



Report by :

**CENGRS GEOTECHNICA PVT. LTD.**  
**SOIL AND FOUNDATION EXPERTS**

## **Final Factual Report on:**

### **Geotechnical Investigation for Exhibition cum Convention Centre Dwarka, New Delhi**

Report Volume	Report Contents
<b>Volume-2F</b>	Field Test Results of FCBR, PLT, ERT, Trial pits etc.

Submitted to:

**M/s. Delhi-Mumbai Industrial Corridor Development Corporation Ltd.**

Room 341-B, 3<sup>rd</sup> Floor, Hotel Ashok, Diplomatic Enclave, 50-B, Chanakyapuri, New Delhi-110021

Project No. 217048

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M/s. Delhi-Mumbai Industrial Corridor Development Corporation Ltd.  
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Subject: **Geotechnical Investigation for Exhibition cum Convention Centre Dwarka, New Delhi**

We have carried out the captioned study in accordance with your work order dated 31<sup>st</sup> March, 2017. We thank you for your business, and hope that you are satisfied with our services rendered.

This Factual Report presents our findings based on the geotechnical investigations conducted by us at the project site. This report presents the field and laboratory test data based on the investigations completed on site.

We have prepared this report based on our findings on site, as well as our experience gained in over 5000 projects completed over the past 28 years. We are pleased to have been of service to you on this project and will be glad to consult further with you and your design team.

Yours faithfully,  
CENGRS GEOTECHNICA PVT. LTD.

Sanjay Gupta  
Managing Director

Ravi Sundaram  
Director



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## DEFINITION OF ACRONYMS

CENGRS	Cengrs Geotechnica Pvt. Ltd.
UTM	Universal Transverse Mercator coordinates system
NABL	National Accreditation Board for Testing and Calibration Laboratories
ISO	International Standards Organization
BIS	Bureau of Indian Standards
EGL	Existing Ground Level
NGL	Natural Ground Level
RL	Reduced Level
SPT	Standard Penetration Test
DS	Consolidated drained direct shear test

## BIS REFERENCES

- Compendium of Indian Standard on Soil Engineering (***Part-2, Field Testing of Soils for Civil Engineering Purposes***) ***SP36 (Part-2:1988) RA 2006***
- Compendium of Indian Standard on Soil Engineering (***Part-1, Laboratory Testing of Soils for Civil Engineering Purposes***) ***SP36 (Part-1:1987) RA 2006***



## 1.0 INTRODUCTION

### 1.1 Project Description

Government of India (GOI) is planning to develop an Exhibition cum Convention Center at Sector-25, Dwarka, New Delhi. GOI has envisaged M/s. Delhi-Mumbai Industrial Corridor Development Corporation (DMICDC) to establish, promote and facilitate the development of the overall project.

The various agencies involved in the design of the facility are as follows:

- |     |  |                                   |
|-----|--|-----------------------------------|
| (a) | Government of India                                      | : Owner                           |
| (b) | Delhi-Mumbai Industrial Corridor Development Corporation | : Client                          |
| (c) | AECOM India Pvt. Ltd.                                    | : Programme Management Consultant |
| (d) | Cengrs Geotechnica Pvt. Ltd.                             | : Geotechnical Consultant         |

Delhi-Mumbai Industrial Corridor Development Corporation (DMICDC) has awarded the work of detailed geotechnical investigation at the project site to Cengrs Geotechnica Pvt. Ltd (CENGRS). A layout plan indicating the locations of our field investigation is presented on Plates 1 to 4.

The scope of our investigations includes drilling of about one hundred and sixty two(162) boreholes (including 60 priority boreholes as specified by AECOM), conducting hundred (100) field California bearing ratio (FCBR), ten (10) trial pits (TP), one (1) electrical resistivity test (ERT), ten (10) plate load test (PLT) and installation of one (1) piezometer at the specified location.

**This report volume (Volume-2F) presents the results of field tests like FCBR, ERT, PLT etc. conducted at the site.**

### 1.2 Scope of Work

The overall purposes of this study are to investigate the stratigraphy at the site and submission of this factual report. To accomplish these purposes, the study is being conducted in the following phases:

- (a) drilling one hundred and sixty two (162) boreholes to 30 m depth or refusal (N>100), in order to determine the site stratigraphy and to collect soil and groundwater samples;
- (b) conducting hundred (100) field California bearing ratio (FCBR) tests to provide data for the design of internal roads;
- (c) excavating ten (10) trial pits to provide additional information on the stratigraphy at shallow depths;
- (d) conducting one (1) electrical resistivity tests (ERT's) to provide data for the grounding systems;
- (e) performing ten (10) plate load test at specified locations to assess the load-settlement behaviour of soils under loading;
- (f) installing one (1) piezometer for long-term monitoring of ground water level to aid in foundation construction;
- (g) testing selected soil and groundwater samples in the laboratory to determine pertinent index and engineering properties; and
- (h) compiling all field and laboratory data and submission of this factual report

### 1.3 Report Format

Our final report shall be presented in seven (7) volumes. The content of each of these report volumes is summarized below:

Report Volume	Report Content	Structures Covered	Number of Boreholes / Tests Covered
Volume I	Engineering Analysis & Recommendations	All structures	-
Volume 2A	Field and Laboratory Test Data of Boreholes	Exhibition Hall 1, Exhibition Hall 5, Convention 7, Retail 10	34
Volume 2B	Field and Laboratory Test Data of Boreholes	Arena 8, Five Star Hotel 11, Office 13, Office 14, Office 15, Retail 16, Office 17, Office 18, Four Star Hotel 21	35
Volume 2C	Field and Laboratory Test Data of Boreholes	Exhibition Hall 2, Exhibition Hall 3, Exhibition Hall 4	33
Volume 2D	Field and Laboratory Test Data of Boreholes	Five Star Hotel 9, Five Star Hotel 12, Four Star Hotel 19, Four Star Hotel 20, Service Apartment 22	31
Volume 2E	Field and Laboratory Test Data of Boreholes	Office 23, Office 24, Three Star Hotel 25, Office 26	29
<b>Volume 2F</b>	<b>Field Test Results of FCBR, PLT, ERT, Trial pits etc.</b>	-	-

This report volume (Volume-2F) presents the results of 100 FCBR, 10 PLT, 10 TP and 1 ERT conducted at the site.

### 1.4 Scope of Work Covered in this Report Volume

Details of tests conducted at the site and presented in this report volume are as follows:

Type of Test	Test Designation	UTM Coordinates (Zone 43 R)		Ground Level (RL), m	Test Depth / Excavation depth (m)
		Easting	Northing		
Field California Bearing Ratio	FCBR-1	699570	3159623	212.847	0.15
	FCBR-2	699529	3159651	212.500	0.15
	FCBR-3	699479	3159684	212.338	0.15
	FCBR-4	699429	3159718	211.962	0.15
	FCBR-5	699454	3159760	212.054	0.15
	FCBR-6	699379	3159751	211.852	0.15
	FCBR-7	699410	3159792	212.099	0.15
	FCBR-8	699329	3159784	211.890	0.15
	FCBR-9	699361	3159828	211.943	0.15
	FCBR-10	699279	3159818	211.695	0.15



Type of Test	Test Designation	UTM Coordinates (Zone 43 R)		Ground Level (RL), m	Test Depth / Excavation depth (m)
		Easting	Northing		
Field California Bearing Ratio	FCBR-11	699313	3159864	211.748	0.15
	FCBR-12	699229	3159851	211.532	0.15
	FCBR-13	699265	3159899	211.646	0.15
	FCBR-14	699307	3159956	211.600	0.15
	FCBR-15	699348	3160012	211.725	0.15
	FCBR-16	699385	3160062	211.500	0.15
	FCBR-17	699433	3160026	211.640	0.15
	FCBR-18	699574	3159922	212.253	0.15
	FCBR-19	699427	3160118	211.467	0.15
	FCBR-20	699462	3160166	211.562	0.15
	FCBR-21	699505	3160224	211.500	0.15
	FCBR-22	699553	3160189	211.645	0.15
	FCBR-23	699694	3160084	212.331	0.15
	FCBR-24	699550	3160285	212.000	0.15
	FCBR-25	699607	3160286	211.500	0.15
	FCBR-26	699663	3160287	212.078	0.15
	FCBR-27	699794	3160262	212.721	0.15
	FCBR-28	699697	3160333	212.291	0.15
	FCBR-29	699702	3160386	212.224	0.15
	FCBR-30	699750	3160451	212.264	0.15
	FCBR-31	699843	3160476	212.363	0.15
	FCBR-32	699892	3160441	212.427	0.15
	FCBR-33	699936	3160408	212.528	0.15
	FCBR-34	699836	3160567	212.801	0.15
	FCBR-35	699765	3160627	211.653	0.15
	FCBR-36	699875	3160620	212.681	0.15
	FCBR-37	699828	3160654	212.649	0.15
	FCBR-38	699863	3160718	213.609	0.15
	FCBR-39	699917	3160673	212.361	0.15
	FCBR-40	699984	3160662	212.830	0.15
	FCBR-41	699966	3160637	212.539	0.15
	FCBR-42	700014	3160602	212.657	0.15
	FCBR-43	700034	3160624	212.817	0.15
	FCBR-44	700058	3160569	212.600	0.15
	FCBR-45	700085	3160593	212.500	0.15



Type of Test	Test Designation	UTM Coordinates (Zone 43 R)		Ground Level (RL), m	Test Depth / Excavation depth (m)
		Easting	Northing		
Field California Bearing Ratio	FCBR-46*	700135	3160561	212.473	0.15
	FCBR-47	700186	3160529	212.700	0.15
	FCBR-48	700237	3160498	212.705	0.15
	FCBR-49	700288	3160466	213.000	0.15
	FCBR-50	700339	3160434	213.176	0.15
	FCBR-51	700416	3160230	213.319	0.15
	FCBR-52	700383	3160181	214.000	0.15
	FCBR-53	700340	3160125	213.508	0.15
	FCBR-54	700299	3160070	213.500	0.15
	FCBR-55	700259	3160099	213.500	0.15
	FCBR-56	700258	3160013	213.350	0.15
	FCBR-57	700213	3159953	213.500	0.15
	FCBR-58	700165	3159989	213.380	0.15
	FCBR-59	700116	3160024	213.500	0.15
	FCBR-60	700068	3160060	213.162	0.15
	FCBR-61	700030	3160088	213.000	0.15
	FCBR-62	699988	3160120	213.330	0.15
	FCBR-63	700001	3160048	213.500	0.15
	FCBR-64	700130	3159841	213.706	0.15
	FCBR-65	699939	3159965	212.534	0.15
	FCBR-66	700092	3159789	213.635	0.15
	FCBR-67	700044	3159825	213.500	0.15
	FCBR-68	699995	3159860	213.507	0.15
	FCBR-69	699947	3159895	213.480	0.15
	FCBR-70	699909	3159924	213.075	0.15
	FCBR-71	699869	3159954	212.271	0.15
	FCBR-72	699878	3159883	213.314	0.15
	FCBR-73	699994	3159733	213.448	0.15
	FCBR-74	699886	3159813	213.429	0.15
	FCBR-75	699848	3159842	212.997	0.15
	FCBR-76	699807	3159871	213.061	0.15
	FCBR-77	699995	3159658	213.587	0.15
	FCBR-78	699817	3159800	213.280	0.15
	FCBR-79	699959	3159610	213.681	0.15
	FCBR-80	699825	3159730	213.276	0.15

\*Laboratory CBR was also performed on the sample collected from FCBR-46 location.





Type of Test	Test Designation	UTM Coordinates (Zone 43 R)		Ground Level (RL), m	Test Depth / Excavation depth (m)
		Easting	Northing		
Field California Bearing Ratio	FCBR-81	699786	3159759	213.144	0.15
	FCBR-82	699746	3159788	212.000	0.15
	FCBR-83	699924	3159562	213.522	0.15
	FCBR-84	699757	3159719	213.225	0.15
	FCBR-85	699888	3159513	213.236	0.15
	FCBR-86	699727	3159679	213.500	0.15
	FCBR-87	699668	3159675	212.615	0.15
	FCBR-88	699879	3159469	213.298	0.15
	FCBR-89	699840	3159503	213.500	0.15
	FCBR-90	699788	3159534	213.282	0.15
	FCBR-91	699737	3159564	212.825	0.15
	FCBR-92	699671	3159603	212.679	0.15
	FCBR-93	699482	3159990	212.164	0.15
	FCBR-94	699530	3159955	212.288	0.15
	FCBR-95	699602	3160153	211.894	0.15
	FCBR-96	699650	3160117	212.112	0.15
	FCBR-97	699746	3160298	212.481	0.15
	FCBR-98	700171	3159897	213.706	0.15
	FCBR-99	700031	3159706	213.603	0.15
	FCBR-100	700060	3159746	213.695	0.15
Plate Load Test	PLT-1	699454	3159832	212.129	3.0
	PLT-2	699720	3160230	211.894	3.0
	PLT-3	699855	3160392	212.421	3.0
	PLT-4	700094	3160233	213.000	3.0
	PLT-5	699858	3160027	212.000	3.0
	PLT-6	699617	3159719	212.717	3.0
	PLT-7	699851	3159537	213.623	3.0
	PLT-8	699866	3159753	213.373	3.0
	PLT-9	700047	3159859	213.500	3.0
	PLT-10	700180	3160079	213.500	3.0
Trial Pit	TP-1	699381	3159814	211.995	3.0
	TP-2	699498	3159972	212.152	3.0
	TP-3	699618	3160135	211.981	3.0
	TP-4	699865	3160454	212.500	3.0
	TP-5	699939	3159965	212.059	3.0

Type of Test	Test Designation	UTM Coordinates (Zone 43 R)		Ground Level (RL), m	Test Depth / Excavation depth (m)
		Easting	Northing		
Trial Pit	TP-6	699699	3159641	213.190	3.0
	TP-7	699888	3159513	213.236	3.0
	TP-8	700106	3159808	213.592	3.0
	TP-9	700276	3160037	213.350	3.0
	TP-10	700359	3160415	213.000	3.0
Electrical Resistivity Test	ERT-1	699963	3160235	211.471	-

- A layout plan indicating the test locations of our field investigations is presented on Plates 1 to 4.
- The test locations were marked on the field by us in the presence of a client representative using a hand-held Global Positioning System (GPS). A satellite image indicating the test locations (as recorded by GPS) is presented on Plate 5 & 6.
- The reduced levels at the test locations were given to us by the client.

## 2.0 FIELD INVESTIGATION

### 2.1 Field California Bearing Ratio Test

The California Bearing Ratio (CBR) is defined as the ratio of force per unit area required to penetrate a soil mass with standard 50 mm diameter circular piston at the rate of 1.25 mm/min to that required for corresponding penetration of a standard material. The field CBR test shall be conducted in general accordance with IS: 2720 (Part-31)-1990 RA 2006.

A loaded vehicle was used to provide the necessary reaction. A small capacity hydraulic jack was used to apply the load which is measured using a proving ring.

The standard 50 mm diameter piston was connected to the proving ring by means of extension rods. A surcharge load of 15 kg shall be placed over the surface to be tested in order to simulate laboratory conditions. The piston was advanced into the soil at an approximate rate of 1.25 mm/min. A dial gauge mounted on an independent datum measured the penetration of the piston.

### 2.2 Trial Pits

Trial pits of about 3 m x 3 m size were excavated at the site to about 3 m depth so as to permit easy access for visual examination of walls of the pit and to facilitate sampling.

Bulk samples and undisturbed samples were collected from trial pits at various depths and transported to our NABL accredited laboratory at Noida for further examination and testing.

The profile and logs of the trial pits are presented on Plates 9 to 28.

### 2.3 Plate Load Tests

The plate load tests were performed at the site using 30 cm x 30 cm plate size (25 mm thick). The test procedure is in general accordance with IS: 1888-1982 RA 2002.



Reaction for the test was provided using an ISMB anchored to the ground by earth augers. The plate was loaded by pushing up against the ISMB using a hydraulic jack. The hydraulic jack is connected to a pumping unit through a long hose, so as to keep the pumping unit away from the test plate. Two dial gauges of least count of 0.01 mm measured the plate settlement with reference to a stable reference bar.

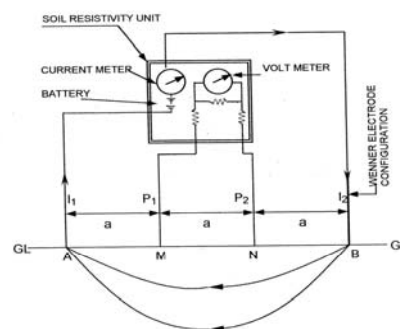
The load was applied in regular increments of about 0.785 kg / cm<sup>2</sup> up to a maximum loading intensity of about 6 kg/cm<sup>2</sup> or 40 mm settlement of the plate, whichever occurred first. Each load was held until the time rate of settlement become negligible (less than 0.02 mm per minute).

After applying the maximum test load, the plate was unloaded in steps and the rebound was recorded.

## 2.4 Electrical Resistivity Tests

Electrical resistivity of the substratum (soil / rock) at the site was determined at specified locations. The electrical resistivity test is used for shallow subsurface exploration by means of electrical measures made at the ground surface. Resistivity measurements are made by driving four electrodes about 10 to 15 cm in to the ground at pre-selected electrode spacing. We used the Wenner electrode configuration for this study.

The schematic arrangement of electrodes is shown below:



NOTE: I<sub>1</sub> AND I<sub>2</sub> ARE CURRENT ELECTRODES  
P<sub>1</sub> AND P<sub>2</sub> ARE POTENTIAL ELECTRODES  
a - ELECTRODE SPACING

The four electrodes were spaced at equal distance along a line. The test procedure is in accordance with IS: 3043:1987.

The resistivity is determined from the following equation: -

$$\rho = \frac{2 \pi s V}{I}$$

where:

$\rho$  = apparent resistivity, ohm-m  
V = Voltage difference between the two inner electrodes, Volts  
I = current flowing through the two outer electrodes, ampere  
R = V/I = resistance, ohms

## 3.0 LABORATORY TEST

The laboratory testing was carried out in our NABL accredited laboratory. The quality procedure in our laboratory conforms to ISO/IEC-17025-2005.

Laboratory tests were conducted on selected soil and groundwater samples to determine their physical and engineering properties. The testing procedures are in accordance with current applicable IS specifications.

The following tests were conducted on selected soil and groundwater samples recovered from the boreholes:

Laboratory Test	IS Code Referred
Bulk Density	By calculations
Natural moisture content	IS : 2720 (Part-2)-1973, RA-2010
Grain size analysis	IS : 2720 (Part-4)-1985, RA-2010
Liquid Limit and Plastic Limit	IS : 2720 (Part-5)-1985, RA-2010
Standard Proctor Compaction Test	IS : 2720 (Part-7) -1983, RA-2011
Lab California Bearing Ratio Test	IS : 2720 (Part-16) -1987, RA-2007

Engineering terms used to describe soils are explained on Plate 7. A note on our NABL accreditation together with the uncertainty in laboratory measurements is presented on Plate 8.

#### 4.0 FIELD TEST RESULTS

##### 4.1 Electrical Resistivity Test Results

One (1) electrical resistivity test has been conducted at specified location as per IS: 3043-1987 RA 2006. The test was conducted using the Wenner configuration. The apparent resistivity values obtained have been analyzed to generate the polar curve. The polar curve is used to compute the mean resistivity.

Test No.	Mean Resistivity, Ohm-m	Presentation of Results
ERT-1	25.2	Plates 29 & 30

As per the test results, the mean apparent resistivity at the test locations indicates moderate corrosiveness<sup>1</sup>. The above values may be used for design of the electrical grounding system.

##### 4.2 Plate Load Test Results

Ten (10) plate load test have been conducted on a 30 cm x 30 cm size square plate at the specified depth. The following table summarizes the bearing interpreted ultimate capacity ( $q_{ult}$ ) of the plate, measured settlement of the plate under different loading conditions, as well as interpreted values of modulus of subgrade reaction ( $k_s$ ):

Test No.	Test Depth	Measured Settlement (mm) under Applied Bearing Pressure of					Ultimate Bearing Capacity, $T/m^2$	Computed modulus of Subgrade Reaction (k) for 75 cm size plate, $kg/cm^3$
		10 $T/m^2$	15 $T/m^2$	20 $T/m^2$	25 $T/m^2$	30 $T/m^2$		
PLT-1	3.0	2.4	4.4	6.2	8.5	-	46	0.2
PLT-2	3.0	1.4	2.3	3.4	5.0	-	28	1.9
PLT-3	3.0	1.1	1.7	2.1	3.0	4.3	41	3.9

<sup>1</sup> As per Amendment No. 2, January 2010: IS 3043-1987



Test No.	Test Depth	Measured Settlement (mm) under Applied Bearing Pressure of					Ultimate Bearing Capacity, T/m <sup>2</sup>	Computed modulus of Subgrade Reaction (k) for 75 cm size plate, kg/cm <sup>3</sup>
		10 T/m <sup>2</sup>	15 T/m <sup>2</sup>	20 T/m <sup>2</sup>	25 T/m <sup>2</sup>	30 T/m <sup>2</sup>		
PLT-4	3.0	2.6	3.8	5.4	7.4	9.9	32	1.4
PLT-5	3.0	2.0	3.0	4.0	5.5	7.2	33	2.0
PLT-6	3.0	1.5	2.3	3.4	4.3	5.2	45	2.2
PLT-7	3.0	2.0	2.9	4.2	5.6	6.9	40	1.9
PLT-8	3.0	1.7	2.6	3.4	4.5	5.8	38	2.2
PLT-9	3.0	1.7	2.5	3.7	5.2	6.9	37	3.7
PLT-10	3.0	1.7	2.5	3.5	4.8	6.3	33	2.0

The settlement for 3-4 m size footings as been extrapolated using the following equation <sup>(2)</sup> applicable for granular soils:

$$\frac{S_f}{S_p} = \left[ \frac{B_f (B_p + 0.3)}{B_p (B_f + 0.3)} \right]^2$$

where:

$S_f$  = settlement of foundation of width  $B_f$   
 $S_p$  = settlement of test plate of width  $B_p$

A multiplying factor of 1.5 has been applied to the estimated footing settlement as well as computed modulus of subgrade reaction account for saturation of the soils. A second multiplying factor of 1.5 has been applied to account for local variations in strata conditions.

The plate load test results are presented on Plates 31 to 60. The following table presents our estimated settlement of 3-4 m size foundations bearing at the test level under different bearing pressures:

Test No.	Test Depth, m	Estimated Settlement for 3-4 m size square foundation under applied bearing pressure of				
		10 T/m <sup>2</sup>	15 T/m <sup>2</sup>	20 T/m <sup>2</sup>	25 T/m <sup>2</sup>	30 T/m <sup>2</sup>
PLT-1	3.0	18	33	46	63	-
PLT-2	3.0	10	17	25	37	-
PLT-3	3.0	8	13	16	22	32
PLT-4	3.0	20	28	40	55	74
PLT-5	3.0	15	22	30	41	53
PLT-6	3.0	11	17	25	32	39
PLT-7	3.0	15	22	31	42	52
PLT-8	3.0	13	19	25	33	43
PLT-9	3.0	13	19	28	39	51
PLT-10	3.0	13	19	26	35	47

<sup>(2)</sup> As per Clause 5.3 of IS Code: 1888 – 1982 RA 2002, Indian Standard Method of Load Test on Soils.

The plate load test results should be reviewed in conjunction with the combined borehole data to select final values of safe bearing pressure for foundation design. Please refer to Report Volume-1 for our recommended safe bearing pressures for design.

The analysis presented above is governed by the inherent limitations of plate load test. They are:

- The analysis is applicable only for uniform isotropic formations. Stratified deposits are not modeled effectively by the test.
- The test stresses the soils only to a depth of "2 B<sub>p</sub>" below test level (B<sub>p</sub> = plate width). Large size foundations will stress the deeper soils also. However, the behaviour of the deeper soils cannot be evaluated by the test.
- The load test results do not take in to account saturation / ground water table effect as ground water table is below the influence depth.
- The similitude law used for extrapolation of the test data, at best, be treated as an approximation.

#### 4.3 Field CBR Test Results

Hundred (100) field California bearing ratio (FCBR) test has been conducted at site at specified locations for design of the internal road pavements. The results of the tests are summarised below.

Test Designation	Test Level, m	Field CBR Value, %	Presentation of Results
FCBR-1	0.15	7.9	Plate 61
FCBR-2	0.15	9.3	Plate 62
FCBR-3	0.15	2.7	Plate 63
FCBR-4	0.15	13.2	Plate 64
FCBR-5	0.15	3.3	Plate 65
FCBR-6	0.15	15.6	Plate 66
FCBR-7	0.15	3.7	Plate 67
FCBR-8	0.15	5.9	Plate 68
FCBR-9	0.15	7.0	Plate 69
FCBR-10	0.15	5.7	Plate 70
FCBR-11	0.15	5.0	Plate 71
FCBR-12	0.15	7.6	Plate 72
FCBR-13	0.15	5.7	Plate 73
FCBR-14	0.15	3.6	Plate 74
FCBR-15	0.15	4.6	Plate 75
FCBR-16	0.15	5.3	Plate 76
FCBR-17	0.15	5.4	Plate 77
FCBR-18	0.15	4.9	Plate 78
FCBR-19	0.15	2.9	Plate 79
FCBR-20	0.15	3.6	Plate 80
FCBR-21	0.15	2.7	Plate 81



Test Designation	Test Level, m	Field CBR Value, %	Presentation of Results
FCBR-22	0.15	3.1	Plate 82
FCBR-23	0.15	2.9	Plate 83
FCBR-24	0.15	10.0	Plate 84
FCBR-25	0.15	2.9	Plate 85
FCBR-26	0.15	2.1	Plate 86
FCBR-27	0.15	2.5	Plate 87
FCBR-28	0.15	3.4	Plate 88
FCBR-29	0.15	2.7	Plate 89
FCBR-30	0.15	8.5	Plate 90
FCBR-31	0.15	9.3	Plate 91
FCBR-32	0.15	8.5	Plate 92
FCBR-33	0.15	9.0	Plate 93
FCBR-34	0.15	5.2	Plate 94
FCBR-35	0.15	5.1	Plate 95
FCBR-36	0.15	3.9	Plate 96
FCBR-37	0.15	9.7	Plate 97
FCBR-38	0.15	11.3	Plate 98
FCBR-39	0.15	4.5	Plate 99
FCBR-40	0.15	4.6	Plate 100
FCBR-41	0.15	4.4	Plate 101
FCBR-42	0.15	5.3	Plate 102
FCBR-43	0.15	3.5	Plate 103
FCBR-44	0.15	2.4	Plate 104
FCBR-45	0.15	4.0	Plate 105
FCBR-46	0.15	2.0	Plate 106
FCBR-47	0.15	3.5	Plate 107
FCBR-48	0.15	2.3	Plate 108
FCBR-49	0.15	6.3	Plate 109
FCBR-50	0.15	9.7	Plate 110
FCBR-51	0.15	5.6	Plate 111
FCBR-52	0.15	5.1	Plate 112
FCBR-53	0.15	8.1	Plate 113
FCBR-54	0.15	5.4	Plate 114
FCBR-55	0.15	7.6	Plate 115
FCBR-56	0.15	10.3	Plate 116
FCBR-57	0.15	27.1	Plate 117
FCBR-58	0.15	17.9	Plate 118
FCBR-59	0.15	4.0	Plate 119
FCBR-60	0.15	16.4	Plate 120
FCBR-61	0.15	5.7	Plate 121
FCBR-62	0.15	2.4	Plate 122

Test Designation	Test Level, m	Field CBR Value, %	Presentation of Results
FCBR-63	0.15	3.5	Plate 123
FCBR-64	0.15	4.0	Plate 124
FCBR-65	0.15	5.4	Plate 125
FCBR-66	0.15	2.9	Plate 126
FCBR-67	0.15	2.2	Plate 127
FCBR-68	0.15	5.7	Plate 128
FCBR-69	0.15	3.2	Plate 129
FCBR-70	0.15	2.7	Plate 130
FCBR-71	0.15	3.5	Plate 131
FCBR-72	0.15	4.7	Plate 132
FCBR-73	0.15	3.1	Plate 133
FCBR-74	0.15	4.0	Plate 134
FCBR-75	0.15	3.1	Plate 135
FCBR-76	0.15	3.3	Plate 136
FCBR-77	0.15	3.9	Plate 137
FCBR-78	0.15	6.3	Plate 138
FCBR-79	0.15	4.8	Plate 139
FCBR-80	0.15	5.3	Plate 140
FCBR-81	0.15	3.5	Plate 141
FCBR-82	0.15	5.1	Plate 142
FCBR-83	0.15	6.0	Plate 143
FCBR-84	0.15	6.1	Plate 144
FCBR-85	0.15	4.2	Plate 145
FCBR-86	0.15	5.9	Plate 146
FCBR-87	0.15	6.6	Plate 147
FCBR-88	0.15	3.5	Plate 148
FCBR-89	0.15	4.2	Plate 149
FCBR-90	0.15	11.4	Plate 150
FCBR-91	0.15	5.0	Plate 151
FCBR-92	0.15	5.9	Plate 152
FCBR-93	0.15	2.9	Plate 153
FCBR-94	0.15	3.7	Plate 154
FCBR-95	0.15	3.0	Plate 155
FCBR-96	0.15	3.3	Plate 156
FCBR-97	0.15	2.4	Plate 157
FCBR-98	0.15	5.1	Plate 158
FCBR-99	0.15	2.9	Plate 159
FCBR-100	0.15	3.0	Plate 160

Standard Proctor Tests were conducted as per IS: 2720 (Part-7) -1983 RA-2011, on the bulk samples collected from the location of the lowest Field CBR value (FCBR-46). The standard Proctor test results are tabulated below:





Sample Location	Maximum Dry Density (MDD), g/cc	Optimum Moisture Content (OMC), %	Presentation of Results
FCBR-46	1.87	13.4	Plate 161

Laboratory CBR tests (soaked and unsoaked) were conducted as per IS: 2720 (Part-16) -1987 RA-2007 on bulk sample collected from FCBR-46 location. The sample was remoulded by dynamic compaction to 95% MDD and OMC as per the above standard Proctor test results. The mass of wet soil corresponding to 95% MDD was taken and divided into 5 equal parts by weight. Each part was then compacted into the CBR mould using 4.89 kg rammer. The number of blows per layer was determined by trial such that the final level remains just above the top of the mould. Excess soil was then trimmed off and the actual mass of specimen was weighed.

The samples were then soaked for minimum 96 hours under the influence of the surcharge load, and soaked CBR tests were then performed.

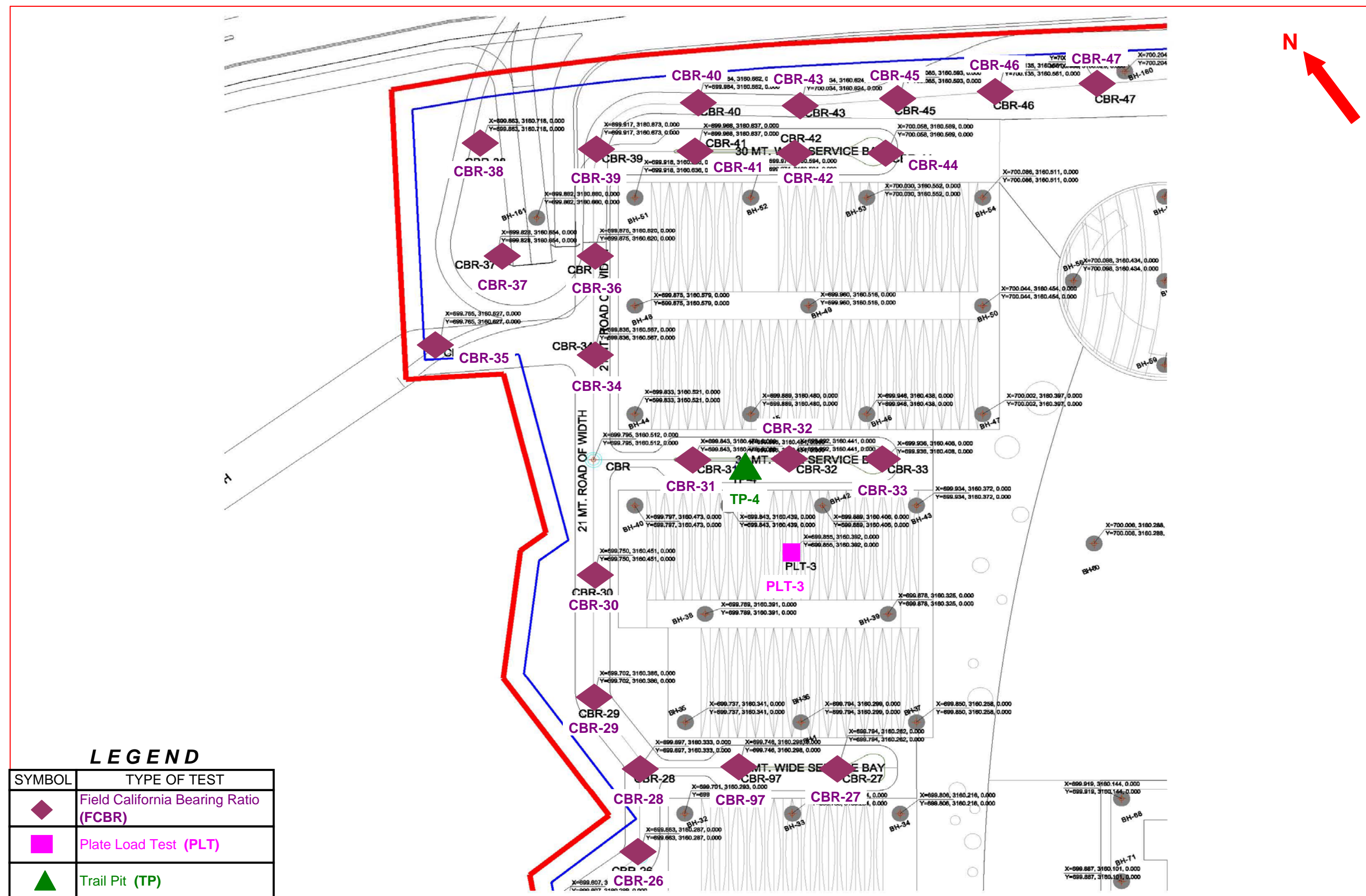
Test results on specimens compacted to the required density is illustrated on Plates 162. A summary of the CBR test result is also tabulated below for easy reference:

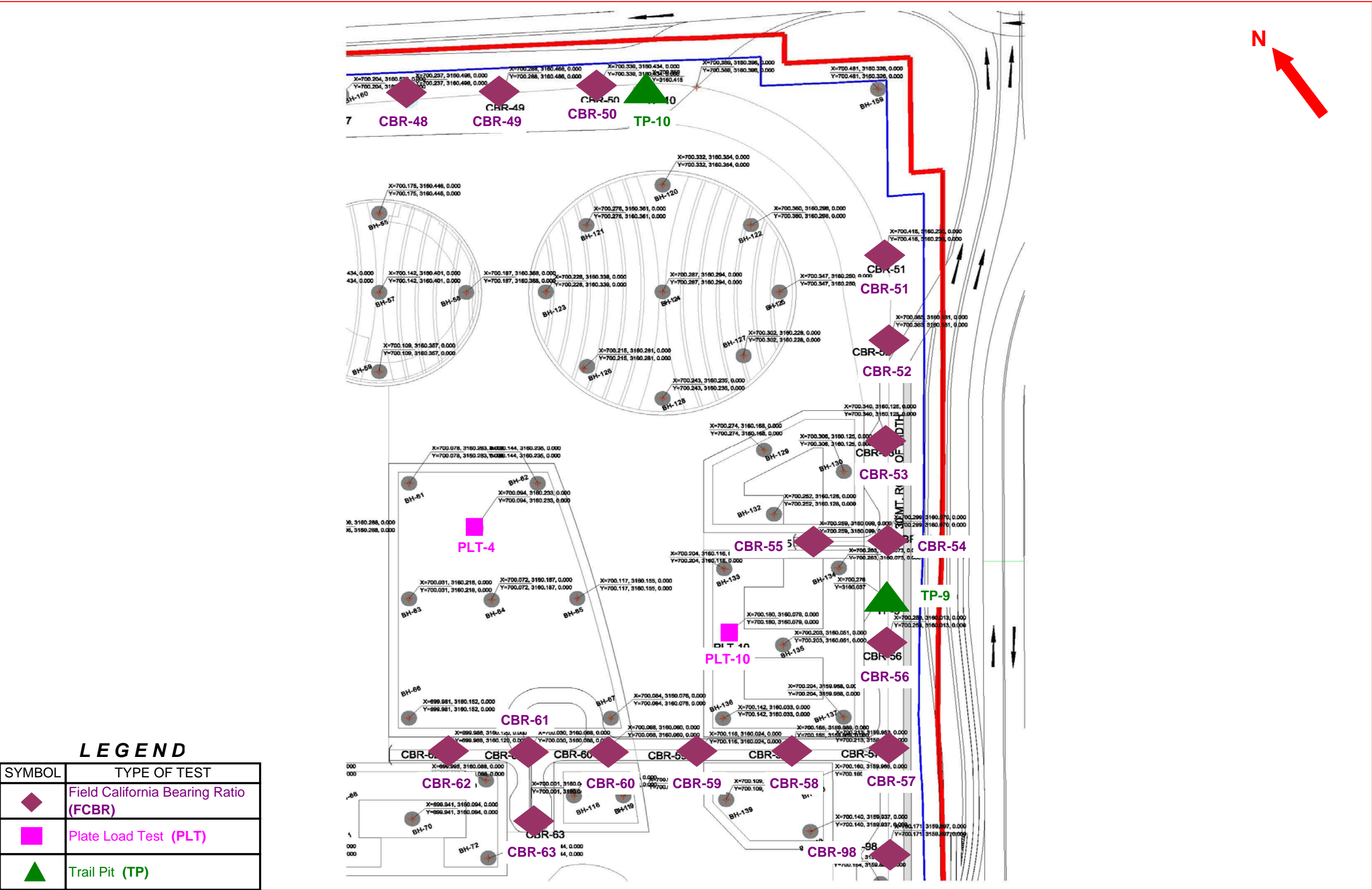
Sample Location	Average Dry Density, g/cc	Initial Moisture Content, %	Laboratory CBR Value, %	
			Unsoaked	Soaked
FCBR-46	1.79	15.5	4.1	2.3

The design of the pavements should be based on soaked laboratory CBR values.

