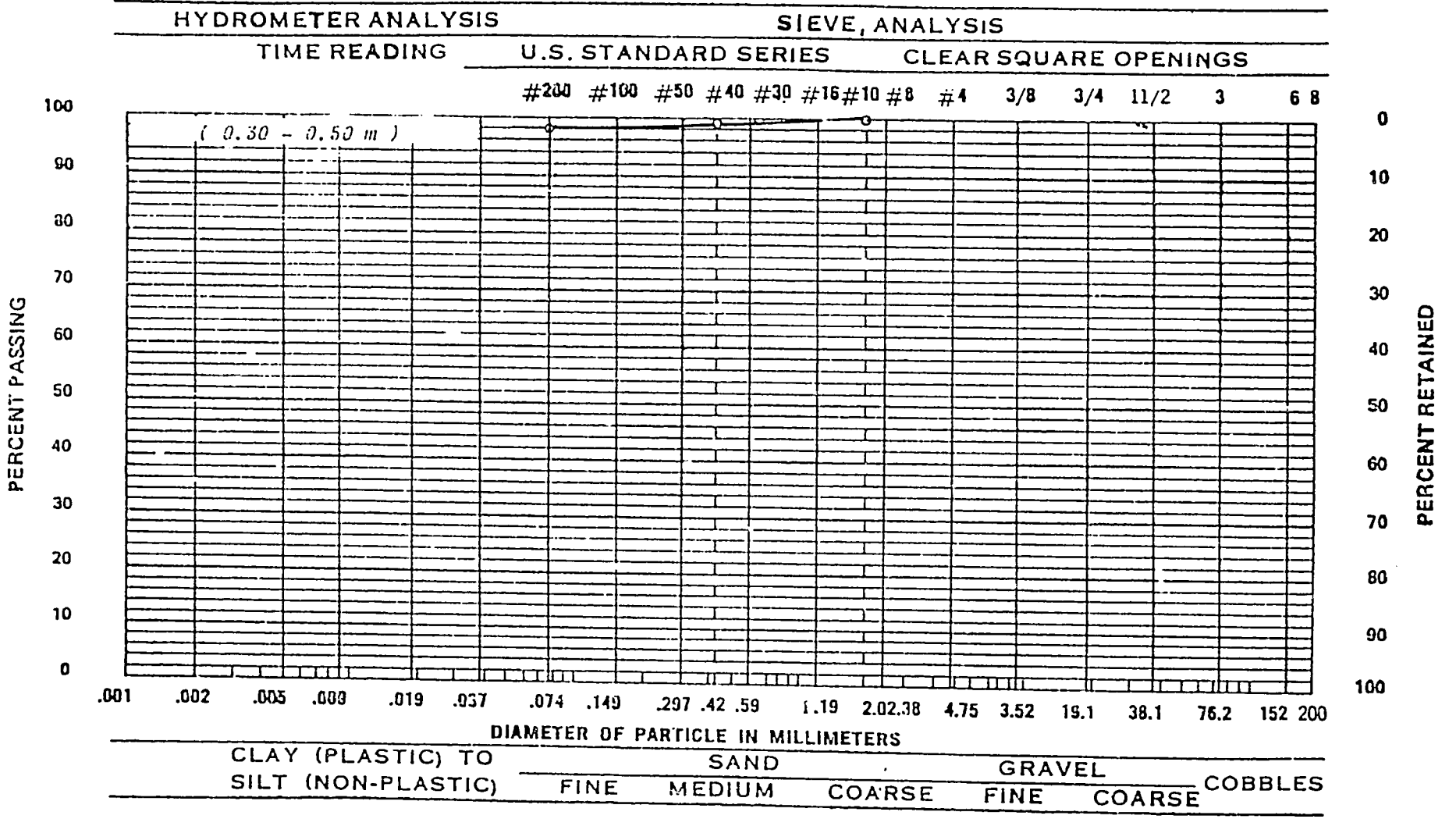
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL PARTICLE SIZE ANALYSIS *AUGER HOLE NUMBER : AH-2*



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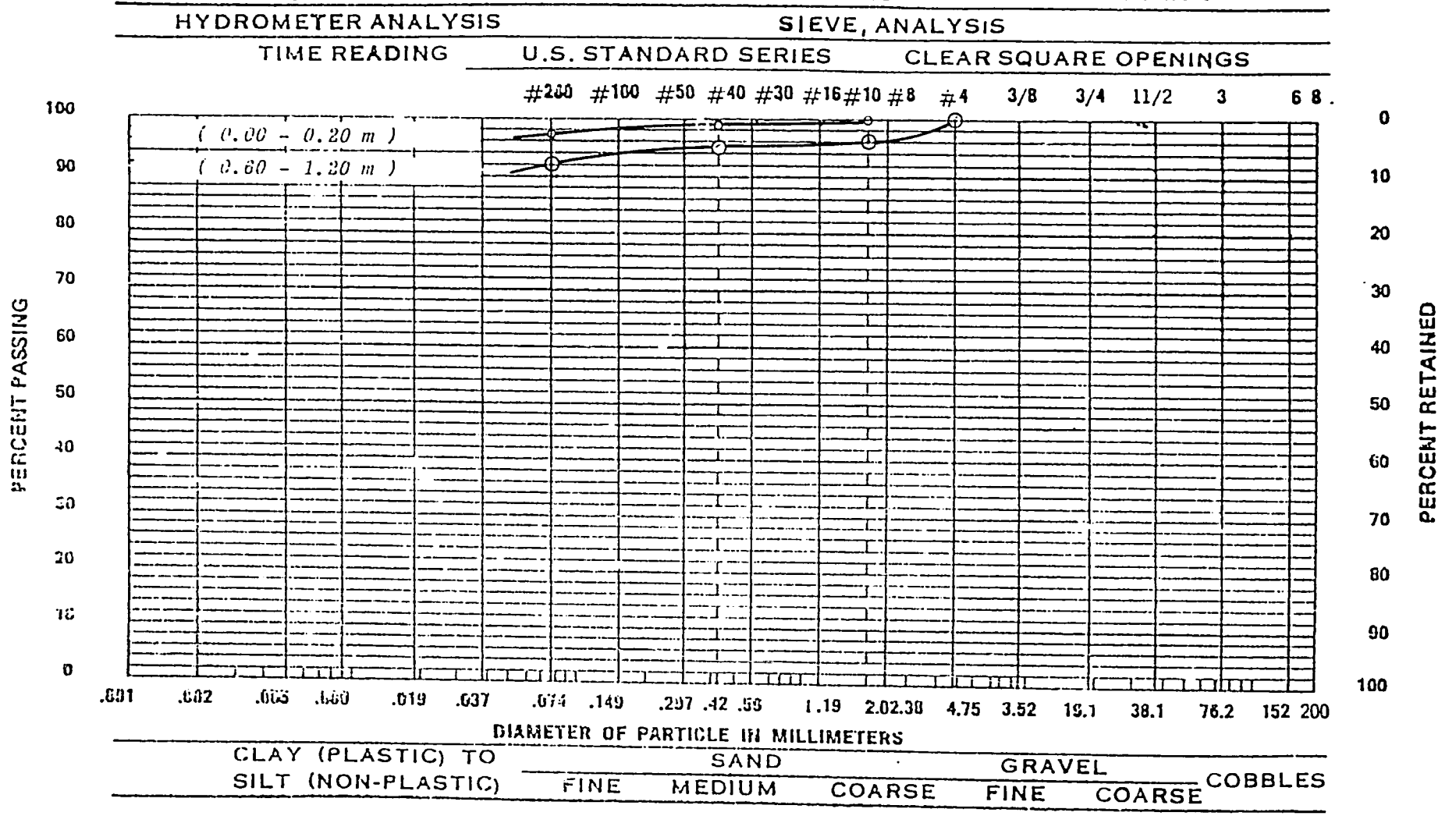
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL PARTICLE SIZE ANALYSIS *AUGER HOLE NUMBER : AH-3*



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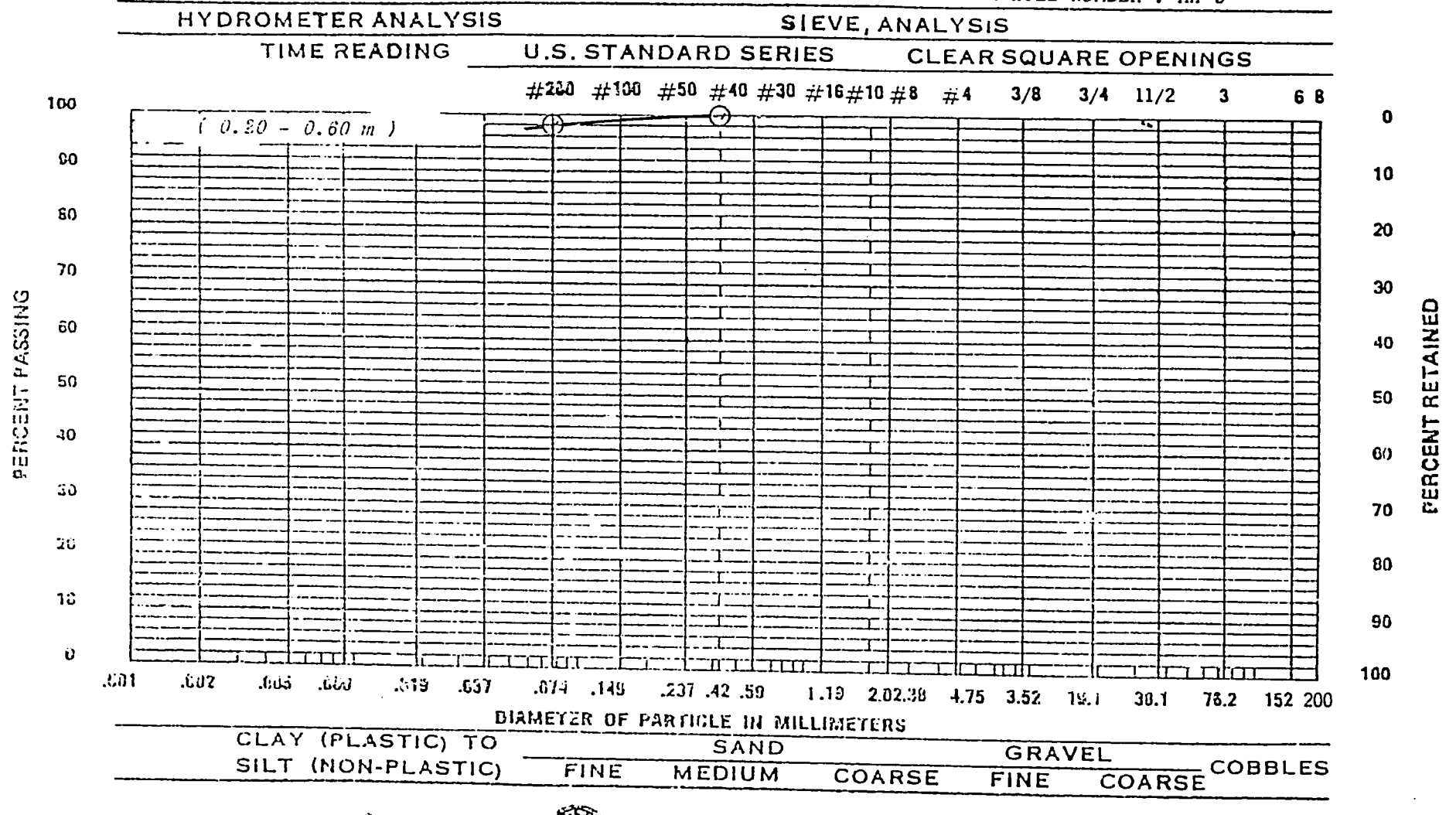
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

AUGER HOLE NUMBER : AH-3



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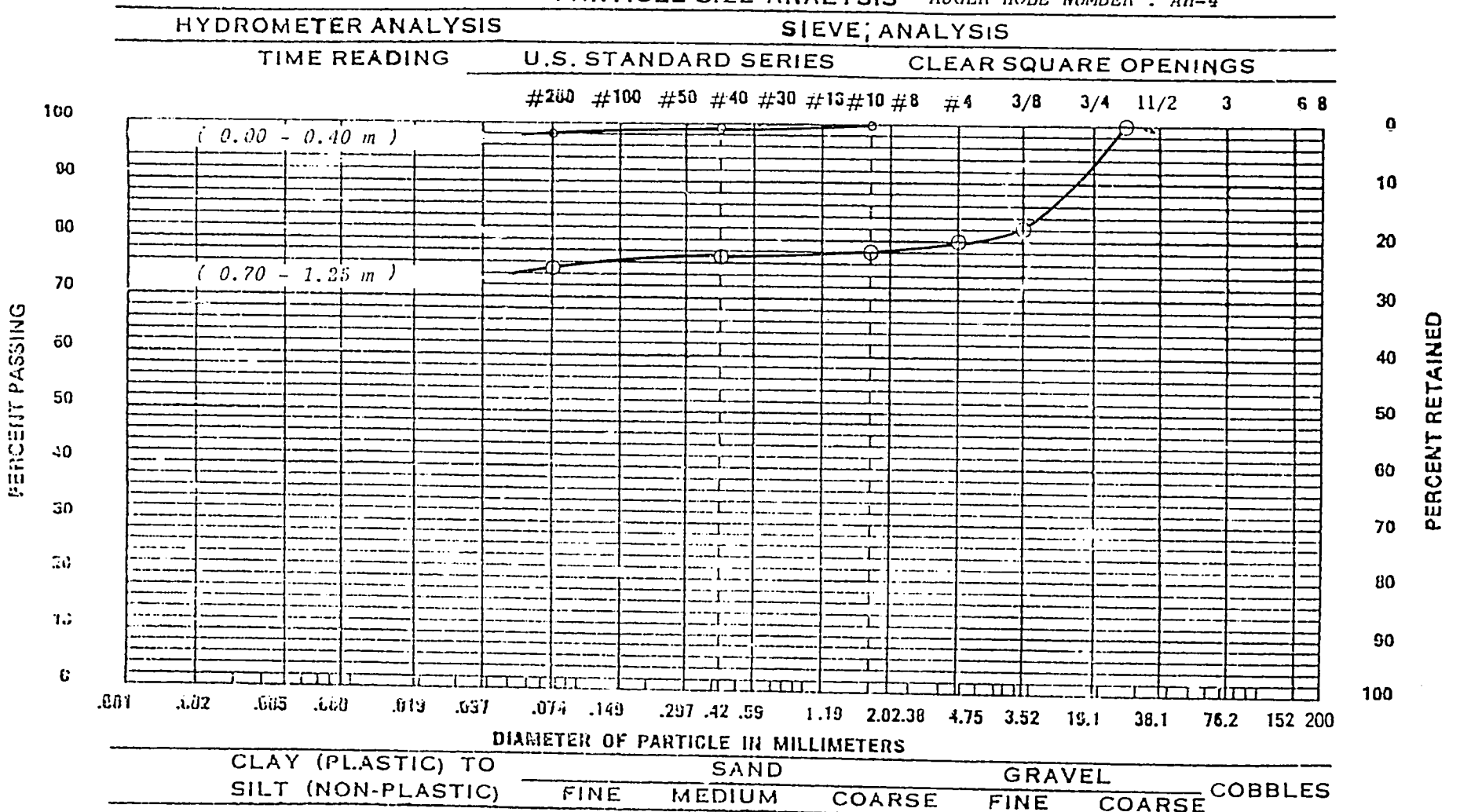
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

AUGER HOLE NUMBER : AH-4



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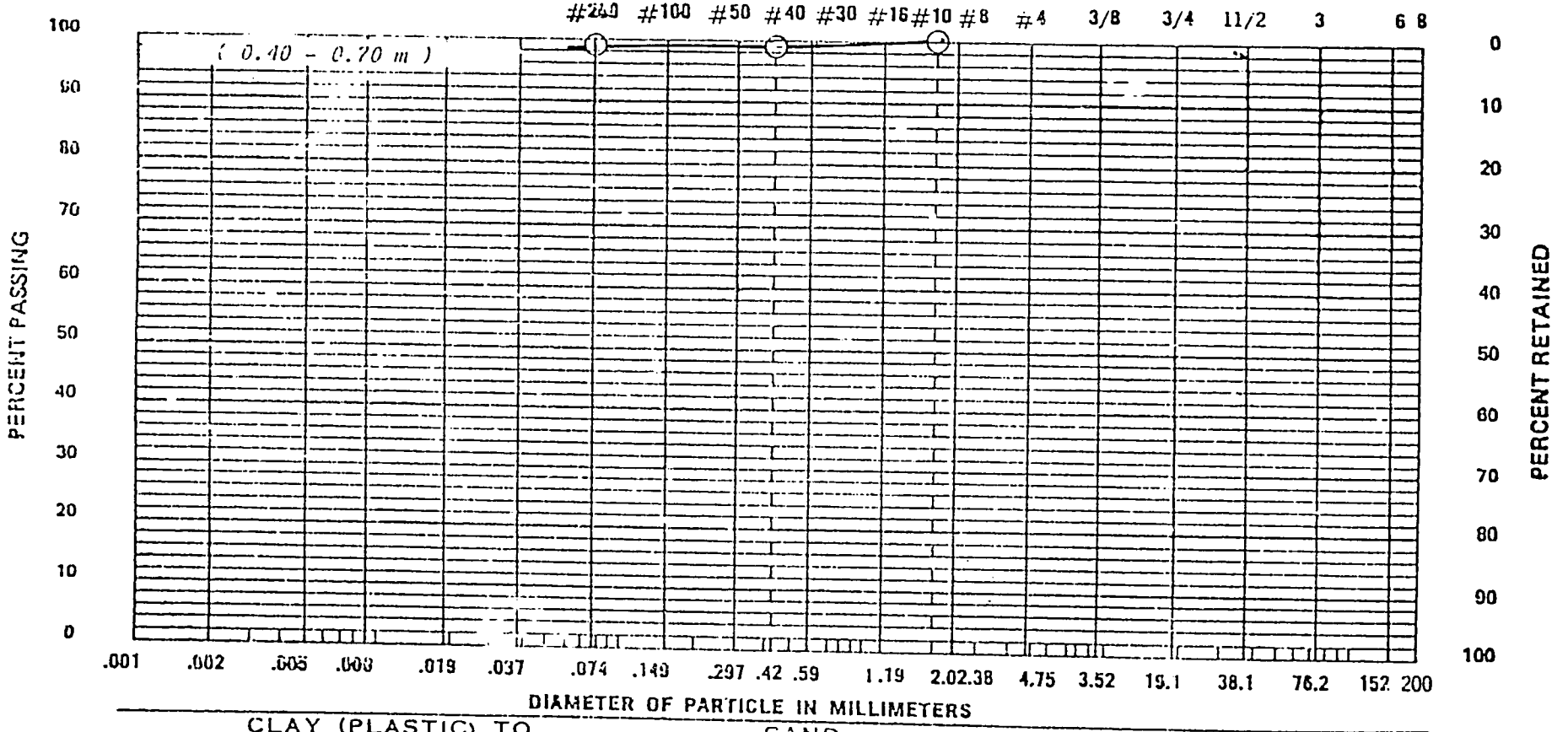
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

AUGER HOLE NUMBER : AH-4

HYDROMETER ANALYSIS — SIEVE, ANALYSIS

TIME READING — U.S. STANDARD SERIES — CLEAR SQUARE OPENINGS



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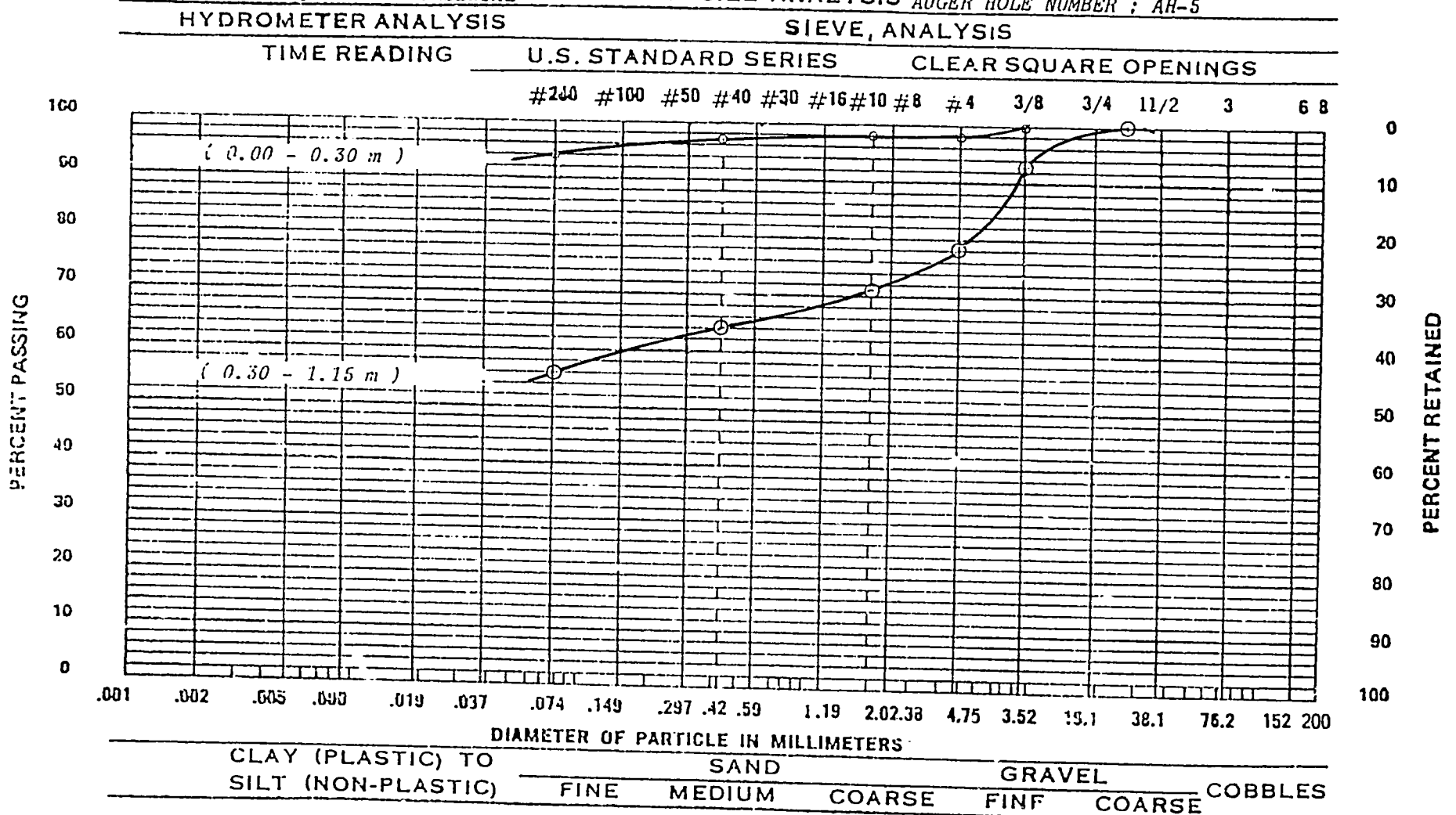
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