## 5.0 VARIABILITY IN SUBSURFACE CONDITIONS

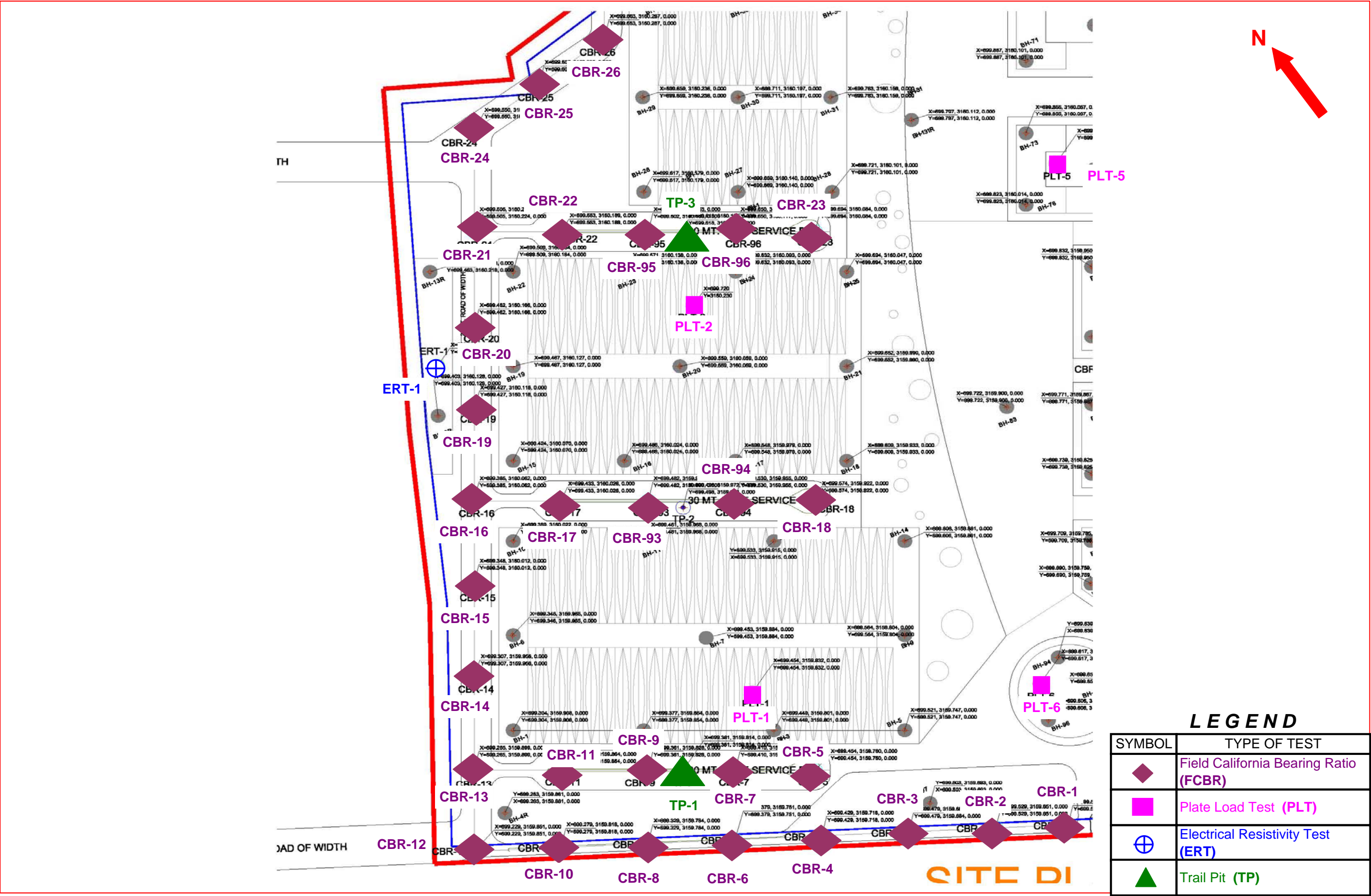
Subsurface conditions encountered during construction may vary somewhat from the conditions encountered during the site investigation. In case significant variations are encountered during construction, we request to be notified so that our engineers may review the recommendations in this report in light of these variations.



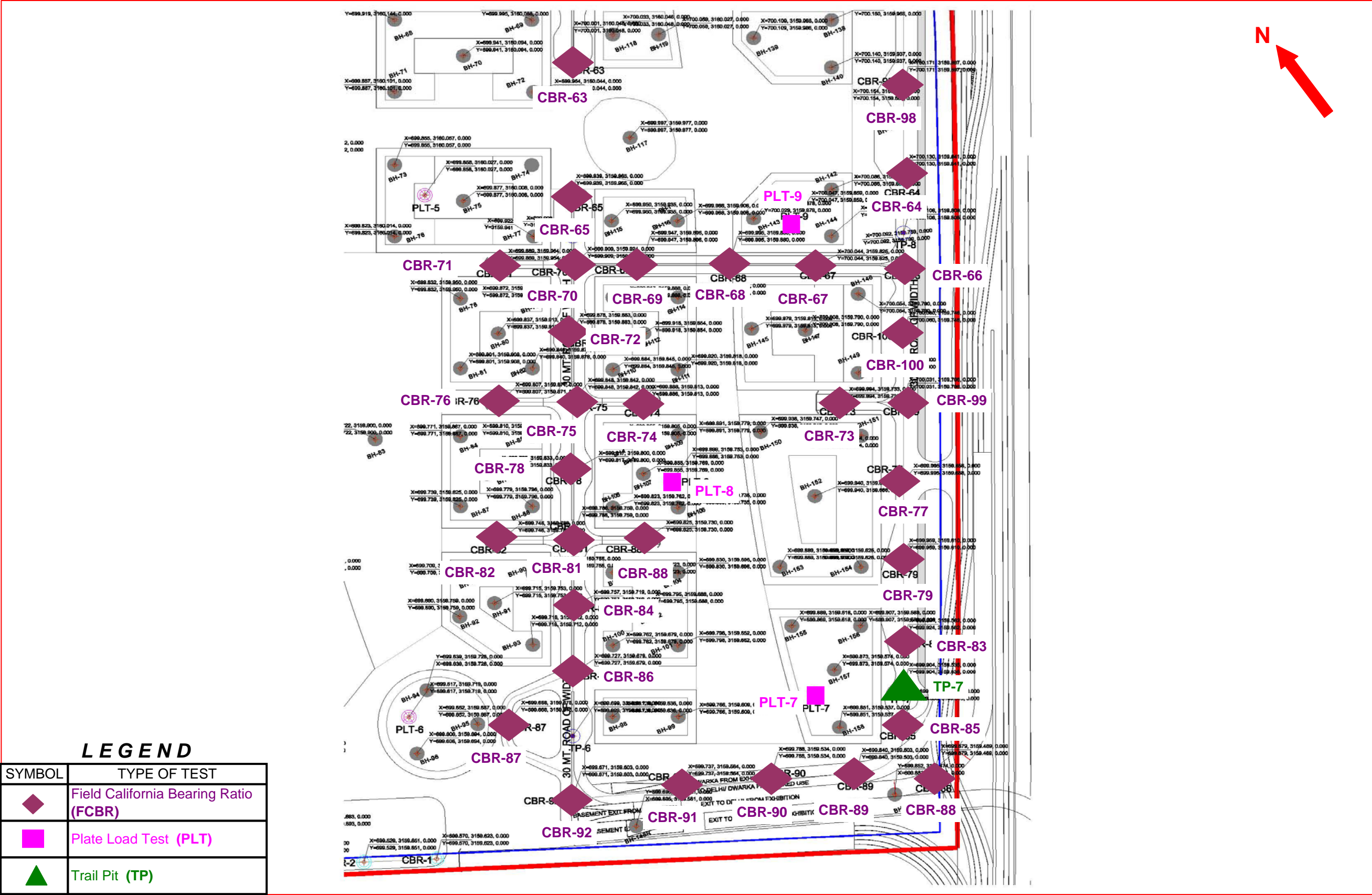


Plan of Field Investigations





Plan of Field Investigations



Plan of Field Investigations

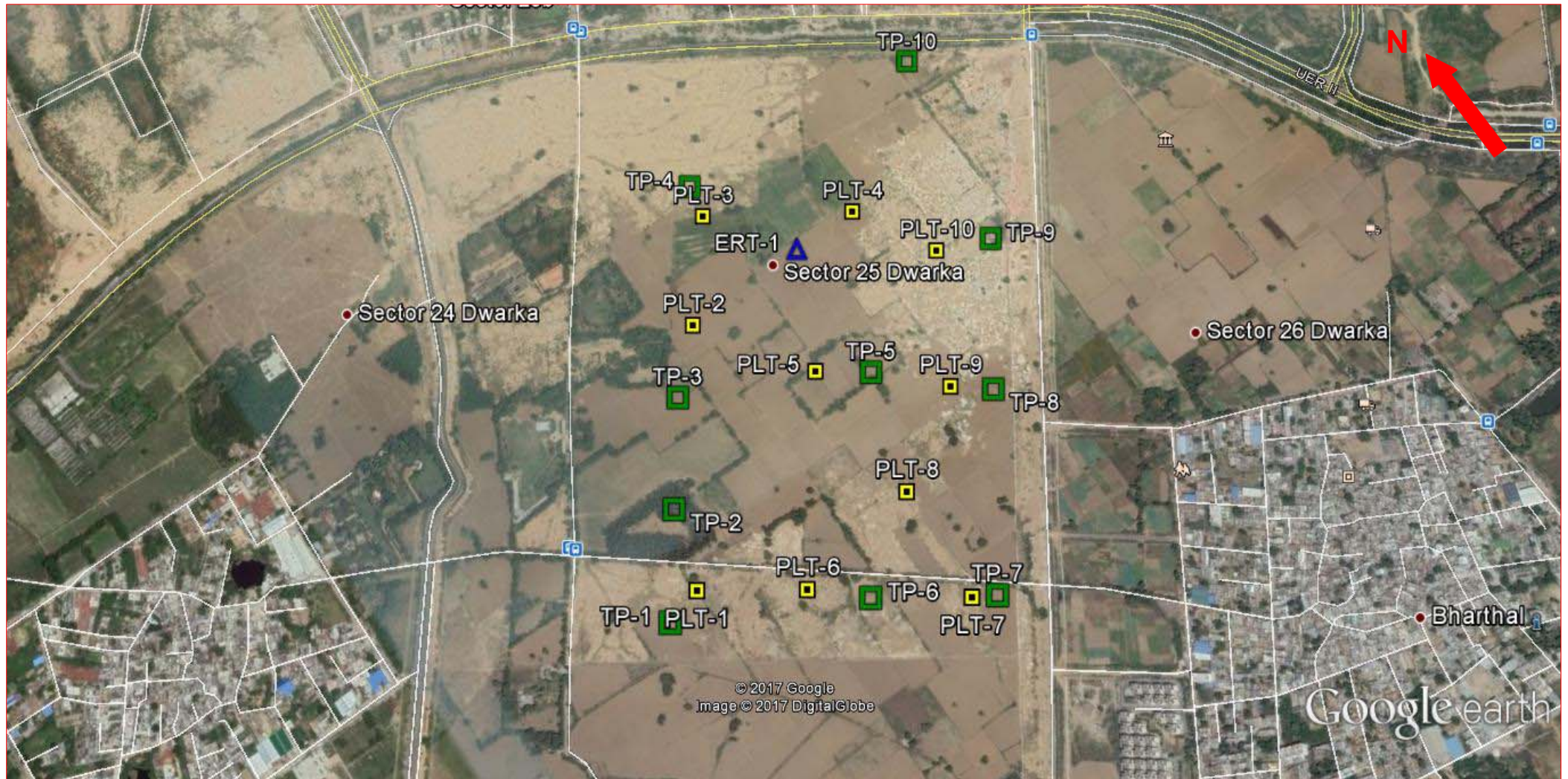




- Satellite image taken from Google Earth®
- Test Locations marked as per GPS coordinates taken on site using hand-held Garmin® device
- Accuracy of hand-held GPS device generally ranges from 4-6m, and varies depending on the availability of satellite connection at the site

### Satellite Image of Site and Test Locations





- Satellite image taken from Google Earth®
- Test Locations marked as per GPS coordinates taken on site using hand-held Garmin® device
- Accuracy of hand-held GPS device generally ranges from 4-6m, and varies depending on the availability of satellite connection at the site

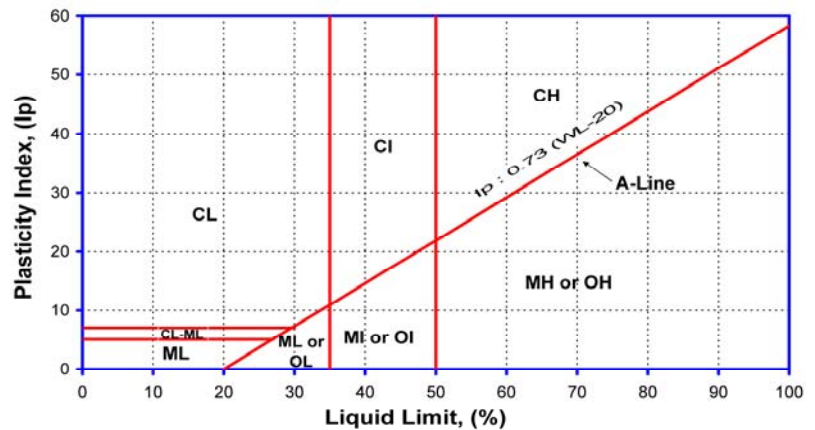
### Satellite Image of Site and Test Locations



### Plasticity of Clay

Plasticity	Liquid Limit
Low Plastic	< 35
Medium Plastic	35 to 50
High Plastic	> 50

### Plasticity Chart



### Consistency of Cohesive Soils

Consistency	Cohesion Intercept, kg/sq.cm	SPT (N) Value
Very Soft	< 0.1	0 to 2
Soft	0.1 to 0.25	2 to 4
Firm/Medium	0.25 to 0.5	4 to 8
Stiff	0.5 to 1.0	8 to 15
Very Stiff	1.0 to 2.0	15 to 30
Hard	> 2.0	> 30

### Density Condition of Granular Soils

Density Descriptor	SPT (N) Value	Static Cone Tip Resistance kg/sq.cm
Very Loose	0 to 4	< 20
Loose	4 to 10	20 to 40
Medium Dense	10 to 30	40 to 120
Dense	30 to 50	120 to 200
Very dense	> 50	> 200

### Degree of Expansion of Fine Grained Soils

Liquid Limit	Plasticity Index	Shrinkage Index	Free Swell Percent	Degree of Expansion	Degree of Severity
20 - 35	< 12	< 15	< 50	Low	Non-critical
35 - 50	12 - 23	15 - 30	50 - 100	Medium	Marginal
50 - 70	23 - 32	30 - 60	100 - 200	High	Critical
70 - 90	> 32	> 60	> 200	Very High	Severe

## Engineering Description of Soils



### NABL Accredited Laboratory

Our laboratory is accredited to **National Accreditation Board for Testing and Calibration Laboratories (NABL)**, New Delhi. The quality procedures in our laboratory conform to the International Standard **ISO/IEC: 17025-2005**.

The accreditation assures our clients of work quality in conformance with international norms and practices. It authorizes us to use the NABL logo on test results.

To maintain the necessary level of quality and reliability in all measurements on a continual basis, we indulge in the following:

- Use of calibrated equipment, regular maintenance and good housekeeping are a part of our work culture.
- Inter-laboratory comparison, proficiency testing and replicate testing, continuing education - ensure uniform quality of results.
- Internal Audit of quality procedures is done by our qualified ISO 17025 auditors to maintain the requisite standards. NABL conducts external audit.

### Uncertainty

Every measurement entails an uncertainty. It is well known that no measuring instrument can determine the true value of any measurement. The cumulative effect of factors such as sensitivity of equipment, accuracy in calibration, human factors and environmental conditions will determine the overall uncertainty in the parameter determined from these measurements.

As a part of our commitment to our clients, we have worked out the uncertainty in the parameters reported by our laboratory. Although this does not form a part of our contract agreement, we present below our statistical estimate of uncertainty of various parameters based on our most recent evaluation (February, 2016).

Test / Parameter		Uncertainty*	Test / Parameter		Uncertainty*	
Moisture Content		± 0.29%	Free Swell Index, %		± 2.6%	
Bulk & Dry Density		± 0.01 g/cc	Swell Pressure		± 0.43 kg/cm <sup>2</sup>	
Specific Gravity		± 0.01	Consolidation	Pressure	± 0.03 kg/cm <sup>2</sup>	
Liquid Limit		± 0.29%		Void Ratio	±0.01	
Plastic Limit			Density Index (relative density) of cohesionless soils		± 5 %	
Shrinkage Limit						
Unconfined Compression	c	± 0.054 kg/cm <sup>2</sup>	CD Direct Shear Test	ϕ	± 0.29 degrees	
UU Triaxial Test	c	± 0.01 kg/cm <sup>2</sup>	Soil Gradation		± 0.5% of particle size	
	ϕ	± 0.48 degree				
Std/Mod Proctor Compaction	MDD	± 0.14 g/cc	Coefficient of Permeability		± 2.7 x 10 <sup>-5</sup> cm/s	
	OMC	± 0.29%	Rock		Crushing Strength	± 3.1 kg/cm <sup>2</sup>
Laboratory CBR		± 0.58%			Point Load Strength Index	± 8.89 kg/cm <sup>2</sup>

\* at 95 percent confidence level for coverage factor of 2

### **Uncertainty in Laboratory Measurements**


### Soil Profile (TP-1)

ISO/IEC 17025:2005  
Certified Laboratory  
(NABL)  
Certificate No. T-1741



Location : Refer Plate 1  
UTM Coordinates : 699381 E, 3159814 N

Termination Depth : 3.3 m (RL 208.695 m)  
Ground Water Depth : Not met  
Surface Elevation : RL 211.995 m

Depth, m		Sample No.	SPT <sup>(1)</sup>		Symbol	SOIL DESCRIPTION*	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N <sub>f</sub>	Corrected Value, N"				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)	Bulk Density (gms/cm <sup>3</sup> )	Dry Density (gms/cm <sup>3</sup> )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm <sup>2</sup> )	Cohesion Intercept, 'c' (kg/cm <sup>2</sup> )	Angle of Internal Friction, φ (degrees)	
1.50	1.80	BS1				Brown sandy silt with gravels (CL)	3.30																
2.00	2.30	UDS1																					
2.50	2.80	BS2																					
3.00	3.30	UDS2																					

<sup>(1)</sup> SPT is outside NABL scope.

\* based on lab visual



















### Soil Profile (TP-2)

ISO/IEC 17025:2005  
Certified Laboratory  
(NABL)  
Certificate No. T-1741



Location : Refer Plate 1  
UTM Coordinates : 699498 E, 3159972 N

Termination Depth : 3.3 m (RL 208.852 m)  
Ground Water Depth : Not met  
Surface Elevation : RL 212.152 m

Depth, m		Sample No.	SPT <sup>(1)</sup>		Symbol	SOIL DESCRIPTION*	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N <sub>f</sub>	Corrected Value, N"				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)	Bulk Density (gms/cm <sup>3</sup> )	Dry Density (gms/cm <sup>3</sup> )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm <sup>2</sup> )	Cohesion Intercept, 'c' (kg/cm <sup>2</sup> )	Angle of Internal Friction, φ (degrees)	
1.50	1.80	BS1				Brown sandy silt with traces of gravels (CL)																	
2.00	2.30	UDS1											1.81	1.64	10.5								
2.50	2.80	BS2																					
3.00	3.30	UDS2					3.30						1.82	1.64	10.9								
																							
																							
																							
																							
																							
																							
																							
																							
																							
																							
																							
																							
																							
																							

<sup>(1)</sup> SPT is outside NABL scope.

\* based on lab visual


### Soil Profile (TP-3)

ISO/IEC 17025:2005  
Certified Laboratory  
(NABL)  
Certificate No. T-1741



Location : Refer Plate 1  
UTM Coordinates : 699618 E, 3160135 N

Termination Depth : 3.3 m (RL 208.681 m)  
Ground Water Depth : Not met  
Surface Elevation : RL 211.981 m

Depth, m		Sample No.	SPT <sup>(1)</sup>		Symbol	SOIL DESCRIPTION*	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N <sub>f</sub>	Corrected Value, N"				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)	Bulk Density (gms/cm <sup>3</sup> )	Dry Density (gms/cm <sup>3</sup> )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm <sup>2</sup> )	Cohesion Intercept, 'c' (kg/cm <sup>2</sup> )	Angle of Internal Friction, φ (degrees)	
1.50	1.80	BS1				Brown sandy silt with traces of gravels (CL)	3.30																
2.00	2.30	UDS1												1.76	1.56	12.5							
2.50	2.80	BS2																					
3.00	3.30	UDS2												1.79	1.59	12.8							

<sup>(1)</sup> SPT is outside NABL scope.

\* based on lab visual


### Soil Profile (TP-4)

ISO/IEC 17025:2005  
Certified Laboratory  
(NABL)  
Certificate No. T-1741



Location : Refer Plate 1  
UTM Coordinates : 699865 E, 3160454 N

Termination Depth : 3.3 m (RL 209.2 m)  
Ground Water Depth : Not met  
Surface Elevation : RL 212.500 m

Depth, m		Sample No.	SPT <sup>(1)</sup>		Symbol	SOIL DESCRIPTION*	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N <sub>f</sub>	Corrected Value, N"				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)	Bulk Density (gms/cm <sup>3</sup> )	Dry Density (gms/cm <sup>3</sup> )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm <sup>2</sup> )	Cohesion Intercept, 'c' (kg/cm <sup>2</sup> )	Angle of Internal Friction, φ (degrees)	
1.50	1.80	BS1				Brown sandy silt with traces of gravels (CL)	3.30																
2.00	2.30	UDS1												1.82	1.64	10.7							
2.50	2.80	BS2																					
3.00	3.30	UDS2												1.83	1.65	11.2							

<sup>(1)</sup> SPT is outside NABL scope.

\* based on lab visual


### Soil Profile (TP-5)

ISO/IEC 17025:2005  
Certified Laboratory  
(NABL)  
Certificate No. T-1741



Location : Refer Plate 1  
UTM Coordinates : 699939 E, 3159965 N

Termination Depth : 3.3 m (RL 208.759 m)  
Ground Water Depth : Not met  
Surface Elevation : RL 212.059 m

Depth, m		Sample No.	SPT <sup>(1)</sup>		Symbol	SOIL DESCRIPTION*	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits		Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N <sub>f</sub>	Corrected Value, N"				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)	Bulk Density (gms/cm <sup>3</sup> )	Dry Density (gms/cm <sup>3</sup> )		Moisture Content (%)	Type of Test	Confining Pressures (kg/cm <sup>2</sup> )	Cohesion Intercept, 'c' (kg/cm <sup>2</sup> )	
1.50	1.80	BS1				Brown sandy silt with traces of gravels (CL)	3.30															
2.00	2.30	UDS1																				
2.50	2.80	BS2																				
3.00	3.30	UDS2																				

<sup>(1)</sup> SPT is outside NABL scope.

\* based on lab visual


### Soil Profile (TP-6)

ISO/IEC 17025:2005  
Certified Laboratory  
(NABL)  
Certificate No. T-1741



Location : Refer Plate 1  
UTM Coordinates : 699699 E, 3159641 N

Termination Depth : 3.3 m (RL 209.89 m)  
Ground Water Depth : Not met  
Surface Elevation : RL 213.190 m

Depth, m		Sample No.	SPT <sup>(1)</sup>		Symbol	SOIL DESCRIPTION*	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N <sub>f</sub>	Corrected Value, N"				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)	Bulk Density (gms/cm <sup>3</sup> )	Dry Density (gms/cm <sup>3</sup> )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm <sup>2</sup> )	Cohesion Intercept, 'c' (kg/cm <sup>2</sup> )	Angle of Internal Friction, φ (degrees)	
1.50	1.80	BS1				Brown sandy silt with traces of gravels (CL)																	
2.00	2.30	UDS1											1.76	1.53	14.9								
2.50	2.80	BS2																					
3.00	3.30	UDS2					3.30						1.81	1.57	15.5								

<sup>(1)</sup> SPT is outside NABL scope.

\* based on lab visual


### Soil Profile (TP-7)

ISO/IEC 17025:2005  
Certified Laboratory  
(NABL)  
Certificate No. T-1741



Location : Refer Plate 1  
UTM Coordinates : 699888 E, 3159513 N

Termination Depth : 3.3 m (RL 209.936 m)  
Ground Water Depth : Not met  
Surface Elevation : RL 213.236 m

Depth, m		Sample No.	SPT <sup>(1)</sup>		Symbol	SOIL DESCRIPTION*	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N <sub>f</sub>	Corrected Value, N"				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)	Bulk Density (gms/cm <sup>3</sup> )	Dry Density (gms/cm <sup>3</sup> )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm <sup>2</sup> )	Cohesion Intercept, 'c' (kg/cm <sup>2</sup> )	Angle of Internal Friction, φ (degrees)	
1.50	1.80	BS1				Brown sandy silt with traces of gravels (CL)	3.30																
2.00	2.30	UDS1																					
2.50	2.80	BS2																					
3.00	3.30	UDS2																					

<sup>(1)</sup> SPT is outside NABL scope.

\* based on lab visual




### Soil Profile (TP-8)

ISO/IEC 17025:2005  
Certified Laboratory  
(NABL)  
Certificate No. T-1741



Location : Refer Plate 1  
UTM Coordinates : 700106 E, 3159808 N

Termination Depth : 3.3 m (RL 210.292 m)  
Ground Water Depth : Not met  
Surface Elevation : RL 213.592 m

Depth, m		Sample No.	SPT <sup>(1)</sup>		Symbol	SOIL DESCRIPTION*	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N <sub>f</sub>	Corrected Value, N"				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)	Bulk Density (gms/cm <sup>3</sup> )	Dry Density (gms/cm <sup>3</sup> )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm <sup>2</sup> )	Cohesion Intercept, 'c' (kg/cm <sup>2</sup> )	Angle of Internal Friction, φ (degrees)	
1.50	1.80	BS1				Brown sandy silt with traces of gravels (CL)	3.30																
2.00	2.30	UDS1																					
2.50	2.80	BS2																					
3.00	3.30	UDS2																					

<sup>(1)</sup> SPT is outside NABL scope.

\* based on lab visual


### Soil Profile (TP-9)

ISO/IEC 17025:2005  
Certified Laboratory  
(NABL)  
Certificate No. T-1741



Location : Refer Plate 1  
UTM Coordinates : 700276 E, 3160037 N

Termination Depth : 3.3 m (RL 210.05 m)  
Ground Water Depth : Not met  
Surface Elevation : RL 213.350 m

Depth, m		Sample No.	SPT <sup>(1)</sup>		Symbol	SOIL DESCRIPTION*	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N <sub>f</sub>	Corrected Value, N"				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)	Bulk Density (gms/cm <sup>3</sup> )	Dry Density (gms/cm <sup>3</sup> )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm <sup>2</sup> )	Cohesion Intercept, 'c' (kg/cm <sup>2</sup> )	Angle of Internal Friction, φ (degrees)	
1.50	1.80	BS1				Brown sandy silt with traces of gravels (CL)	3.30																
2.00	2.30	UDS1																					
2.50	2.80	BS2																					
3.00	3.30	UDS2																					

<sup>(1)</sup> SPT is outside NABL scope.

\* based on lab visual


### Soil Profile (TP-10)

ISO/IEC 17025:2005  
Certified Laboratory  
(NABL)  
Certificate No. T-1741



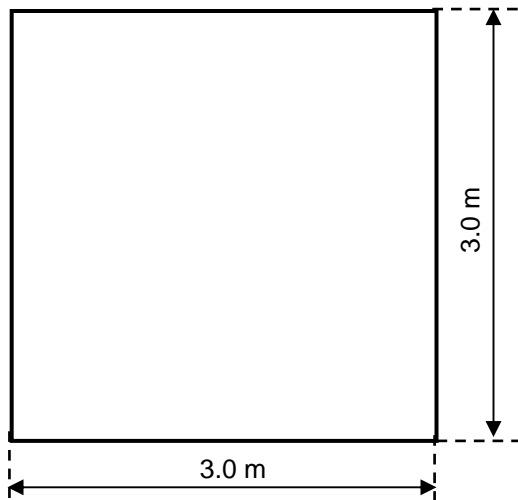
Location : Refer Plate 1  
UTM Coordinates : 700359 E, 3160415 N

Termination Depth : 3.3 m (RL 209.7 m)  
Ground Water Depth : Not met  
Surface Elevation : RL 213.000 m

Depth, m		Sample No.	SPT <sup>(1)</sup>		Symbol	SOIL DESCRIPTION*	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N <sub>f</sub>	Corrected Value, N <sub>c</sub>				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)	Bulk Density (gms/cm <sup>3</sup> )	Dry Density (gms/cm <sup>3</sup> )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm <sup>2</sup> )	Cohesion Intercept, 'c' (kg/cm <sup>2</sup> )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
1.50	1.80	BS1				Brown sandy silt with gravels (CL)	3.30																
2.00	2.30	UDS1													1.81	1.62	11.9						
2.50	2.80	BS2																					
3.00	3.30	UDS2													1.83	1.63	12.6						

<sup>(1)</sup> SPT is outside NABL scope.

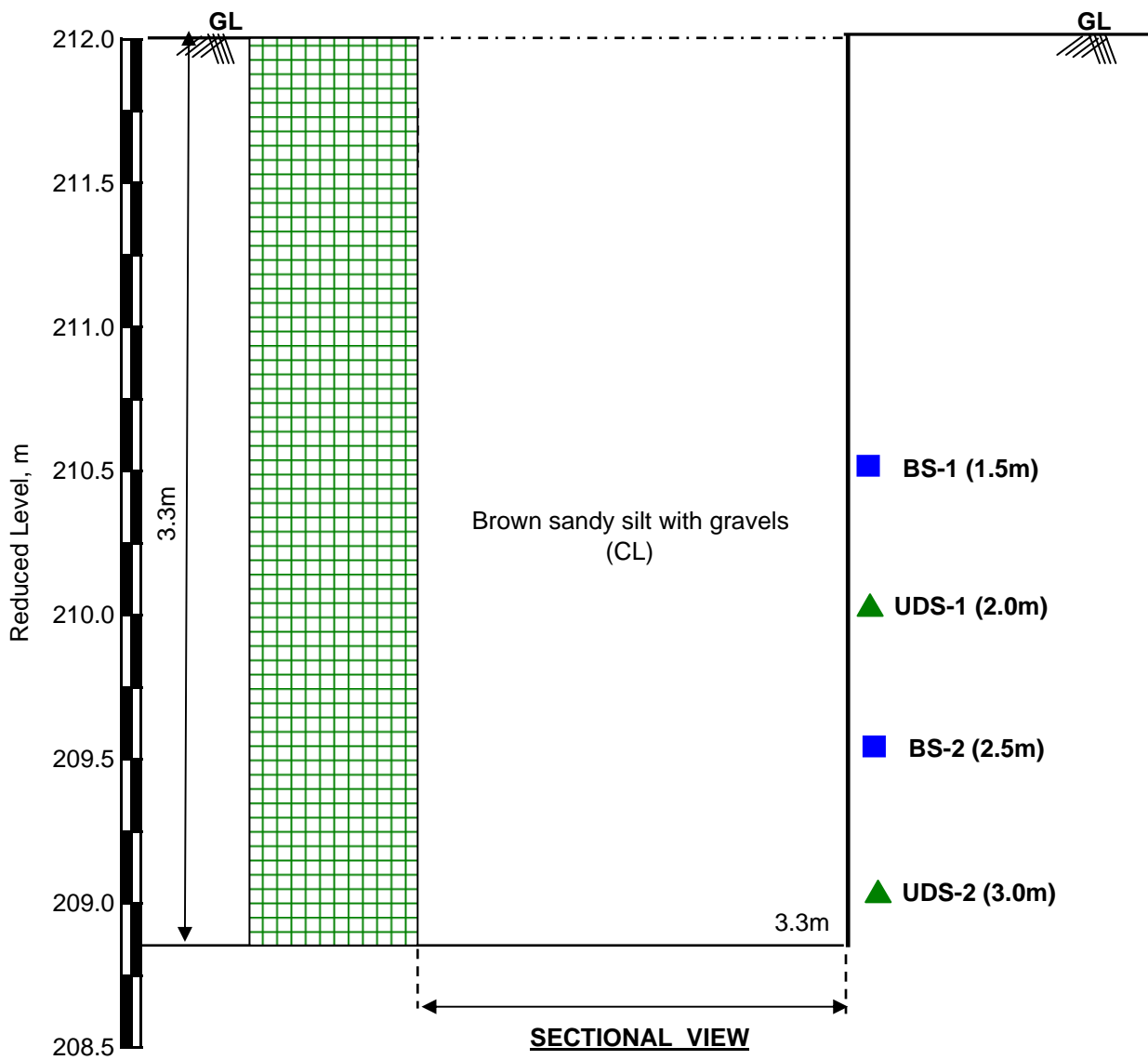
\* based on lab visual



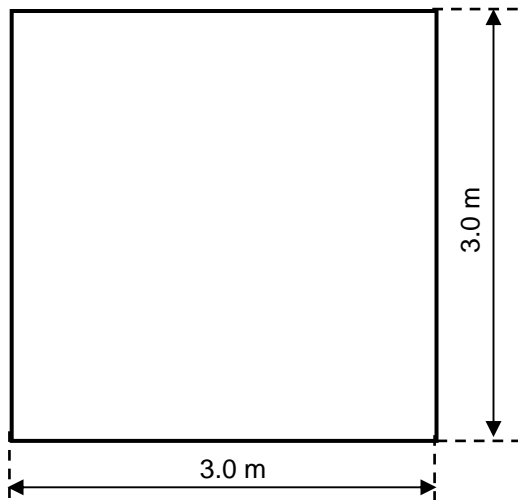
**PLAN VIEW**



**PHOTOGRAPH**



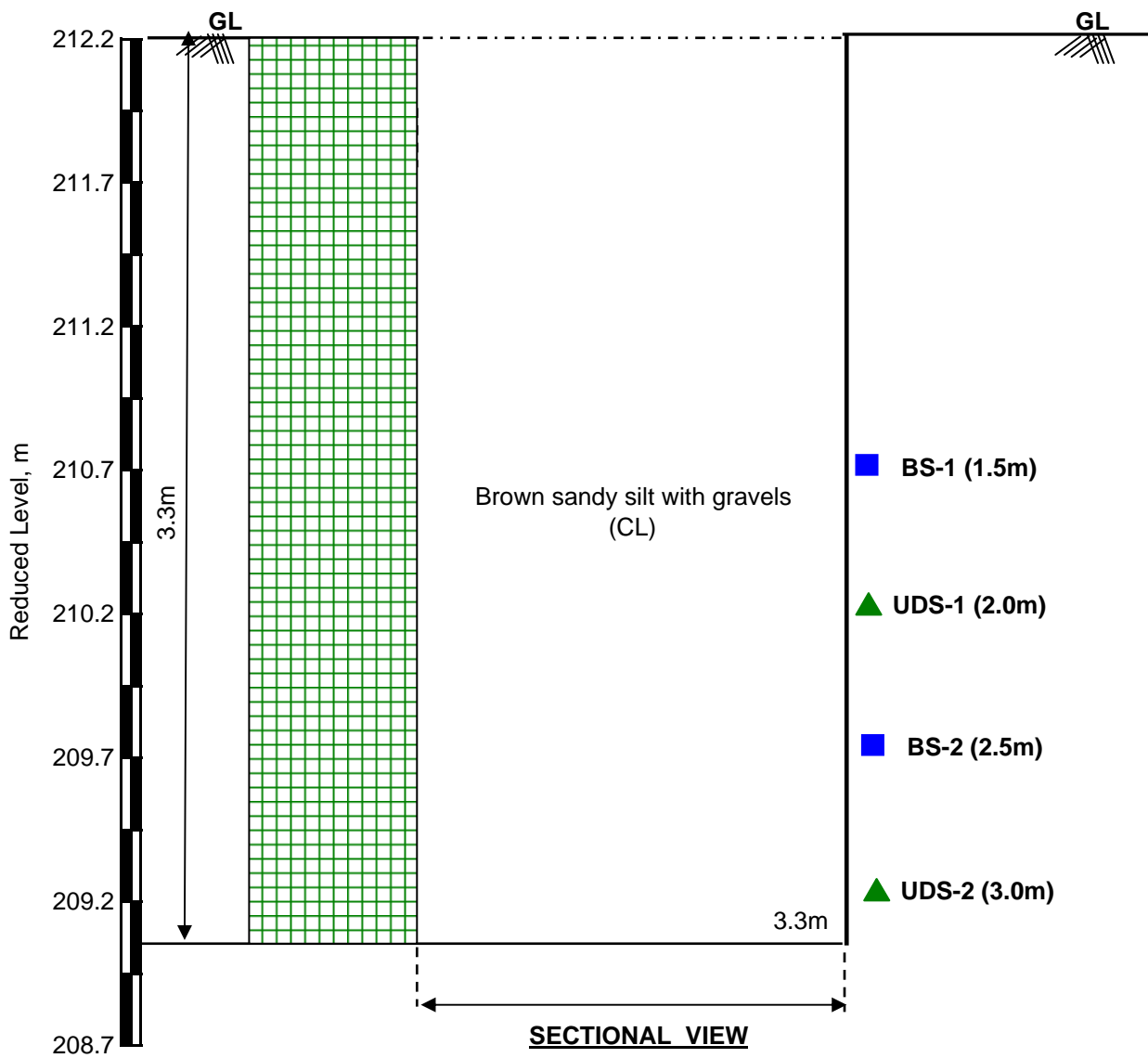
**Trial Pit Log: TP-1**



**PLAN VIEW**

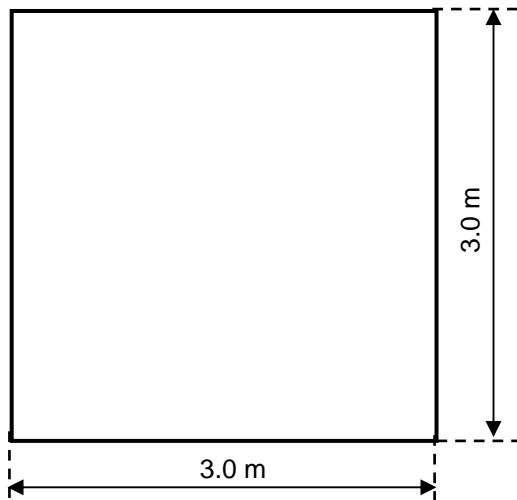


**PHOTOGRAPH**



**SECTIONAL VIEW**

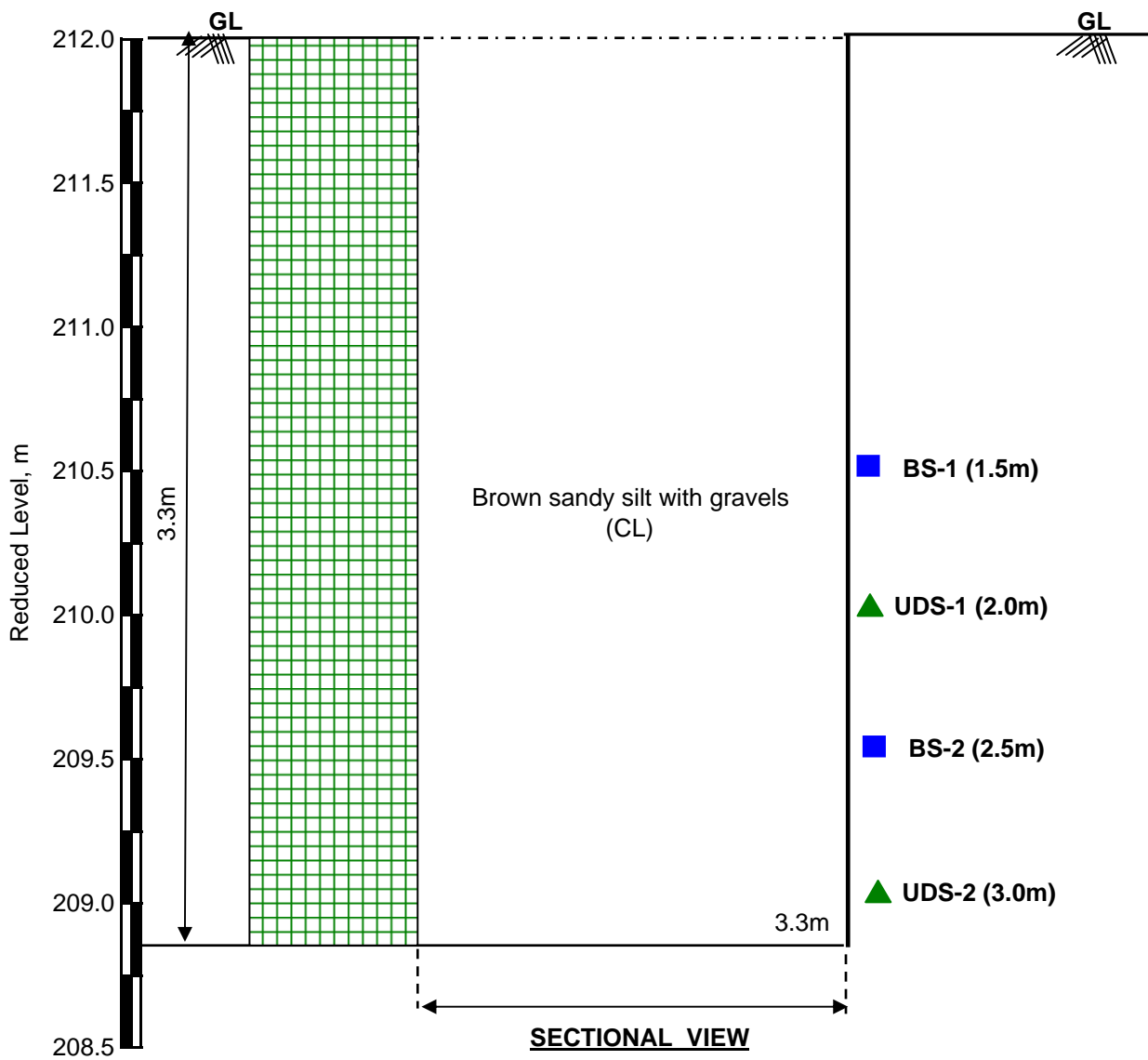
**Trial Pit Log: TP-2**



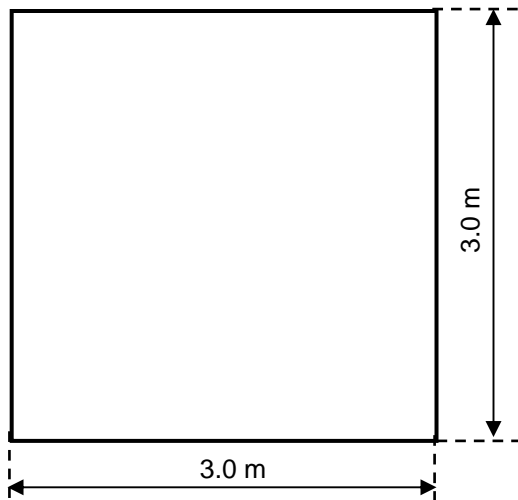
**PLAN VIEW**



**PHOTOGRAPH**



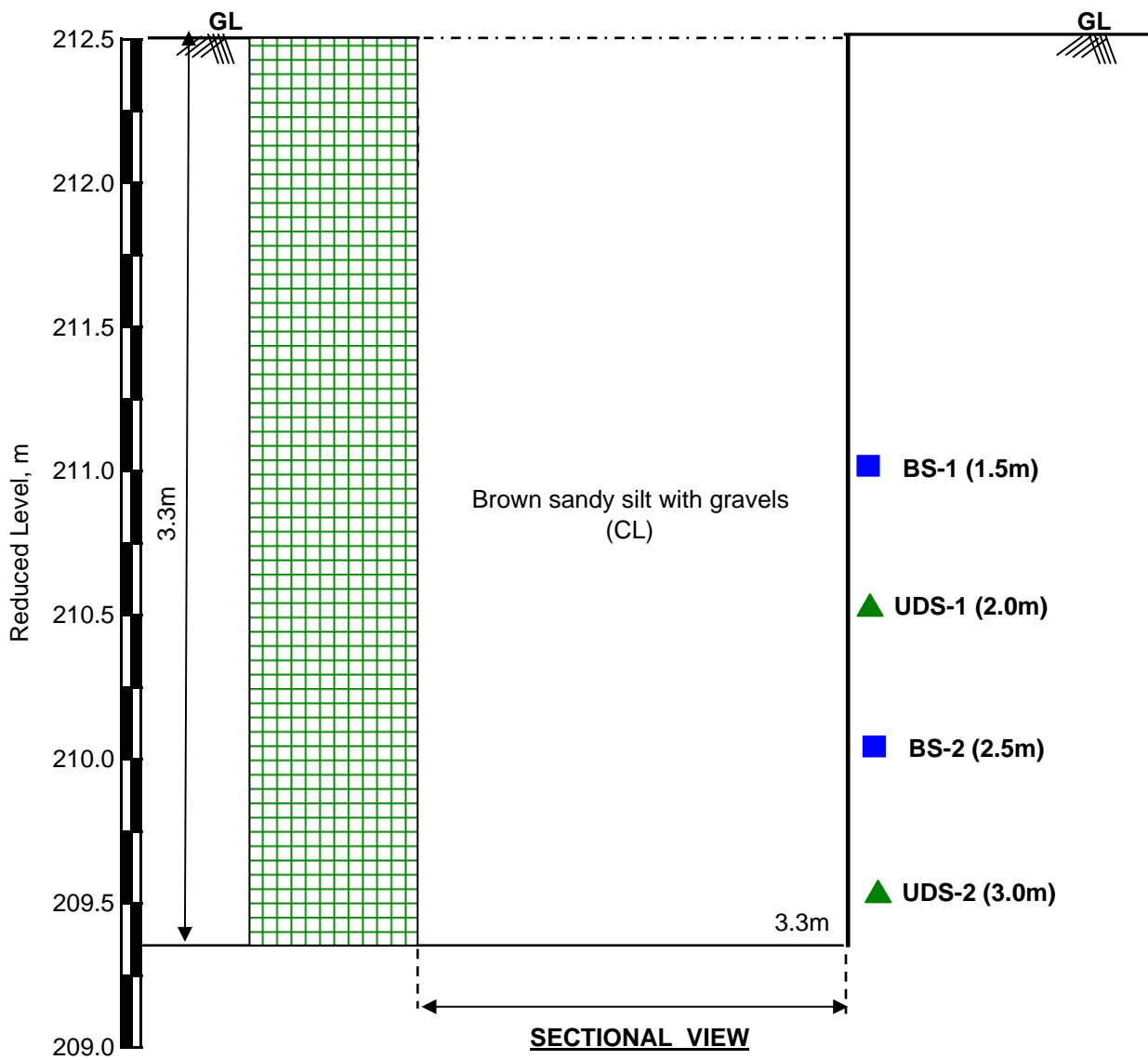
**Trial Pit Log: TP-3**



**PLAN VIEW**

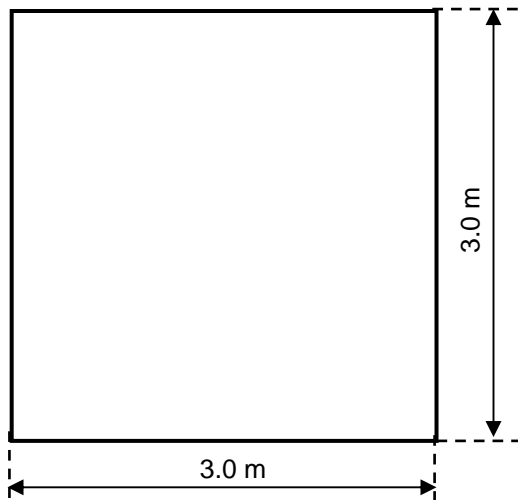


**PHOTOGRAPH**



**Trial Pit Log: TP-4**

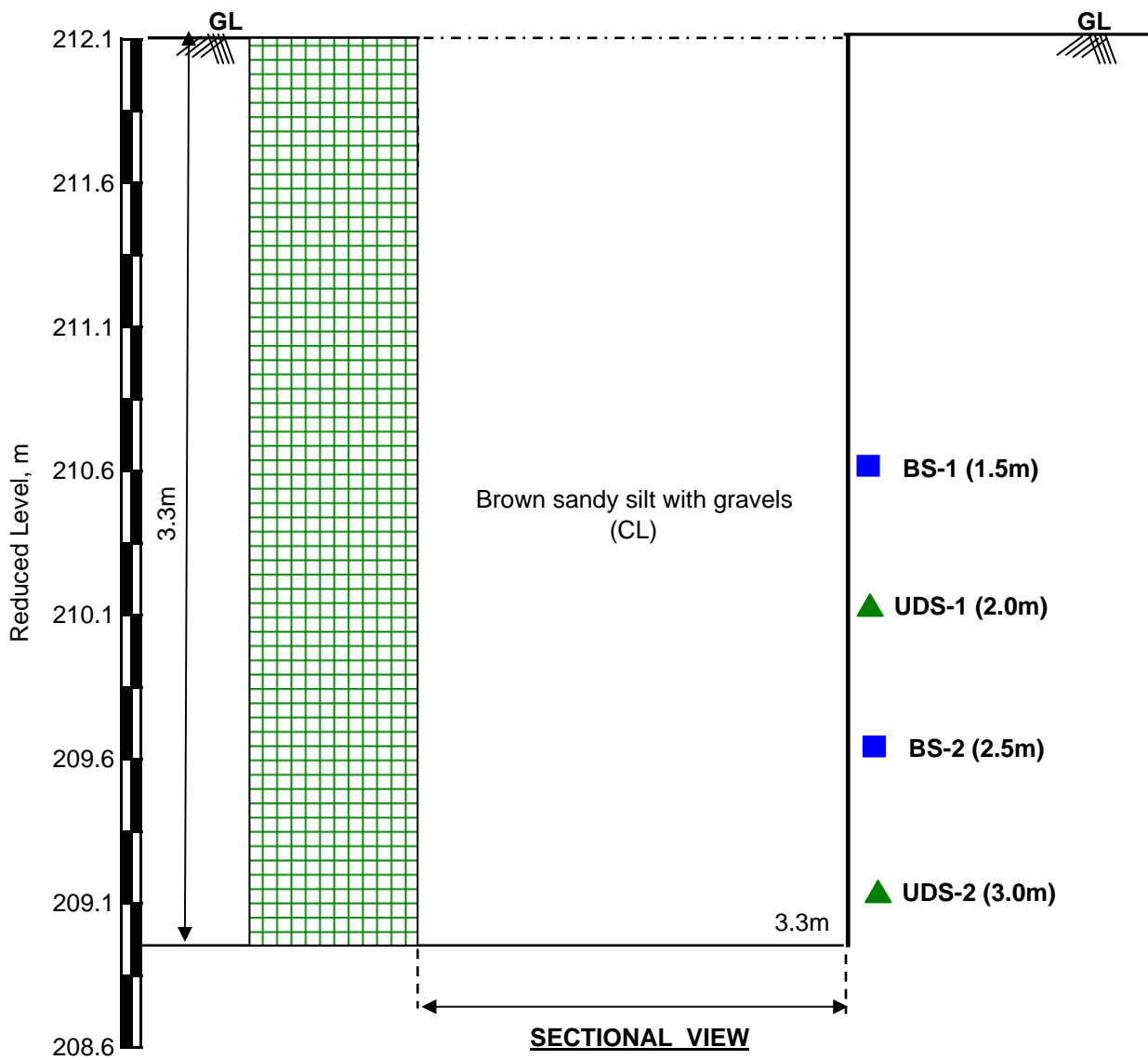




**PLAN VIEW**

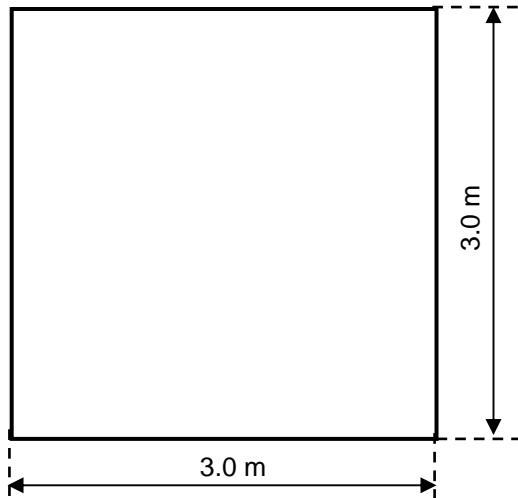


**PHOTOGRAPH**



**Trial Pit Log: TP-5**

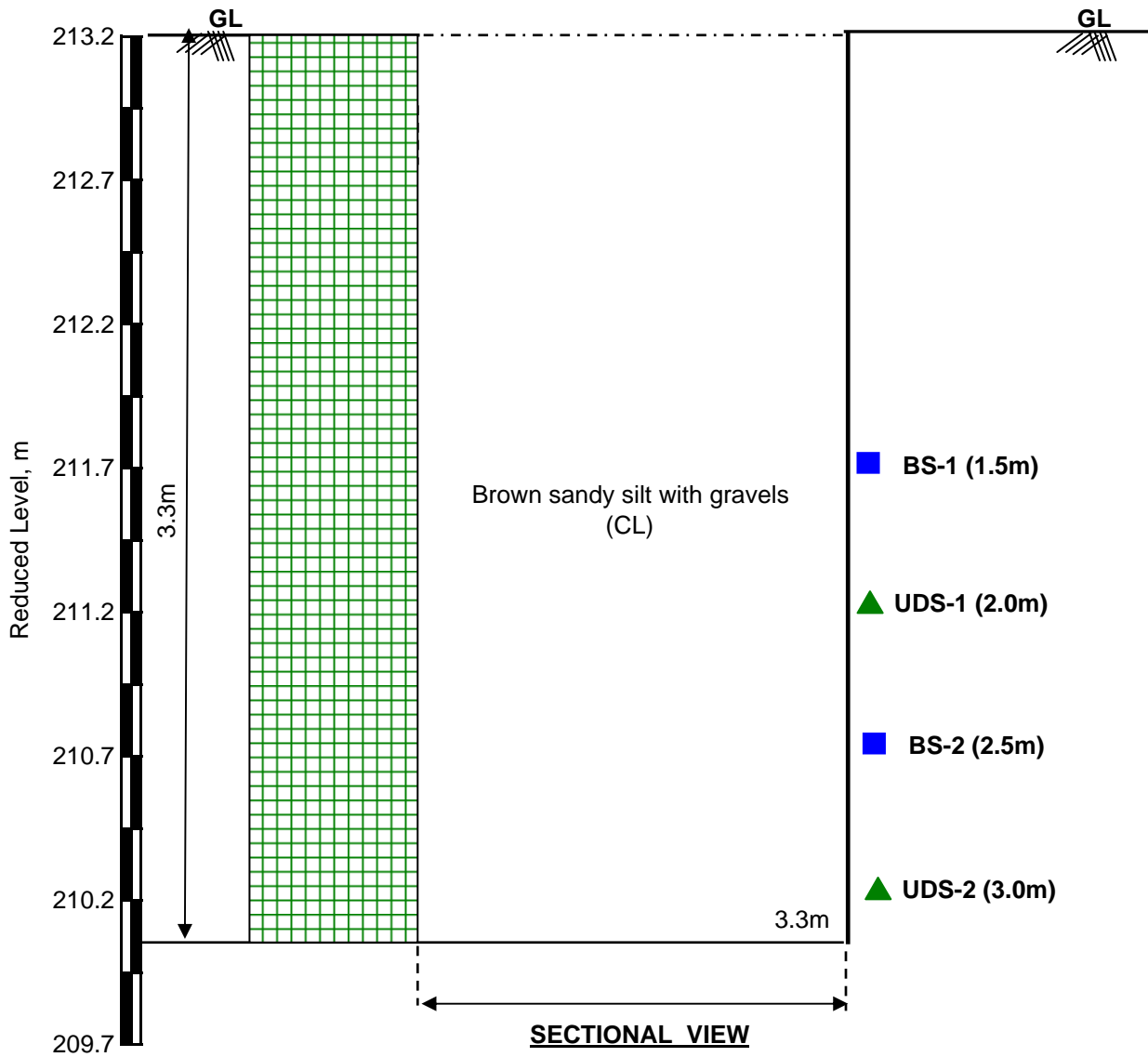




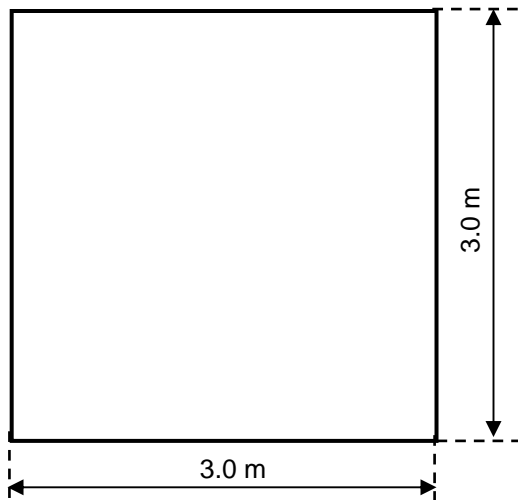
**PLAN VIEW**



**PHOTOGRAPH**



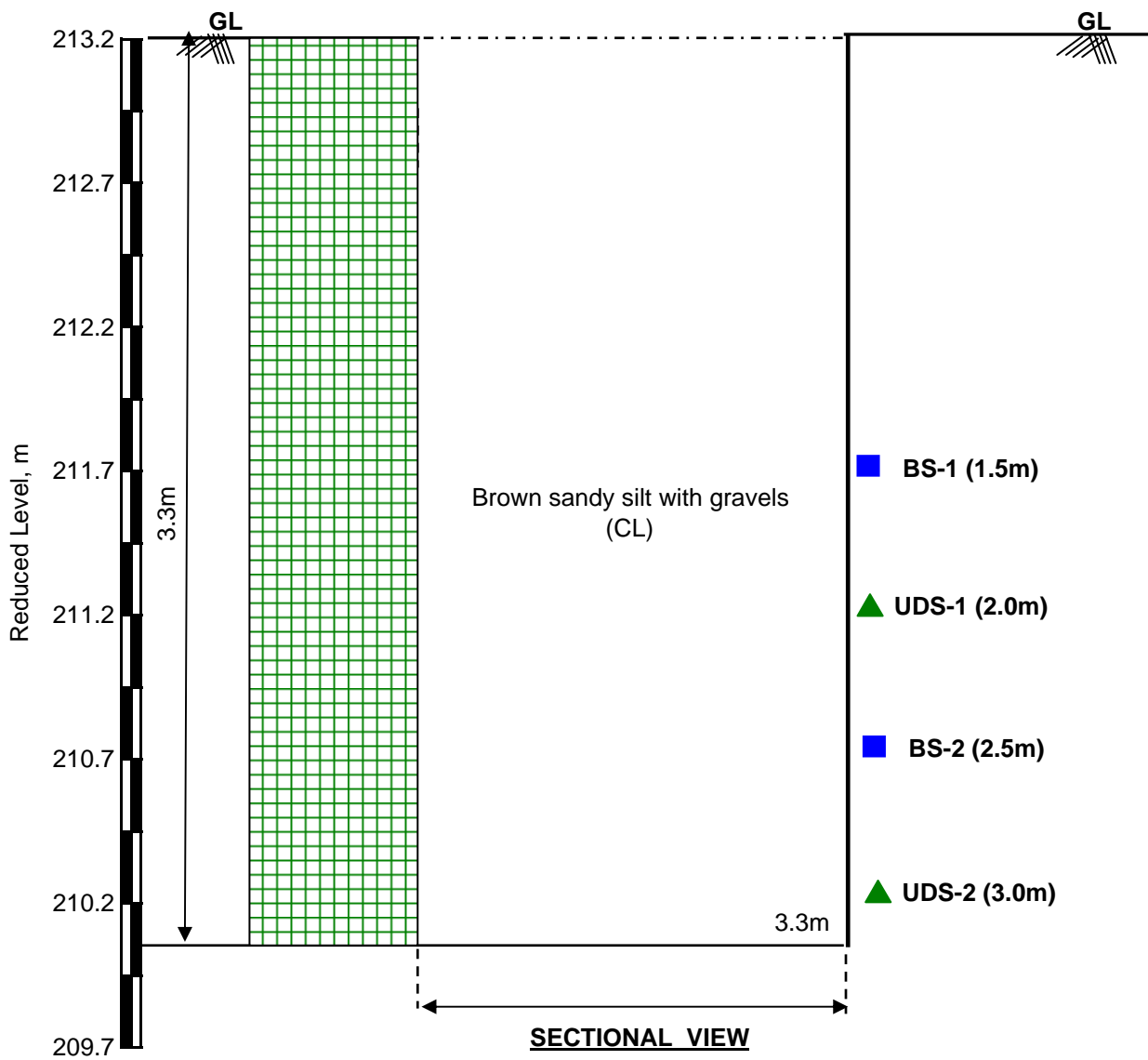
**Trial Pit Log: TP-6**



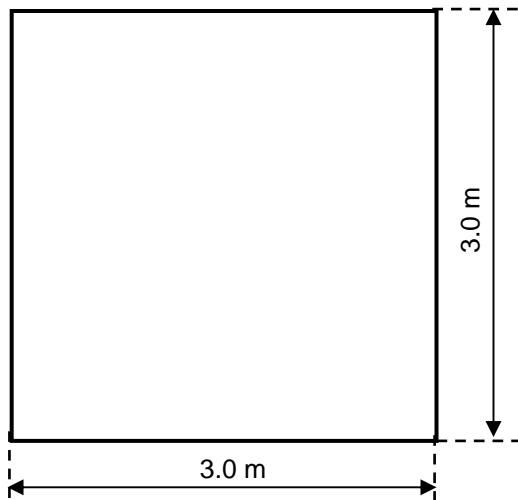
**PLAN VIEW**



**PHOTOGRAPH**



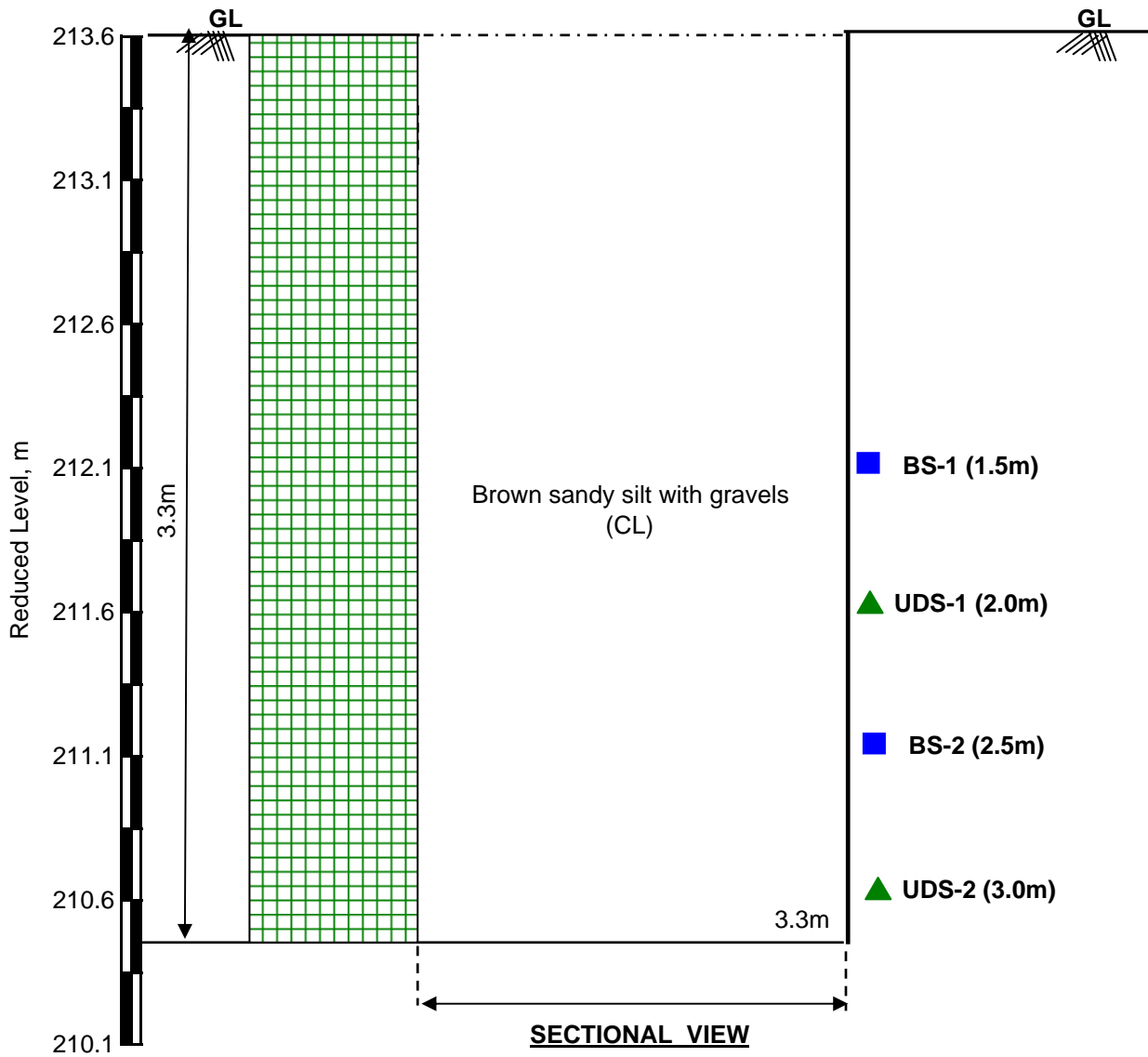
**Trial Pit Log: TP-7**



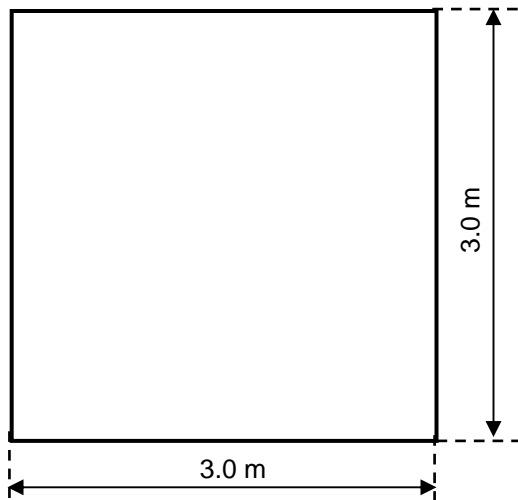
**PLAN VIEW**



**PHOTOGRAPH**



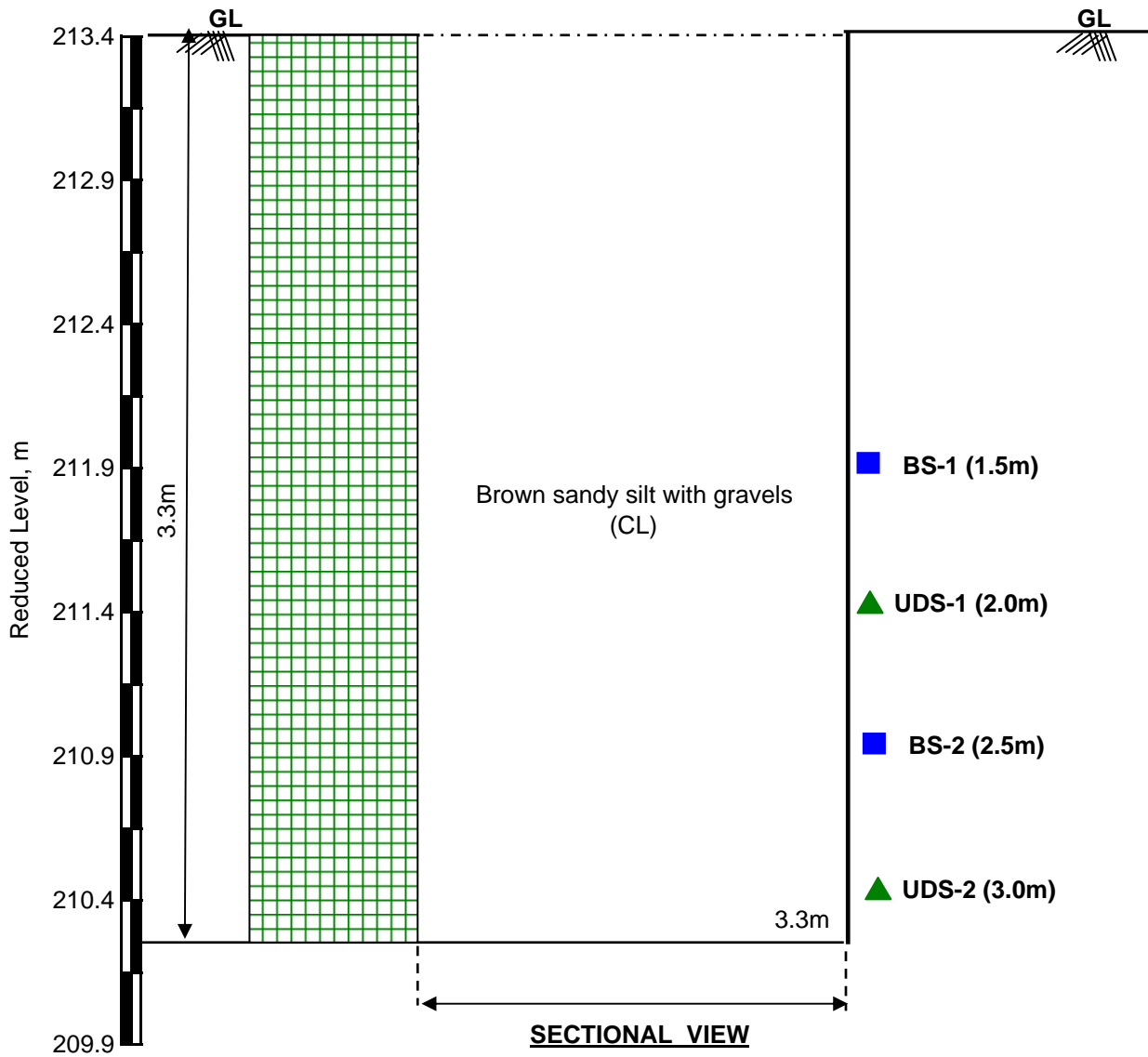
**Trial Pit Log: TP-8**



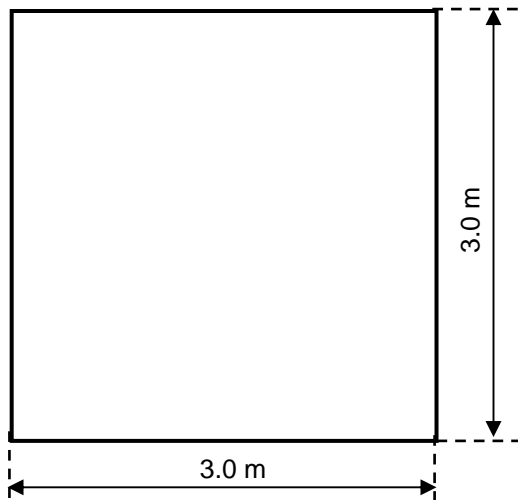
**PLAN VIEW**



**PHOTOGRAPH**



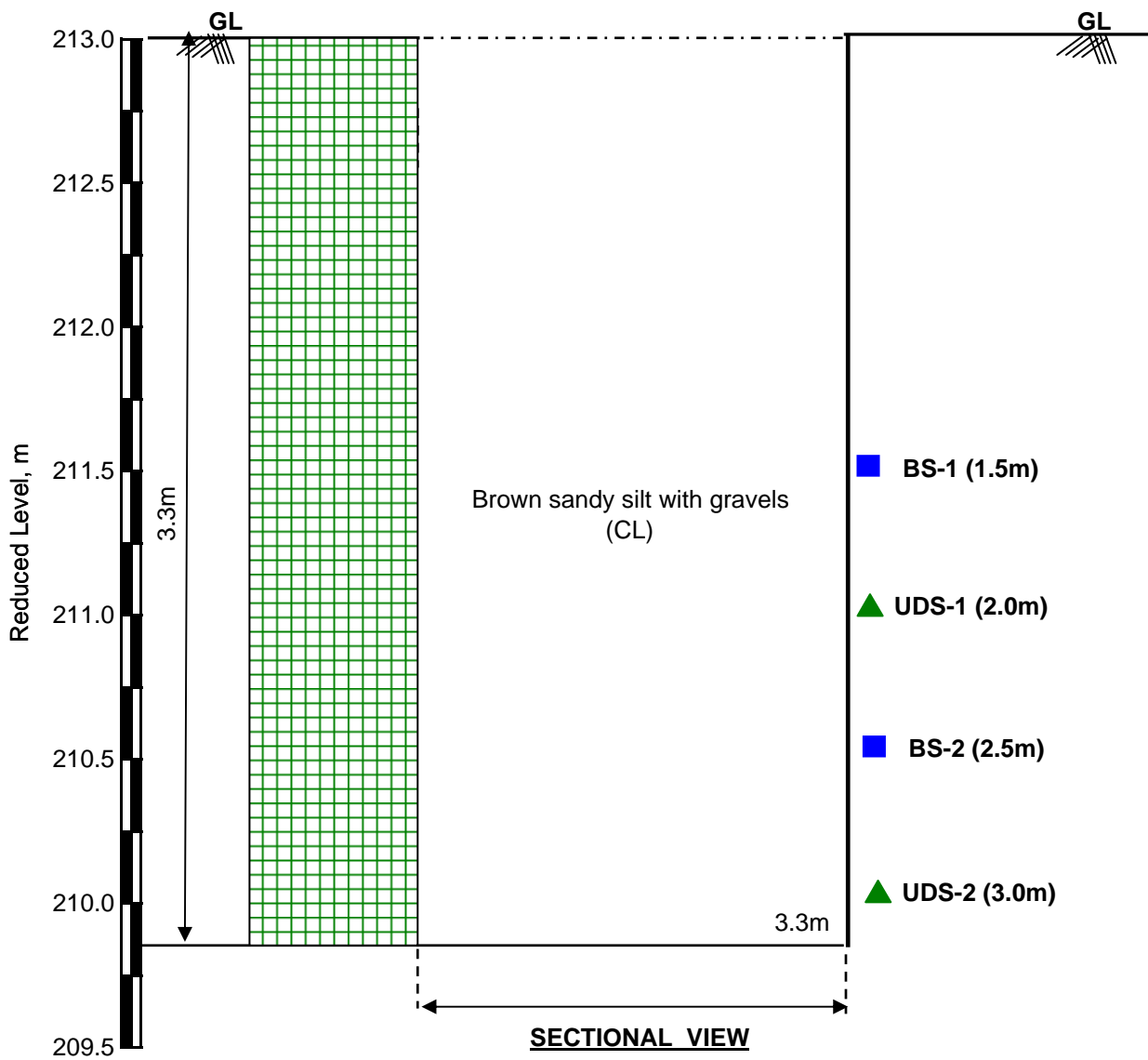
**Trial Pit Log: TP-9**



**PLAN VIEW**



**PHOTOGRAPH**



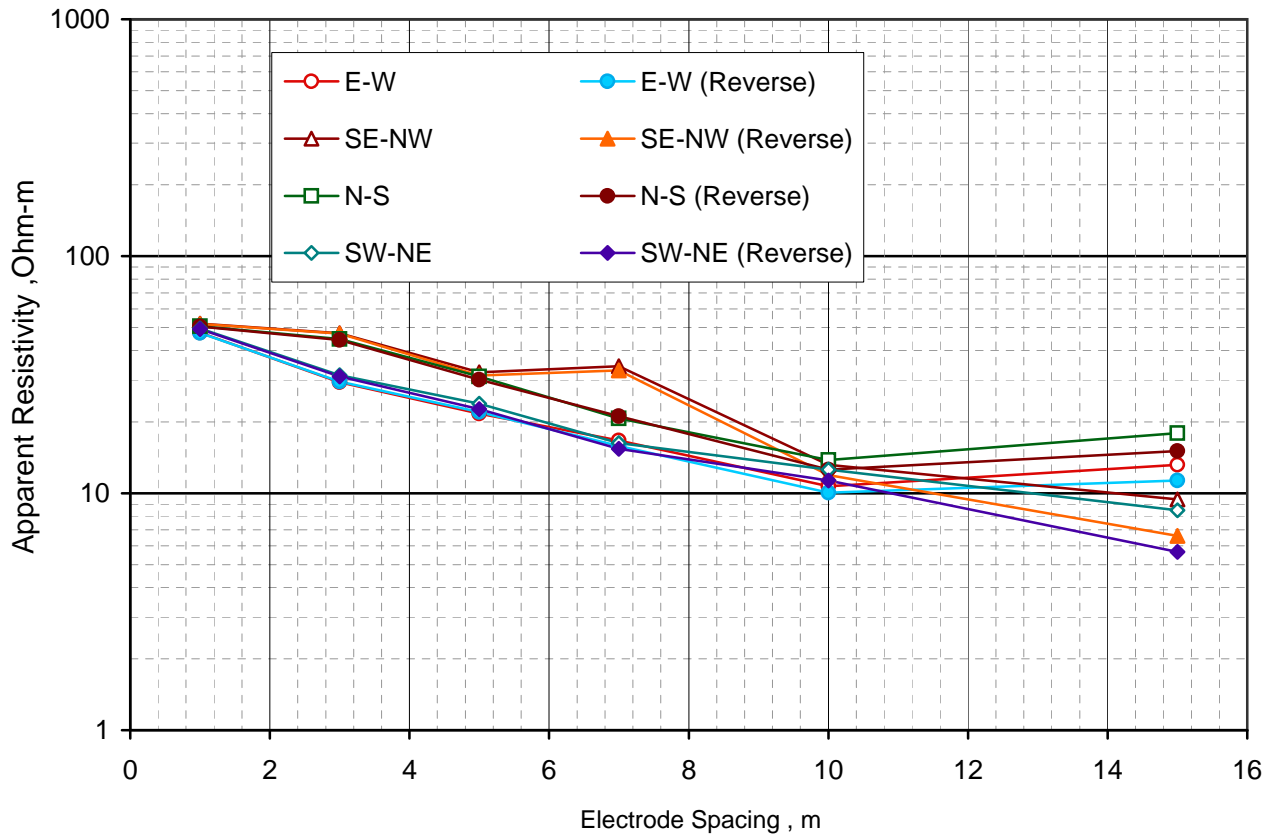
**Trial Pit Log: TP-10**



### Electrical Resistivity Test No.: ERT-1

IS: 3043-1987, RA-2006

Test Details
Test Designation : ERT-1
Test Location : -
Reduced Level : 211.465 m
Co-ordinate : 699403E, 3160128N



Electrode Spacing, m	Apparent Resistivity, Ohm-m							
	E-W	E-W (Reverse)	SE-NW	SE-NW (Reverse)	N-S	N-S (Reverse)	SW-NE	SW-NE (Reverse)
1.0	47.6	47.5	52.0	51.8	50.7	50.5	49.5	49.3
3.0	29.4	29.6	47.3	47.1	44.7	44.3	31.5	31.1
5.0	21.7	22.0	32.4	31.4	31.1	30.2	23.9	22.6
7.0	16.7	15.8	34.3	33.0	20.7	21.1	16.3	15.4
10.0	10.7	10.1	13.2	11.9	13.8	12.6	12.6	11.3
15.0	13.2	11.3	9.4	6.6	17.9	15.1	8.5	5.7
Mean Resistivity	23	23	31	30	30	29	24	23