AUGER HOLE NUMBER : AH-5



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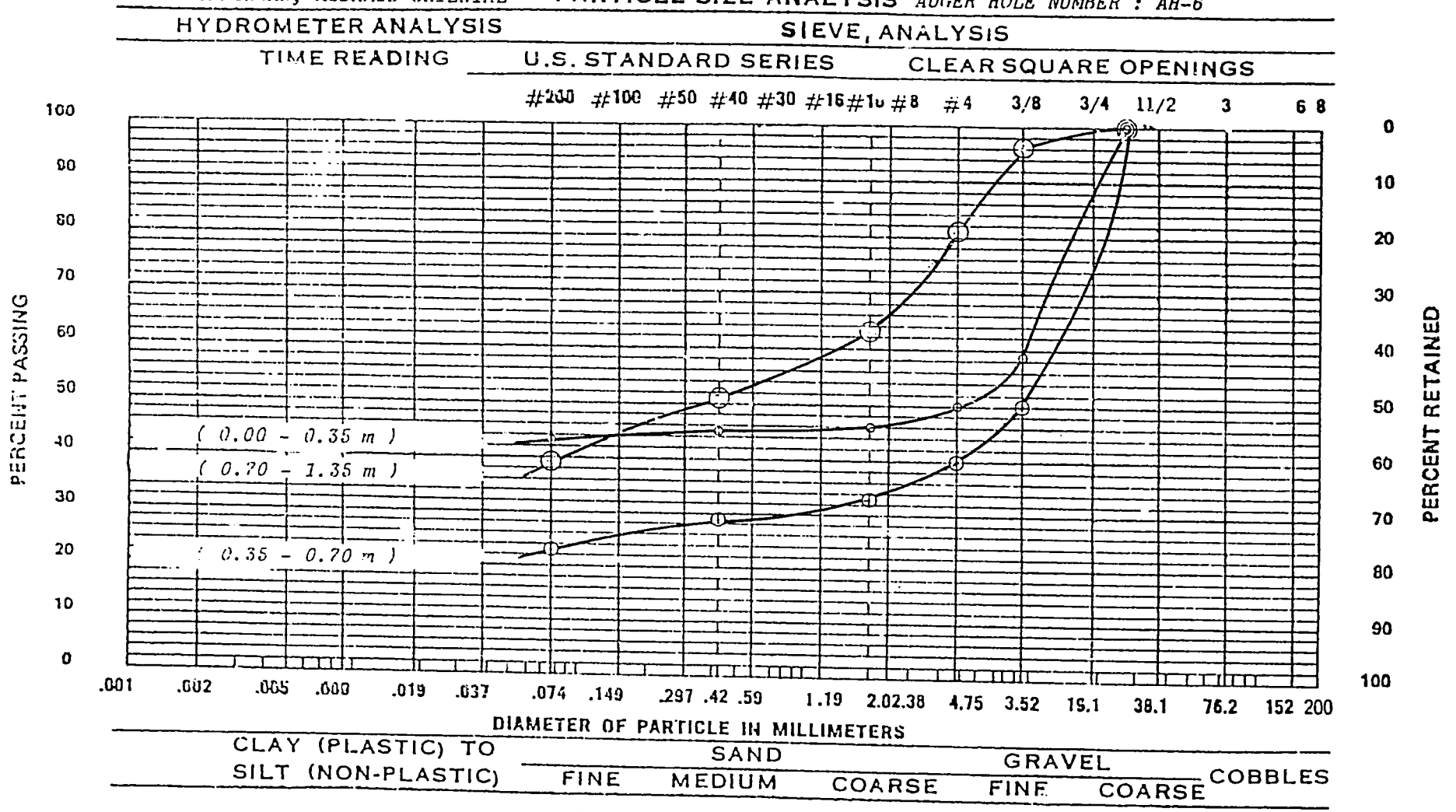
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL PARTICLE SIZE ANALYSIS *AUGER HOLE NUMBER : AH-6*



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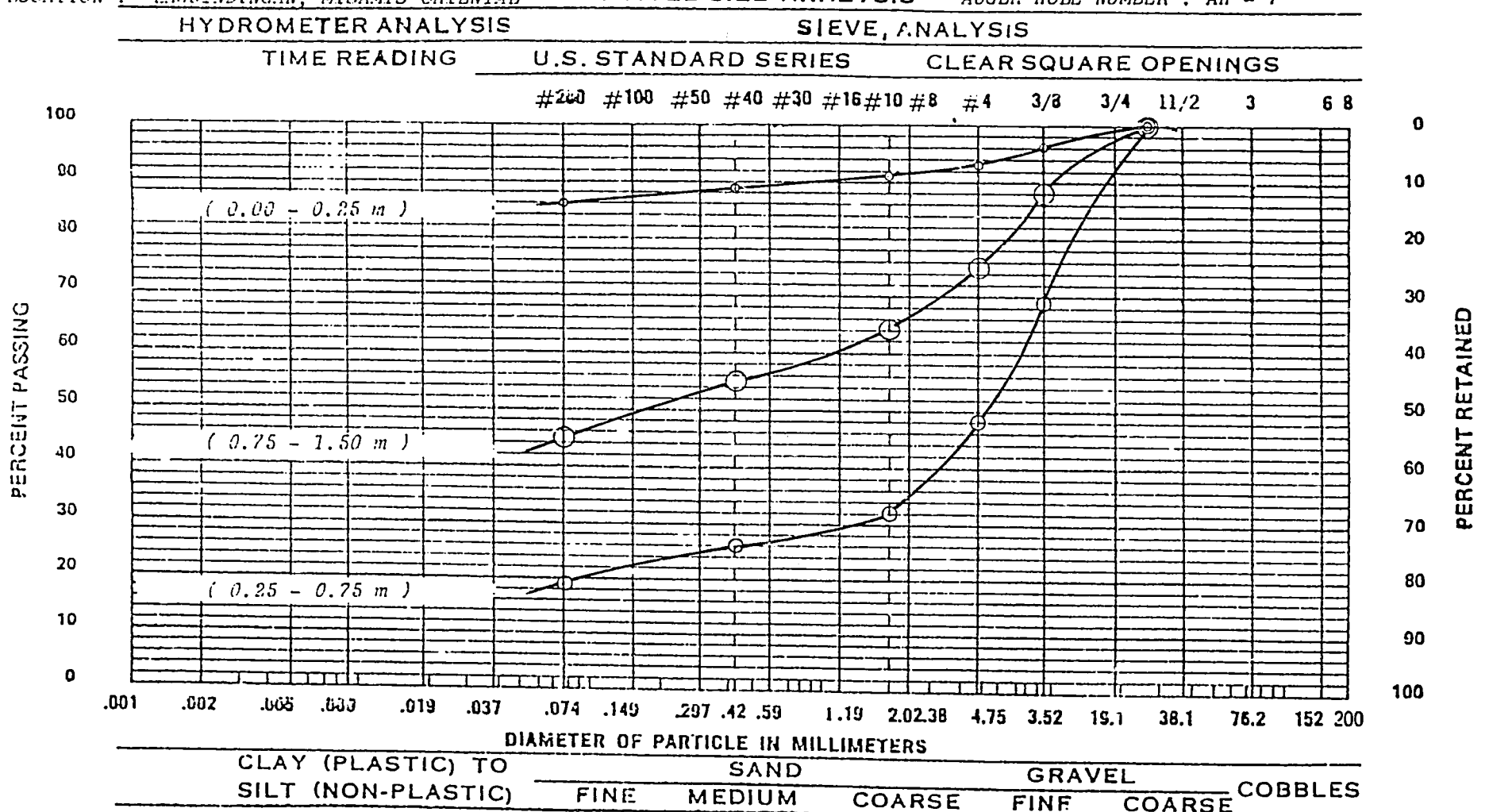
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

AUGER HOLE NUMBER : AH - 7



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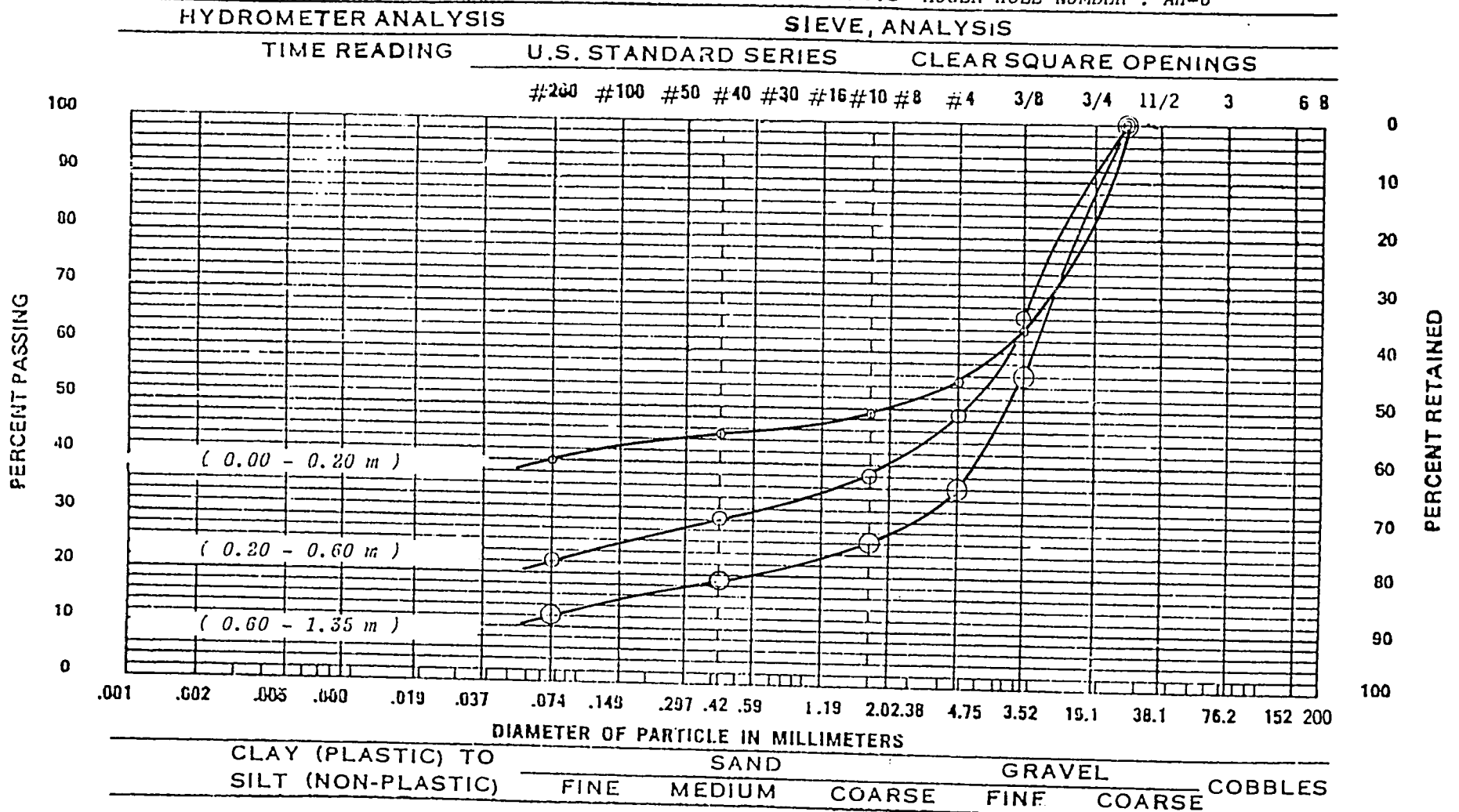
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL PARTICLE SIZE ANALYSIS *AUGER HOLE NUMBER : AH-8*



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EXECUTIVE OFFICES & LABORATORIES:
1175 PASONG TAMO ST., MAKATI
METRO MANILA
TEL. NOS. 815-06-26 TO 29
TELEX NO. 63871 PN

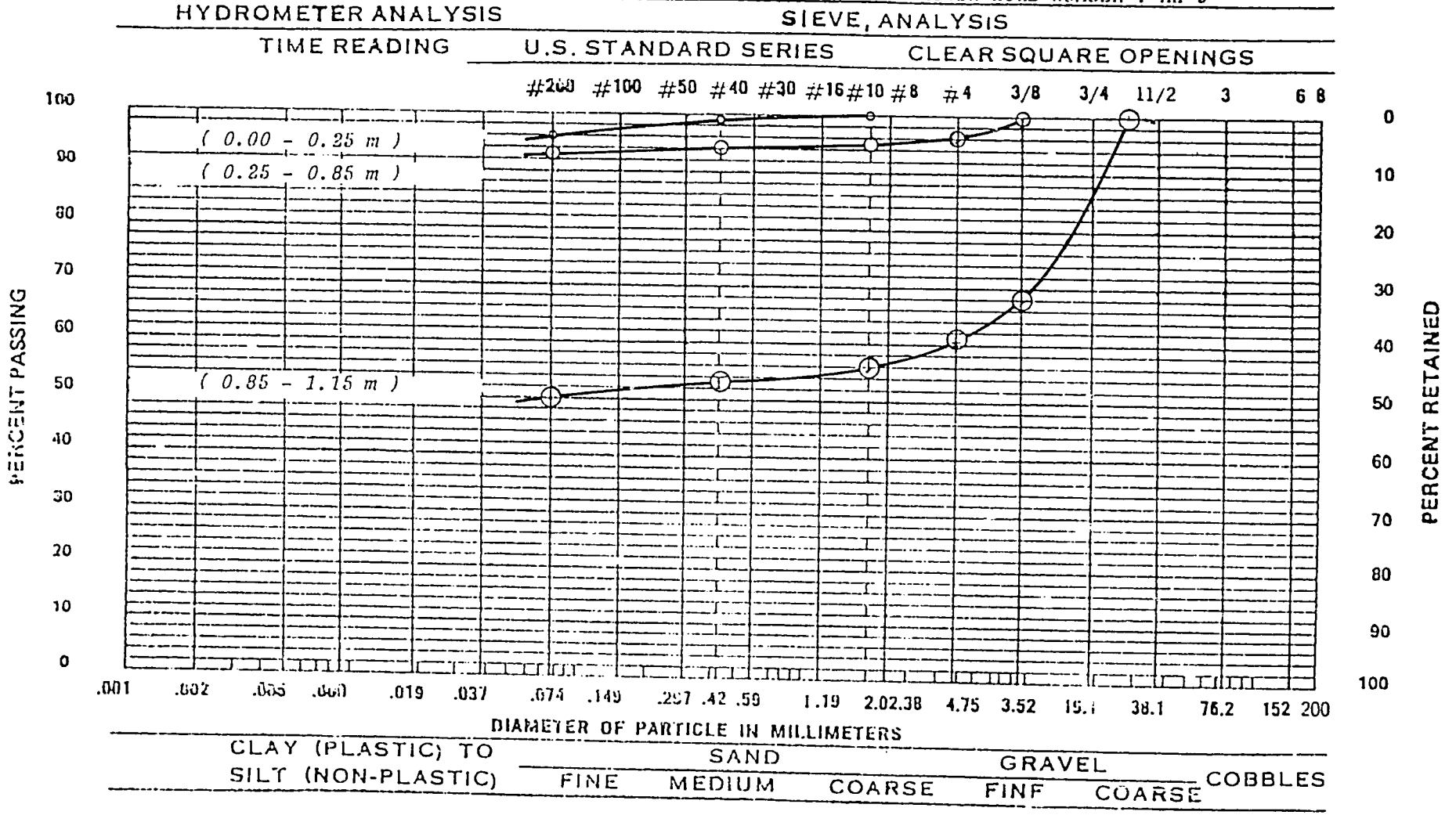
INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