Mean Resistivity Value, ohm-m : 25.2 ohm-m

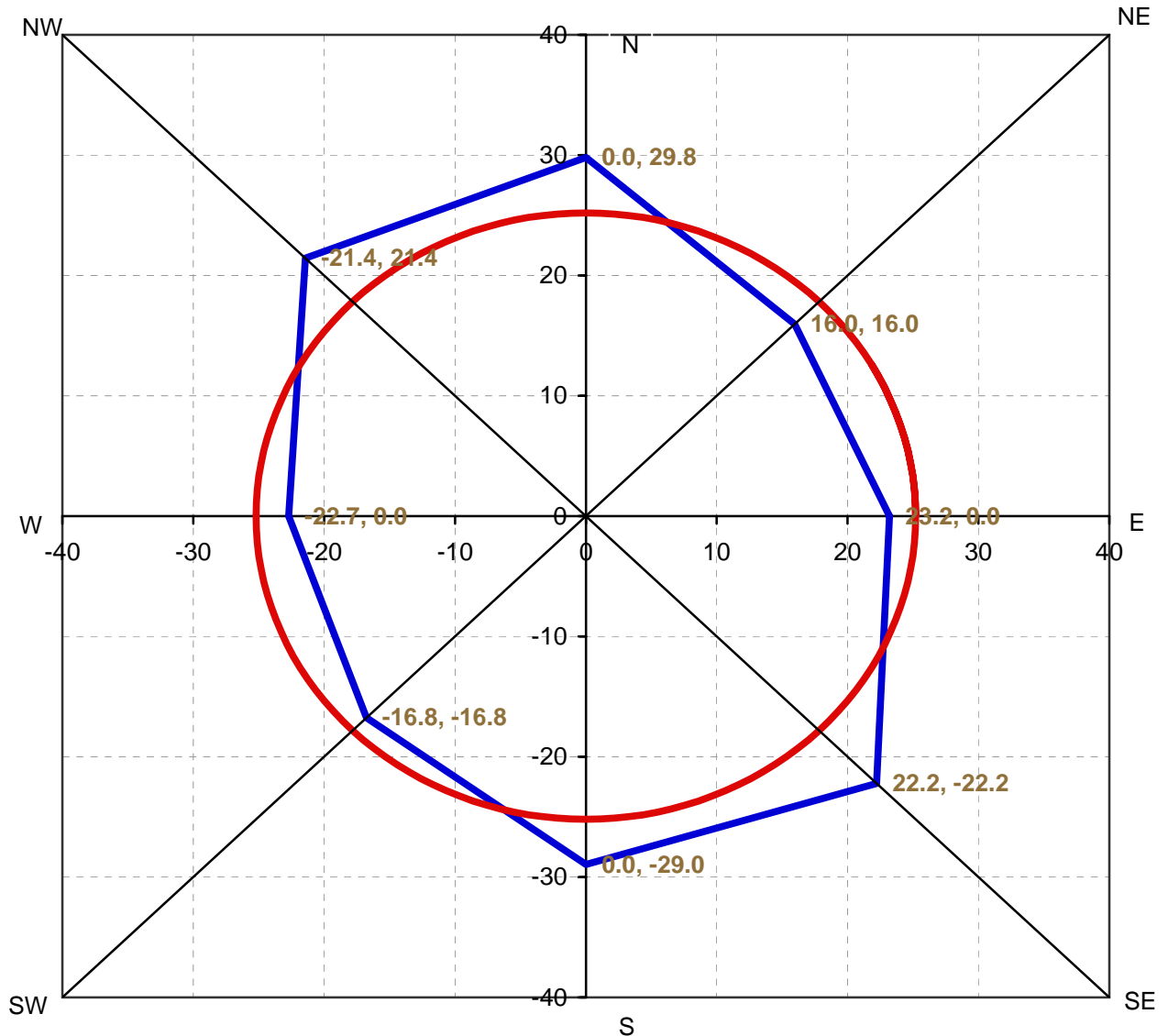
### Apparent Resistivity Values (ERT-1)



### Electrical Resistivity Test No.: ERT-1

IS: 3043-1987, RA-2006

Test Details
Test Designation : ERT-1
Test Location : -
Reduced Level : 211.465 m
Co-ordinate : 699403E, 3160128N



Total Area of Polygon : 1998

Radius of Equivalent Circle=Mean Resistivity : 25.2 ohm-m

### Polar Resistivity Curves (ERT-1)

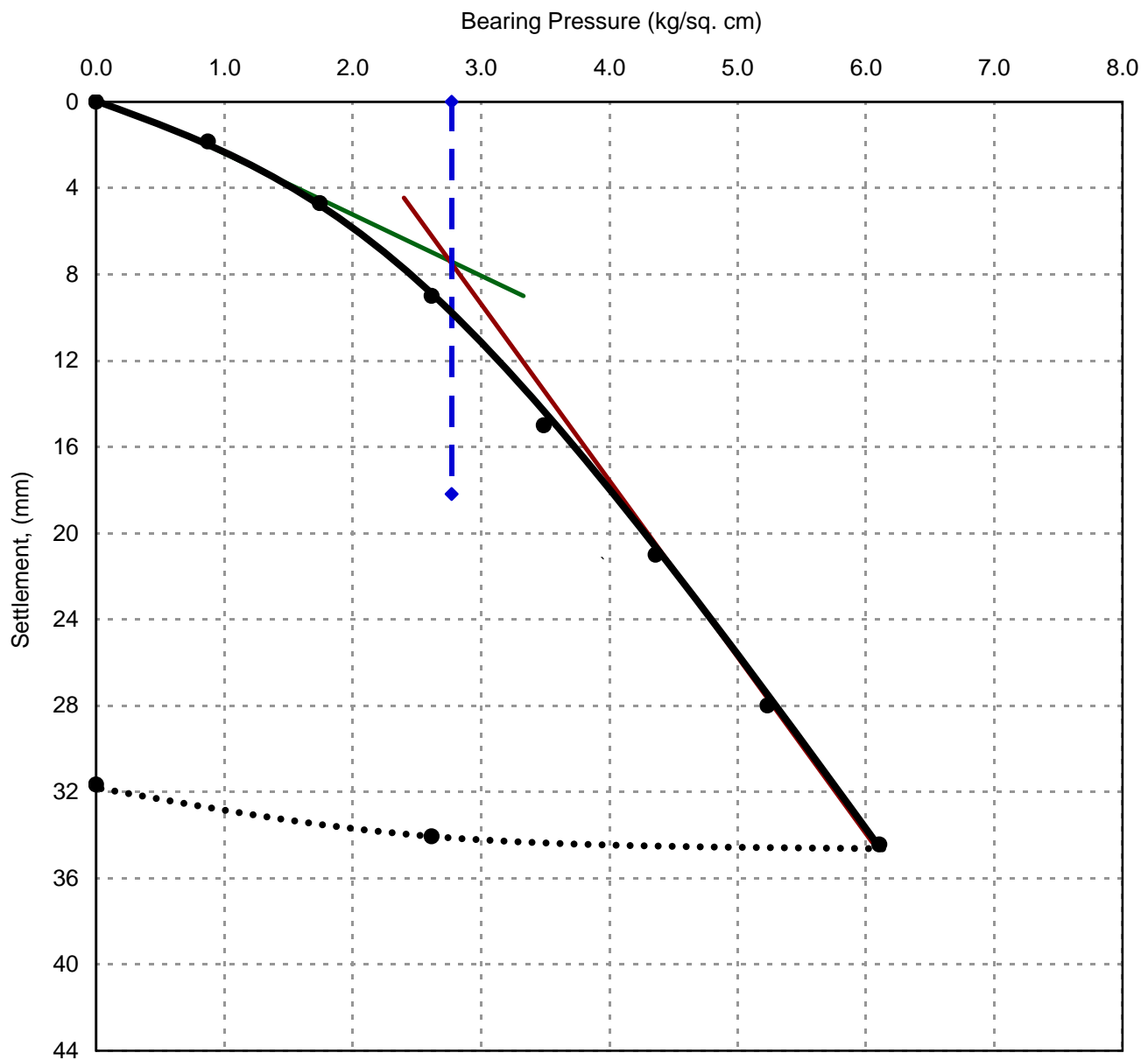




### Plate Load Test No.: PLT-1

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 3 m x 3 m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 209.1 m
Co-ordinates : 699454 E, 3159832 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 2.80 kg/cm<sup>2</sup>

### Bearing Pressure vs. Settlement (PLT-1)

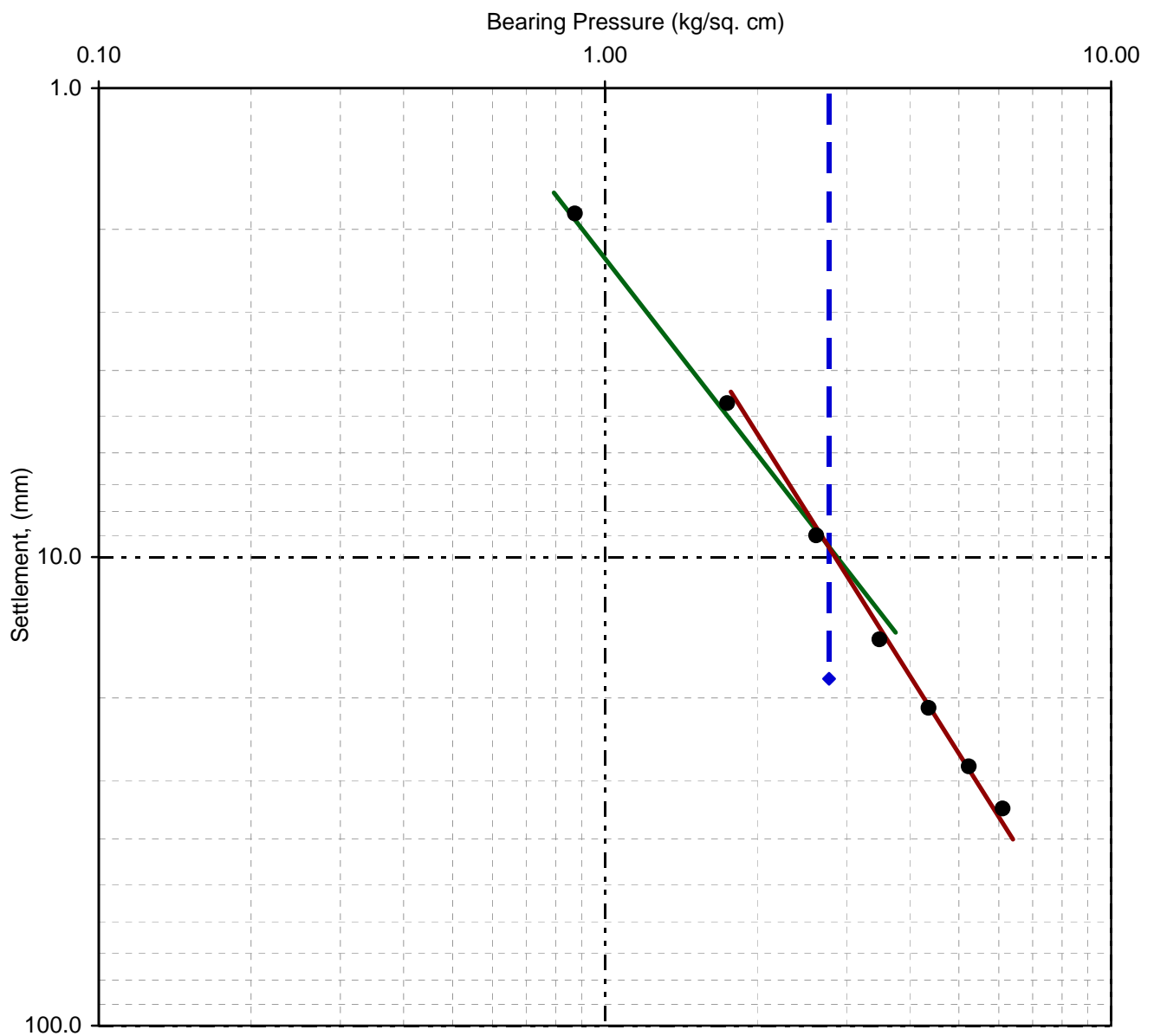




### Plate Load Test No.: PLT- 1

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 3 m x 3 m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 209.1 m
Co-ordinates : 699454 E, 3159832 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 2.80 kg/cm<sup>2</sup>

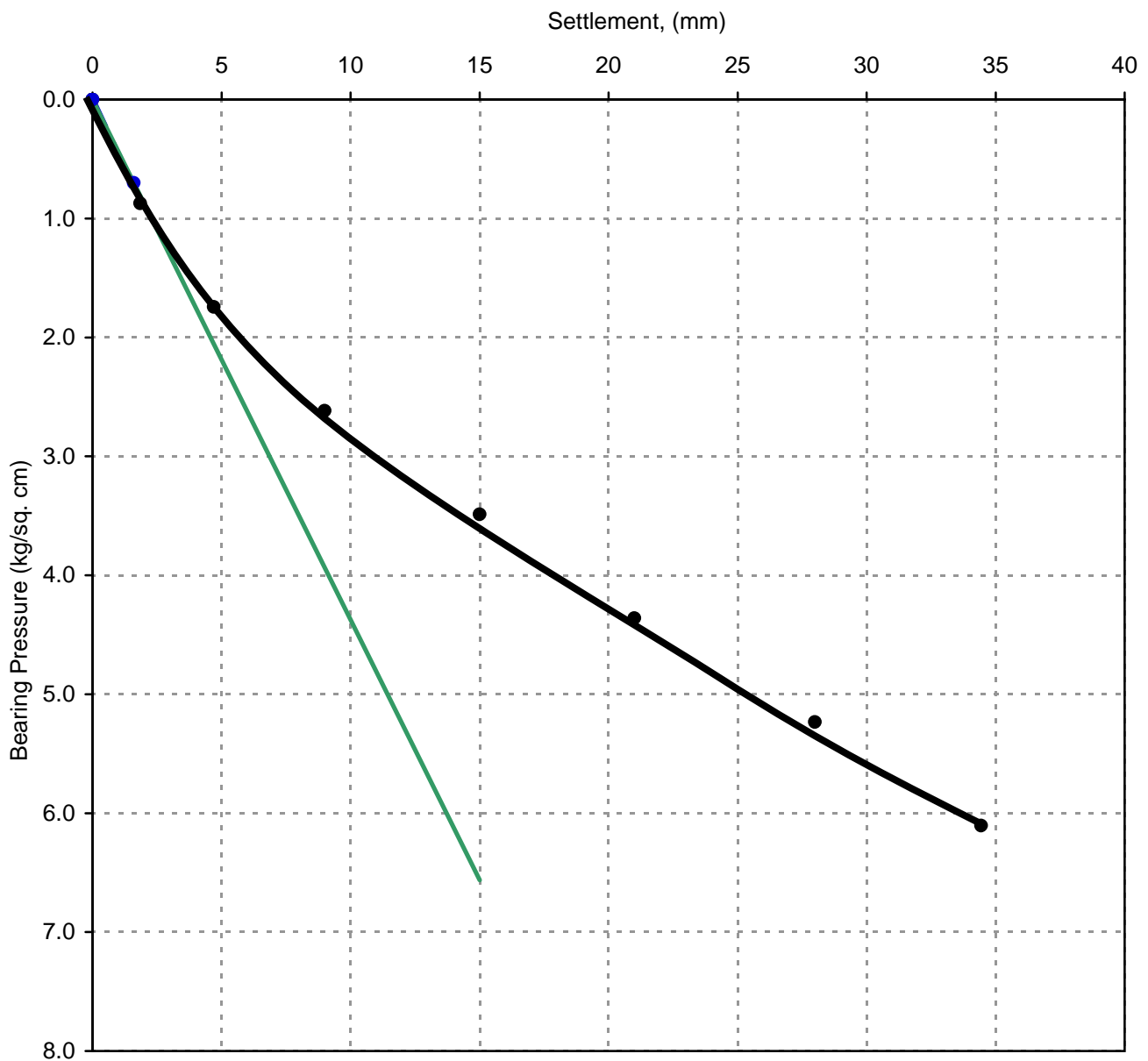
### Bearing Pressure vs. Settlement in log-log scale (PLT-1)



## Plate Load Test No.: PLT- 1

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 3 m x 3 m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 209.1 m
Co-ordinates : 699454 E, 3159832 N



### Calculation for Modulus of Subgrade Reaction (k):

- Applying curvature correction,  $K_u : 4.38 \text{ kg/cm}^3$
- Correction for bending of plate,  $K_b : 3.94 \text{ kg/cm}^3$
- Correction for Saturation,  $K_s : 1.97 \text{ kg/cm}^3$
- Correction for size of plate,  $K_d : 1.07 \text{ kg/cm}^3$

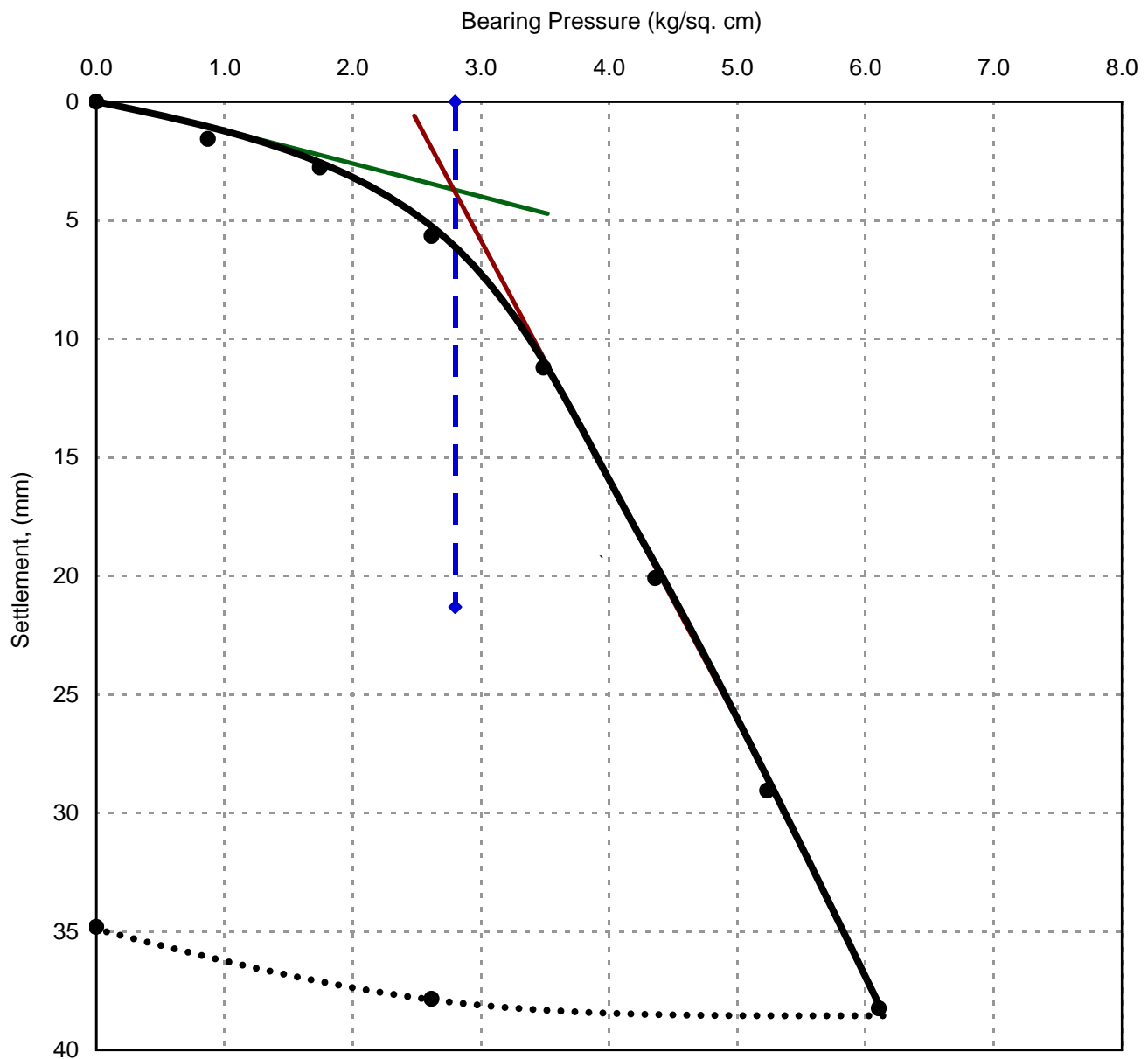
### Determination of Modulus of Subgrade Reaction (PLT-1)



### Plate Load Test No.: PLT-2

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 3 m x 3 m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 208.9 m
Co-ordinates : 699720 N, 3160230 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 2.80 kg/cm<sup>2</sup>

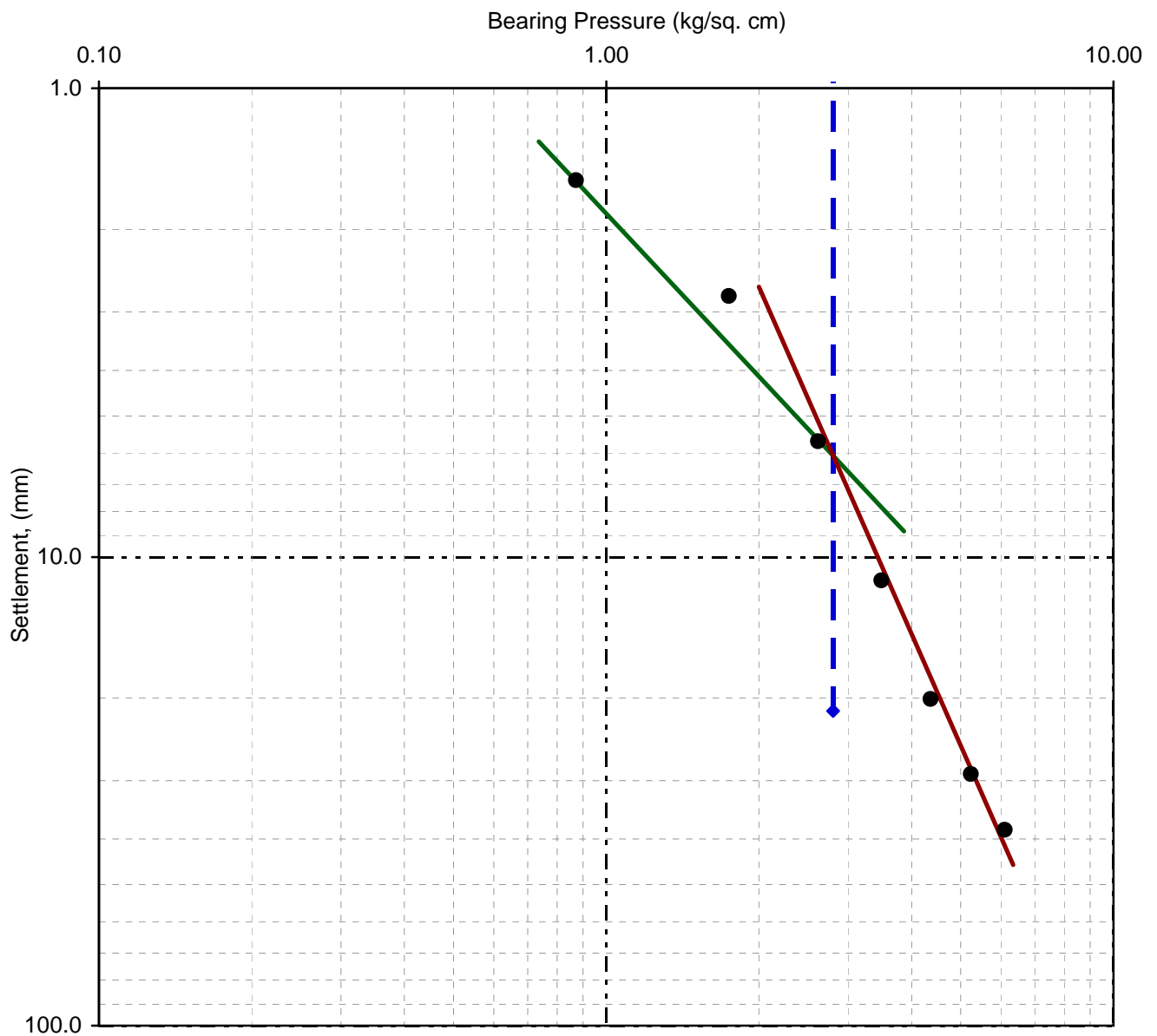
### Bearing Pressure vs. Settlement (PLT-2)



## Plate Load Test No.: PLT- 2

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 3 m x 3 m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 208.9 m
Co-ordinates : 699720 N, 3160230 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 2.80 kg/cm<sup>2</sup>

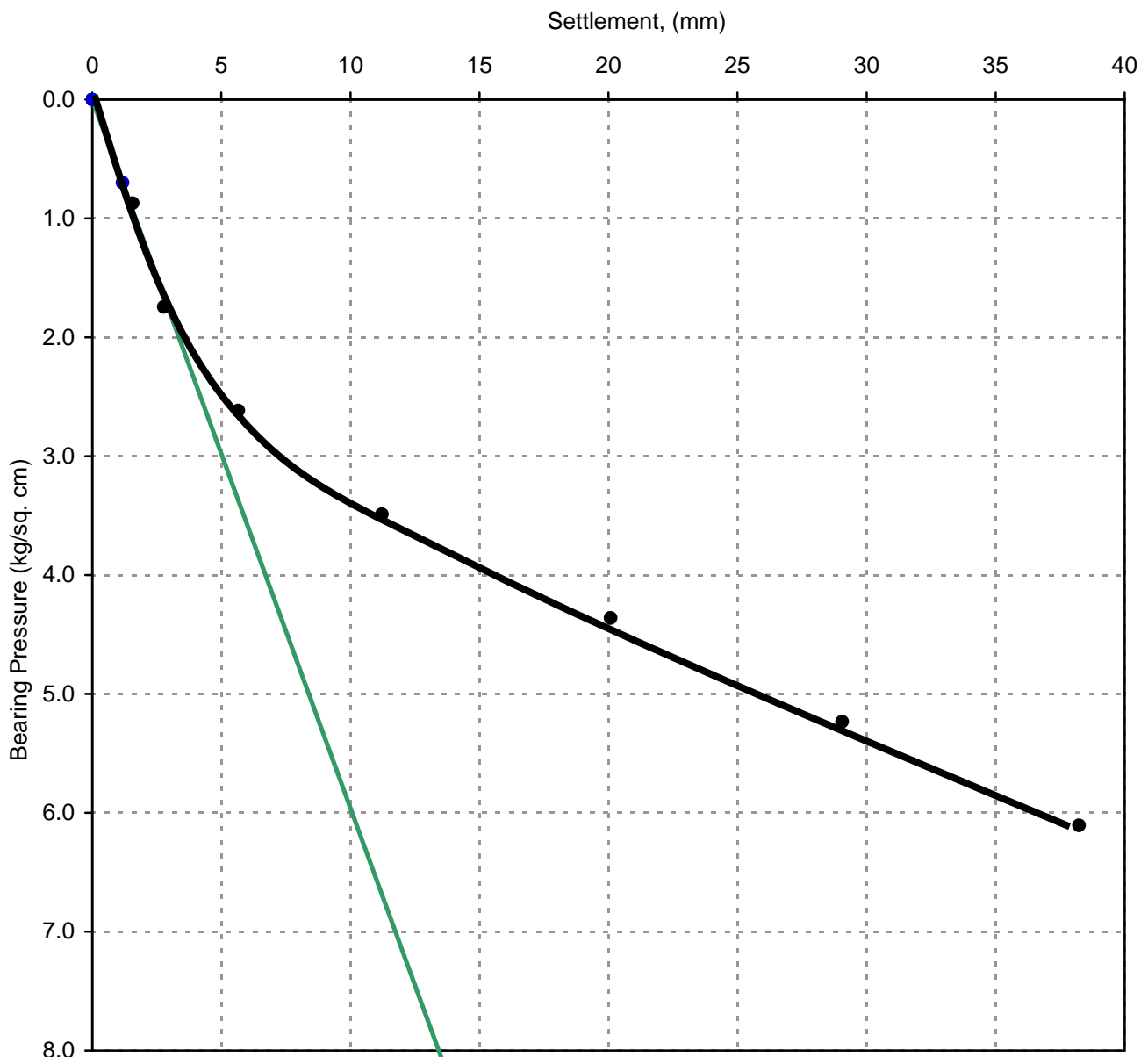
## Bearing Pressure vs. Settlement in log-log scale (PLT-2)



## Plate Load Test No.: PLT- 2

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 3 m x 3 m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 208.9 m
Co-ordinates : 699720 N, 3160230 N



### Calculation for Modulus of Subgrade Reaction (k):

- Applying curvature correction,  $K_u : 5.96 \text{ kg/cm}^3$
- Correction for bending of plate,  $K_b : 5.26 \text{ kg/cm}^3$
- Correction for Saturation,  $K_s : 3.524 \text{ kg/cm}^3$
- Correction for size of plate,  $K_d : 1.92 \text{ kg/cm}^3$

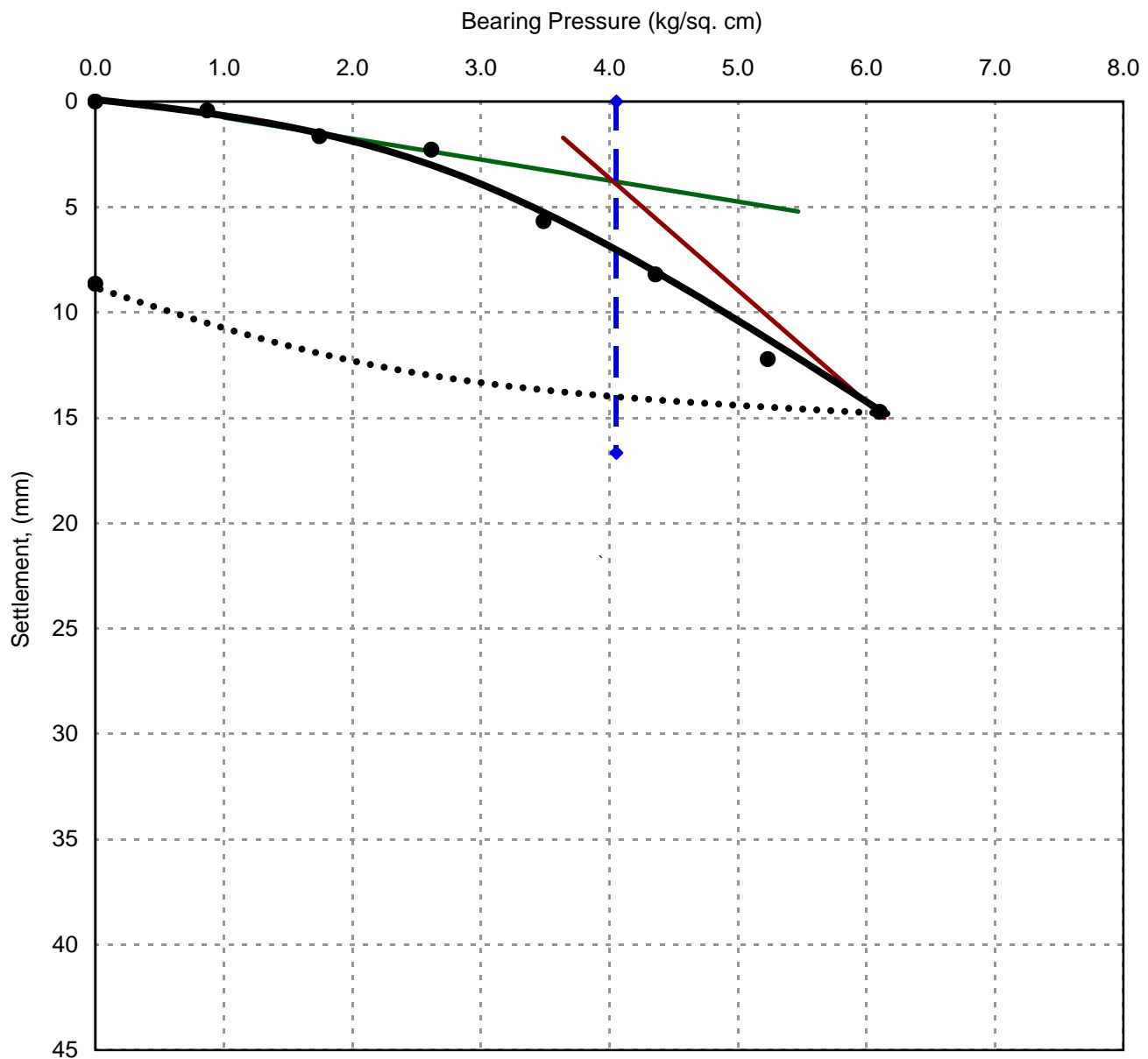
### Determination of Modulus of Subgrade Reaction (PLT-2)



### Plate Load Test No.: PLT-3

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 7m x6m x 2m(1st step), 2m x 2.5m x 1m(2nd step)
Test Depth : 3.0 m
Test Level (RL) : 209.4 m
Co-ordinates : 699855 E, 3160392 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 4.10 kg/cm<sup>2</sup>

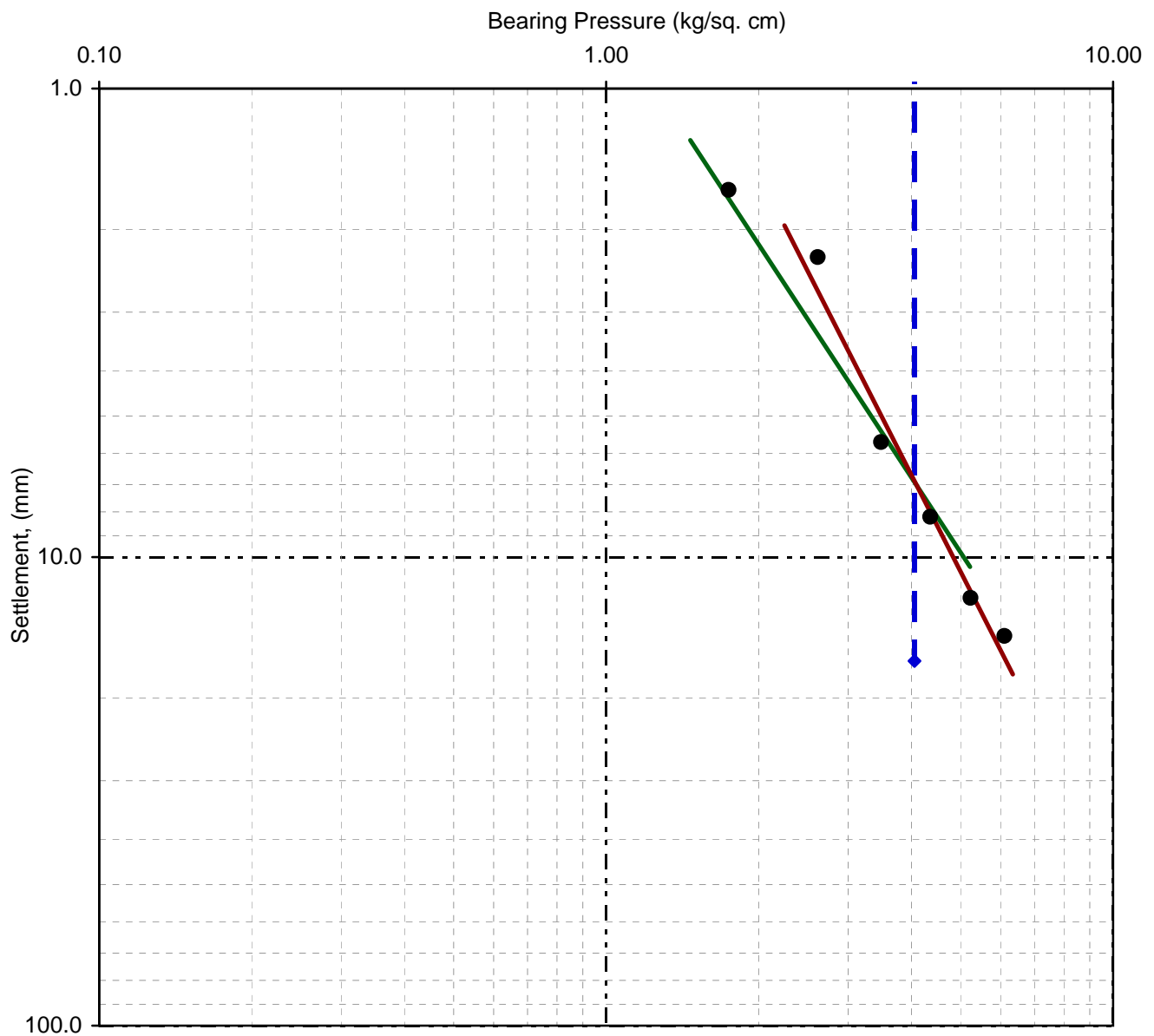
### Bearing Pressure vs. Settlement (PLT-3)



### Plate Load Test No.: PLT- 3

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 7m x6m x 2m(1st step), 2m x 2.5m x 1m(2nd step)
Test Depth : 3.0 m
Test Level (RL) : 209.4 m
Co-ordinates : 699855 E, 3160392 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 4.10 kg/cm<sup>2</sup>

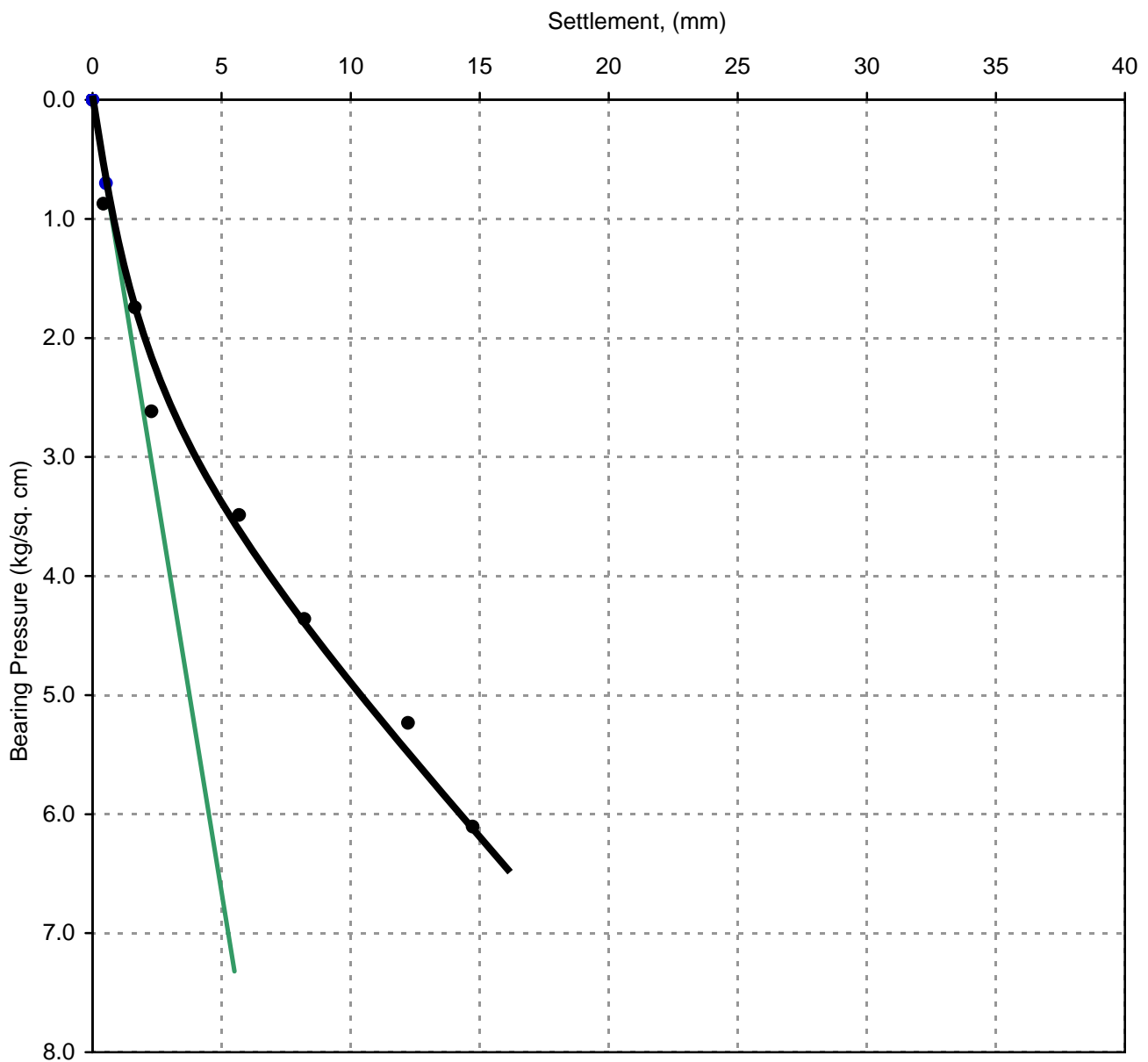
### Bearing Pressure vs. Settlement in log-log scale (PLT-3)