AUGER HOLE NUMBER : AH-9



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TELEX NO. 63071 PN

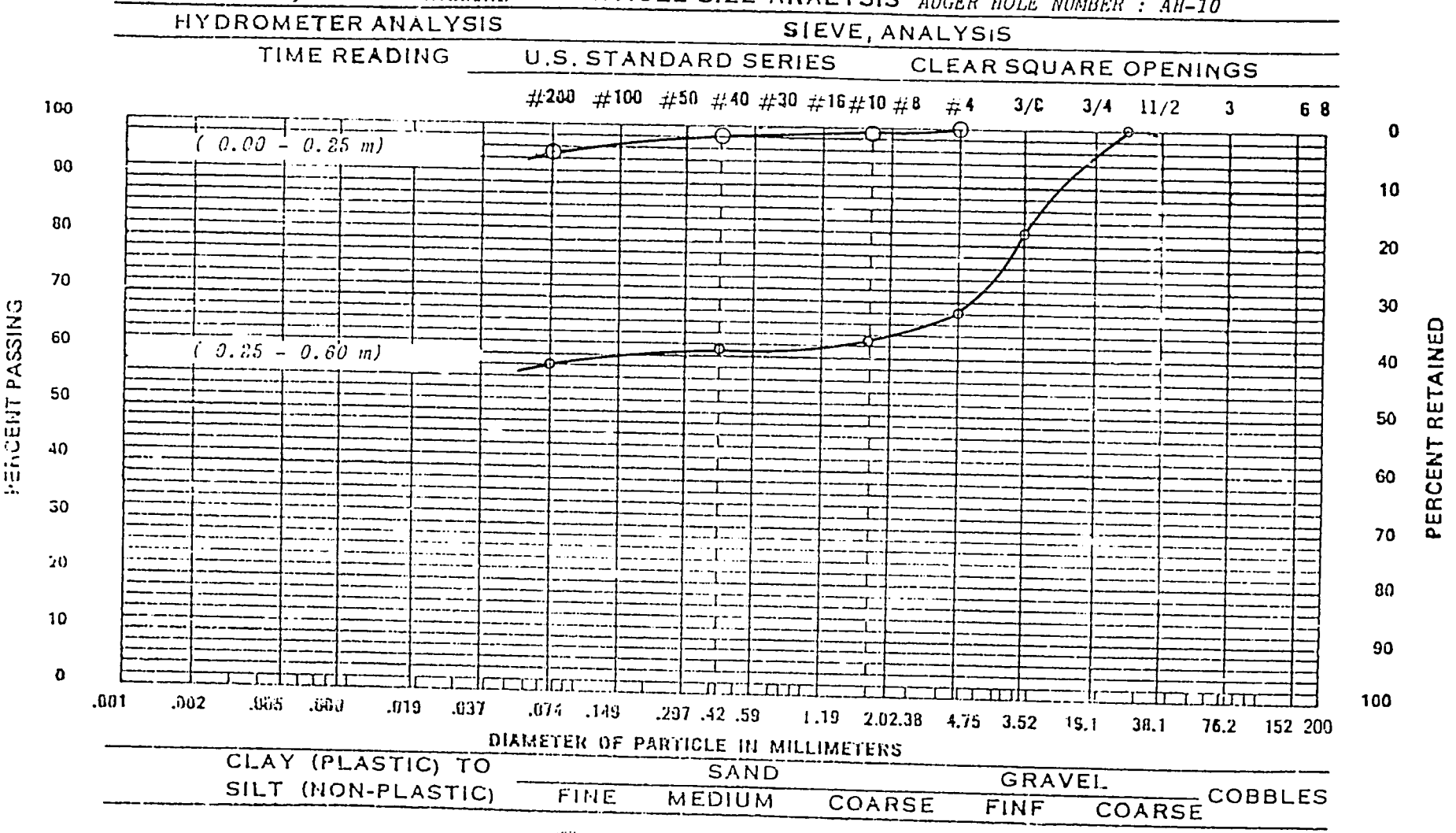
INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

AUGER HOLE NUMBER : AH-10



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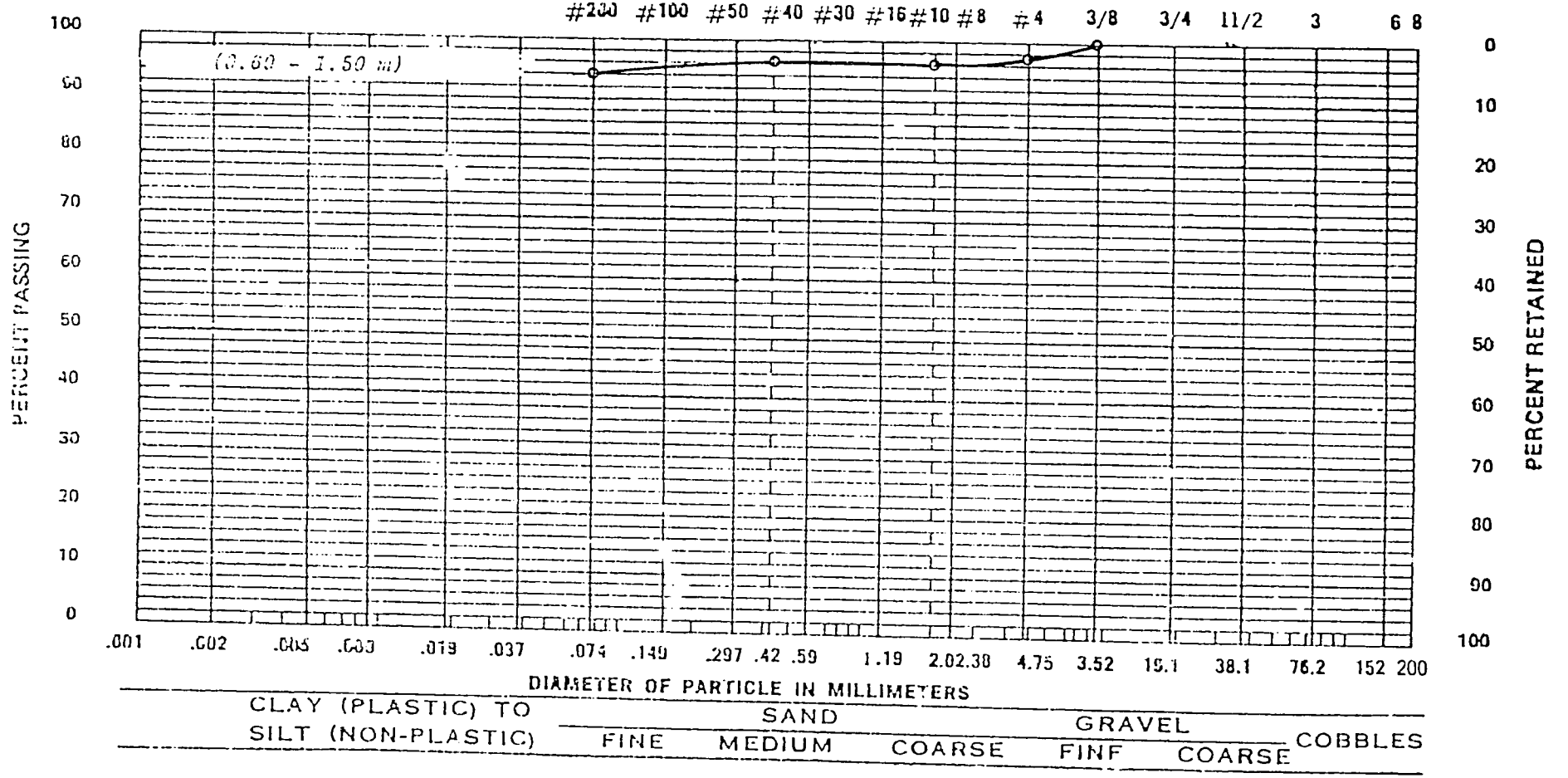
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

AUGER HOLE NUMBER : AH-10



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TELEX NO. 63071 PN

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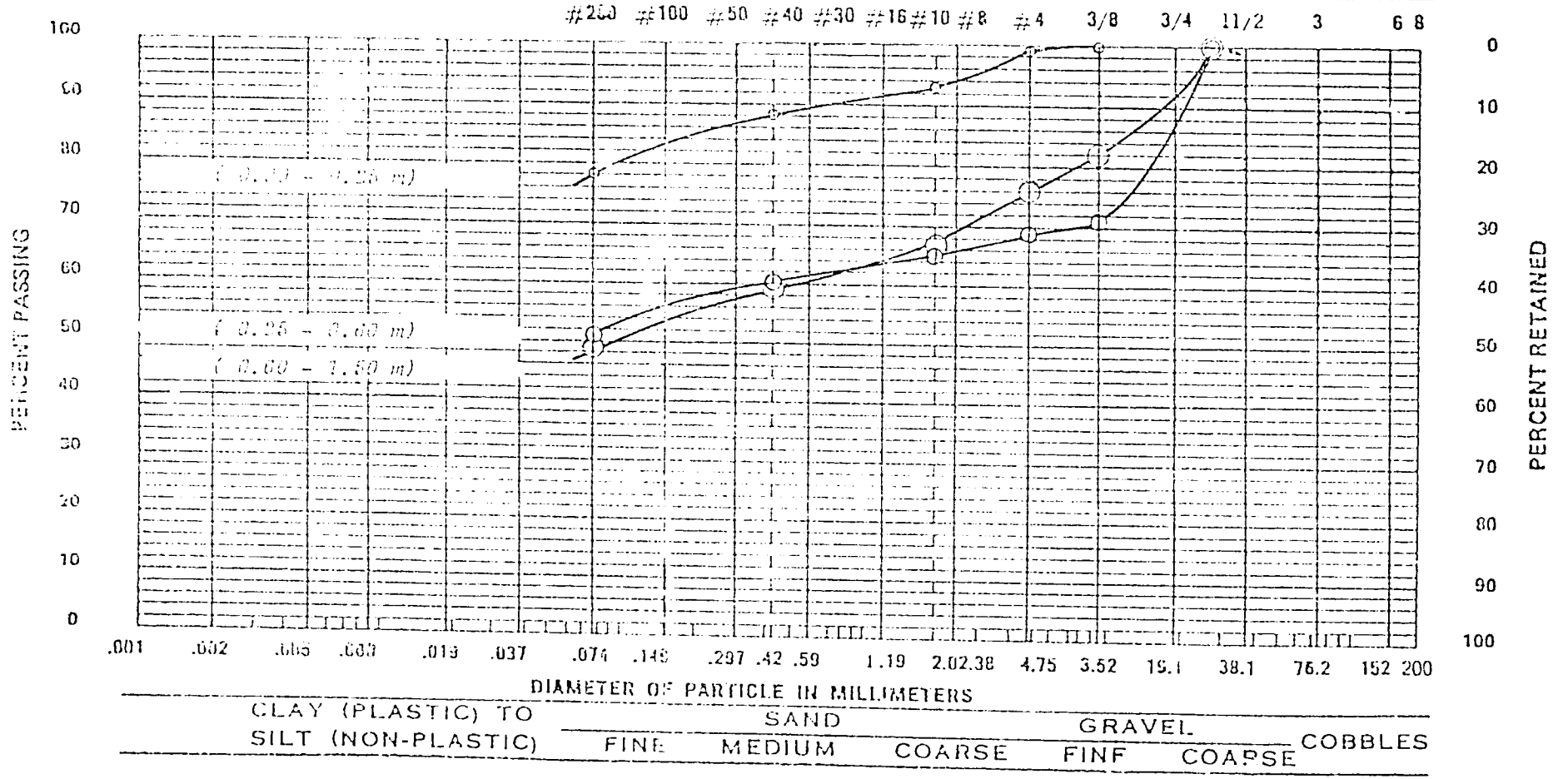
CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

AUGER HOLE NUMBER : AH-11



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TELEX NO. 63871 PN

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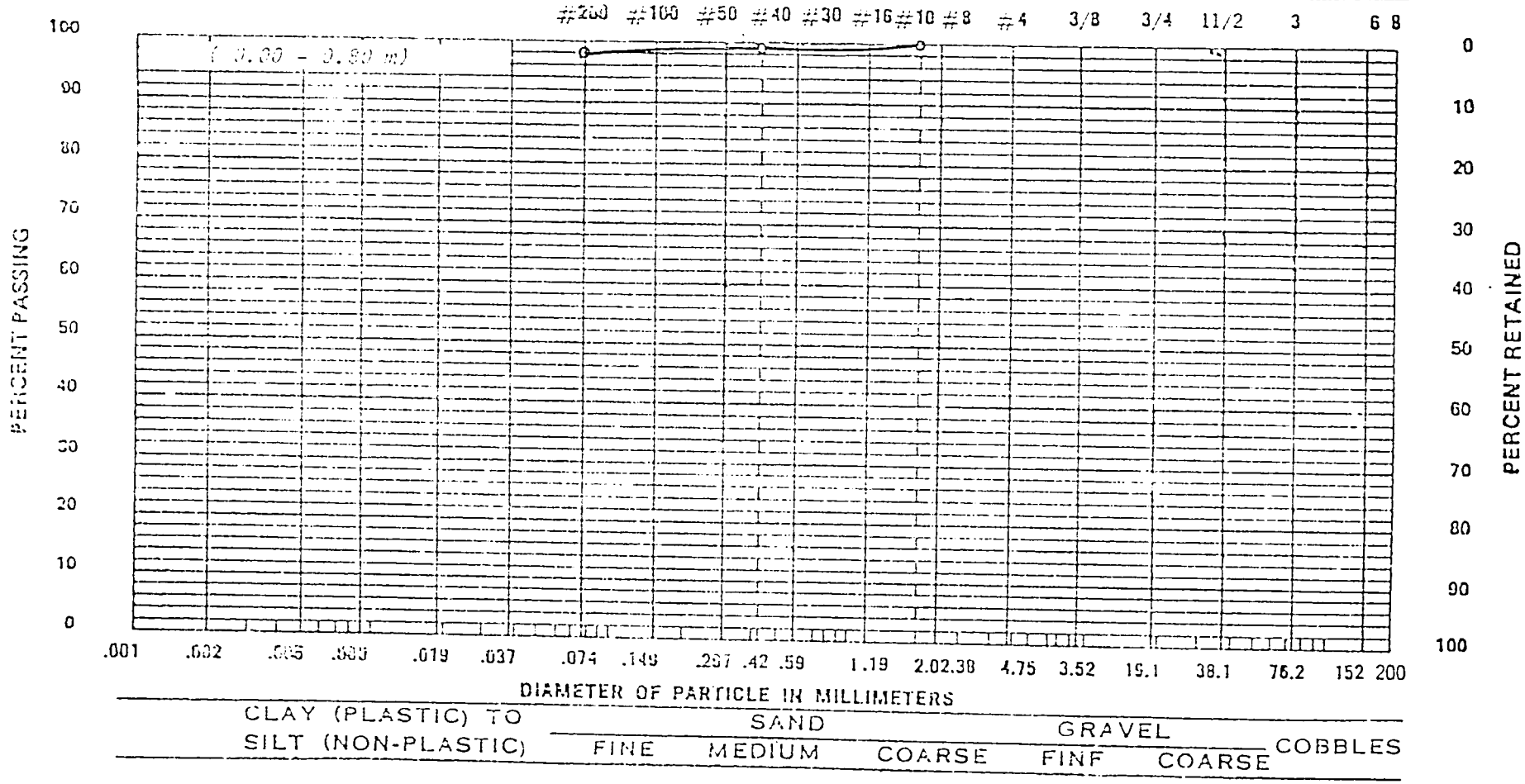
CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

AUGER HOLE NUMBER : AH-12



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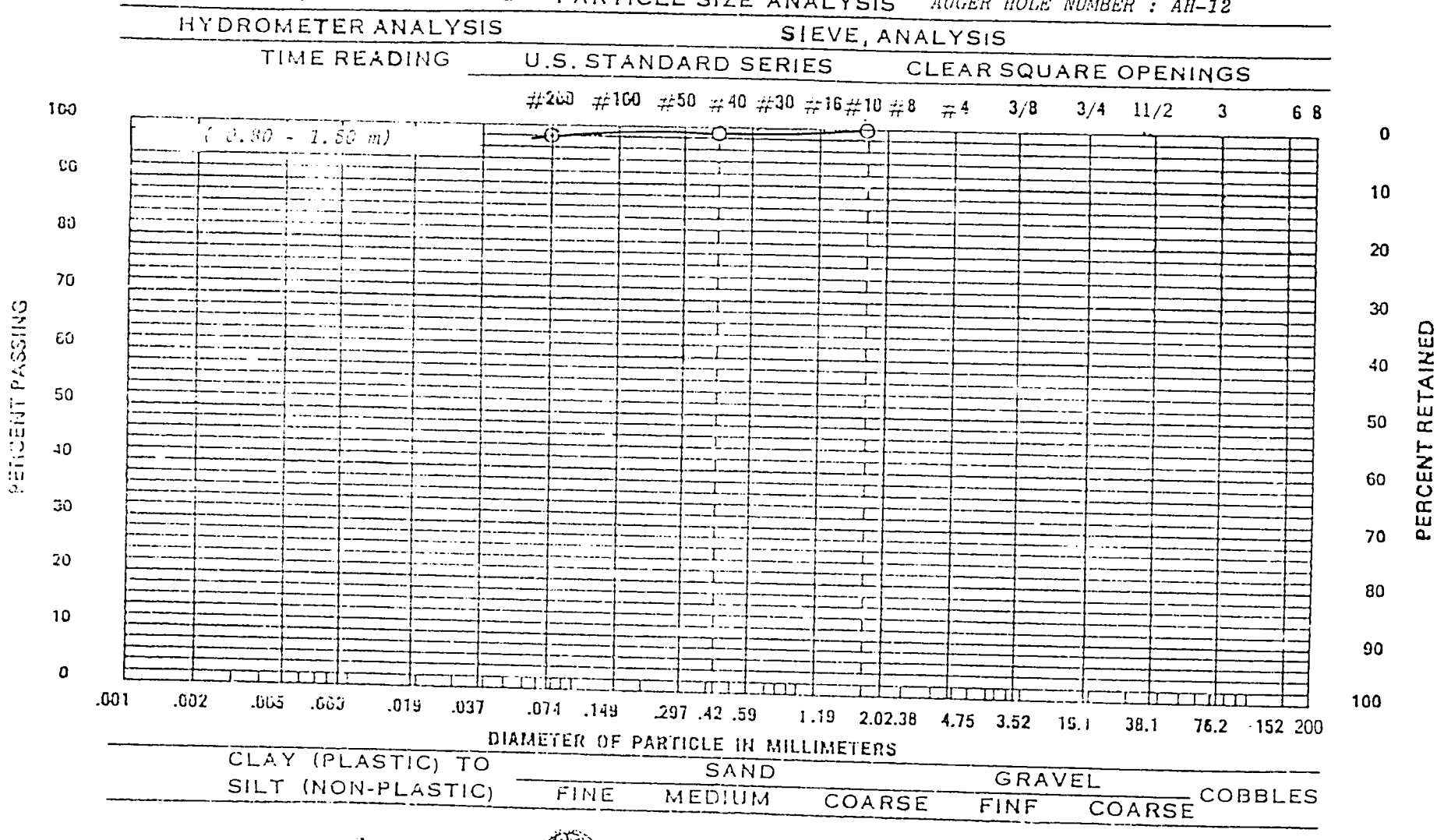
PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

AUGER HOLE NUMBER : AH-12



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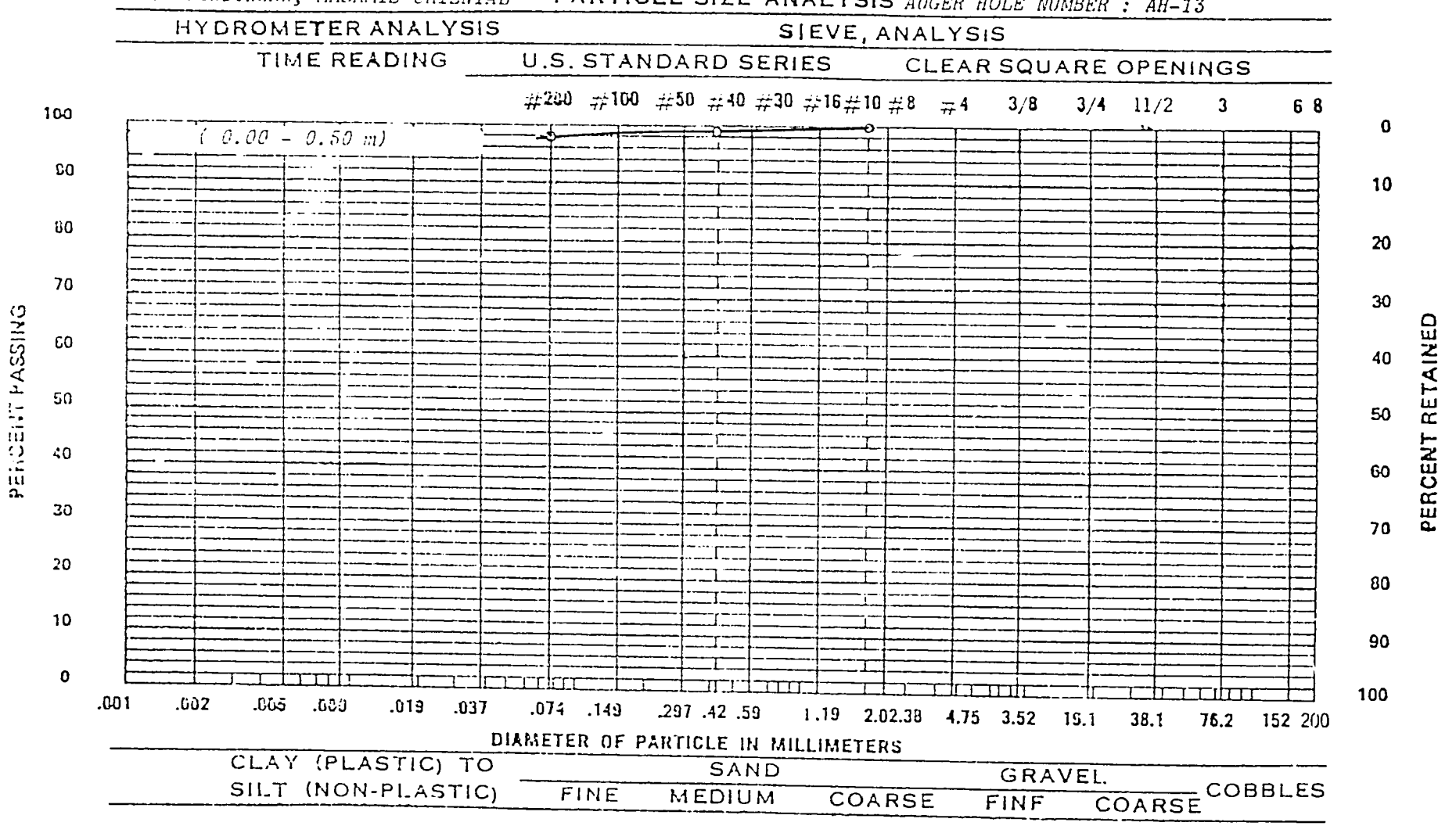
CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT

LOCATION : LAGUINDINGAN, MASAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