### Plate Load Test No.: PLT- 3

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 7m x6m x 2m(1st step), 2m x 2.5m x 1m(2nd step)
Test Depth : 3.0 m
Test Level (RL) : 209.4 m
Co-ordinates : 699855 E, 3160392 N



#### Calculation for Modulus of Subgrade Reaction (k):

- Applying curvature correction,  $K_u : 13.31 \text{ kg/cm}^3$
- Correction for bending of plate,  $K_b : 10.62 \text{ kg/cm}^3$
- Correction for Saturation,  $K_s : 7.115 \text{ kg/cm}^3$
- Correction for size of plate,  $K_d : 3.88 \text{ kg/cm}^3$

#### Determination of Modulus of Subgrade Reaction (PLT-3)

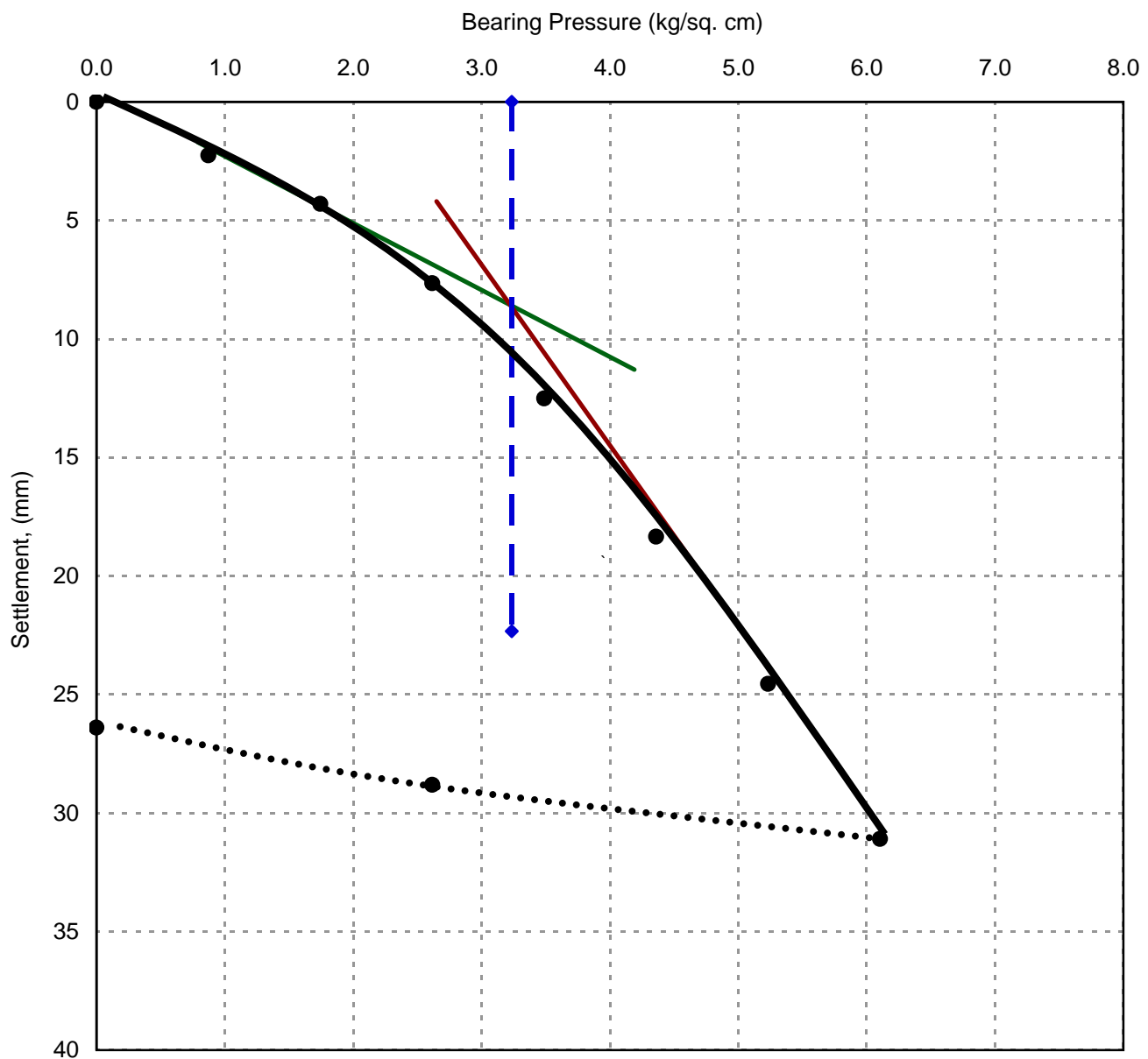




### Plate Load Test No.: PLT-4

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 7m x6m x 2m(1st step), 2m x 2.5m x 1m(2nd step)
Test Depth : 3.0 m
Test Level (RL) : 210.0 m
Co-ordinates : 700094 E, 3160233 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 3.20 kg/cm<sup>2</sup>

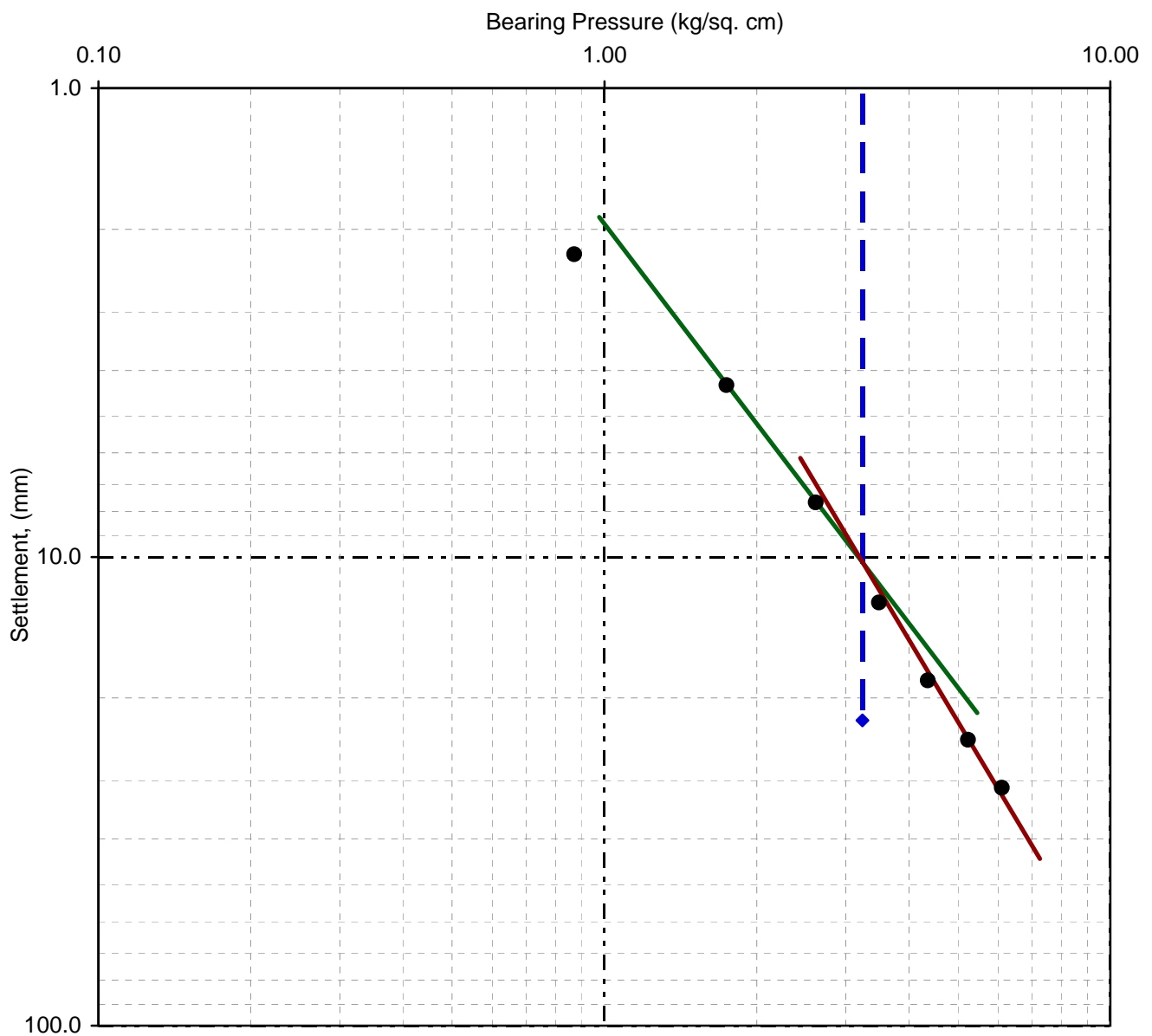
### Bearing Pressure vs. Settlement (PLT-4)



### Plate Load Test No.: PLT- 4

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 7m x6m x 2m(1st step), 2m x 2.5m x 1m(2nd step)
Test Depth : 3.0 m
Test Level (RL) : 210.0 m
Co-ordinates : 700094 E, 3160233 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 3.20 kg/cm<sup>2</sup>

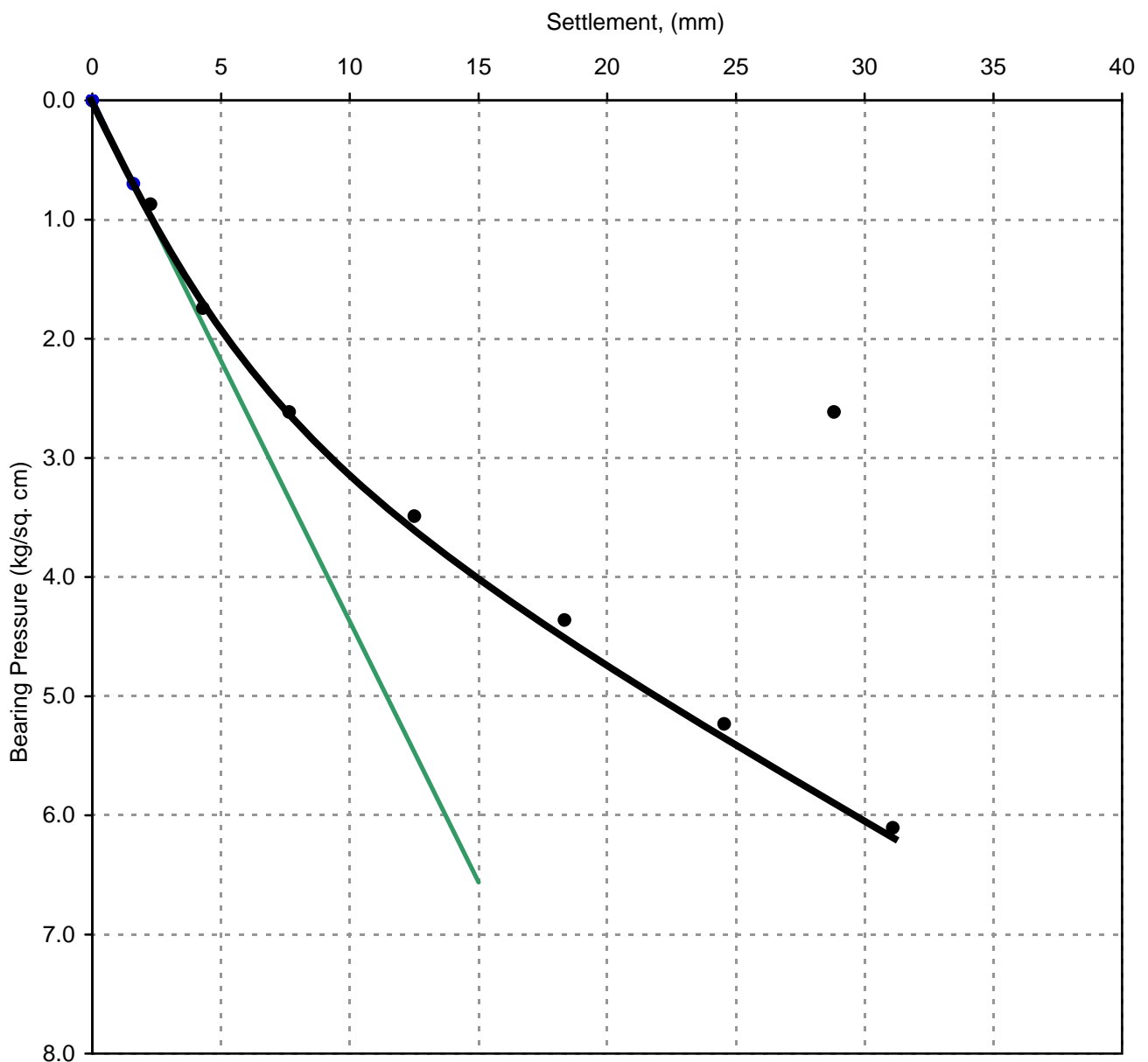
### Bearing Pressure vs. Settlement in log-log scale (PLT-4)



### Plate Load Test No.: PLT- 4

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 7m x6m x 2m(1st step), 2m x 2.5m x 1m(2nd step)
Test Depth : 3.0 m
Test Level (RL) : 210.0 m
Co-ordinates : 700094 E, 3160233 N



#### Calculation for Modulus of Subgrade Reaction (k):

- Applying curvature correction,  $K_u : 4.38 \text{ kg/cm}^3$
- Correction for bending of plate,  $K_b : 3.94 \text{ kg/cm}^3$
- Correction for Saturation,  $K_s : 2.639 \text{ kg/cm}^3$
- Correction for size of plate,  $K_d : 1.44 \text{ kg/cm}^3$

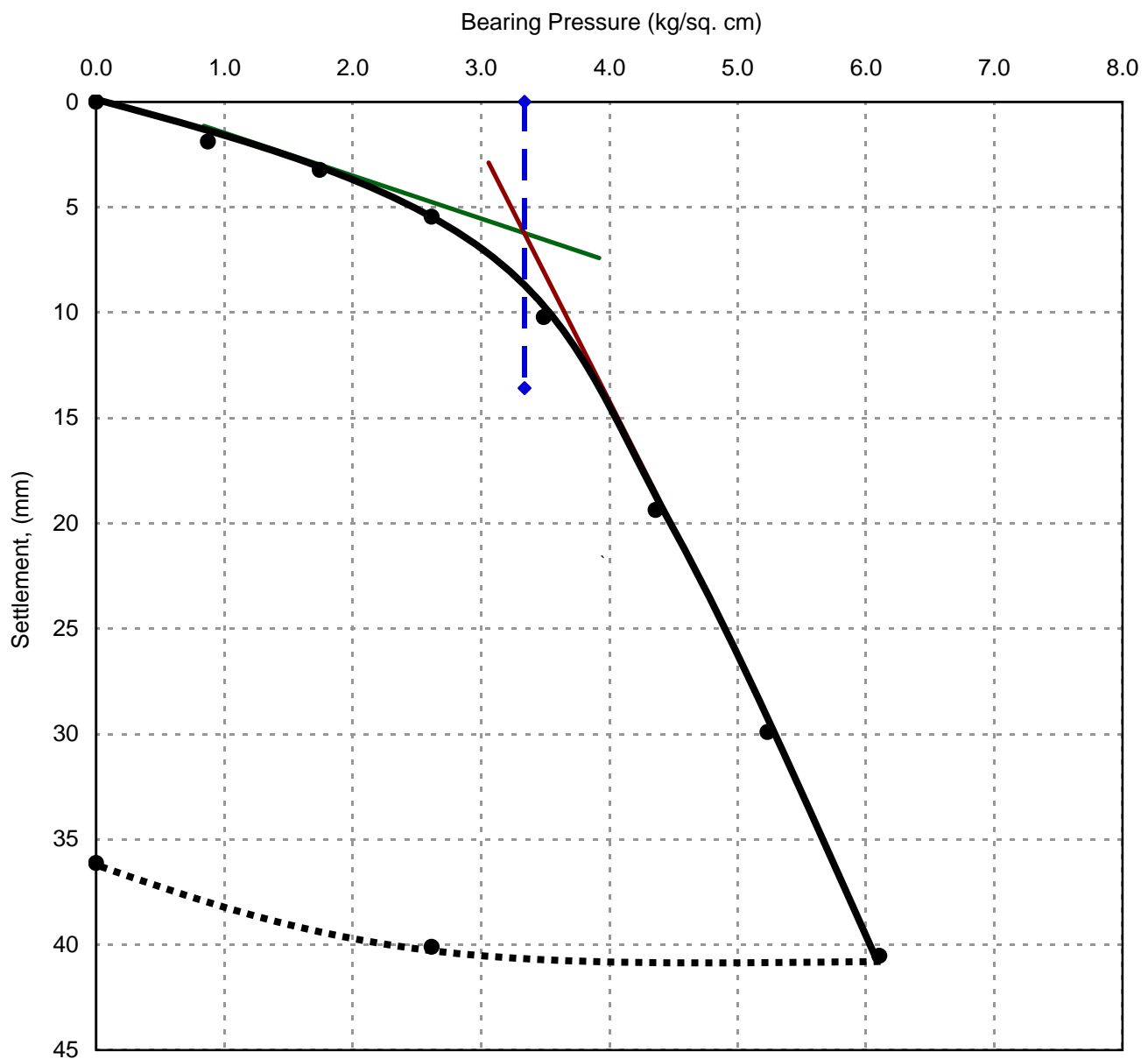
#### Determination of Modulus of Subgrade Reaction (PLT-4)



### Plate Load Test No.: PLT-5

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : m x m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 209.0 m
Co-ordinates : 699858 E, 3160027 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 3.30 kg/cm<sup>2</sup>

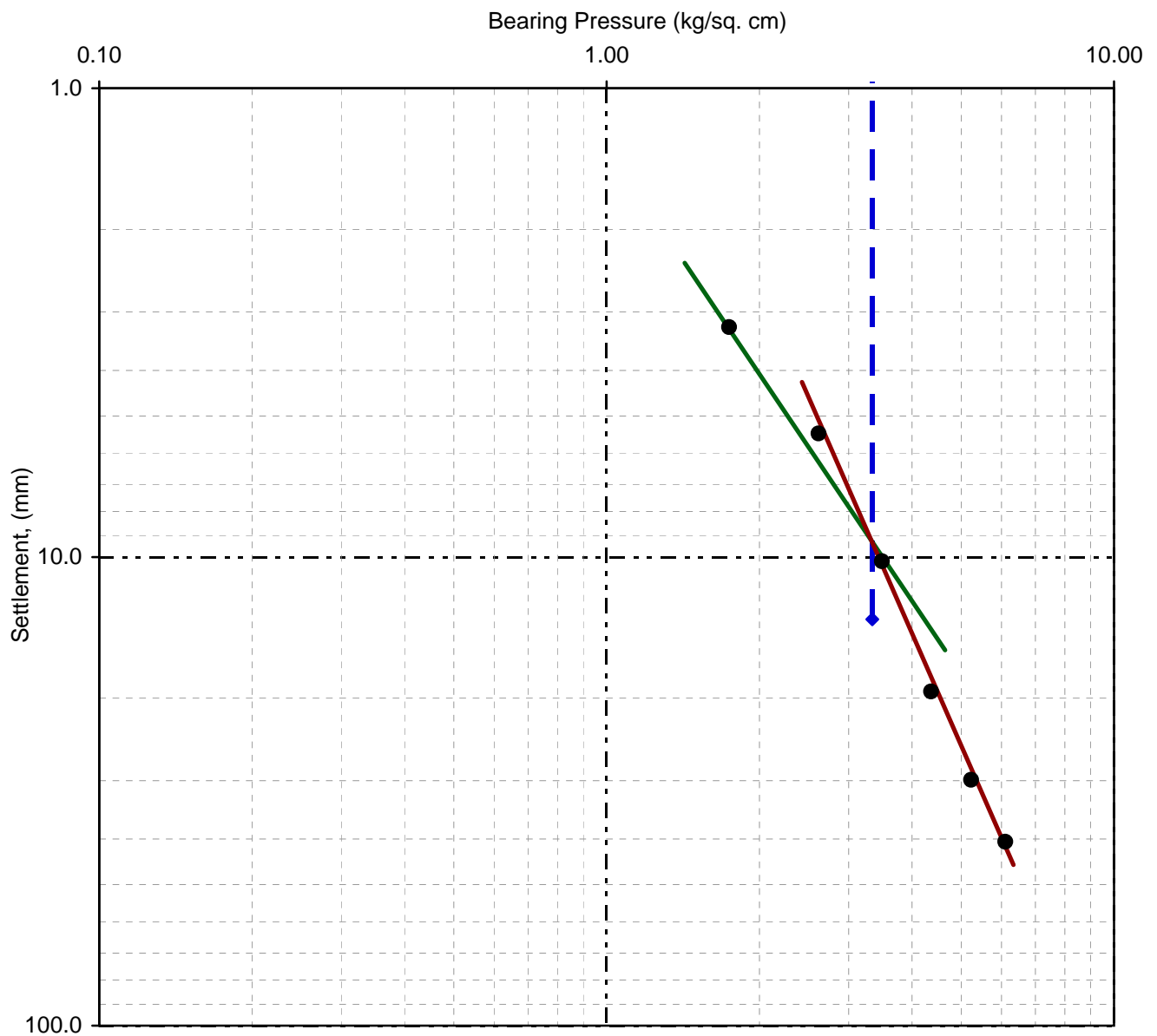
### Bearing Pressure vs. Settlement (PLT-5)



### Plate Load Test No.: PLT- 5

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : m x m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 209.0 m
Co-ordinates : 699858 E, 3160027 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 3.30 kg/cm<sup>2</sup>

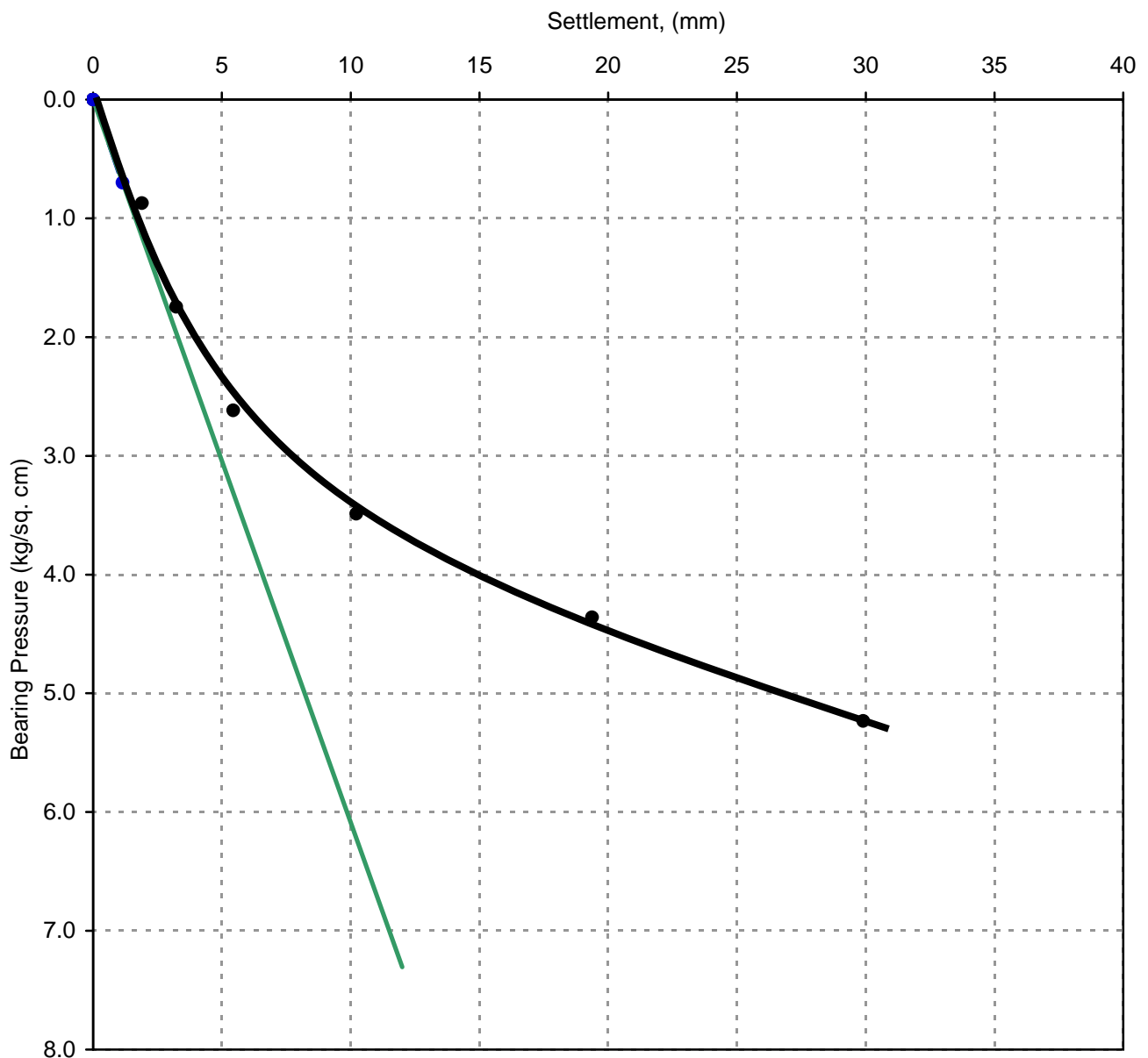
### Bearing Pressure vs. Settlement in log-log scale (PLT-5)



### Plate Load Test No.: PLT- 5

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : m x m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 209.0 m
Co-ordinates : 699858 E, 3160027 N



#### Calculation for Modulus of Subgrade Reaction (k):

- Applying curvature correction,  $K_u : 6.09 \text{ kg/cm}^3$
- Correction for bending of plate,  $K_b : 5.36 \text{ kg/cm}^3$
- Correction for Saturation,  $K_s : 3.591 \text{ kg/cm}^3$
- Correction for size of plate,  $K_d : 1.96 \text{ kg/cm}^3$

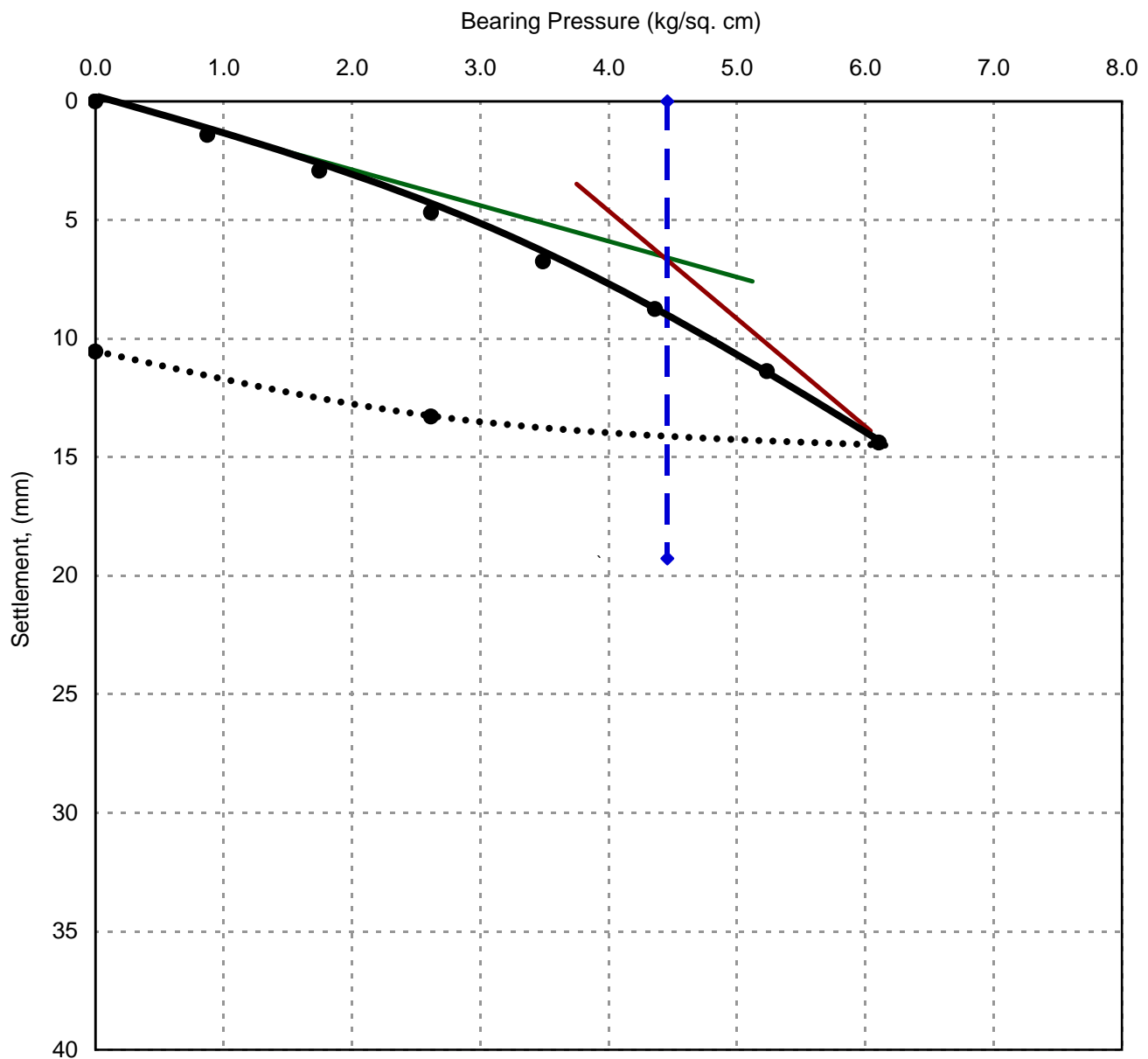
#### Determination of Modulus of Subgrade Reaction (PLT-5)



### Plate Load Test No.: PLT-6

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 3 m x 3 m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 209.7 m
Co-ordinates : 699617 E, 3159719 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 4.50 kg/cm<sup>2</sup>

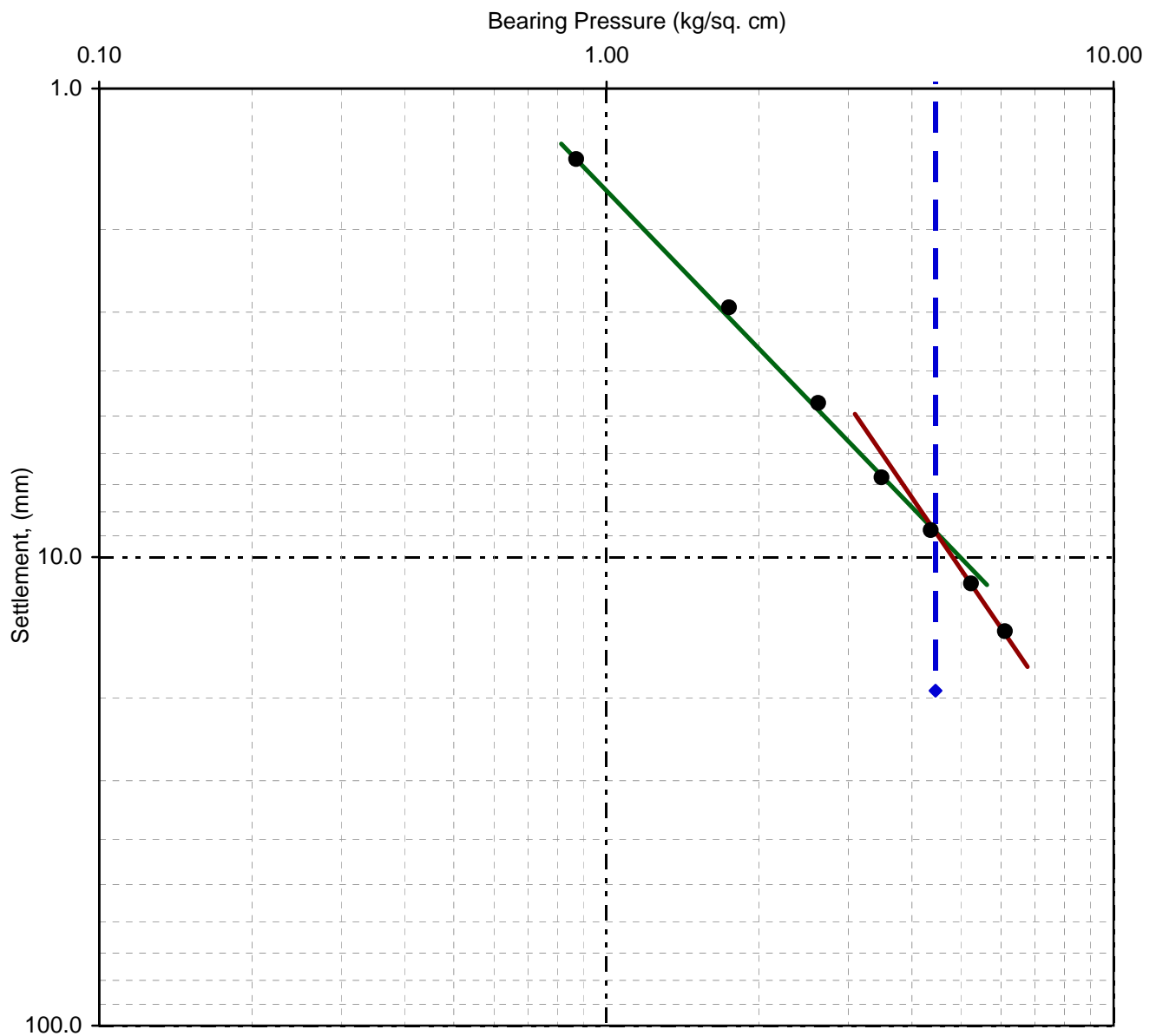
### Bearing Pressure vs. Settlement (PLT-6)



### Plate Load Test No.: PLT- 6

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 3 m x 3 m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 209.7 m
Co-ordinates : 699617 E, 3159719 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 4.50 kg/cm<sup>2</sup>

### Bearing Pressure vs. Settlement in log-log scale (PLT-6)

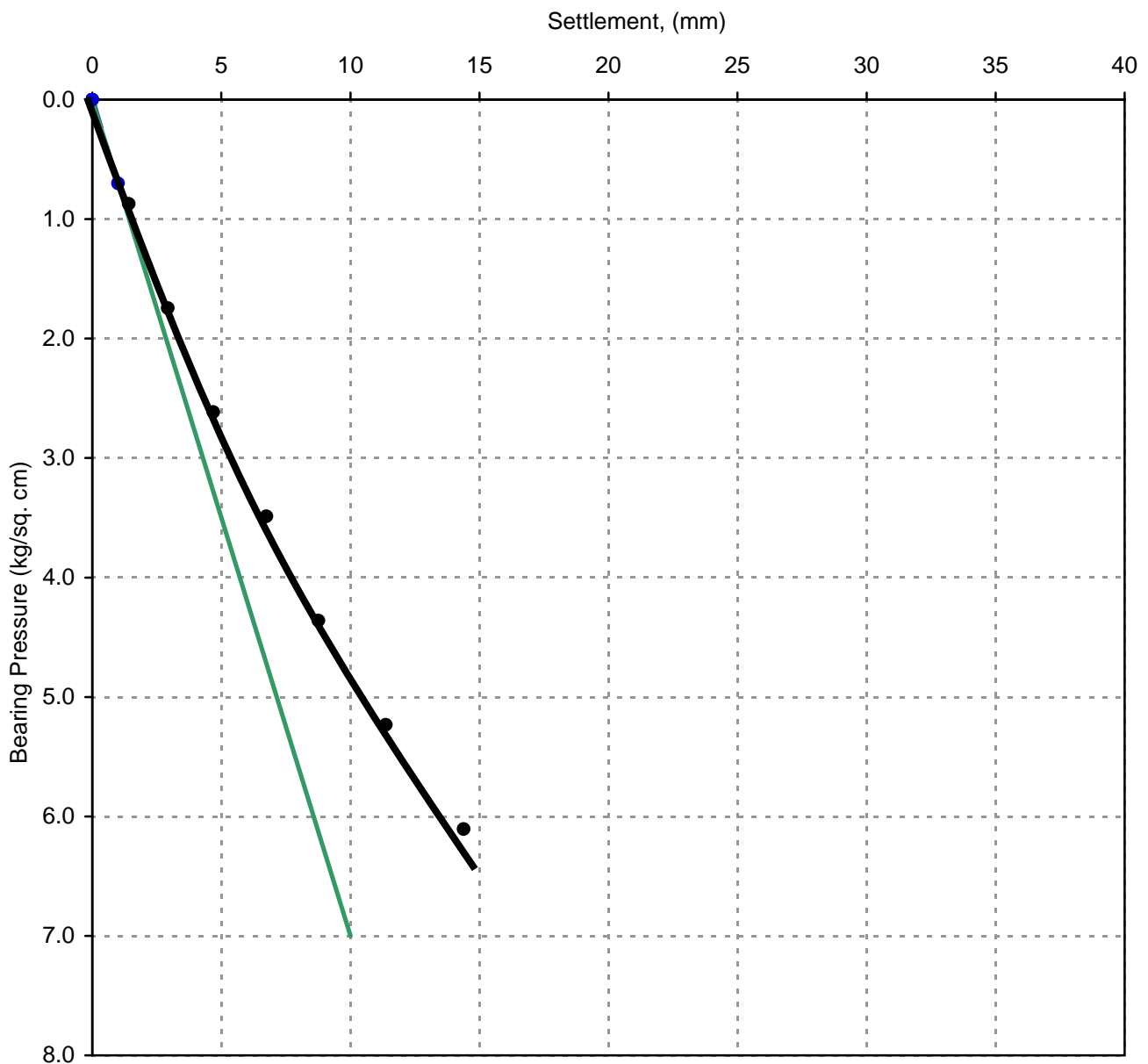




## Plate Load Test No.: PLT- 6

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 3 m x 3 m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 209.7 m
Co-ordinates : 699617 E, 3159719 N



### Calculation for Modulus of Subgrade Reaction (k):

- Applying curvature correction,  $K_u : 7.00 \text{ kg/cm}^3$
- Correction for bending of plate,  $K_b : 6.09 \text{ kg/cm}^3$
- Correction for Saturation,  $K_s : 4.080 \text{ kg/cm}^3$
- Correction for size of plate,  $K_d : 2.23 \text{ kg/cm}^3$