AUGER HOLE NUMBER : AH-13



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TELEX NO. 63671 PN

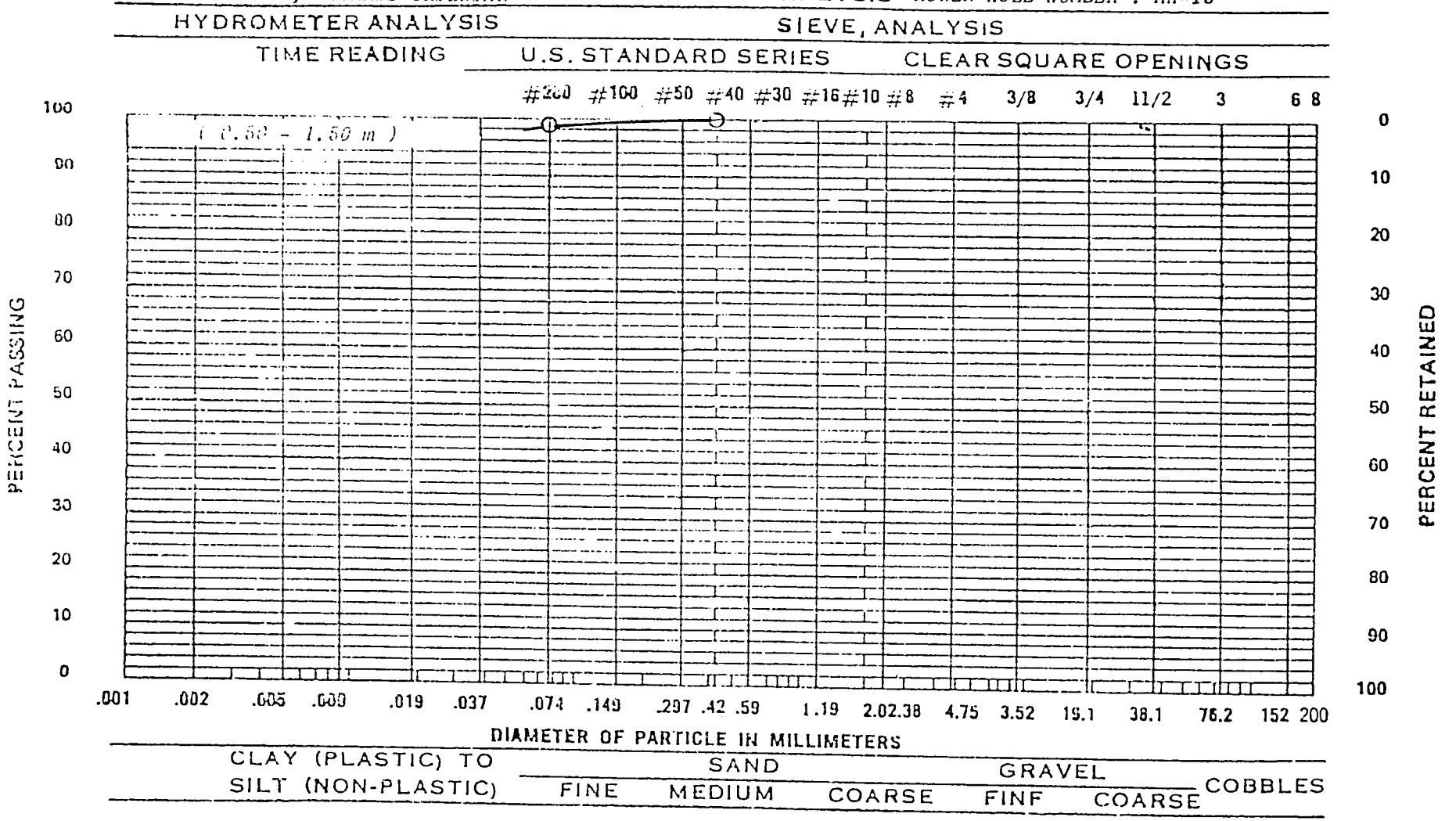
INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

PROJECT : CAGAYAN D ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MISAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

AUGER HOLE NUMBER : AH-13



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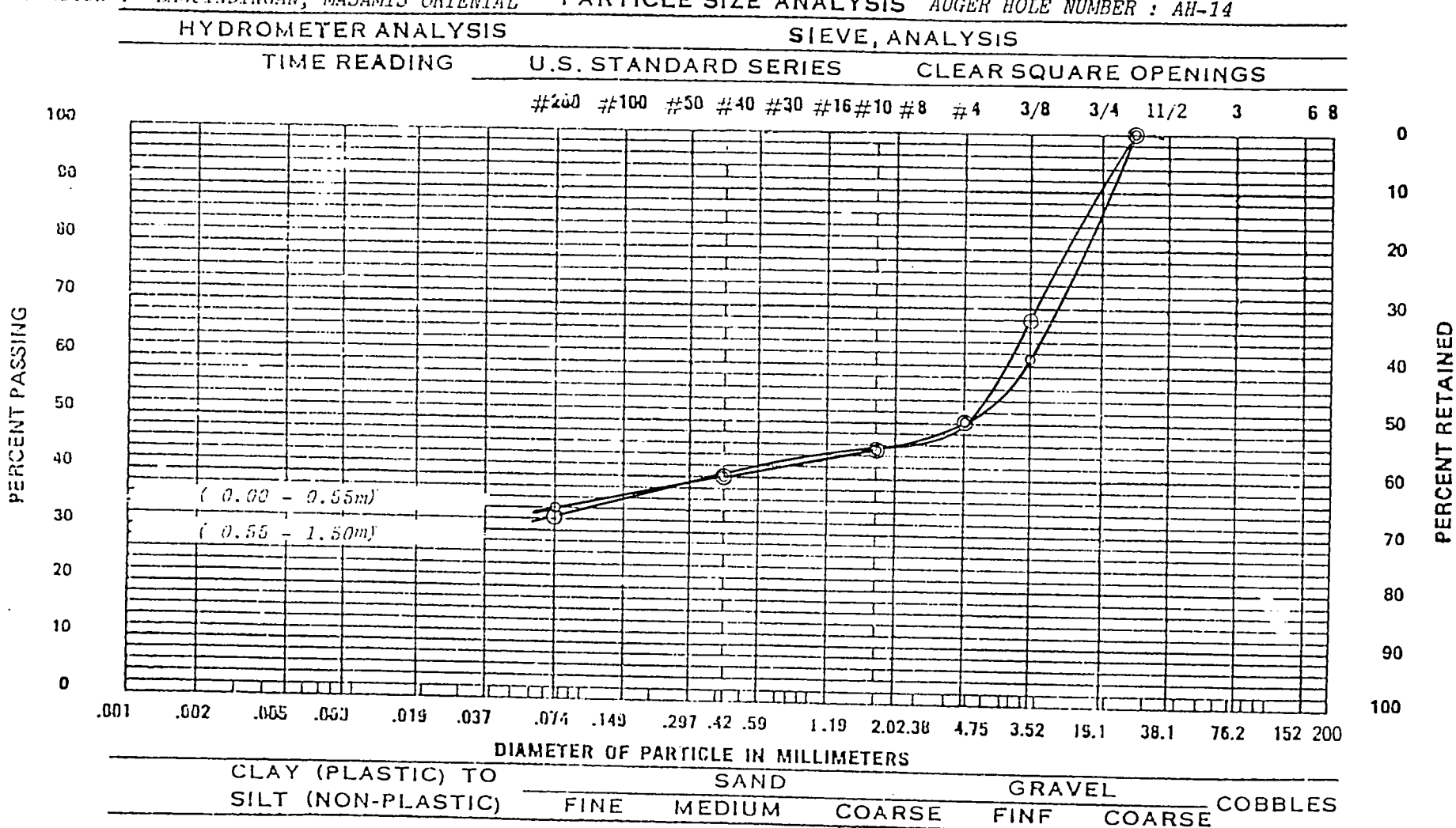
CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

PROJECT : CAGAYAN DE ORO-ILIGAN AIRPORT PROJECT
LOCATION : LAGUINDINGAN, MASAMIS ORIENTAL

PARTICLE SIZE ANALYSIS

AUGER HOLE NUMBER : AH-14



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2.7 AGGREGATE TEST RESULTS FOR MATERIAL SOURCES

INDUSTRIAL INSPECTION (INT'L.) INC.
1175 Chino Roces Ave.,
Makati, Metro Manila

SUMMARY OF TEST RESULTS FOR AGGREGATE SOURCES

AGGREGATE SOURCES	SIEVE ANALYSIS 3"	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200	ATTERBERG LIM: LL	PL	PF	SPECIFIC GRAVITY DRY	SSD	APP	ABS(%)	UNIT WEIGHT LOOSE	RODDED	ABRASI: LOSS (%)	SOUNDNESS: (Na2SO4) (%)	ORGANIC CONTENT
COARSE AGGREGATES																										
AGUSAN	100	87	77	61	51	44	39	30	21	15	12	7	4	0	NIL	NIL	N.P.	2.49	2.55	2.68	2.60	1.50	1.50	32.48	0.93	-
OMALAG	100	80	75	63	54	46	42	34	27	14	7	3	1	1	NIL	NIL	N.P.	2.55	2.84	2.81	3.55	1.50	1.50	28.32	1.38	-
STA. FELOMENA	100	88	55	54	54	54	54	48	36	23	15	6	2	1	NIL	NIL	N.P.	2.68	2.71	2.78	1.12	1.39	1.50	25.63	0.00	-
TAGOLOAN	100	86	75	63	53	44	38	27	19	15	11	5	3	1	NIL	NIL	N.P.	2.67	2.71	2.78	1.38	1.59	1.77	29.32	1.23	-
IPONAN	100	96	91	74	55	39	35	31	28	24	19	11	10	10	NIL	NIL	N.P.	2.62	2.68	2.78	2.20	1.48	1.65	33.49	0.89	-
TAGUANAO	100	87	63	38	32	26	22	18	14	8	5	2	1	1	NIL	NIL	N.P.	2.62	2.68	2.78	2.21	1.55	1.78	30.61	0.20	-
PAGATPAT	100	83	67	61	55	48	42	35	31	27	25	22	21	20	NIL	NIL	N.P.	2.69	2.72	2.78	0.99	1.42	1.62	28.76	1.01	-
ALA-E	100	94	77	56	51	42	37	30	25	19	14	7	4	3	NIL	NIL	N.P.	2.44	2.49	2.55	1.18	1.45	1.61	27.86	0.37	-
FINE AGGREGATES																										
AGUSAN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL	NIL	N.P.	2.61	2.70	2.87	3.43	1.55	1.61	-	2.71	-
OMALAG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL	NIL	N.P.	2.92	2.99	3.4	6.04	1.53	1.64	-	6.85	-
STA. FELOMENA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL	NIL	N.P.	2.55	2.64	2.81	3.71	1.63	1.69	-	6.80	-
TAGOLOAN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL	NIL	N.P.	2.77	2.88	3.09	3.65	1.6	1.67	-	2.71	-
IPONAN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL	NIL	N.P.	2.78	2.84	2.95	2.23	1.43	1.53	-	2.33	-
TAGUANAO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL	NIL	N.P.	2.85	2.95	3.17	3.54	1.52	1.59	-	1.61	-
PAGATPAT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	10	12	2.55	2.85	2.83	3.91	1.32	1.43	-	2.03	-
ALA-E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NIL	NIL	N.P.	2.50	2.87	3.00	6.63	1.55	1.66	-	1.44	-

1/2

2.8 BORING LOGS

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: 1171 to 1173 Pasay Taxio St., Makati, Metro Manila Tel. Nos. [illegible] to 54 • Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 3+625

HOLE NO. TP-1 SHEET 1 OF 1 PERIOD August 2-4, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.30			Chocolate Brown, SILTY CLAY.	
0.30-0.80			Reddish Brown, CLAYEY SILT	
			and Coral Limestone.	
0.80-1.50			Reddish Brown SILTY CLAY	
			and Coral Limestone.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

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INDUSTRIAL INSPECTION (INTERNATIONAL). INC.
CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES
LABORATORIES: 1171 to 1173 Pasong Tamo St., Makati, Metro Manila Tel. Nos. 86-80-56 to 58 • Telex 63671 PN & 45378 PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 3+250

HOLE NO. TP-2 SHEET 1 OF 1 PERIOD August 1, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.50			Mottled Brown and Reddish Brown, SILTY CLAY with traces of Coral Gravel.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

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CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES
LABORATORIES: 1171 & 1173 Pasay Roxas Blvd., Malate, Metro Manila. Tel. Nos. 86-83-56 to 58 • Telex 63671 PN & 45374 PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 3+213

HOLE NO. TP-2 SHEET ____ OF ____ PERIOD August 2-4, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.20			Dark Brown, SILTY CLAY.	
0.20-1.70			Mottled Brown and Reddish Brown, CLAYEY SILT and Coral Limestone.	

WATER LEVEL ____ TIME ____ WEIGHT OF HAMMER ____ FOREMAN ____

WATER LEVEL ____ TIME ____ HEIGHT OF DROP ____ ENGINEER ____

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INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

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LABORATORIES: 1171 to 1173 Pasong Tamo St., Makati, Metro Manila Tel. Nos. [illegible] to 55 • Telex 63171 PN & 45378 PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 3+000

HOLE NO. TP-3 SHEET ____ OF ____ PERIOD August 1-2, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.30			Chocolate Brown, SILTY CLAY.	
0.30-0.60			Reddish-Brown, SILTY CLAY.	
0.60-0.90			Reddish Brown and White Coral, LIMESTONE.	

WATER LEVEL ____ TIME ____ WEIGHT OF HAMMER ____ FOREMAN ____

WATER LEVEL ____ TIME ____ HEIGHT OF DROP ____ ENGINEER ____

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INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES 1171 & 1173 Pasong Tamo St., Makati, Metro Manila Tel. Nos. [illegible] to 59 • Telex 63571 PN & 45378 PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 2+706

HOLE NO. TP-4 SHEET 1 OF 1 PERIOD August 2, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.30			Chocolate Brown, SILTY CLAY.	
0.30-0.60			Mottled Brown and Reddish Brown, SILTY CLAY.	
0.60-0.90			Reddish Brown and White Coral, LIMESTONE.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

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INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES 1171 to 1173 Pasay Road S.L. Makati, Metro Manila Tel. Nos. 85-20-34 to 38 • Telex 63571 PN & 45370 PM

BORING LOG

CONTRACT WITH *LOUIS BERGER INT'L. INC.* LOCATION *STA. 2+957*

HOLE NO. *TP-30* SHEET *1* OF *1* PERIOD *August 3-4, 1991*

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-1.00			Reddish Brown, SILTY CLAY.	
1.00-1.50			Reddish Brown and Light Yellowish Brown, CORAL LIMESTONE.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

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INDUSTRIAL INSPECTION (INTERNATIONAL), INC.
CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES
LABORATORIES 1171 to 1173 Pasong Tamo St., Makati, Metro Manila Tel. Nos. [illegible] Telex [illegible]

BORING LOG

CONTRACT WITH *LOUIS BERGER INT'L. INC.* LOCATION *STA. 2+700*

HOLE NO. *TP-4o* SHEET *1* OF *1* PERIOD *August 3-4, 1991*

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.80			Chocolate Brown, SILTY CLAY.	
0.80-1.50			Mottled Brown and Reddish Brown, SILTY CLAY and Coral Limestone.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

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CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: 1171 to 1173 Pasong Tamo St., Makati, Metro Manila Tel. Nos. [illegible] to 31 • Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 2+500

HOLE NO. TP-5 SHEET ____ OF ____ PERIOD August 3,1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.30			Reddish Brown, CLAYEY SILT.	
0.30-0.70			Light Yellowish Brown, CORAL LIMESTONE.	

WATER LEVEL ____ TIME ____ WEIGHT OF HAMMER ____ FOREMAN ____

WATER LEVEL ____ TIME ____ HEIGHT OF DROP ____ ENGINEER ____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.
CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O BOX 1071 PHILIPPINES
LABORATORIES [illegible] Tamo St., Makati, Metro Manila Tel. Nos. [illegible] Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 2+495

HOLE NO. TP-5 SHEET ____ OF ____ PERIOD August 4,1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS
00-0.15			Brown, SILTY CLAY.
0.15-0.30			Reddish-Brown,-SILTY CLAY with Coral Gravel.
0.70-1.50			Reddish Brown, SILTY CLAY with traces of Coral Gravel /Coral Limestone.

WATER LEVEL ____ TIME ____ WEIGHT OF HAMMER ____ FOREMAN ____

WATER LEVEL ____ TIME ____ HEIGHT OF DROP ____ ENGINEER ____

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INDUSTRIAL INSPECTION (INTERNATIONAL). INC.
CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES
LABORATORIES [illegible] Tacao St., Makati, Metro Manila Tel. Nos. [illegible] Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 2+250

HOLE NO. TP-6 SHEET ____ OF ____ PERIOD August 2, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.40			Brown, SILTY CLAY with traces of Coral Gravel.	
0.40-0.70			Reddish Brown; CLAYEY Coral Gravel/Coral Limestone.	
0.70-1.50			Mottled Brown and Reddish Brown, CLAYEY Coral Gravel/Coral Limestone.	

WATER LEVEL ____ TIME ____ WEIGHT OF HAMMER ____ FOREMAN ____

WATER LEVEL ____ TIME ____ HEIGHT OF DROP ____ ENGINEER ____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

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INDUSTRIAL INSPECTION (INTERNATIONAL). INC.
CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES
LABORATORIES: 1171 to 1173 Pasong Tamo St., Makati, Metro Manila Tel. Nos. [illegible] to 51 • Telex 63171 PN & 45378 PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 2+000

HOLE NO. TP-7 SHEET 1 OF 1 PERIOD August 3-4,1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.15			Chocolate Brown, SILTY CLAY with traces of Coral Gravel.	
0.15-0.50			Brown, CLAYEY Coral Limestone Gravel.	
0.50-1.00			Mottled Brown and Reddish Brown, CORAL LIMESTONE Gravel.	
1.00-1.50			Mottled Brown, Light Brown and Reddish Brown, CORAL Limestone.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER — AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: 1171 to 1173 Pasay Taft Blvd., Manila, Metro Manila Tel. Nos. [illegible] to 58 • Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH *LOUIS BERGER INT'L. INC.* LOCATION *STA. 1+750*

HOLE NO. *TP-8* SHEET *1* OF *1* PERIOD *August 3-4, 1991*

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.30			Chocolate Brown, SILTY CLAY with traces of Coral Limestone Gravel.	
0.30-0.60			Mottled Brown and Reddish Brown, SILTY CLAY with traces of Gravel.	
0.60-1.50			Mottled White, Light Brown and Reddish Brown, CORAL Limestone.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.C. BOX 1071 PHILIPPINES

LABORATORIES [illegible]

BORING LOG

CONTRACT WITH *LOUIS BERGER INT'L. INC.* LOCATION *STA. 1+500*

HOLE NO. *TP-9* SHEET *1* OF *1* PERIOD *August 3-4, 1991*

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.20			Dark Brown, CLAYEY Sandy	
			Silt with traces of Coral	
			Gravel and Tree Roots.	
0.20-0.70			Mottled Brown and Reddish	
			Brown, CORAL Gravel with	
			Tree Roots/Coral Limestone.	
0.70-1.50			Mottled Light Yellowish	
			Brown and Brown, CLAYEY	
			Coral Gravel/Coral Lime-	
			stone.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: [illegible] Tel. Nos. [illegible] • Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 1+234

HOLE NO. TP-10 SHEET ____ OF ____ PERIOD August 3-4, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.30			Chocolate Brown, CLAYEY SILT.	
0.30-0.70			Mottled Reddish Brown and White, CORAL Limestone.	
0.70-1.70			Reddish Brown, SILTY CLAY/ Coral Limestone.	

WATER LEVEL ____ TIME ____ WEIGHT OF HAMMER ____ FOREMAN ____

WATER LEVEL ____ TIME ____ HEIGHT OF DROP ____ ENGINEER ____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

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INDUSTRIAL INSPECTION (INTERNATIONAL), INC.
CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES
LABORATORIES [illegible]

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 1+000

HOLE NO. TP-11 SHEET 1 OF 1 PERIOD August 3-4, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.30			Chocolate Brown, SILTY CLAY.	
0.30-0.60			Mottled Brown and Reddish Brown, CORAL Gravel.	
0.60-1.00			Reddish Brown and White CORAL Limestone.	
1.00-1.50			Mottled White and Reddish Brown, CORAL Gravel/Coral Limestone.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES [illegible] Tel. Nos. [illegible] Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH *LOUIS BERGER INT'L. INC.* LOCATION *STA. 0+750*

HOLE NO. *TP-12* SHEET *1* OF *1* PERIOD *August 3-4, 1991*

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.30			Mottled Reddish Brown and	
			Brown, SILTY CLAY with	
			traces of Coral Gravel.	
0.30-0.80			Mottled Brown and Yellowish	
			Brown, CORAL Gravel.	
0.80-1.50			Mottled Brown and Reddish	
			Brown, CORAL Gravel/Coral	
			Limestone.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL). INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: [illegible]

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 0+500

HOLE NO. TP-13 SHEET 1 OF 1 PERIOD August 4-5, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.30			Reddish Brown, CLAYEY SILT.	
0.30-0.60			Reddish-Brown, SILTY CLAY.	
0.60-1.00			Reddish Brown, SANDY SILTY CLAY with traces of fine Coarse Sand.	
1.00-2.50			Reddish Brown, CLAYEY SILT.	
2.50-3.00			Light Yellowish Brown, CORAL Limestone.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: [illegible]

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 2+000 / 278m From TP-7

HOLE NO. TP-14 SHEET 1 OF 1 PERIOD August 4-5, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.15			Chocolate Brown, CLAYEY Coral Gravel.	
0.15-1.00			Mottled Brown and Reddish Brown, CLAYEY Coral Gravel.	
1.00-1.50			Reddish Brown, CLAYEY Coral Gravel.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

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INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: [illegible]

BORING LOG

CONTRACT WITH *LOUIS BERGER INT'L. INC.* LOCATION *STA. 3+375*

HOLE NO. *AE-1* SHEET _____ OF _____ PERIOD *August 7, 1991*

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.70			Light Yellowish Brown, CORAL	
			Limestone Gravel.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

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INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: 1171 to 1173 [illegible] Tuzo St., Makati, Metro Manila Tel. Nos. [illegible] to 34 & Telex 63171 PN & 45378 PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 3+365

HOLE NO. AH-1 SHEET ____ OF ____ PERIOD August 7,1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.40			Chocolate Brown, SILTY CLAY,	
0.40-1.30			Reddish Brown, SILTY CLAY with traces of Coral Gravel.	

WATER LEVEL ____ TIME ____ WEIGHT OF HAMMER ____ FOREMAN ____

WATER LEVEL ____ TIME ____ HEIGHT OF DROP ____ ENGINEER ____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

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INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: [illegible] Tel. No. [illegible] Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION: STA. 3+125

HOLE NO. AE-2 SHEET ____ OF ____ PERIOD August 5, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.45			Reddish Brown, SILTY CLAY with traces of Gravel and Tree-Roots.	
0.45-0.65			Mottled Reddish Brown and White CORAL Limestone.	

WATER LEVEL ____ TIME ____ WEIGHT OF HAMMER ____ FOREMAN ____

WATER LEVEL ____ TIME ____ HEIGHT OF DROP ____ ENGINEER ____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL). INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES [illegible] Tel. Nos. [illegible] Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 3+120

HOLE NO. AH-2. SHEET ____ OF ____ PERIOD August 5, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS
00-0.30			Reddish Brown, CLAYEY SILT.
0.30-0.50			Reddish-Brown, SILTY CLAY.
0.50-1.30			Reddish Brown, SILTY CLAY with Coral Gravel.

WATER LEVEL ____ TIME ____ WEIGHT OF HAMMER ____ FOREMAN ____

WATER LEVEL ____ TIME ____ HEIGHT OF DROP ____ ENGINEER ____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES 1171 to 1175 Pasay Taft St., Malate, Metro Manila Tel. Nos. [illegible] to 39 • Telex 63571 PN & 63578 PM

BORING LOG

CONTRACT WITH *LOUIS BERGER INT'L. INC.* LOCATION *STA. 2+875*

HOLE NO. *AH-3* SHEET *1* OF *1* PERIOD *August 5, 1991*

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.80			Reddish Brown, SILTY CLAY	
			with traces of Coral	
			Gravel.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL). INC.
CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES
LABORATORIES: 1171 to 1177 Pasong Tamo St., Makati, Metro Manila Tel. Nos. [illegible] to 33 • Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH *LOUIS BERGER INT'L. INC.* LOCATION *STA. 2+875 / 5m to the right of AH-3*

HOLE NO. *AH-3* SHEET ____ OF ____ PERIOD *August 5,1991*

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS
00-0.20			Reddish Brown, CLAYEY SILT.
0.20-0.60			Reddish-Brown, CLAYEY SILT with traces of Gravel.
0.60-1.20			Reddish Brown, SILTY CLAY with traces of Coral Gravel.