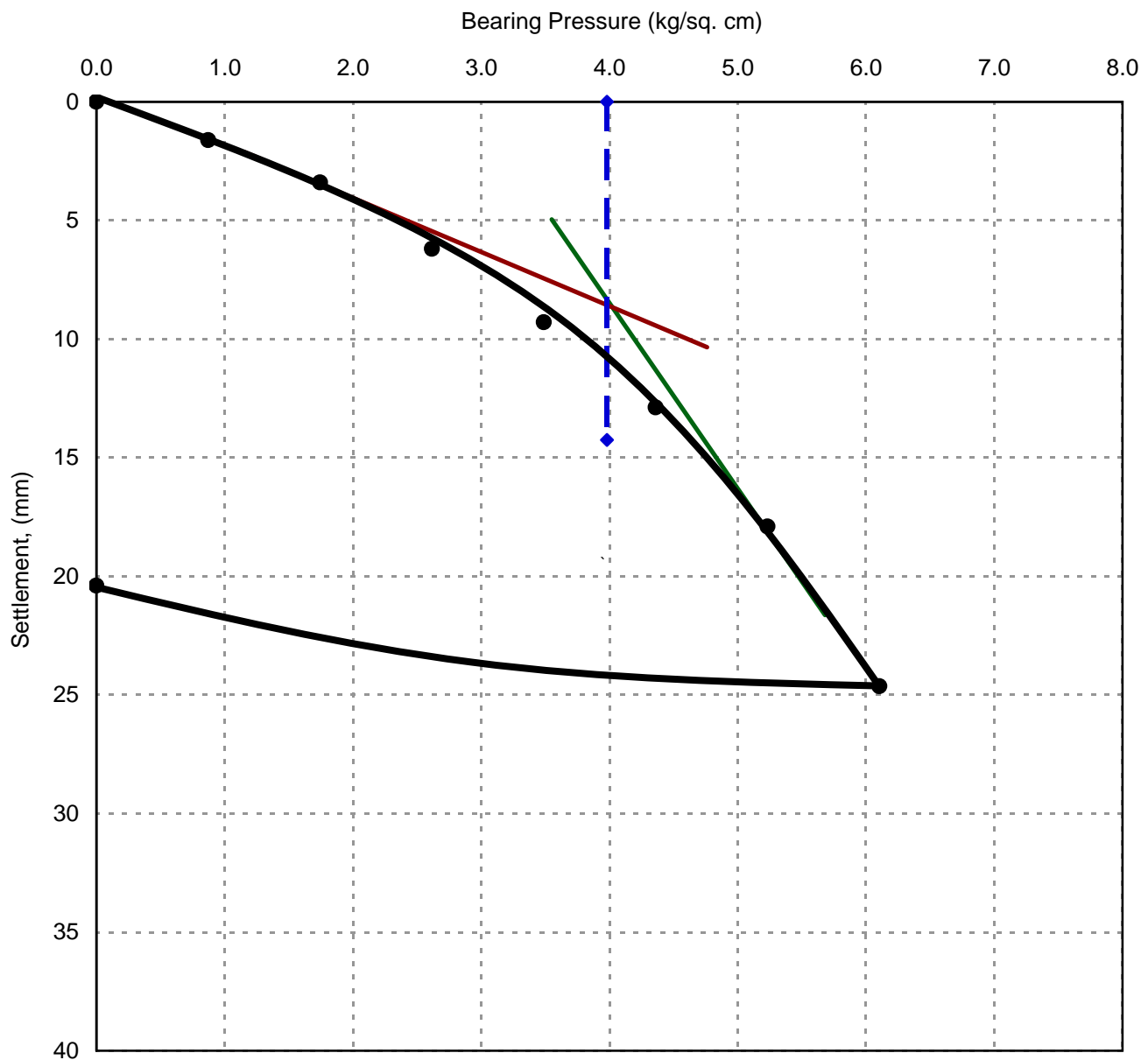
### Determination of Modulus of Subgrade Reaction (PLT-6)



### Plate Load Test No.: PLT-7

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 3 m x 3 m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 210.6 m
Co-ordinates : 699851 E, 3159537 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 4.00 kg/cm<sup>2</sup>

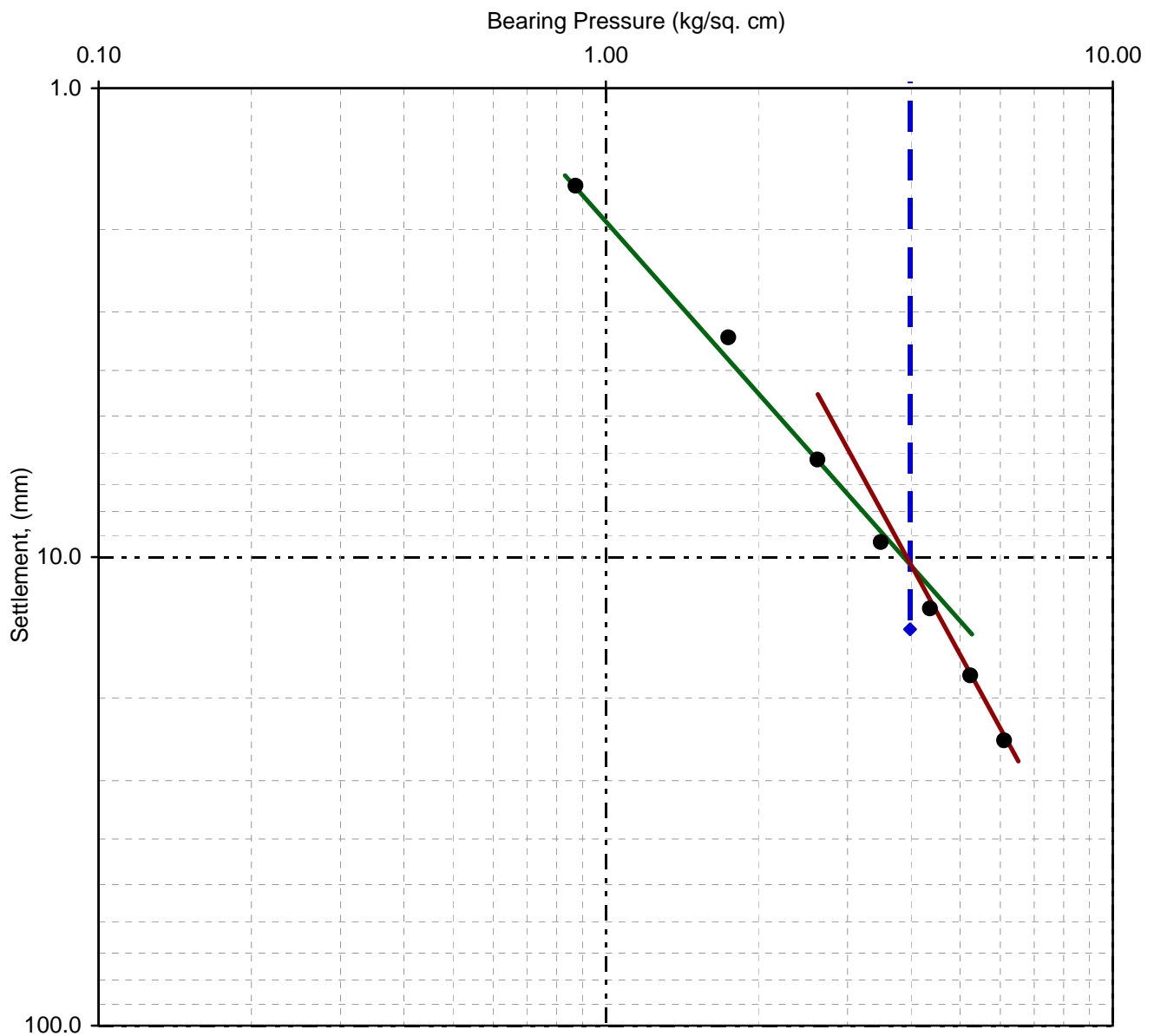
### Bearing Pressure vs. Settlement (PLT-7)



### Plate Load Test No.: PLT- 7

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 3 m x 3 m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 210.6 m
Co-ordinates : 699851 E, 3159537 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 4.00 kg/cm<sup>2</sup>

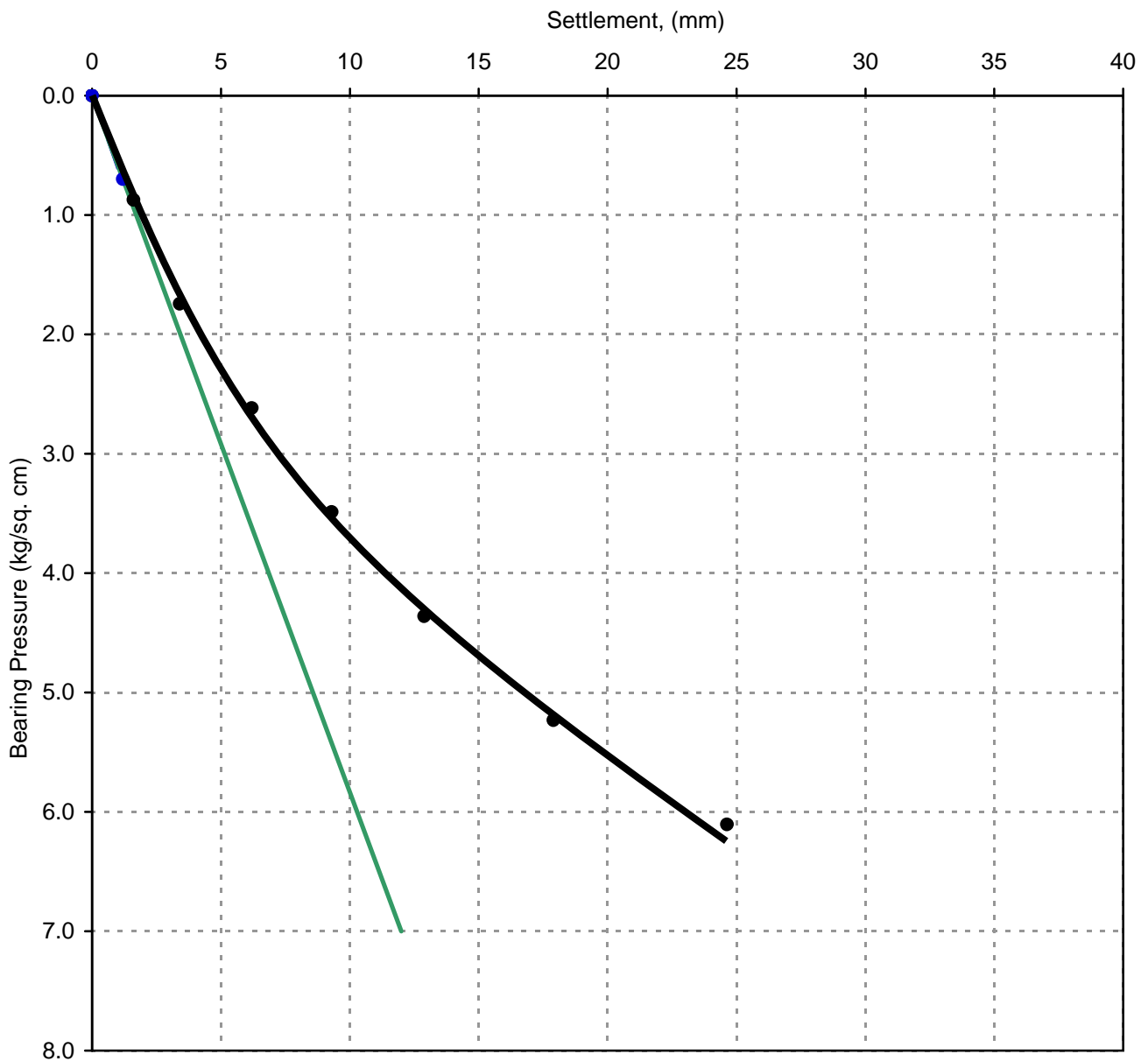
### Bearing Pressure vs. Settlement in log-log scale (PLT-7)



### Plate Load Test No.: PLT- 7

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 3 m x 3 m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 210.6 m
Co-ordinates : 699851 E, 3159537 N



#### Calculation for Modulus of Subgrade Reaction (k):

- Applying curvature correction,  $K_u : 5.83 \text{ kg/cm}^3$
- Correction for bending of plate,  $K_b : 5.15 \text{ kg/cm}^3$
- Correction for Saturation,  $K_s : 3.450 \text{ kg/cm}^3$
- Correction for size of plate,  $K_d : 1.88 \text{ kg/cm}^3$

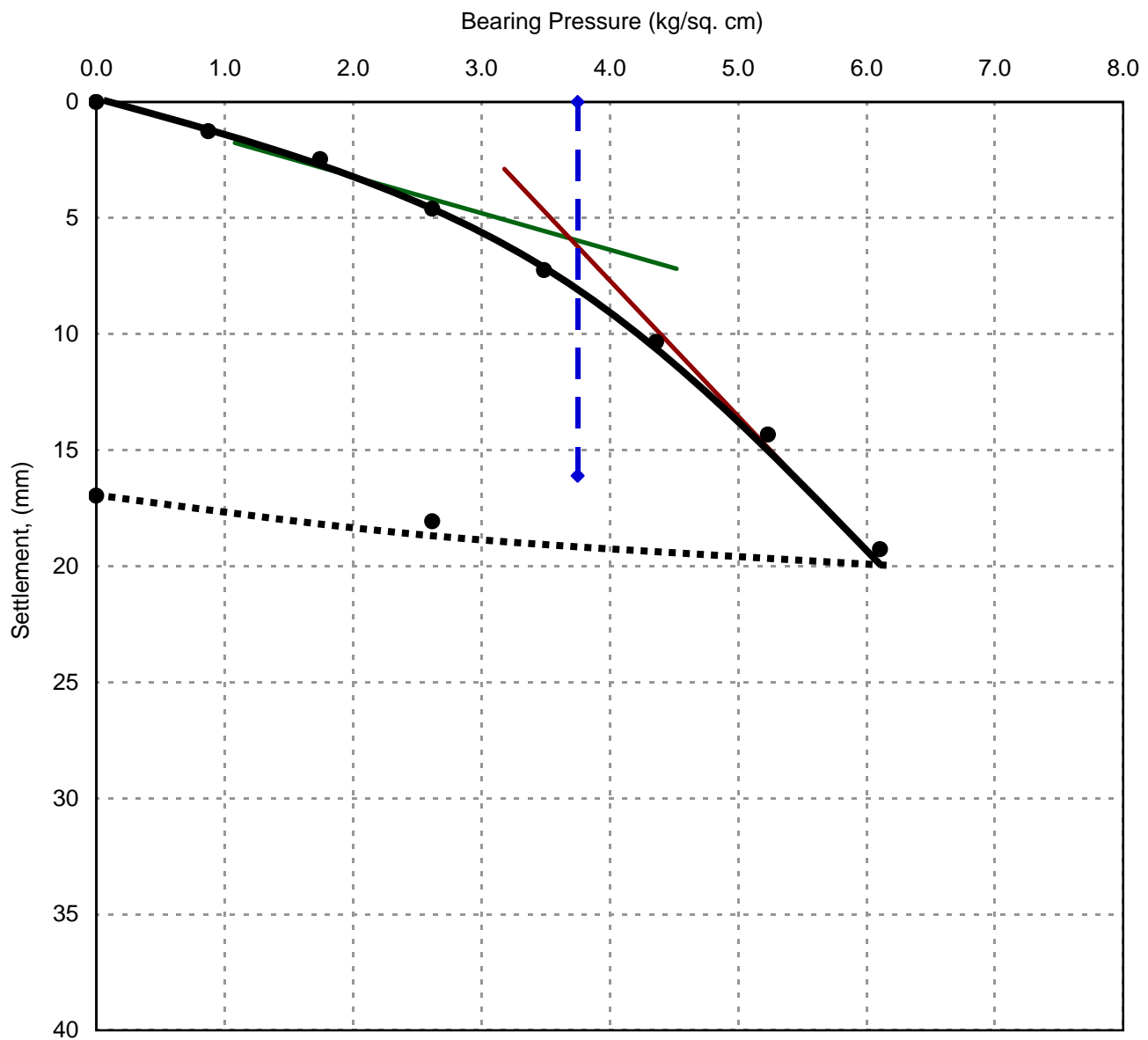
#### Determination of Modulus of Subgrade Reaction (PLT-7)



### Plate Load Test No.: PLT-8

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 7m x 6m x 2m(1st step), 2m x 2.5m x 1m(2nd step)
Test Depth : 3.0 m
Test Level (RL) : 210.4 m
Co-ordinates : 699866 E, 3159753 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 3.80 kg/cm<sup>2</sup>

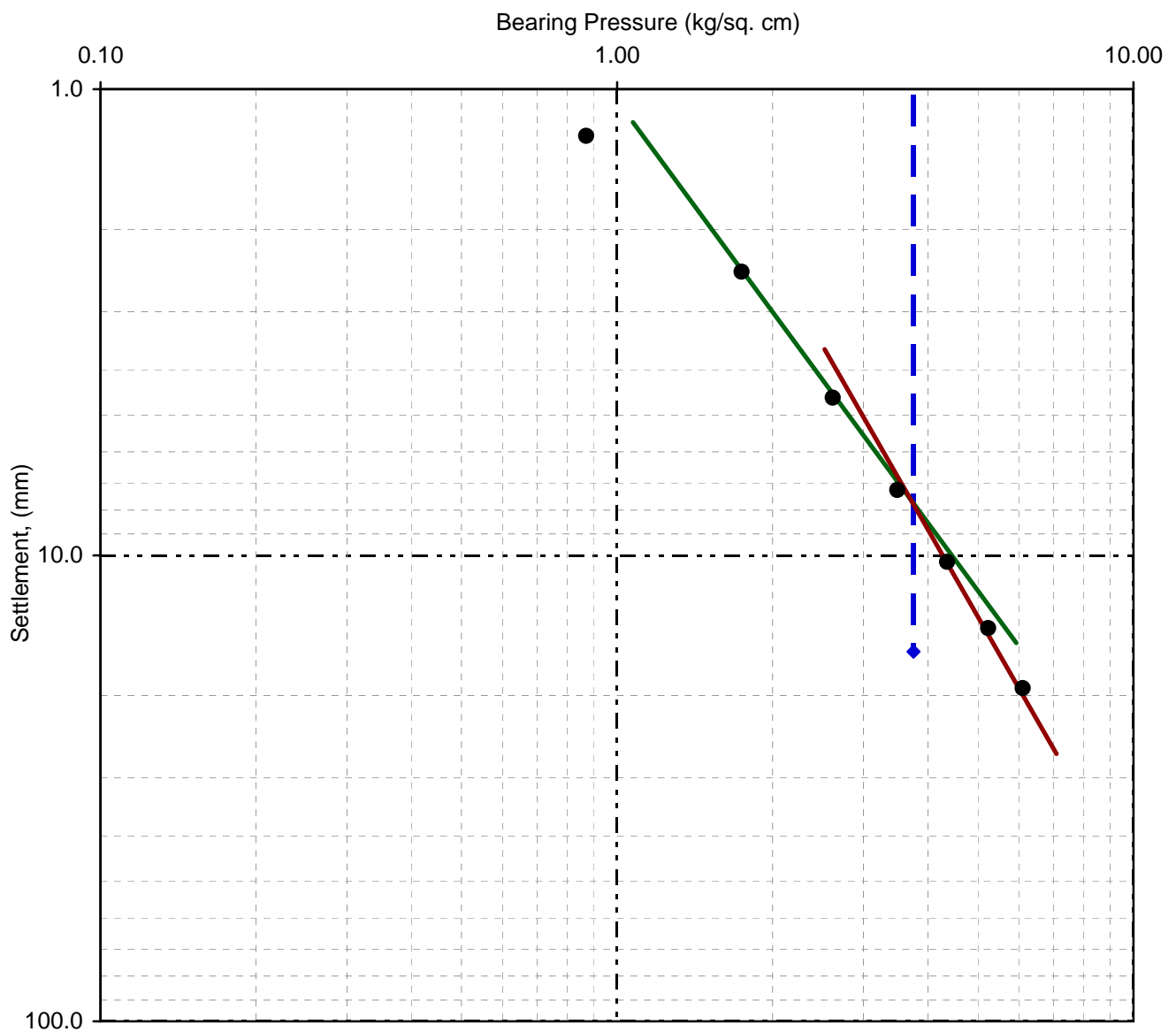
### Bearing Pressure vs. Settlement (PLT-8)



### Plate Load Test No.: PLT- 8

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 7m x6m x 2m(1st step), 2m x 2.5m x 1m(2nd step)
Test Depth : 3.0 m
Test Level (RL) : 210.4 m
Co-ordinates : 699866 E, 3159753 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 3.80 kg/cm<sup>2</sup>

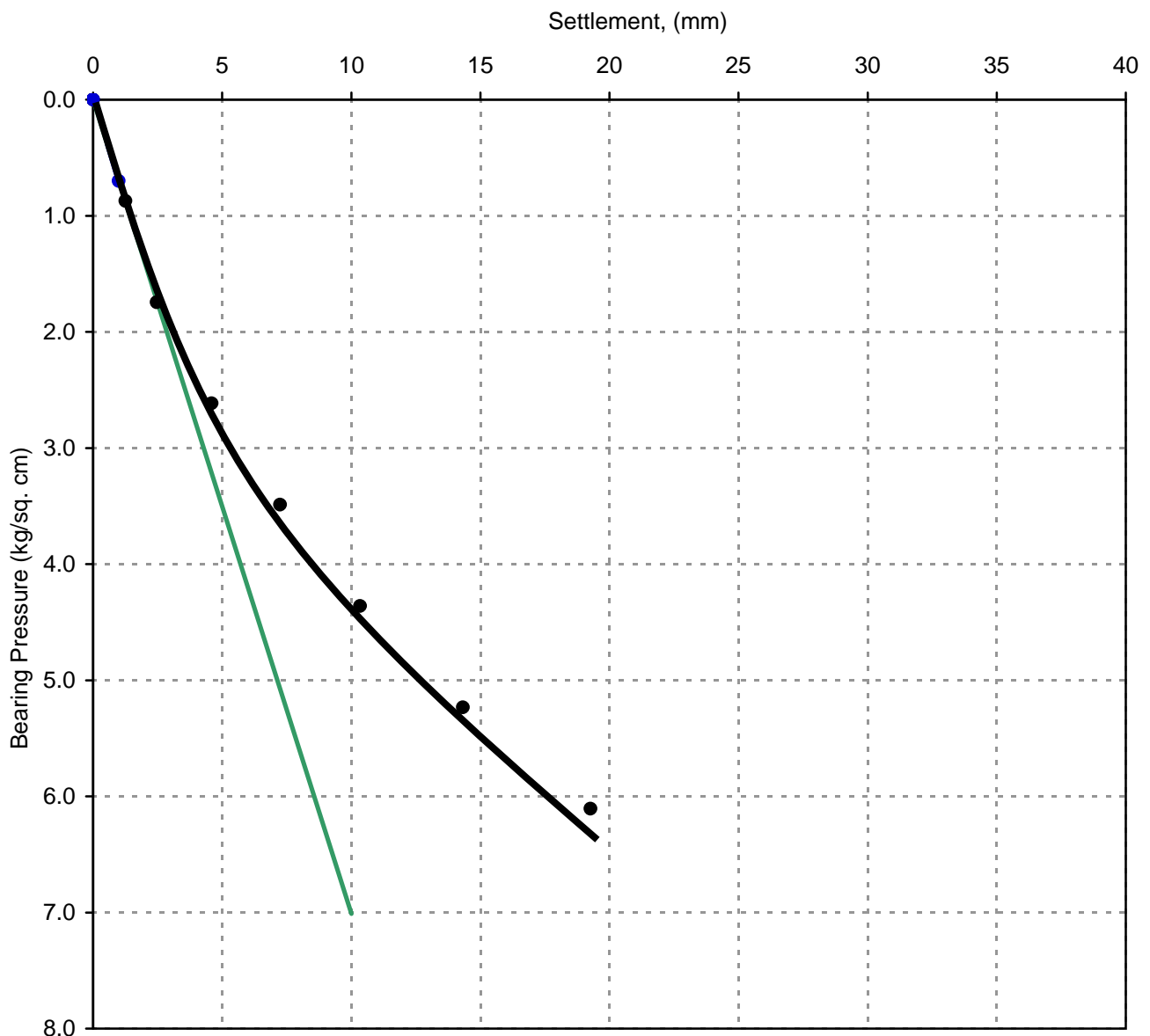
**Bearing Pressure vs. Settlement in log-log scale (PLT-8)**



### Plate Load Test No.: PLT- 8

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 7m x6m x 2m(1st step), 2m x 2.5m x 1m(2nd step)
Test Depth : 3.0 m
Test Level (RL) : 210.4 m
Co-ordinates : 699866 E, 3159753 N



#### Calculation for Modulus of Subgrade Reaction (k):

- Applying curvature correction,  $K_u : 7.01 \text{ kg/cm}^3$
- Correction for bending of plate,  $K_b : 6.1 \text{ kg/cm}^3$
- Correction for Saturation,  $K_s : 4.087 \text{ kg/cm}^3$
- Correction for size of plate,  $K_d : 2.23 \text{ kg/cm}^3$

#### Determination of Modulus of Subgrade Reaction (PLT-8)

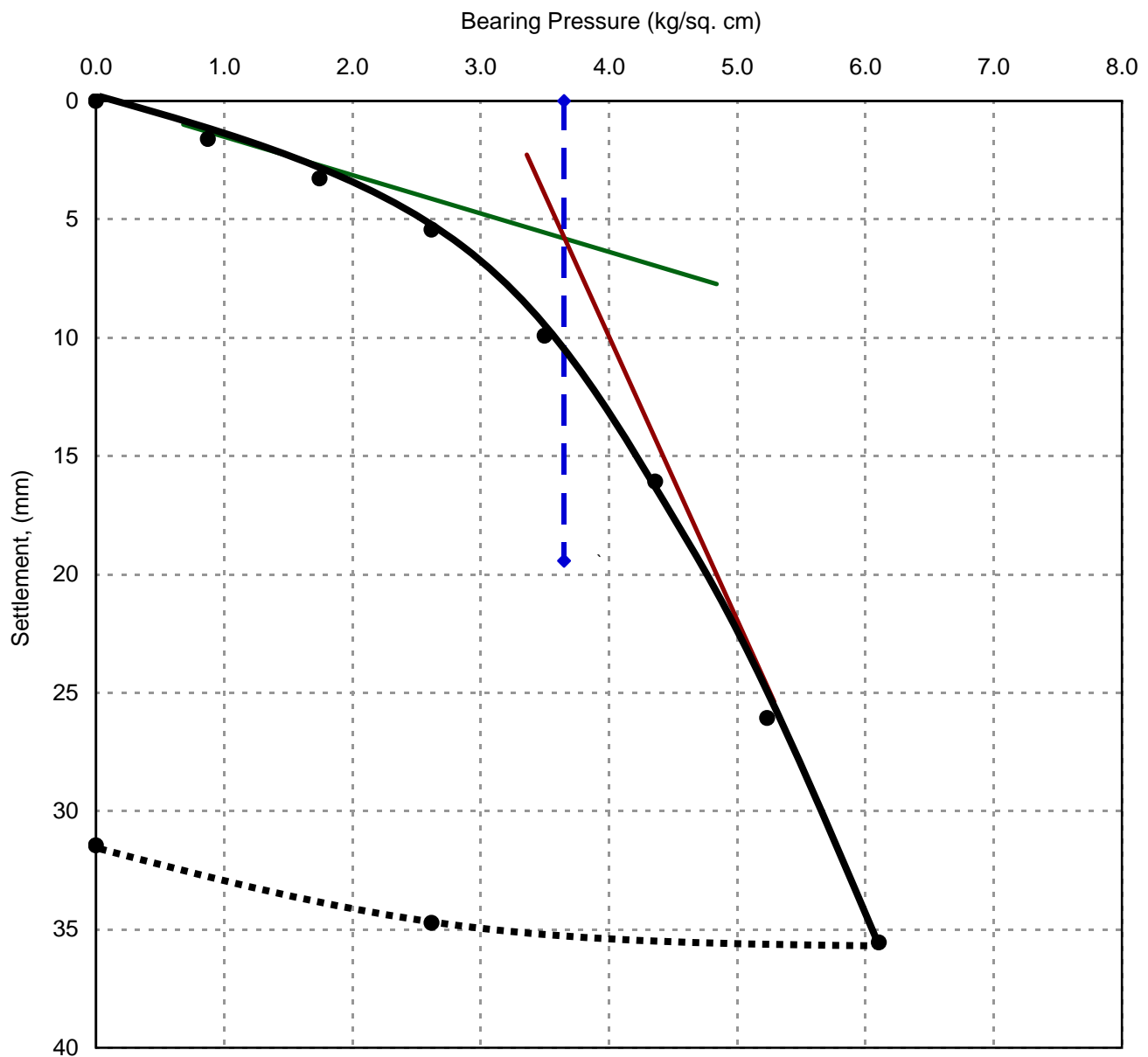




### Plate Load Test No.: PLT-9

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 3 m x 3 m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 210.5 m
Co-ordinates : 700047 E, 3159859 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 3.70 kg/cm<sup>2</sup>

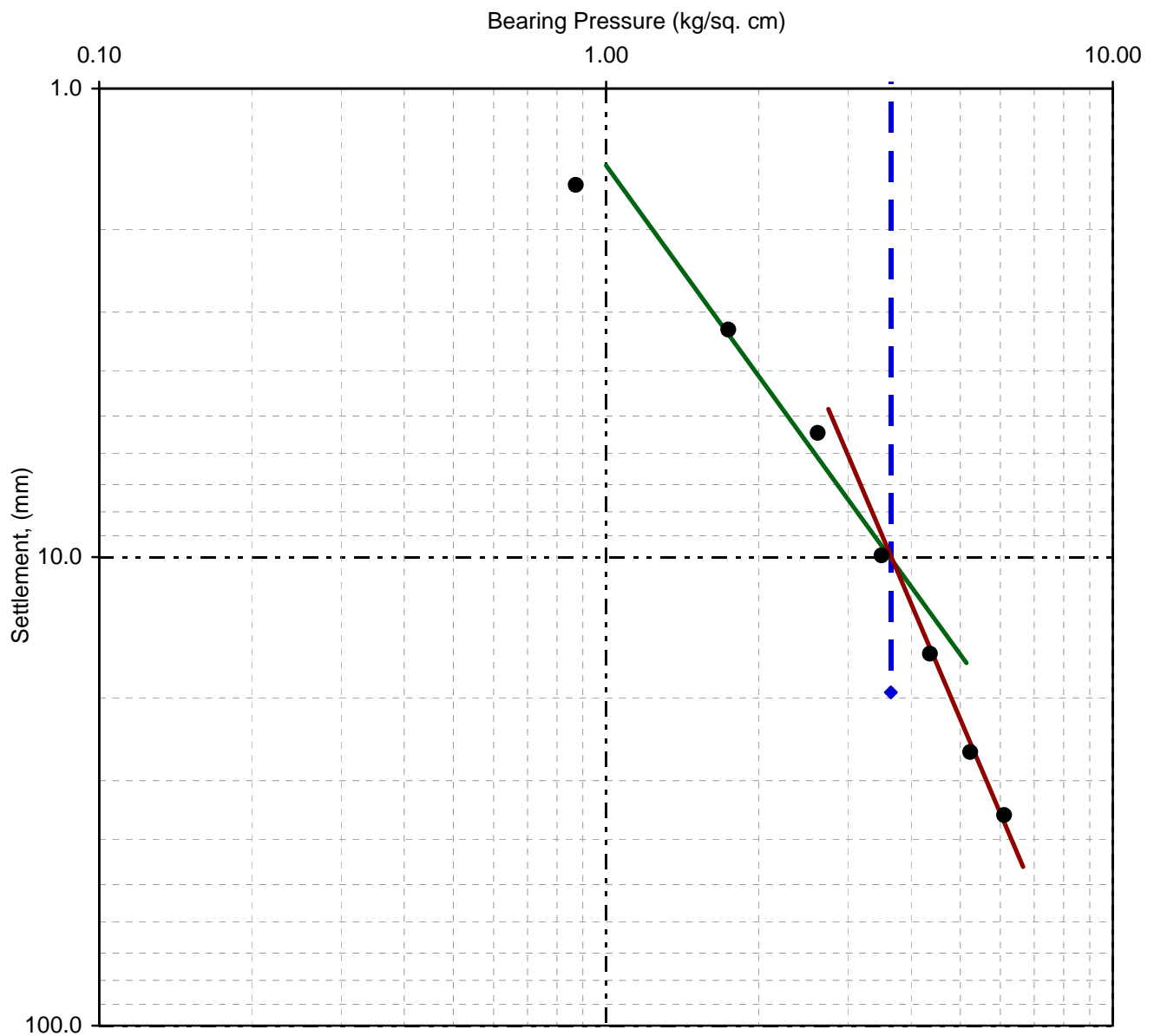
### Bearing Pressure vs. Settlement (PLT-9)



### Plate Load Test No.: PLT- 9

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 3 m x 3 m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 210.5 m
Co-ordinates : 700047 E, 3159859 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 3.70 kg/cm<sup>2</sup>

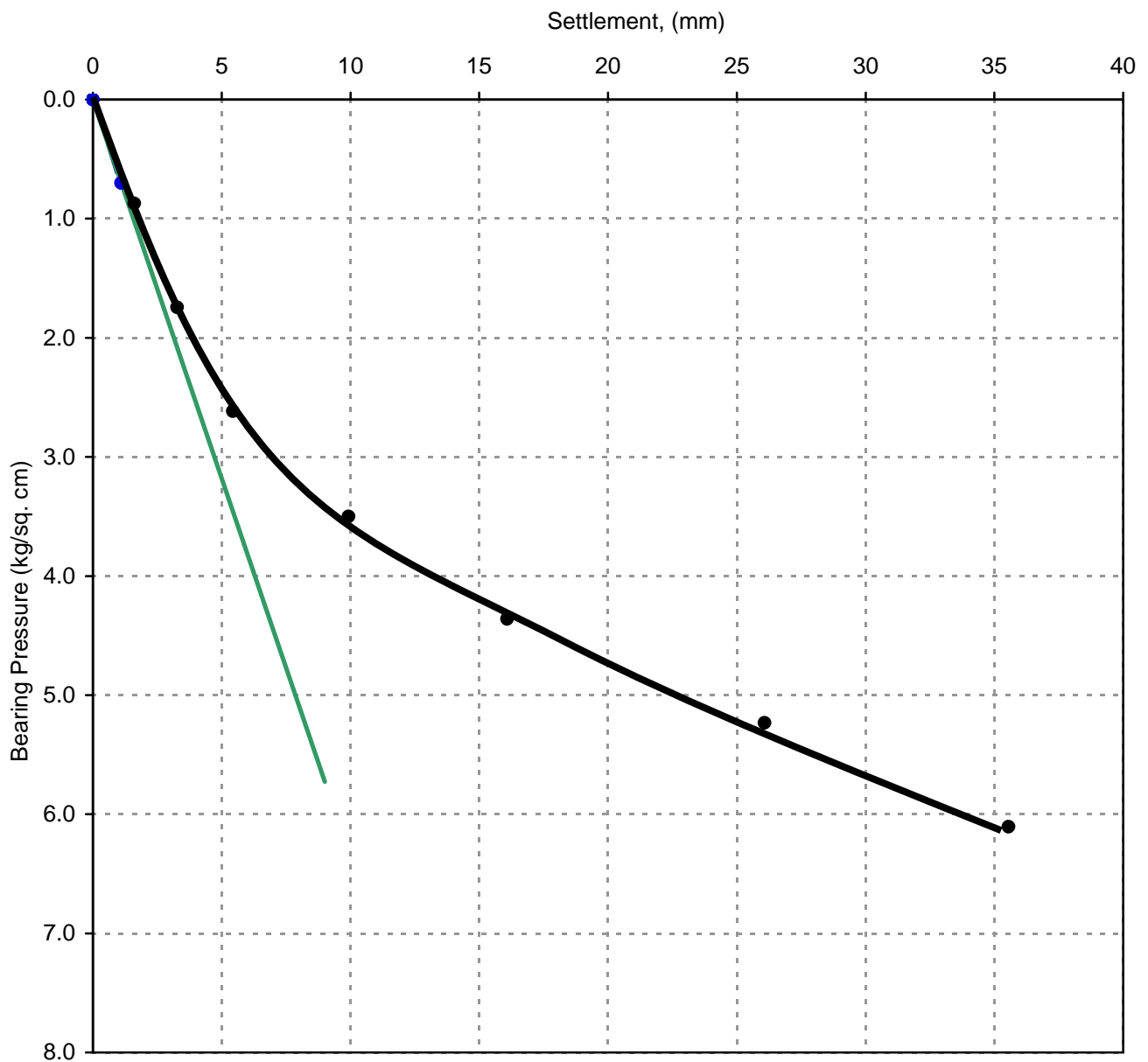
### Bearing Pressure vs. Settlement in log-log scale (PLT-9)



### Plate Load Test No.: PLT- 9

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 3 m x 3 m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 210.5 m
Co-ordinates : 700047 E, 3159859 N



#### Calculation for Modulus of Subgrade Reaction (k):

- i) Applying curvature correction,  $K_u : 6.36 \text{ kg/cm}^3$
- ii) Correction for bending of plate,  $K_b : 5.58 \text{ kg/cm}^3$
- iii) Correction for Saturation,  $K_s : 3.738 \text{ kg/cm}^3$
- iv) Correction for size of plate,  $K_d : 2.04 \text{ kg/cm}^3$

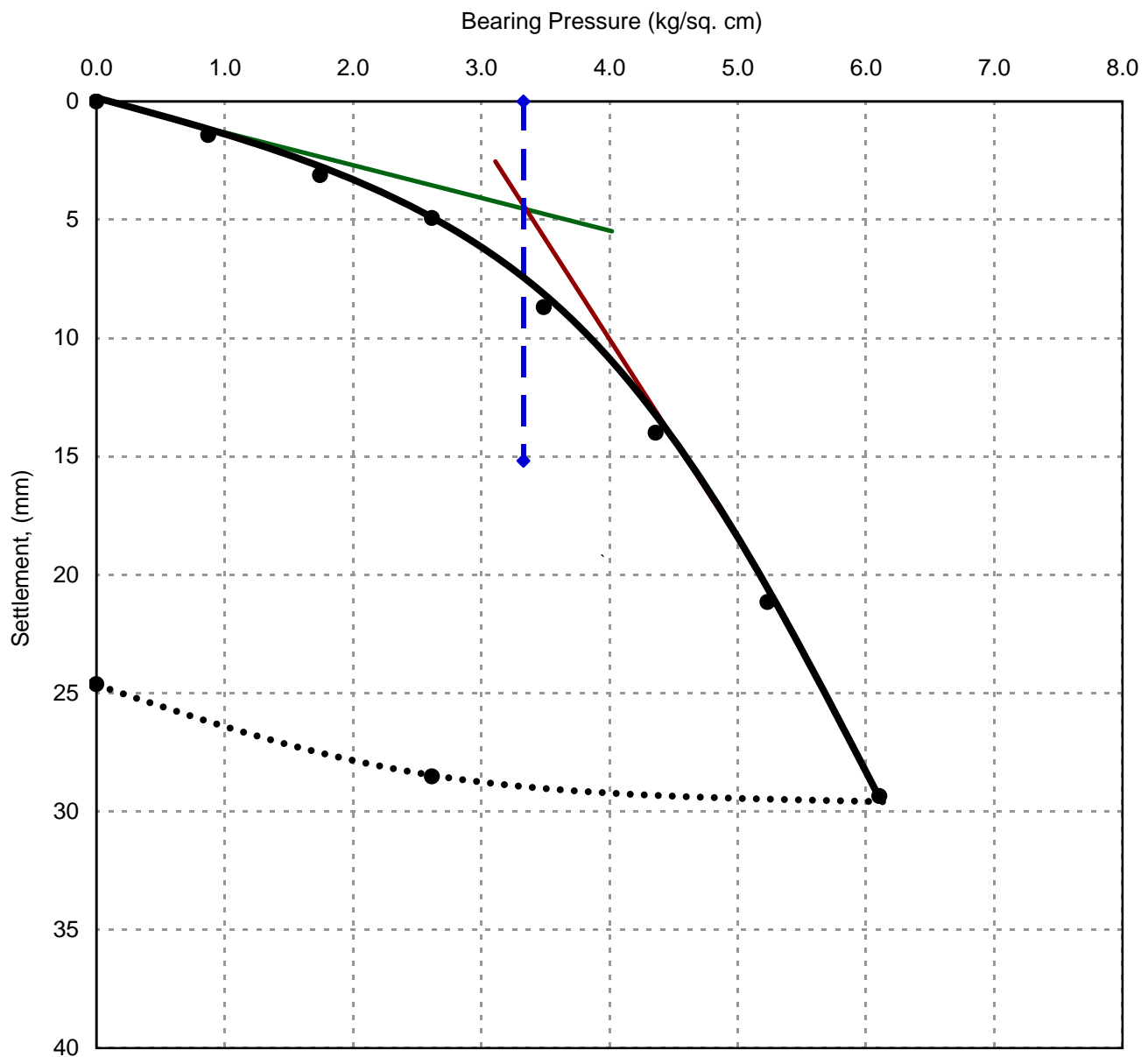
#### Determination of Modulus of Subgrade Reaction (PLT-9)



### Plate Load Test No.: PLT-10

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 3 m x 3 m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 210.5 m
Co-ordinates : 700180 E, 3160079 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 3.30 kg/cm<sup>2</sup>

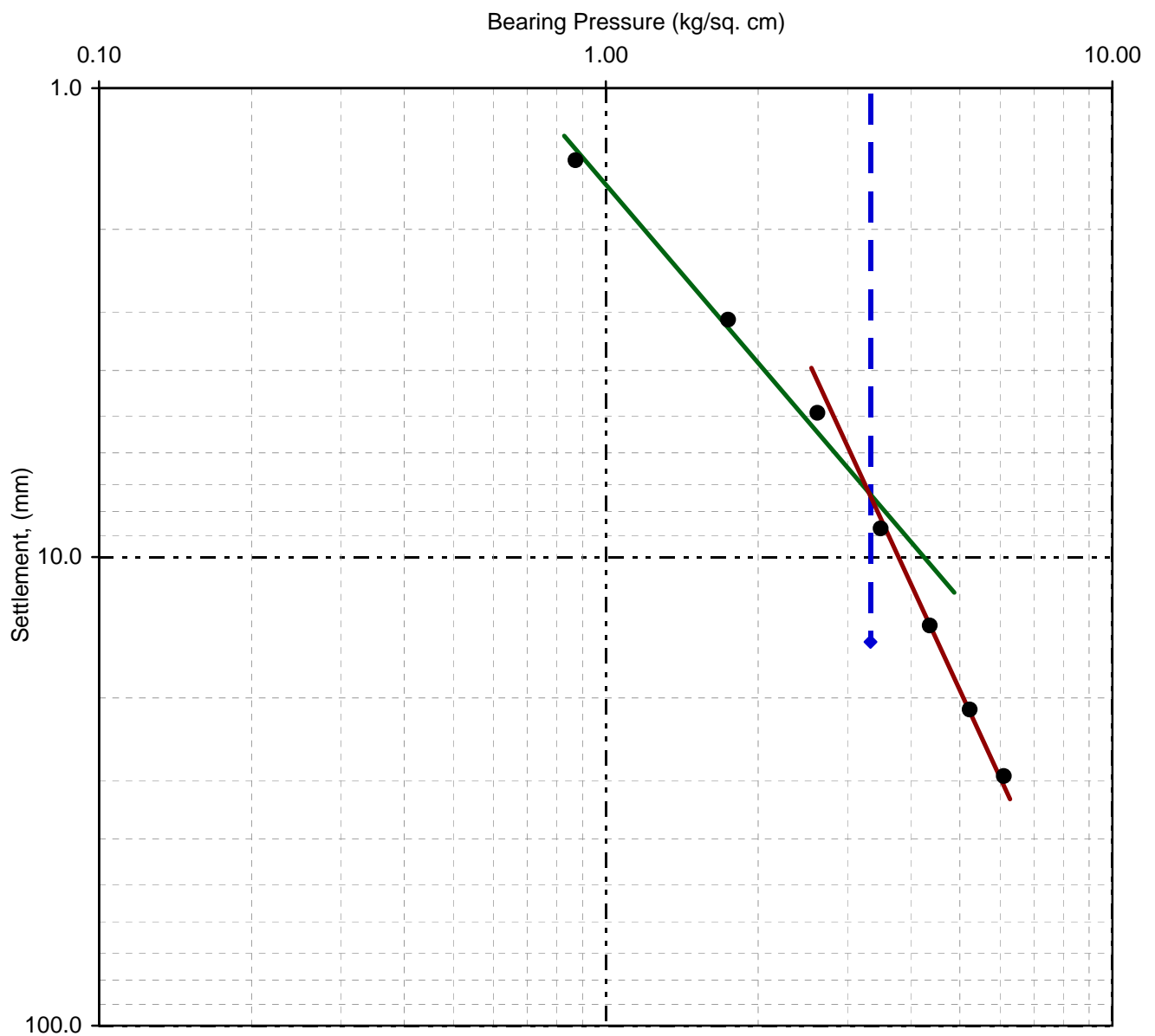
### Bearing Pressure vs. Settlement (PLT-10)



### Plate Load Test No.: PLT- 10

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 3 m x 3 m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 210.5 m
Co-ordinates : 700180 E, 3160079 N



Ultimate Bearing Capacity of Test Plate ( $q_{ult}$ ) : 3.30 kg/cm<sup>2</sup>

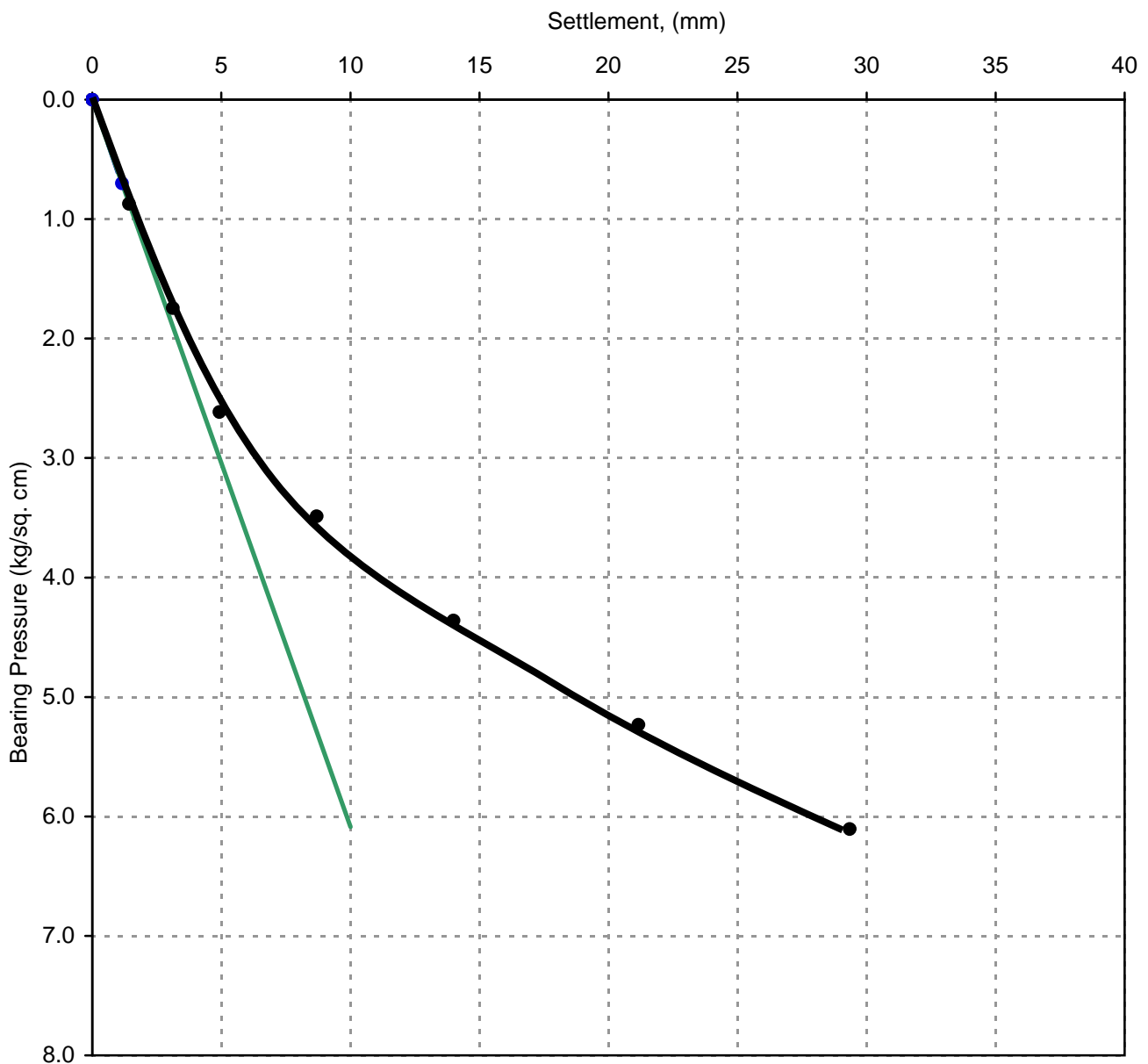
### Bearing Pressure vs. Settlement in log-log scale (PLT-10)



## Plate Load Test No.: PLT- 10

IS: 1888-1982, RA-2007

Test Details
Size of Plate : 30cm x 30cm
Size of Pit : 3 m x 3 m x 3 m
Test Depth : 3.0 m
Test Level (RL) : 210.5 m
Co-ordinates : 700180 E, 3160079 N



### Calculation for Modulus of Subgrade Reaction (k):

- Applying curvature correction,  $K_u : 6.09 \text{ kg/cm}^3$
- Correction for bending of plate,  $K_b : 5.36 \text{ kg/cm}^3$
- Correction for Saturation,  $K_s : 3.591 \text{ kg/cm}^3$
- Correction for size of plate,  $K_d : 1.96 \text{ kg/cm}^3$

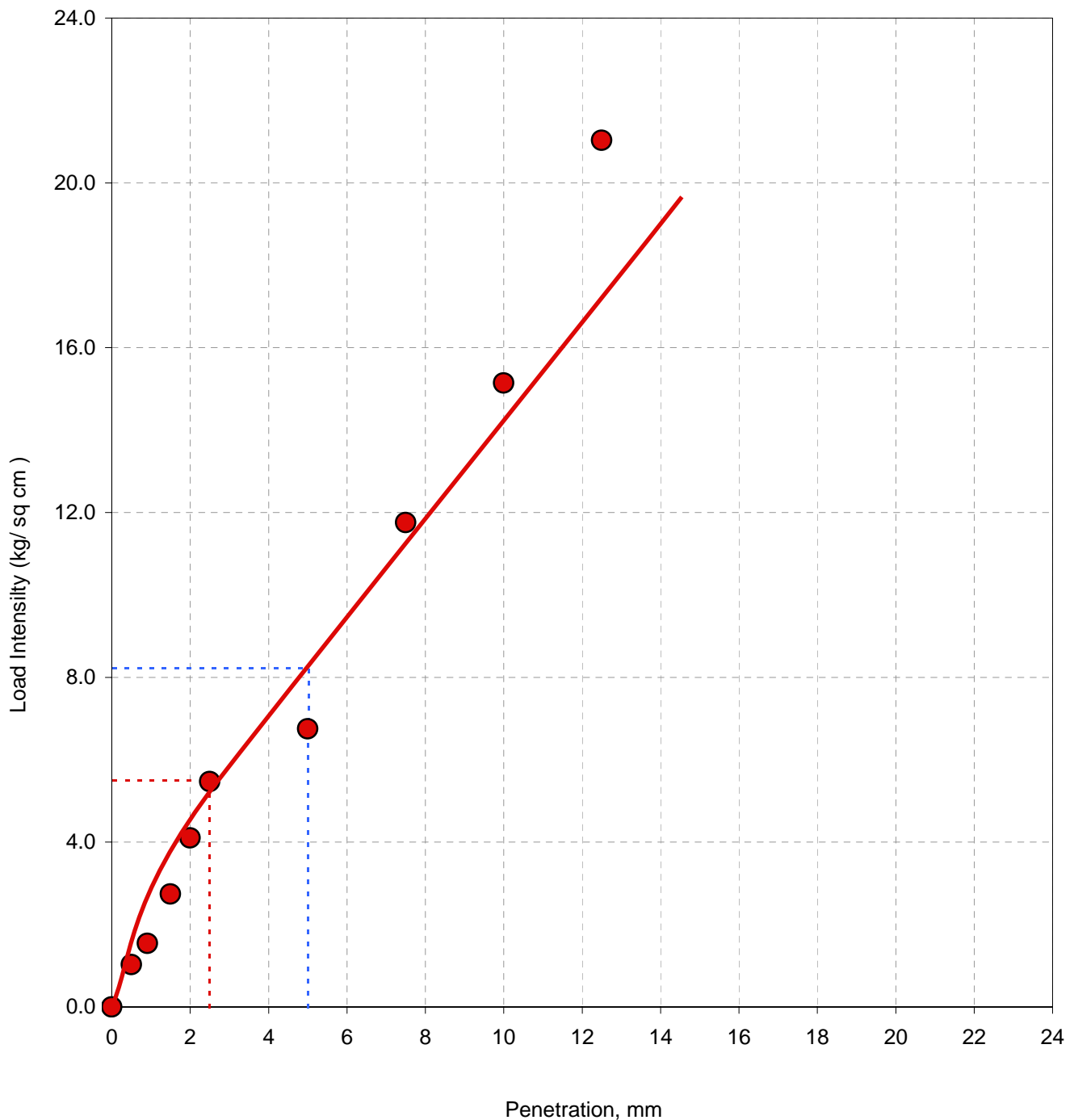
### Determination of Modulus of Subgrade Reaction (PLT-10)



### Field California Bearing Ratio Test :: FCBR-1

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-1	Bearing Ratio at 2.5mm : 7.9
Test Location : Road	
Coordinates : E-699570, N-3159623	Bearing Ratio at 5.0mm : <b>7.8</b>
Test Depth : 0.15 m	
Surface Elevation : 212.847 m	Field CBR Value : <b>7.9</b>



Load Intensity vs. Penetration (FCBR-1)

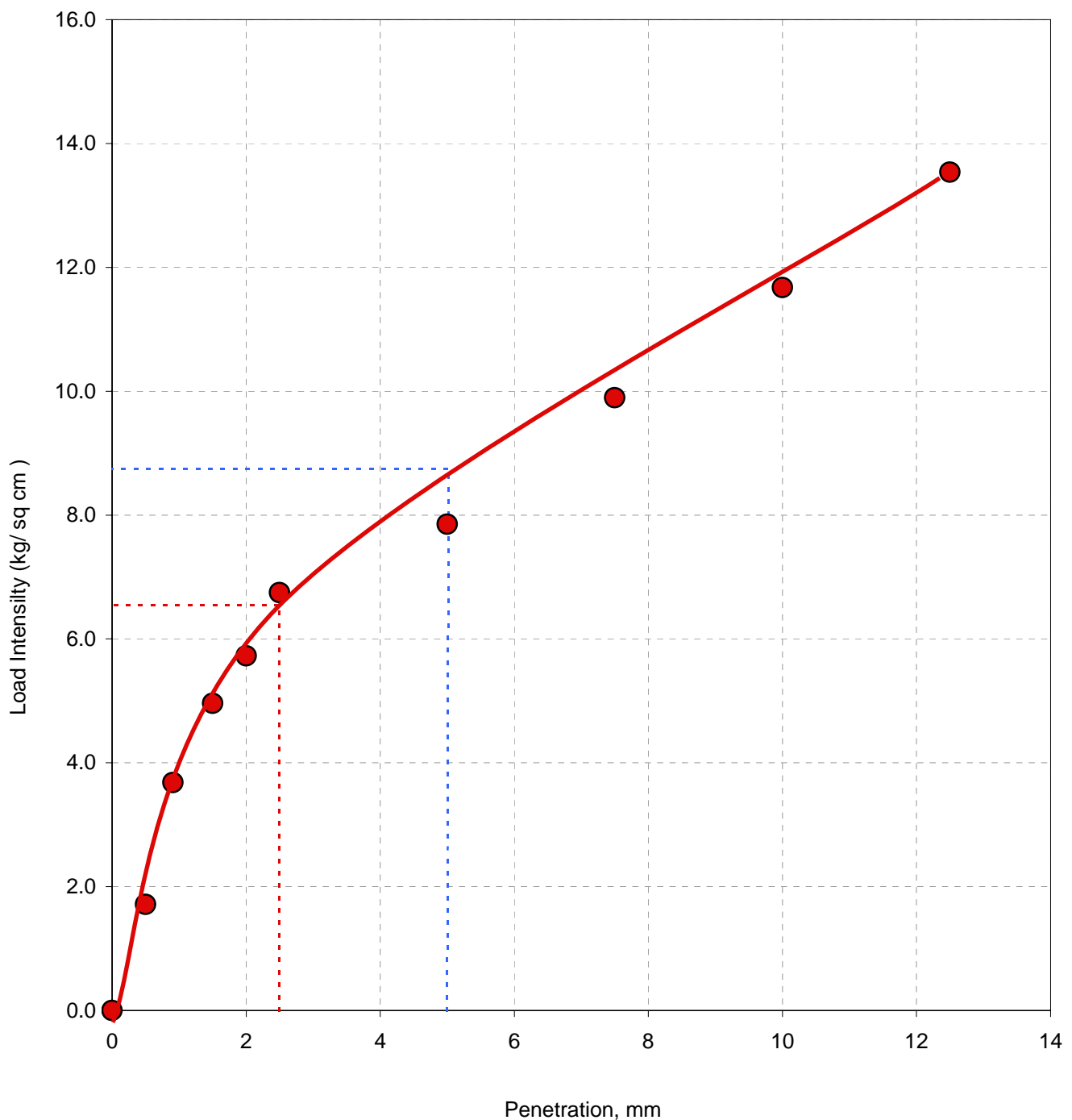




### Field California Bearing Ratio Test :: FCBR-2

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-2	Bearing Ratio at 2.5mm : 9.3
Test Location : Road	
Coordinates : E-699529, N-3159651	Bearing Ratio at 5.0mm : <b>8.3</b>
Test Depth : 0.15 m	
Surface Elevation : 212.500 m	Field CBR Value : <b>9.3</b>



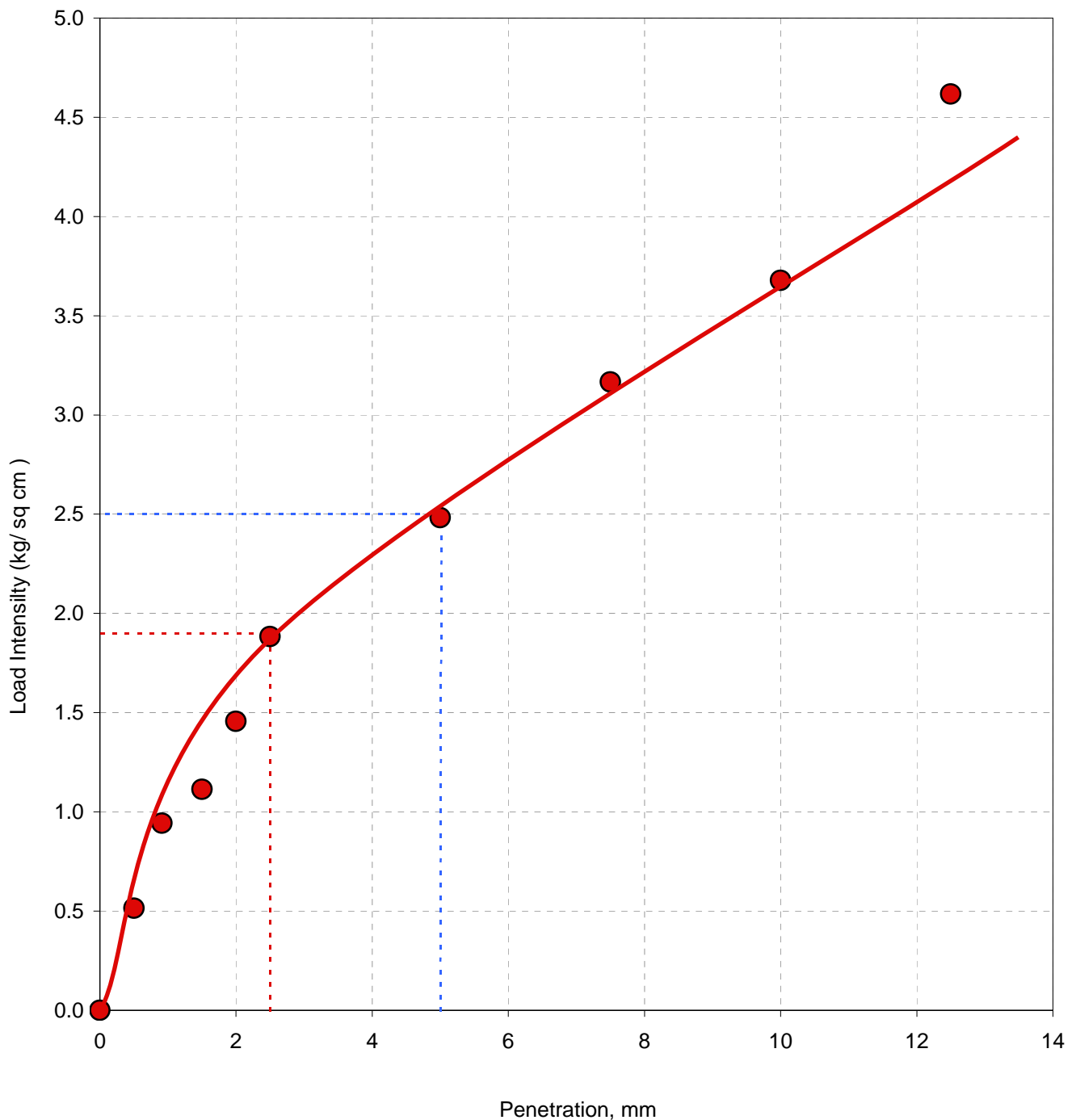
Load Intensity vs. Penetration (FCBR-2)



### Field California Bearing Ratio Test :: FCBR-3

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-3	Bearing Ratio at 2.5mm : 2.7
Test Location : Road	
Coordinates : E-699479, N-3159684	Bearing Ratio at 5.0mm : <b>2.4</b>
Test Depth : 0.15 m	
Surface Elevation : 212.338 m	Field CBR Value : <b>2.7</b>



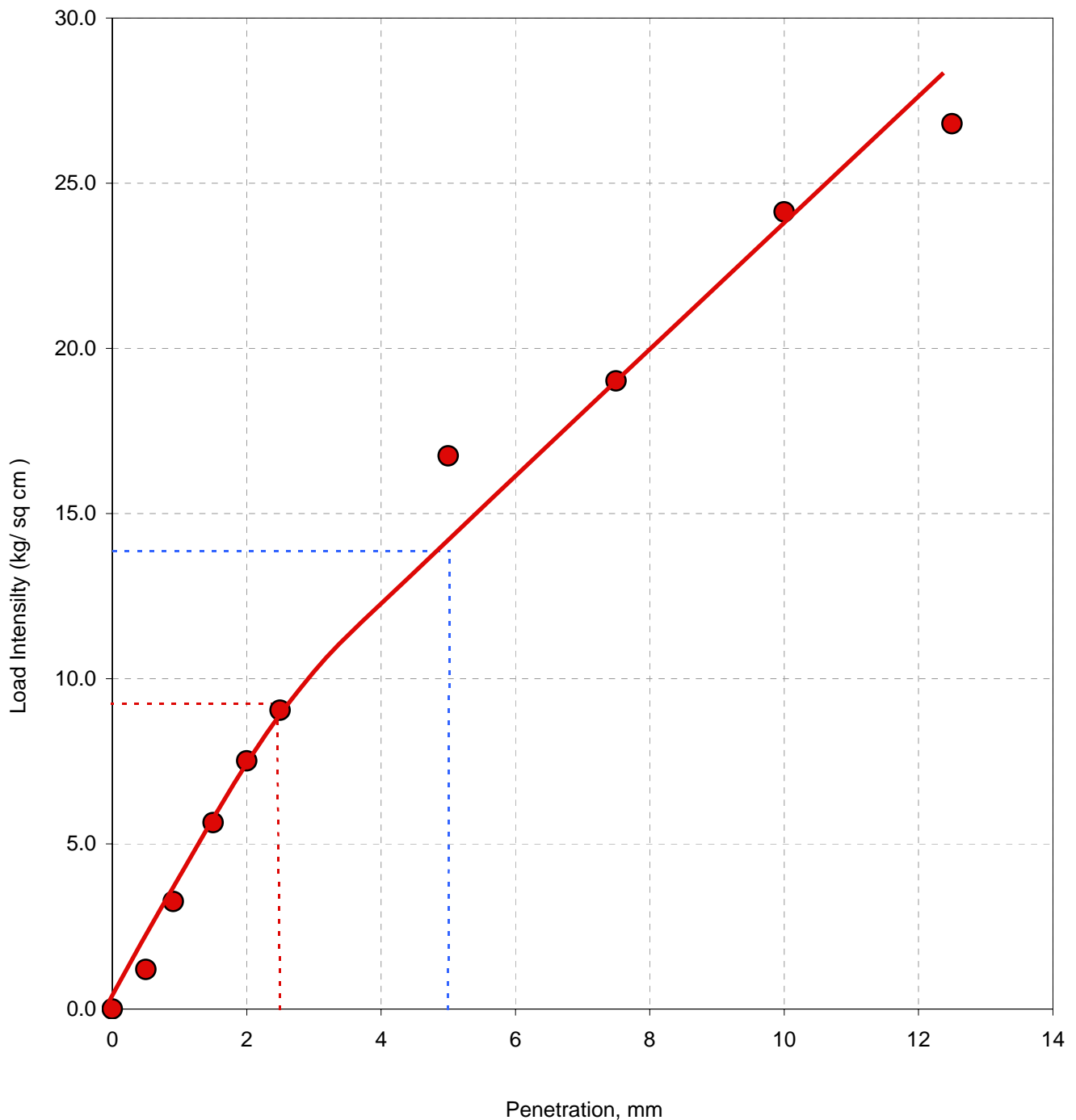
Load Intensity vs. Penetration (FCBR-3)



### Field California Bearing Ratio Test : FCBR-4

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-4	Bearing Ratio at 2.5mm : 13.2
Test Location : Road	
Coordinates : E-699429, N-3159718	Bearing Ratio at 5.0mm : <b>13.2</b>
Test Depth : 0.15 m	
Surface Elevation : 211.962 m	Field CBR Value : <b>13.2</b>



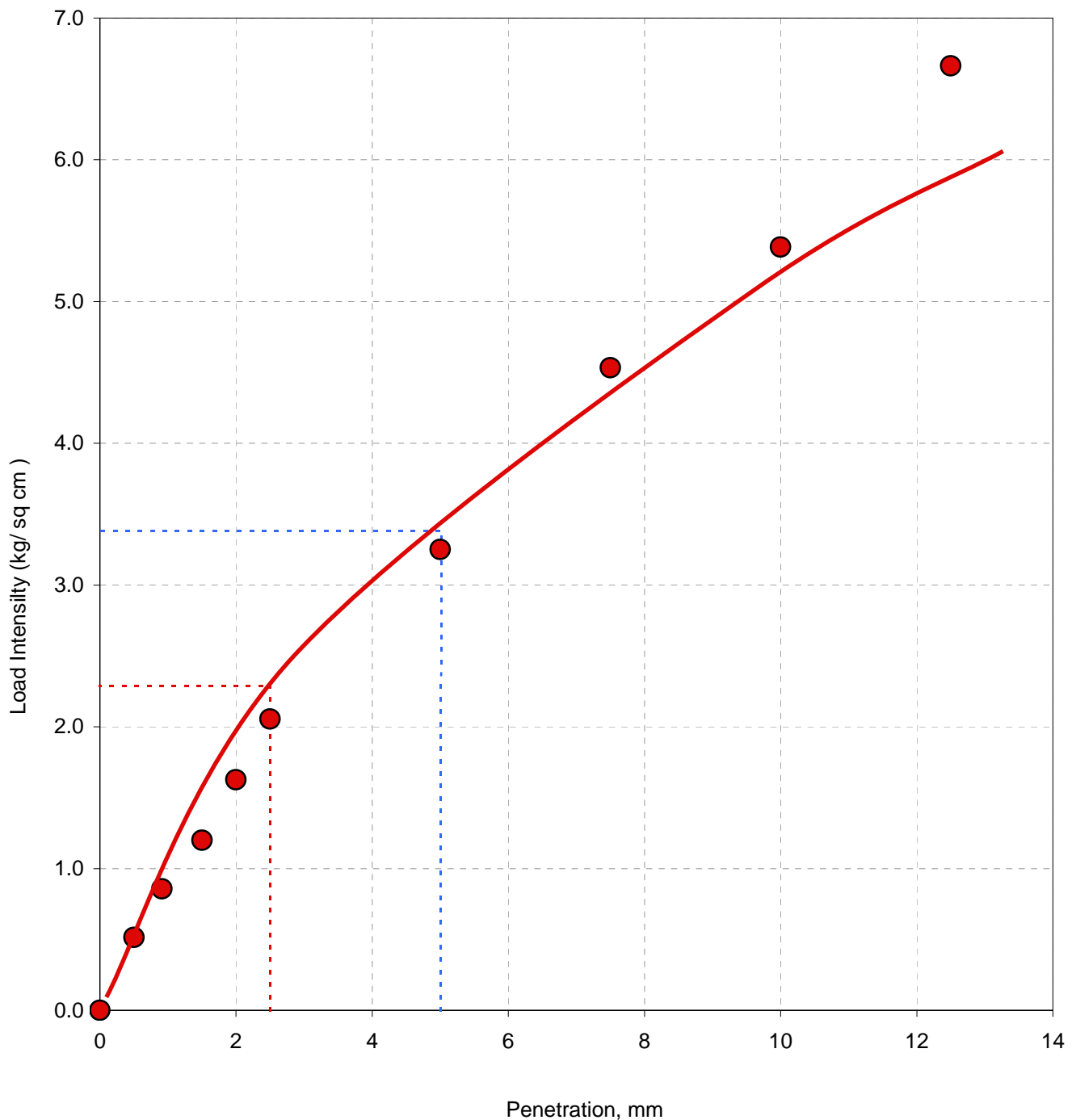
Load Intensity vs. Penetration (FCBR-4)



### Field California Bearing Ratio Test : FCBR-5

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-5	Bearing Ratio at 2.5mm : 3.3
Test Location : Road	
Coordinates : E-699454, N-3159760	Bearing Ratio at 5.0mm : <b>3.2</b>
Test Depth : 0.15 m	
Surface Elevation : 212.054 m	Field CBR Value : <b>3.3</b>



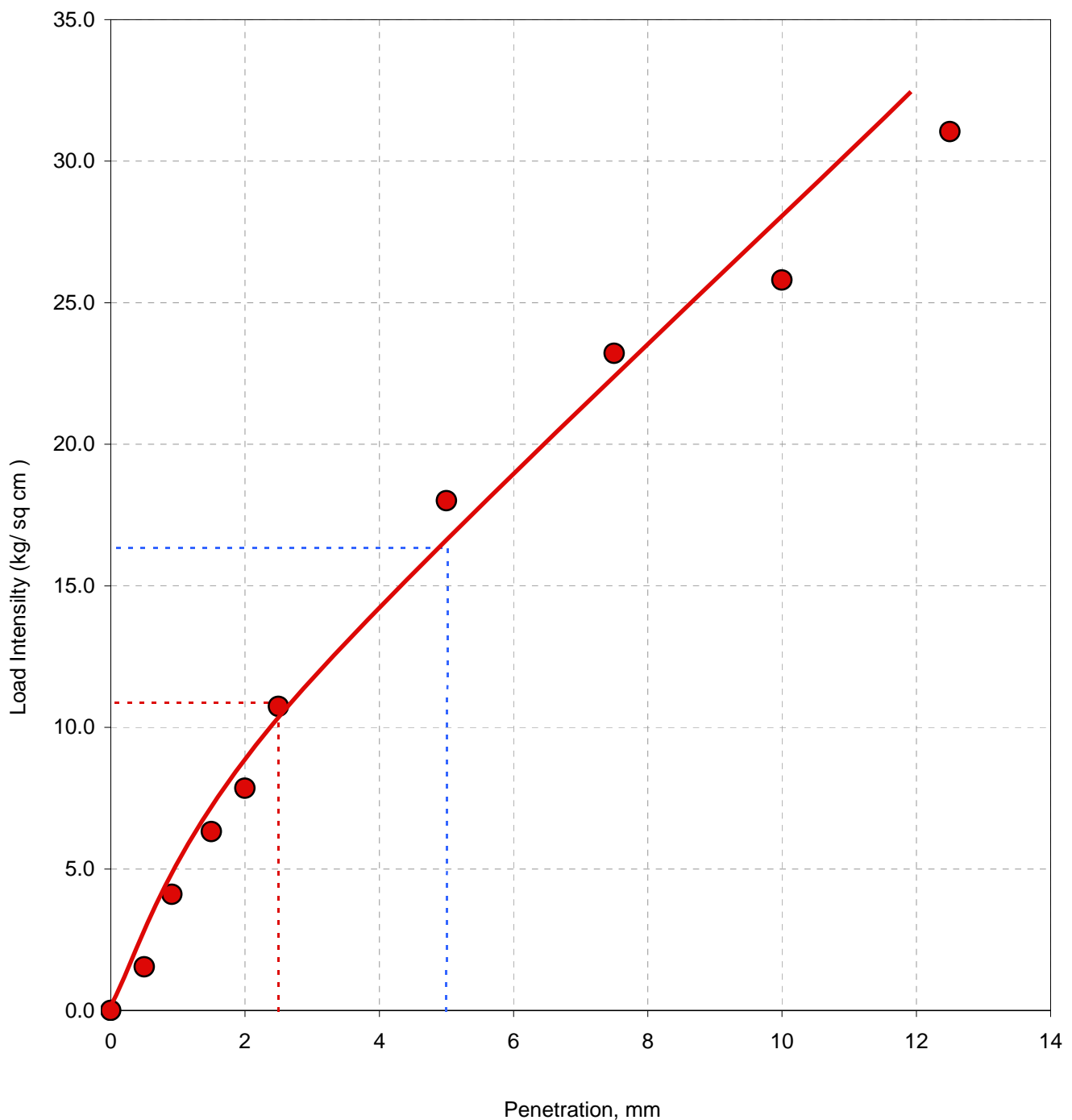
Load Intensity vs. Penetration (FCBR-5)



### Field California Bearing Ratio Test : FCBR-6

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-6	Bearing Ratio at 2.5mm : 15.6
Test Location : Road	
Coordinates : E-699379, N-3159751	Bearing Ratio at 5.0mm : <b>15.6</b>
Test Depth : 0.15 m	
Surface Elevation : 211.852 m	Field CBR Value : <b>15.6</b>



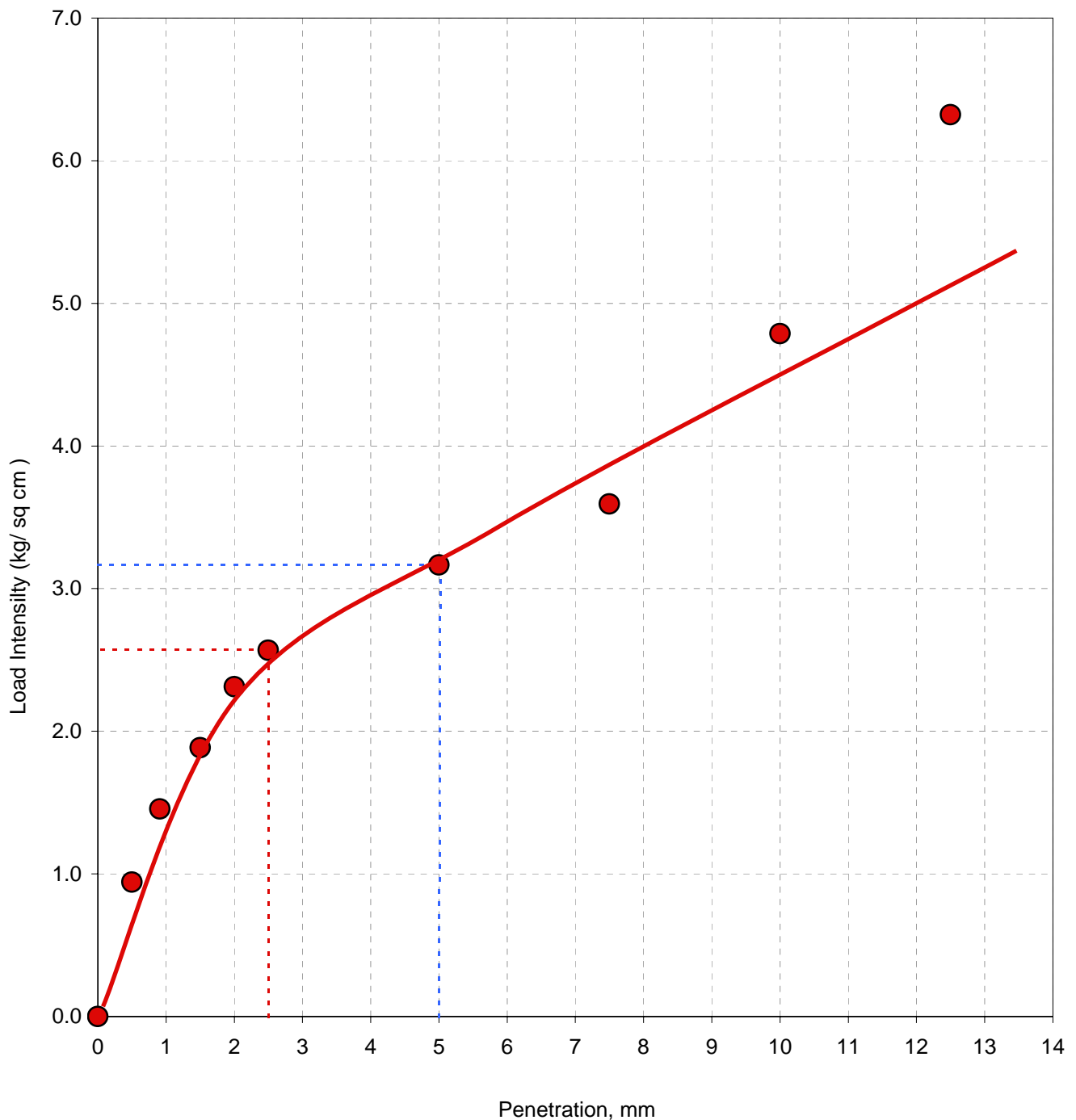
Load Intensity vs. Penetration (FCBR-6)



### Field California Bearing Ratio Test : FCBR-7

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-7	Bearing Ratio at 2.5mm : 3.7
Test Location : Road	
Coordinates : E-699410, N-3159792	Bearing Ratio at 5.0mm : <b>3.0</b>
Test Depth : 0.15 m	
Surface Elevation : 212.099 m	Field CBR Value : <b>3.7</b>



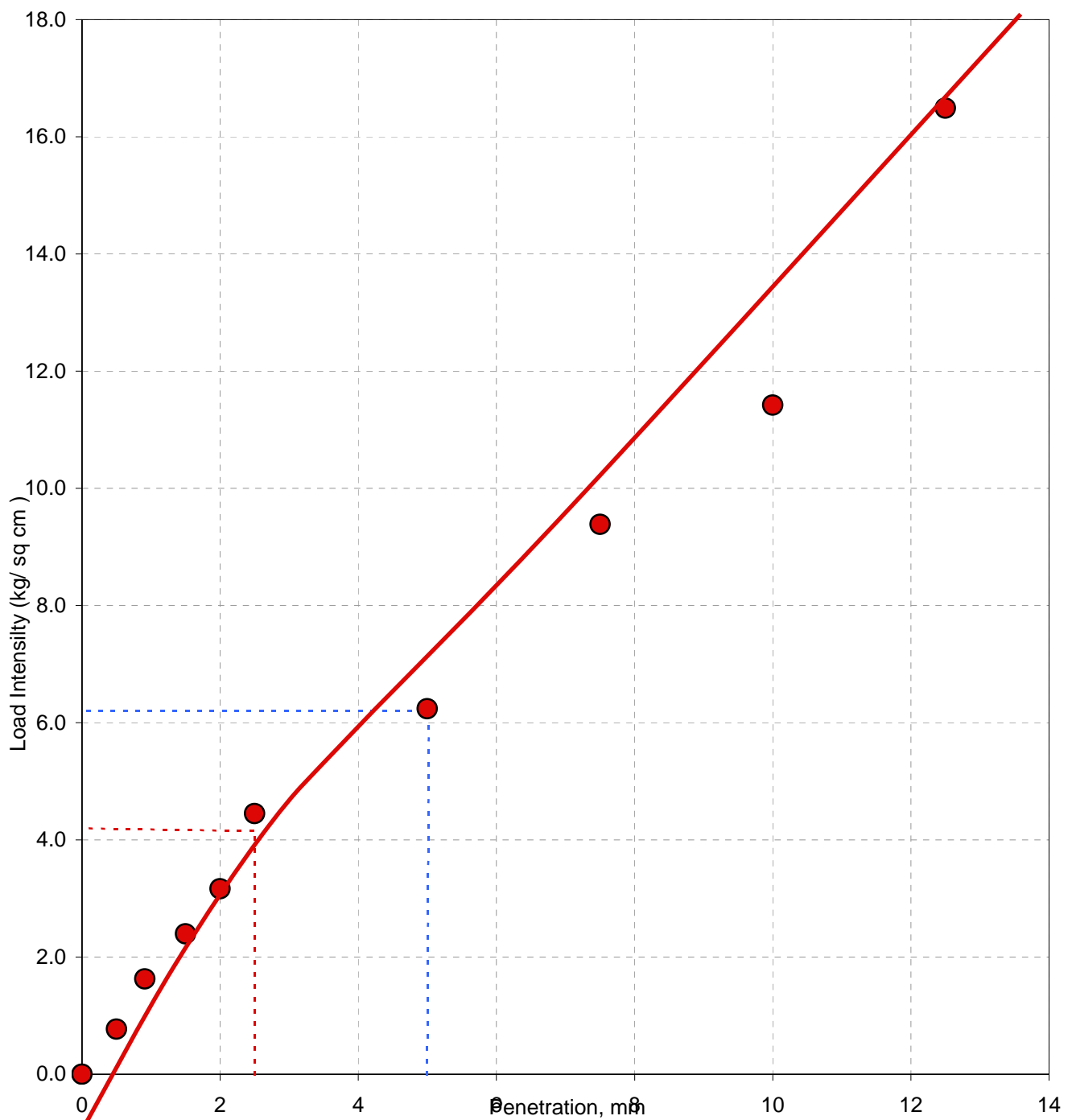
Load Intensity vs. Penetration (FCBR-7)