WATER LEVEL ____ TIME ____ WEIGHT OF HAMMER ____ FOREMAN ____

WATER LEVEL ____ TIME ____ HEIGHT OF DROP ____ ENGINEER ____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

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INDUSTRIAL INSPECTION (INTERNATIONAL), INC.
CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES
LABORATORIES: [illegible]

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L, INC. LOCATION STA. 2+625

HOLE NO. AH-4 SHEET 1 OF 1 PERIOD August 5, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.50			Reddish Brown, SILTY CLAY with traces of Coral Gravel.	
0.50-0.85			Mottled Brown and Reddish Brown, CLAYEY Coral Gravel.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.
CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES
LABORATORIES: [illegible] Tamo St., Makati, Metro Manila Tel. Nos. [illegible] Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 2+615

HOLE NO. AH-4o SHEET 1 OF 1 PERIOD August 5,1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.40			Mottled Brown and Reddish Brown, CLAYEY SILT.	
0.40-0.70			Reddish Brown, SILTY CLAY with traces of Gravel.	
0.70-1.25			Reddish Brown, CLAYEY, Coral Gravel.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: 1171 to 1173 Pasay Road, Makati, Metro Manila Tel. Nos. [illegible] to 58 • Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 2+375

HOLE NO. AH-5 SHEET 1 OF 1 PERIOD August 5,1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.40			Mottled Brown and Reddish	
			Brown, SILTY CLAY with	
			traces of Gravel and with	
			Tree Roots.	
0.40-0.90			Mottled Brown and Reddish	
			Brown, CORAL Gravel.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER — AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES [illegible]

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 2+370

HOLE NO. AH-5c SHEET 1 OF 1 PERIOD August 5, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.30			Mottled Brown and Reddish Brown, SILTY CLAY with traces of Gravel and Tree Roots.	
0.30-1.15			Reddish Brown, SILTY CLAY with Coral Gravel.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

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INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1073 PHILIPPINES

LABORATORIES: [illegible] Tel. Nos. [illegible]

BORING LOG

CONTRACT WITH *LOUIS BERGER INT'L. INC.* LOCATION *STA. 2+125*

HOLE NO. *AH-6* SHEET _____ OF _____ PERIOD *August 5, 1991*

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.75			Mottled Brown and Reddish	
			Brown, CORAL Gravel.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.
CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES
LABORATORIES: [illegible]

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 2+130

HOLE NO. AK-6 SHEET ____ OF ____ PERIOD August 6, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.35			Chocolate Brown, CLAYEY SILT with Coral Gravel.	
0-35-0.70			Mottled Brown and Reddish Brown, CLAYEY Coral Gravel.	
0.70-1.35			Mottled Brown and Reddish Brown, CORAL Gravel.	

WATER LEVEL ____ TIME ____ WEIGHT OF HAMMER ____ FOREMAN ____

WATER LEVEL ____ TIME ____ HEIGHT OF DROP ____ ENGINEER ____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

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INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: 1171 to 1173 Pasay Taft St., Manila, Metro Manila Tel. Nos. [illegible] Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 1+675

HOLE NO. AE-7 SHEET 1 OF 1 PERIOD August 6, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.25			Dark Brown, CLAYEY SILT with traces of Gravel and Tree Roots.	
0.25-0.75			Brown, SANDY Coral Gravel.	
0.75-1.50			Mottled Brown and Reddish Brown, CLAYEY Coral Gravel.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL). INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES [illegible] Tel. Nos. [illegible]

BORING LOG

CONTRACT WITH *LOUIS BERGER INT'L. INC.* LOCATION *STA. 1+625*

HOLE NO. *AE-8* SHEET *1* OF *1* PERIOD *August 6, 1991*

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.70			Mottled Brown and Light	
			Brown, SANDY Coral Gravel.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

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INDUSTRIAL INSPECTION (INTERNATIONAL). INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: 1171 to 1173 Pasay Road S.L. Makati, Metro Manila Tel. Nos. [illegible] Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 1+620

HOLE NO. AH-8o SHEET 1 OF 1 PERIOD August 6, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.20			Mottled Brown and Reddish Brown, SILTY CLAY with Coral Gravel.	
0.20-0.60			Brown, CORAL Gravel.	
0.60-1.35			Brown, SANDY Coral Gravel.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

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INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES [illegible] Tel. [illegible]

BORING LOG

CONTRACT WITH *LOUIS BERGER INT L. INC.* LOCATION *STA. 1+375*

HOLE NO. *AH-9* SHEET *1* OF *1* PERIOD *August 6, 1991*

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.40			Dark Brown, SILTY CLAY.	
0.40-0.80			Mottled-Brown and Reddish Brown, CLAYEY Coral Gravel.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: 1171 to 1173 Pasay Taft St., Manila, Metro Manila Tel. Nos. [illegible] to 39 • Telex 63171 PN & 63371 PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 1+370

HOLE NO. AH-9o SHEET 1 OF 1 PERIOD August 6, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.25			Chocolate Brown, SILTY CLAY with Tree Roots.	
0.25-0.85			Brown, SILTY CLAY with Coral Gravel.	
0.85-1.15			Mottled Dark Brown and Reddish Brown, CORAL Gravel.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

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INDUSTRIAL INSPECTION (INTERNATIONAL). INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: [illegible] Tel. Nos. [illegible] Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 1+125

HOLE NO. AH-10 SHEET ____ OF ____ PERIOD August 6, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.25			Chocolate Brown, CLAYEY SILT with traces of Coral Gravel and Tree Roots.	
0.25-0.60			Chocolate Brown, SILTY CLAY.	
0.60-1.50			Mottled Brown and Dark Brown, SILTY CLAY.	

WATER LEVEL ____ TIME ____ WEIGHT OF HAMMER ____ FOREMAN ____

WATER LEVEL ____ TIME ____ HEIGHT OF DROP ____ ENGINEER ____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

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INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: [illegible] Tel. No. [illegible] Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 0+875

HOLE NO. AH-11 SHEET 1 OF 1 PERIOD August 6, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.25			Chocolate Brown, CLAYEY SILT with traces of Coral Gravel.	
0.25-0.60			Dark Brown, SILTY CLAY with traces of Coral Gravel.	
0.60-1.50			Dark Brown, CLAYEY Coral Gravel.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER — AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

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INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • NCC P.O. BOX 1071 PHILIPPINES

LABORATORIES [illegible]

BORING LOG

CONTRACT WITH *LOUIS BERGER INT'L. INC.* LOCATION *STA. 0+825*

HOLE NO. *AH-12* SHEET _____ OF _____ PERIOD *August 6, 1991*

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.80			Reddish Brown, CLAYEY SILT	
			with Tree Roots.	
0.80-1.50			Reddish Brown, SILTY CLAY.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.
CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES
LABORATORIES 1171 to 1173 Pasay Taft Blvd., Manila, Metro Manila Tel. Nos. [illegible] Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 0+625

HOLE NO. AH-12 SHEET ____ OF ____ PERIOD August 6, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.80			Reddish Brown, CLAYEY SILT with Tree Roots.	
0.80-1.50			Reddish Brown, SILTY CLAY.	

WATER LEVEL ____ TIME ____ WEIGHT OF HAMMER ____ FOREMAN ____

WATER LEVEL ____ TIME ____ HEIGHT OF DROP ____ ENGINEER ____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: 1171 to 1173 Pasay Road Tatad St., Makati, Metro Manila Tel. Nos. [illegible] to 54 • Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 0+375

HOLE NO. AE-13 SHEET 1 OF 1 PERIOD August 6, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
00-0.50			Reddish Brown, CLAYEY SILT with traces of Coral Gravel.	
0.50-1.50			Reddish Brown, SILTY CLAY.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

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INDUSTRIAL INSPECTION (INTERNATIONAL), INC.
CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES
LABORATORIES 1171 to 1173 Pedro Tuazon St., Manila, Metro Manila Tel. Nos. [illegible] Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. 2+000 / 125 FMM TP-7

HOLE NO. AH-14 SHEET ____ OF ____ PERIOD August 7, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS
00-0.55			Brown, SANDY Coral Gravel.
0.55-1.50			Mottled Brown and Reddish Brown, CLAYEY SANDY Coral Gravel.

WATER LEVEL ____ TIME ____ WEIGHT OF HAMMER ____ FOREMAN ____

WATER LEVEL ____ TIME ____ HEIGHT OF DROP ____ ENGINEER ____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

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INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: 1171 to 1173 Pasong Tamo St., Makati, Metro Manila Tel. Nos. [illegible] to 58 • Telex 63571 PN & 45376 PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION UMALAG RIVER, TABLON CAGAYAN DE ORO

HOLE NO. TP-1A SHEET 1 OF 1 PERIOD August 6,1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
			Brownish Gray, SANDY GRAVEL	
			and Cobbles, Rounded to	
			.subrounded.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES [illegible]

BORING LOG

CONTRACT WITH *LOUIS BERGER INT'L. INC.* LOCATION *AGUSAN RIVER, TABLON CAGAYAN DE ORO CITY*

HOLE NO. *TP-2A* SHEET *1* OF *1* PERIOD *August 6, 1991*

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
			Grayish Brown, SANDY GRA-	
			VEL and Cobbles, Rounded	
			to Subrounded.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

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INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: 1171 to 1173 Pandacan Tacio St., Manila, Metro Manila Tel. Nos. [illegible] Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH *LOUIS BERGER INT'L. INC.* LOCATION *TOGOLOAN RIVER CAGAYAN DE ORO CITY*

HOLE NO. *TP-3A* SHEET *1* OF *1* PERIOD *August 6, 1991*

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
			Dark Gray, SANDY GRAVEL	
			and Cobbles Rounded and	
			Subrounded.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: [illegible]

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION STA. FILOMENA RIVER STA. FILOMENA, ILIGAN CITY

HOLE NO. TP-4A SHEET 1 OF 1 PERIOD August 8, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
			Brownish Gray, SANDY GRA-	
			VEL and Cobbles Rounded,	
			Subrounded to subangular.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.
CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES
LABORATORIES: [illegible] Tel. Nos. [illegible] Telex [illegible] PN & [illegible] PM

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION ALAE RIVER, BUGO CAGAYAN DE ORO CITY

HOLE NO. TP-5A SHEET 1 OF 1 PERIOD August 8, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
			Grayish Brown, SANDY GRA-	
			VEL and Cobbles Rounded	
			to subrounded.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: [illegible]

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L, INC. LOCATION IPONAN RIVER, IPONAN CAGAYAN DE ORO CITY

HOLE NO. TP-6A SHEET 1 OF 1 PERIOD August 8, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
			Brownish Gray, SANDY GRA-	
			VEL and Cobbles Rounded	
			to Subrounded.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER – AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: [illegible]

BORING LOG

CONTRACT WITH LOUIS BERGER INT'L. INC. LOCATION PAGATPAT RIVER, CANITUAN CAGAYAN DE ORO CITY

HOLE NO. TP-7A SHEET 1 OF 1 PERIOD August 9, 1991

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
			Brownish Gray, SANDY GRA-	
			VEL and Cobbles Rounded	
			to Subrounded.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

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INDUSTRIAL INSPECTION (INTERNATIONAL), INC.

CONTRACTOR'S LICENSE NO. 3774 (GENERAL ENGINEERING) • MCC P.O. BOX 1071 PHILIPPINES

LABORATORIES: [illegible]

BORING LOG

CONTRACT WITH *LOUIS BERGER INT'L. INC.* LOCATION *TAGUANAO RIVER CAGAYAN DE ORO CITY*

HOLE NO. *TP-8A* SHEET *1* OF *1* PERIOD *August 9,1991*

DEPTH METER/FT.	SAMPLER BLOWS	SAMPLER RECOVERY	DESCRIPTION OF MATERIALS	
			Brownish Grau, SANDY GRA-	
			VEL and Cobbles Subrounded	
			to-rounded.	

WATER LEVEL _____ TIME _____ WEIGHT OF HAMMER _____ FOREMAN _____

WATER LEVEL _____ TIME _____ HEIGHT OF DROP _____ ENGINEER _____

MEMBER— AMERICAN WELDING SOCIETY · AMERICAN SOCIETY FOR TESTING AND MATERIALS · BRITISH INSTITUTE OF NON-DESTRUCTIVE TESTING · AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING

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