### Field California Bearing Ratio Test :: FCBR-8

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-8	Bearing Ratio at 2.5mm : 5.9
Test Location : Road	
Coordinates : E-699329, N-3159784	Bearing Ratio at 5.0mm : <b>5.9</b>
Test Depth : 0.15 m	
Surface Elevation : 211.890 m	Field CBR Value : <b>5.9</b>



Load Intensity vs. Penetration (FCBR-8)

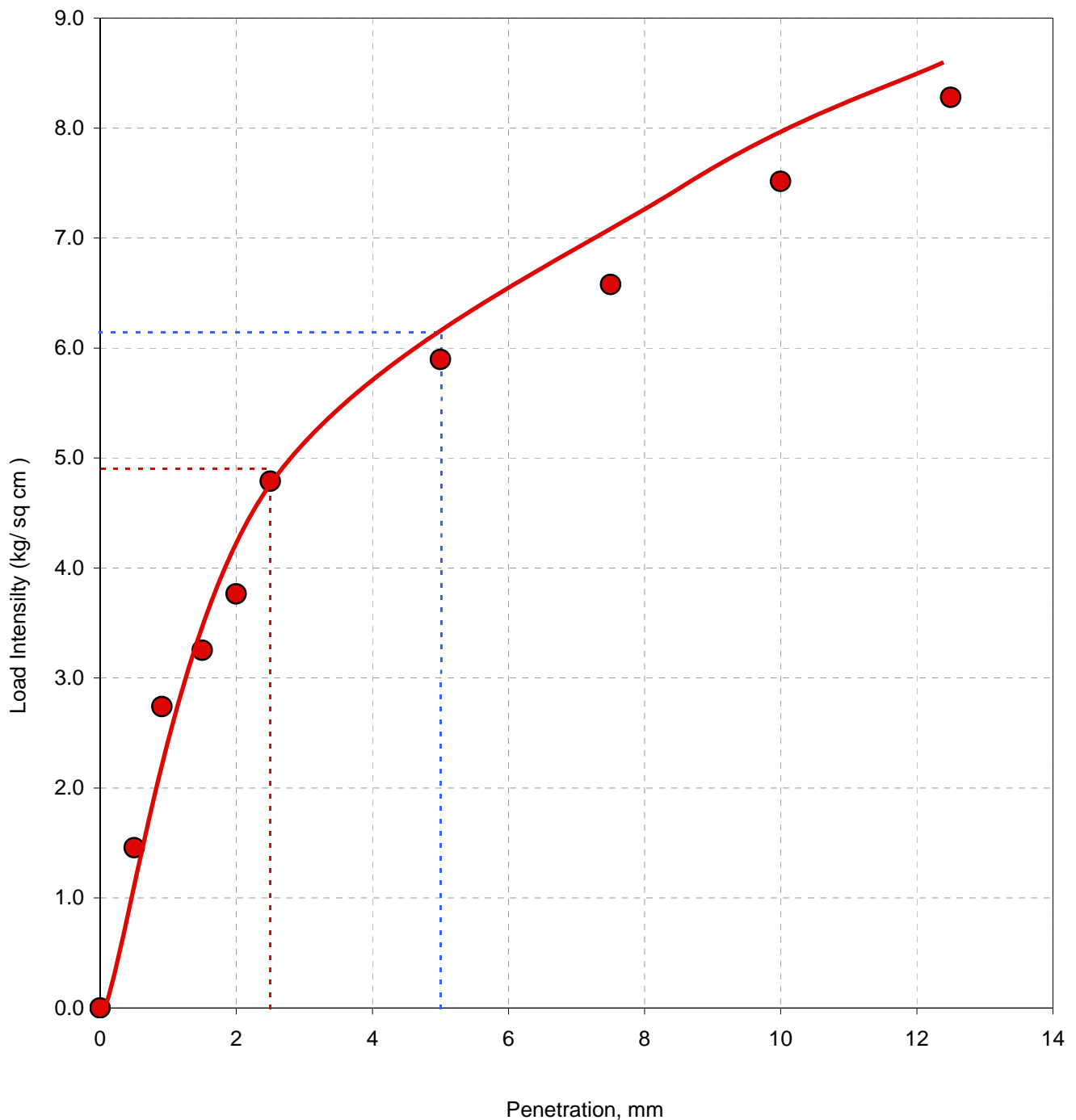




### Field California Bearing Ratio Test :: FCBR-9

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-9	Bearing Ratio at 2.5mm : 7.0
Test Location : Road	
Coordinates : E-699361, N-3159828	Bearing Ratio at 5.0mm : <b>5.8</b>
Test Depth : 0.15 m	
Surface Elevation : 211.943 m	Field CBR Value : <b>7.0</b>



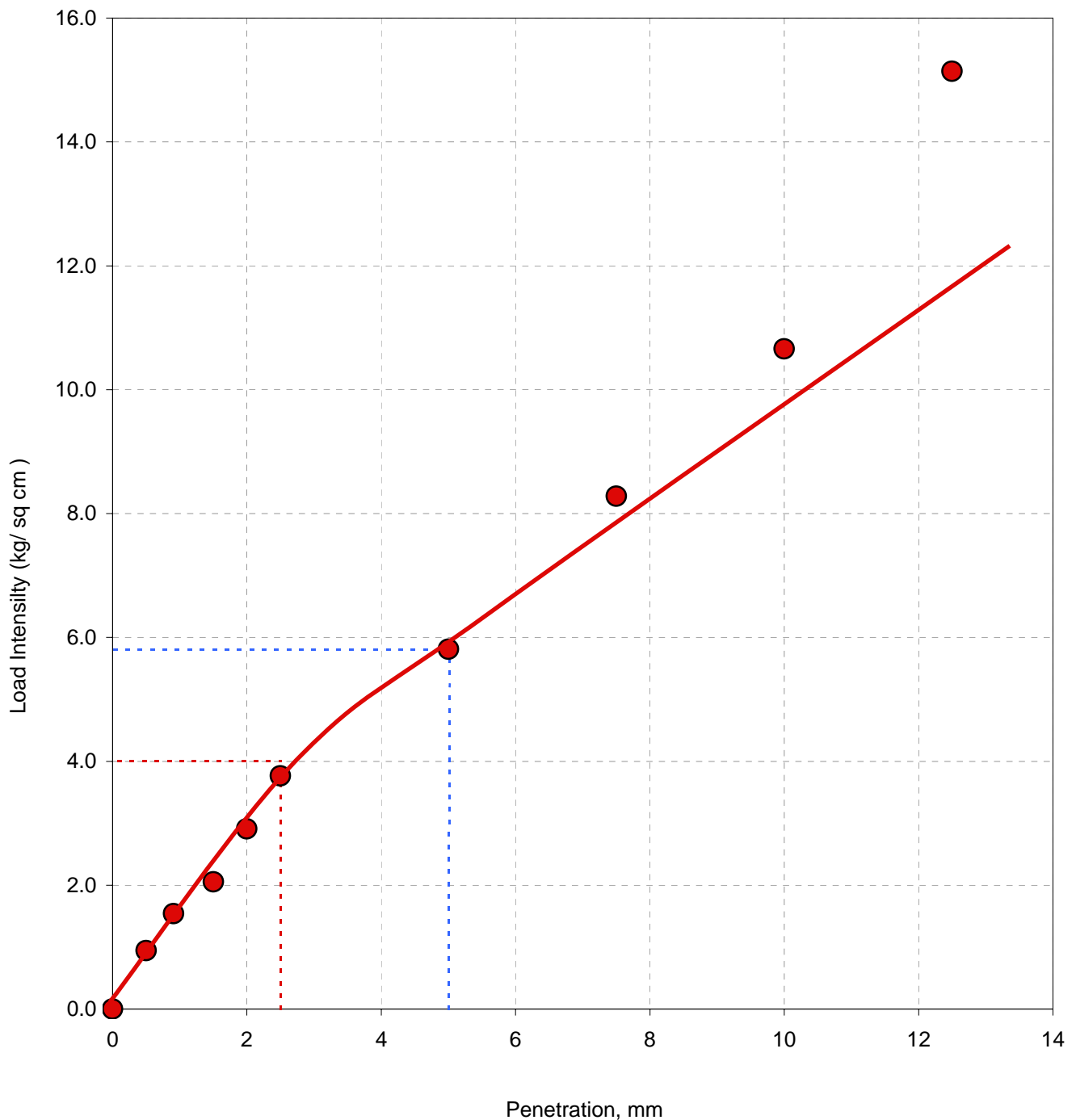
Load Intensity vs. Penetration (FCBR-9)



### Field California Bearing Ratio Test .: FCBR-10

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-10	Bearing Ratio at 2.5mm : 5.7
Test Location : Road	
Coordinates : E-699279, N-3159818	Bearing Ratio at 5.0mm : <b>5.5</b>
Test Depth : 0.15 m	
Surface Elevation : 211.695 m	Field CBR Value : <b>5.7</b>



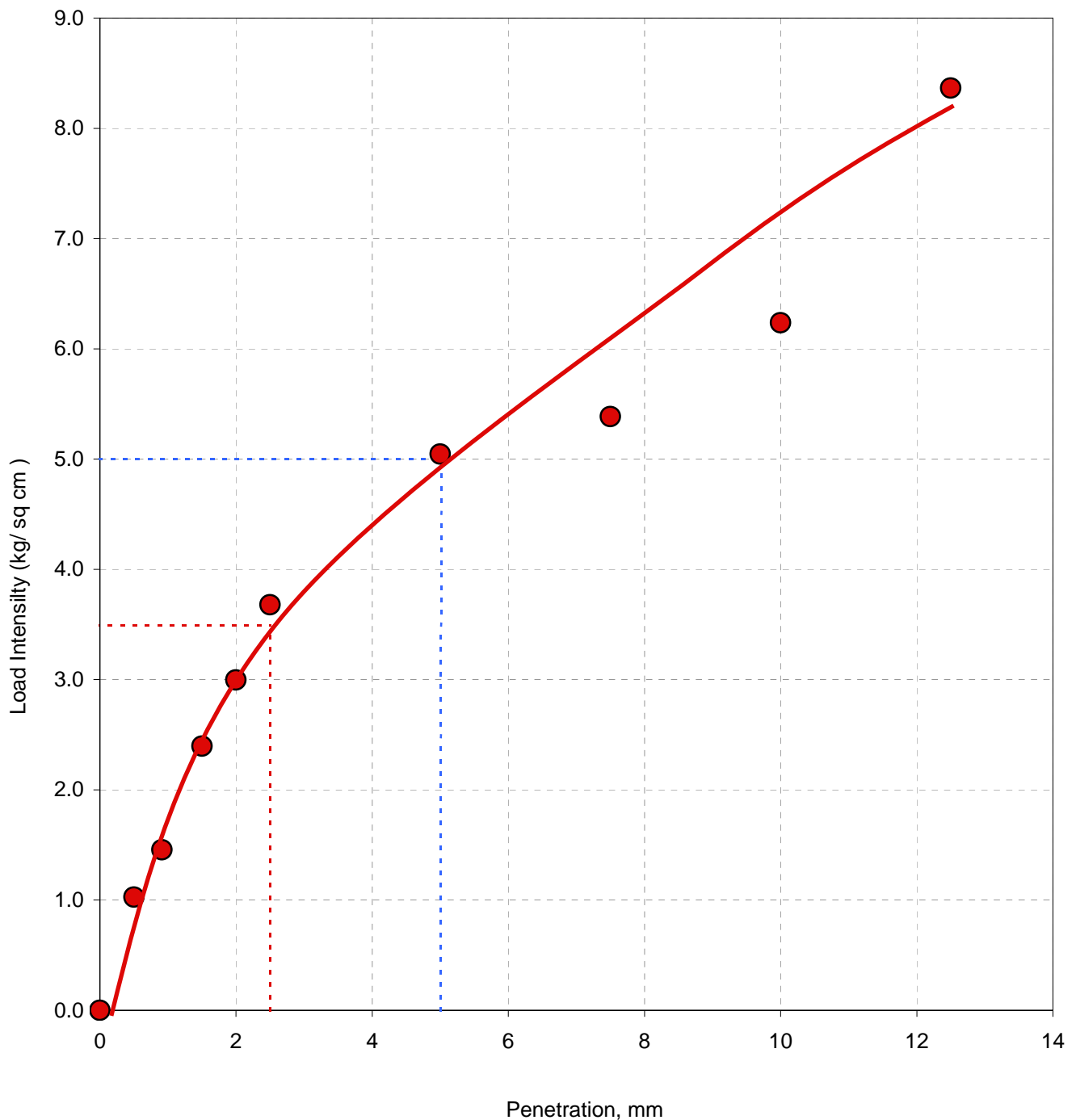
Load Intensity vs. Penetration (FCBR-10)



### Field California Bearing Ratio Test .: FCBR-11

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-11	Bearing Ratio at 2.5mm : 5.0
Test Location : Road	
Coordinates : E-699313, N-3159864	Bearing Ratio at 5.0mm : <b>4.8</b>
Test Depth : 0.15 m	
Surface Elevation : 211.748 m	Field CBR Value : <b>5.0</b>



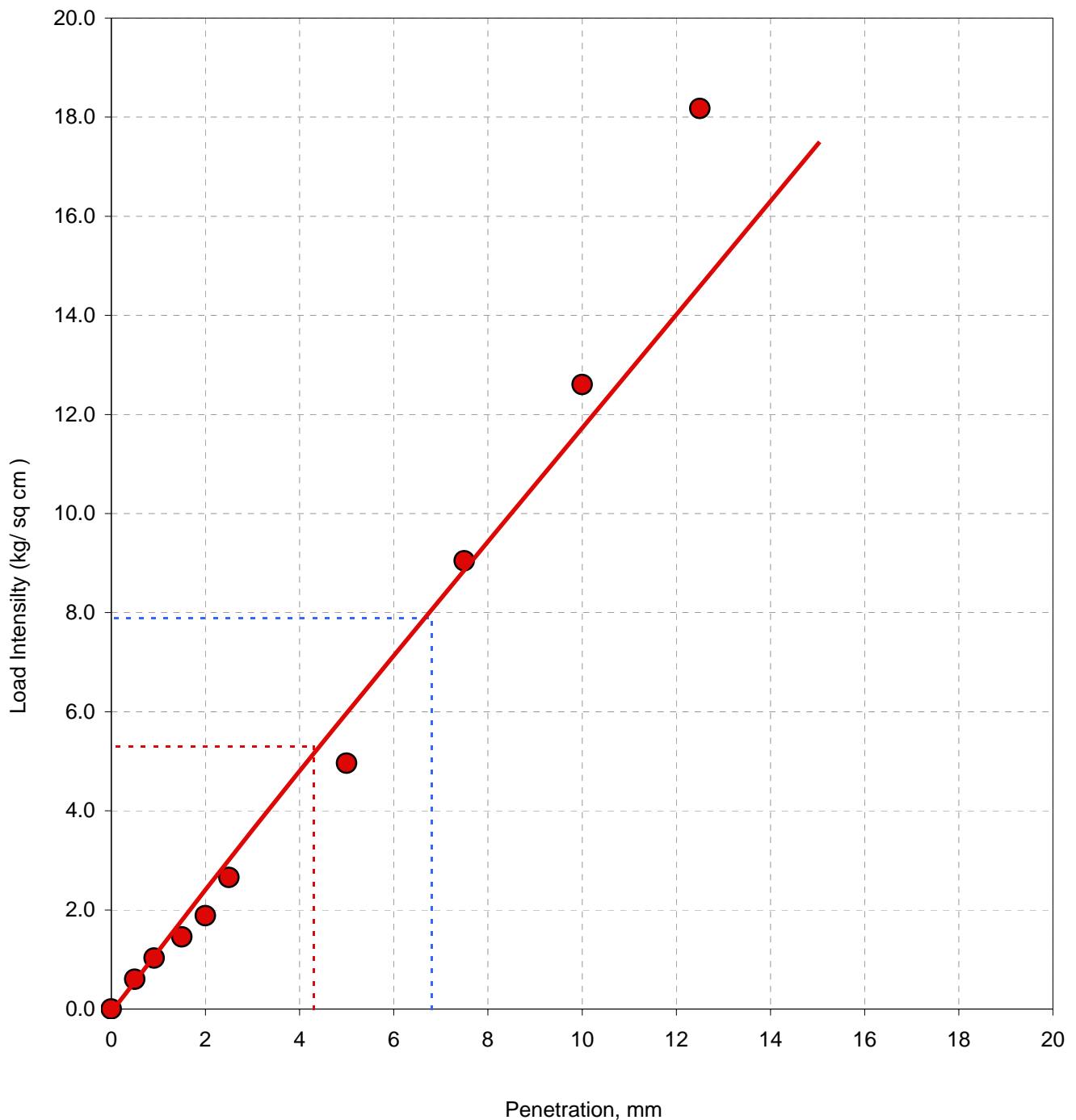
Load Intensity vs. Penetration (FCBR-11)



### Field California Bearing Ratio Test .: FCBR-12

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-12	Bearing Ratio at 2.5mm : 7.6
Test Location : Road	
Coordinates : E-699229, N-3159851	Bearing Ratio at 5.0mm : <b>7.5</b>
Test Depth : 0.15 m	
Surface Elevation : 211.532 m	Field CBR Value : <b>7.6</b>



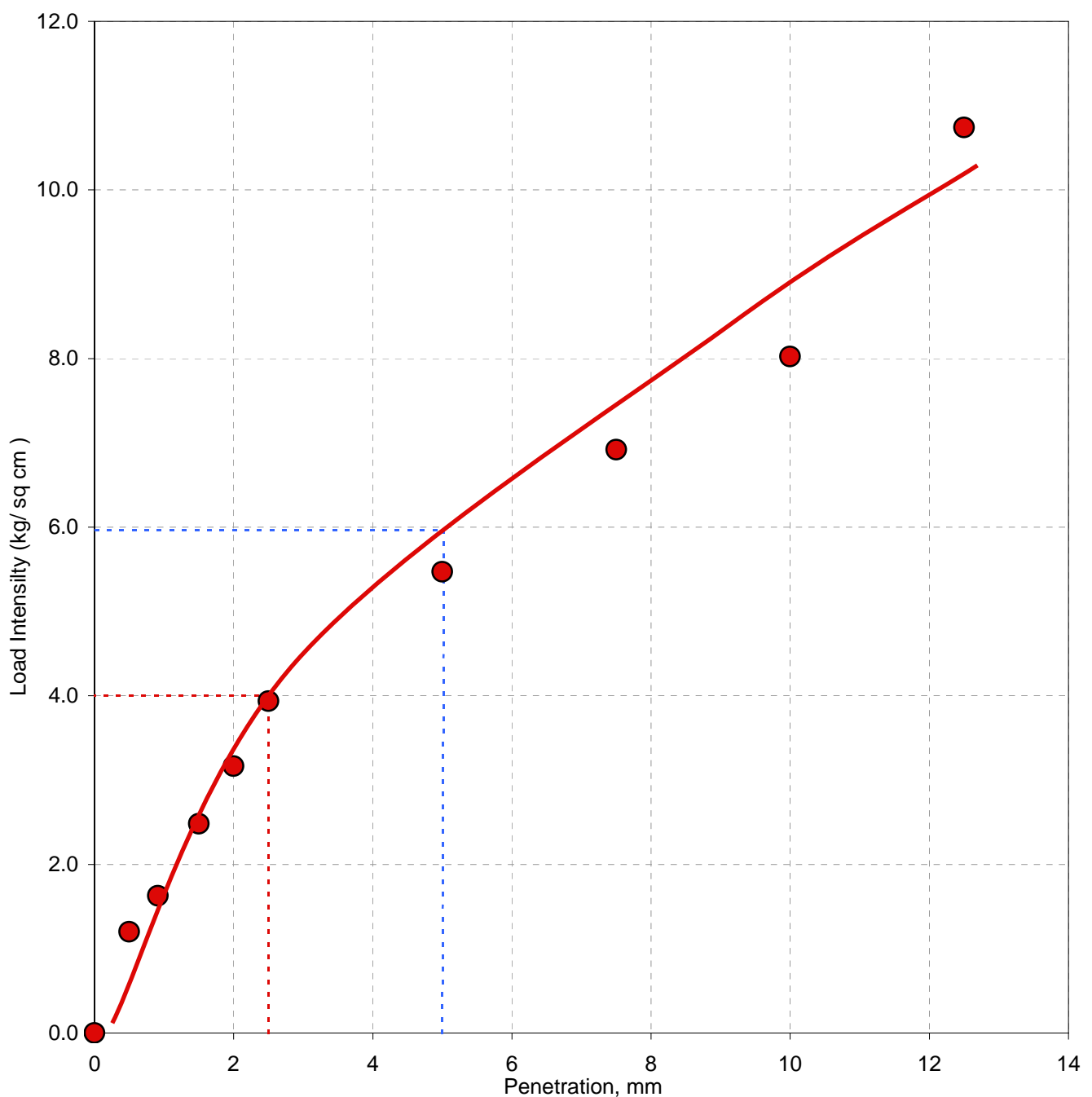
Load Intensity vs. Penetration (FCBR-12)



### Field California Bearing Ratio Test .: FCBR-13

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-13	Bearing Ratio at 2.5mm : 5.7
Test Location : Road	
Coordinates : E-699265, N-3159899	Bearing Ratio at 5.0mm : <b>5.7</b>
Test Depth : 0.15 m	
Surface Elevation : 211.646 m	Field CBR Value : <b>5.7</b>



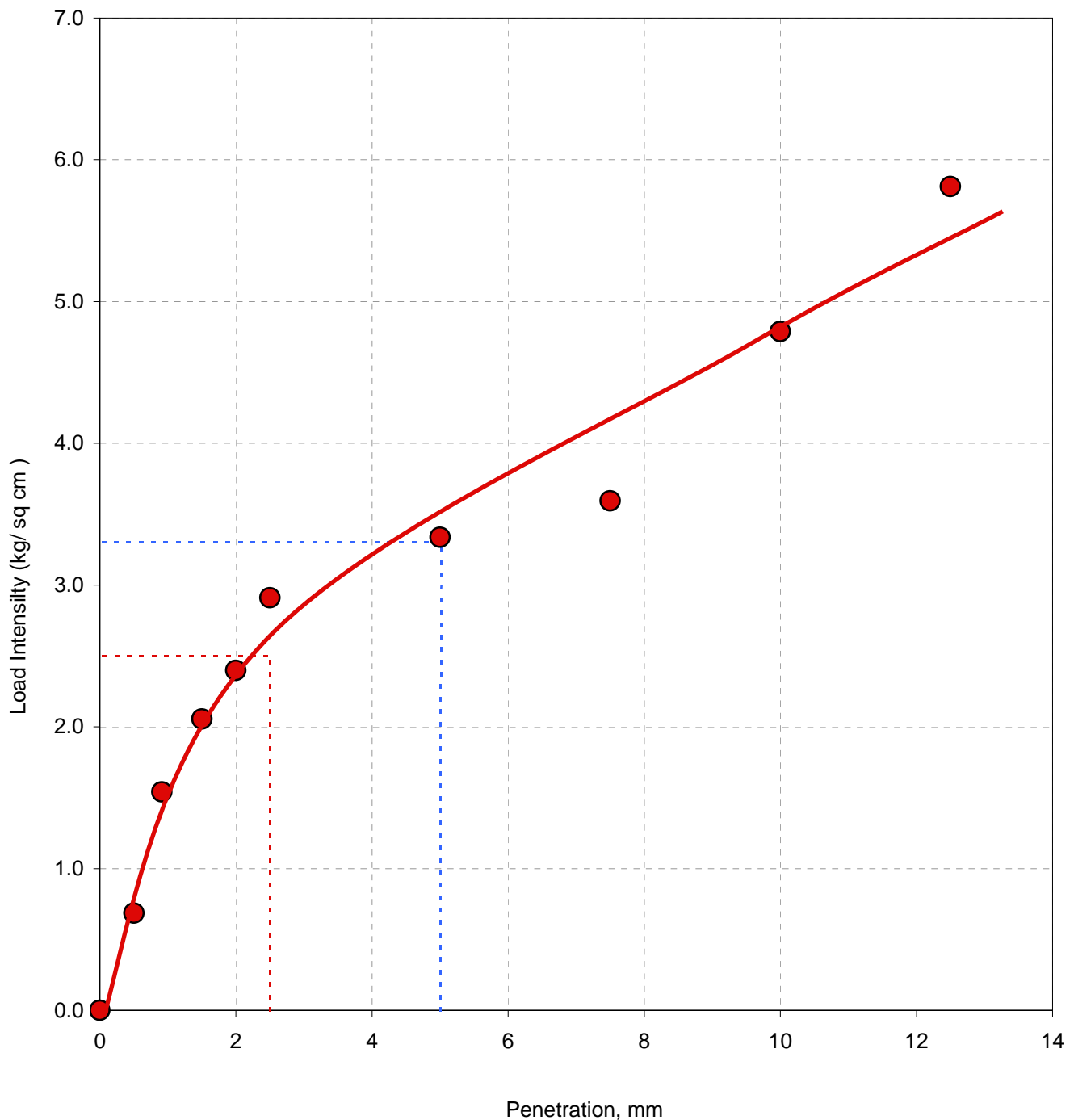
Load Intensity vs. Penetration (FCBR-13)



### Field California Bearing Ratio Test .: FCBR-14

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-14	Bearing Ratio at 2.5mm : 3.6
Test Location : Road	
Coordinates : E-699307, N-3159956	Bearing Ratio at 5.0mm : <b>3.1</b>
Test Depth : 0.15 m	
Surface Elevation : 211.600 m	Field CBR Value : <b>3.6</b>



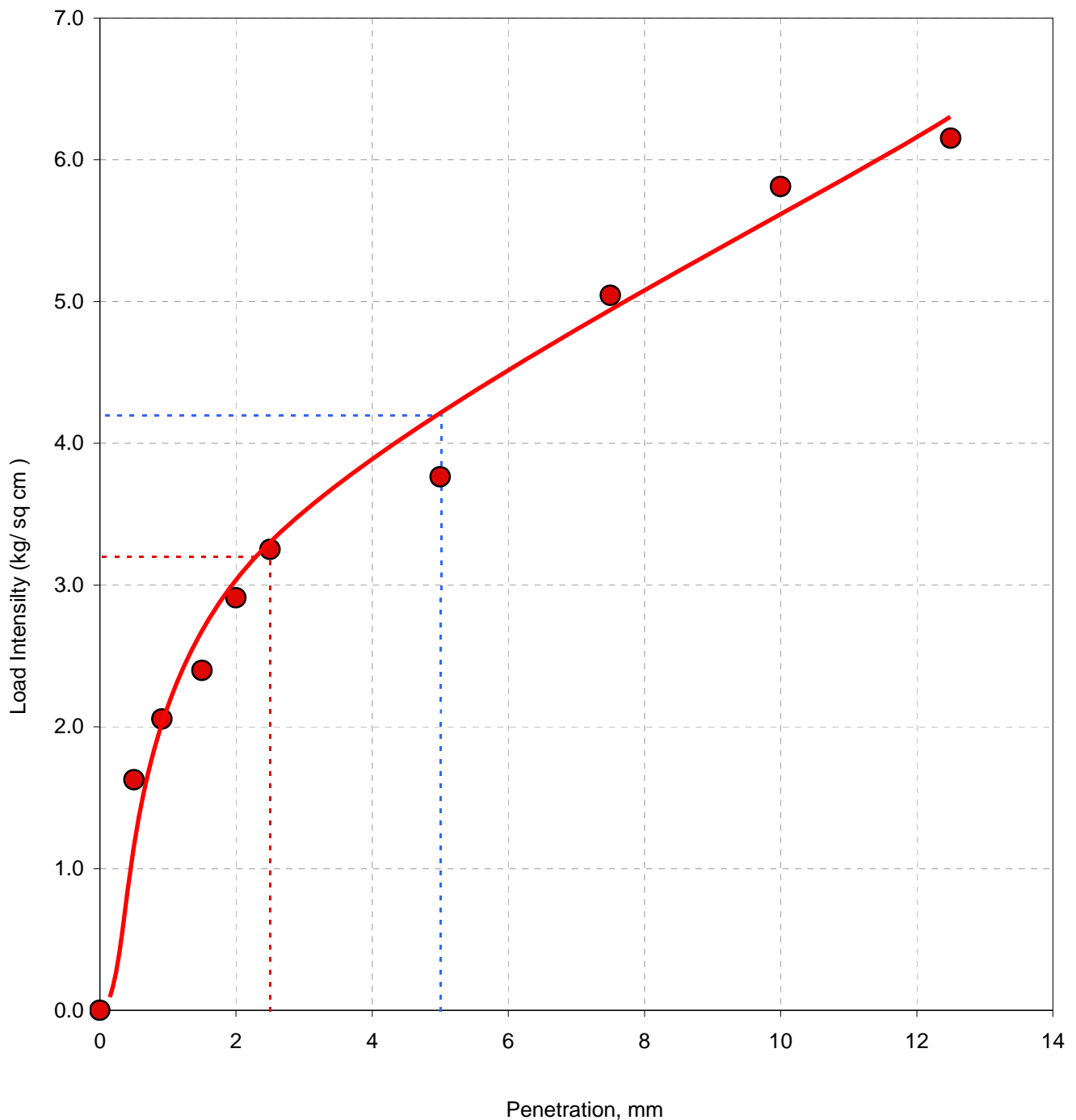
Load Intensity vs. Penetration (FCBR-14)



### Field California Bearing Ratio Test .: FCBR-15

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-15	Bearing Ratio at 2.5mm : 4.6
Test Location : Road	
Coordinates : E-699348, N-3160012	Bearing Ratio at 5.0mm : <b>4.0</b>
Test Depth : 0.15 m	
Surface Elevation : 211.725 m	Field CBR Value : <b>4.6</b>



Load Intensity vs. Penetration (FCBR-15)

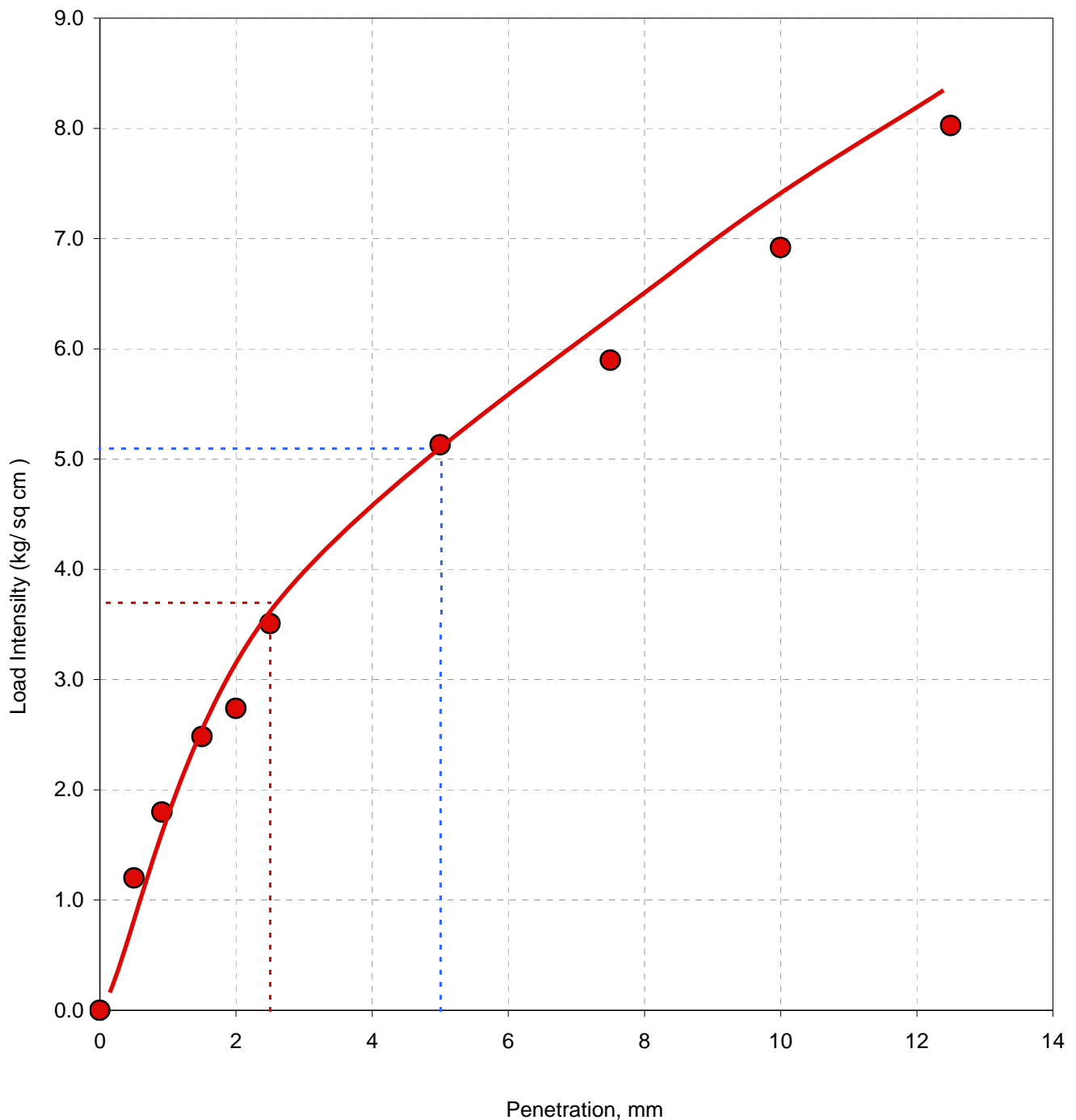




### Field California Bearing Ratio Test .: FCBR-16

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-16	Bearing Ratio at 2.5mm : 5.3
Test Location : Road	
Coordinates : E-699385, N-3160062	Bearing Ratio at 5.0mm : <b>4.9</b>
Test Depth : 0.15 m	
Surface Elevation : 211.500 m	Field CBR Value : <b>5.3</b>



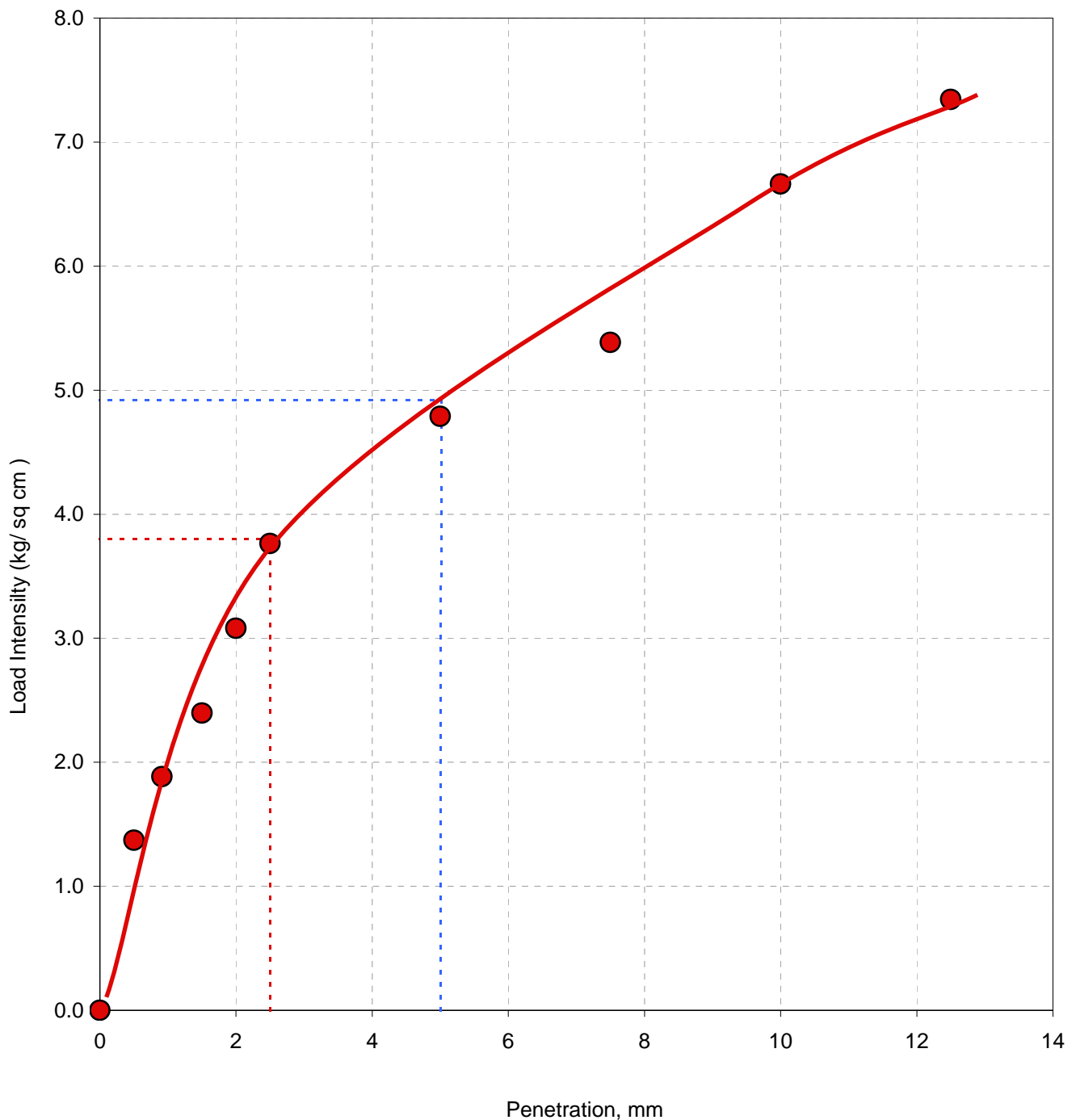
Load Intensity vs. Penetration (FCBR-16)



### Field California Bearing Ratio Test .: FCBR-17

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-17	Bearing Ratio at 2.5mm : 5.4
Test Location : Road	
Coordinates : E-699433, N-3160026	Bearing Ratio at 5.0mm : <b>4.7</b>
Test Depth : 0.15 m	
Surface Elevation : 211.640 m	Field CBR Value : <b>5.4</b>



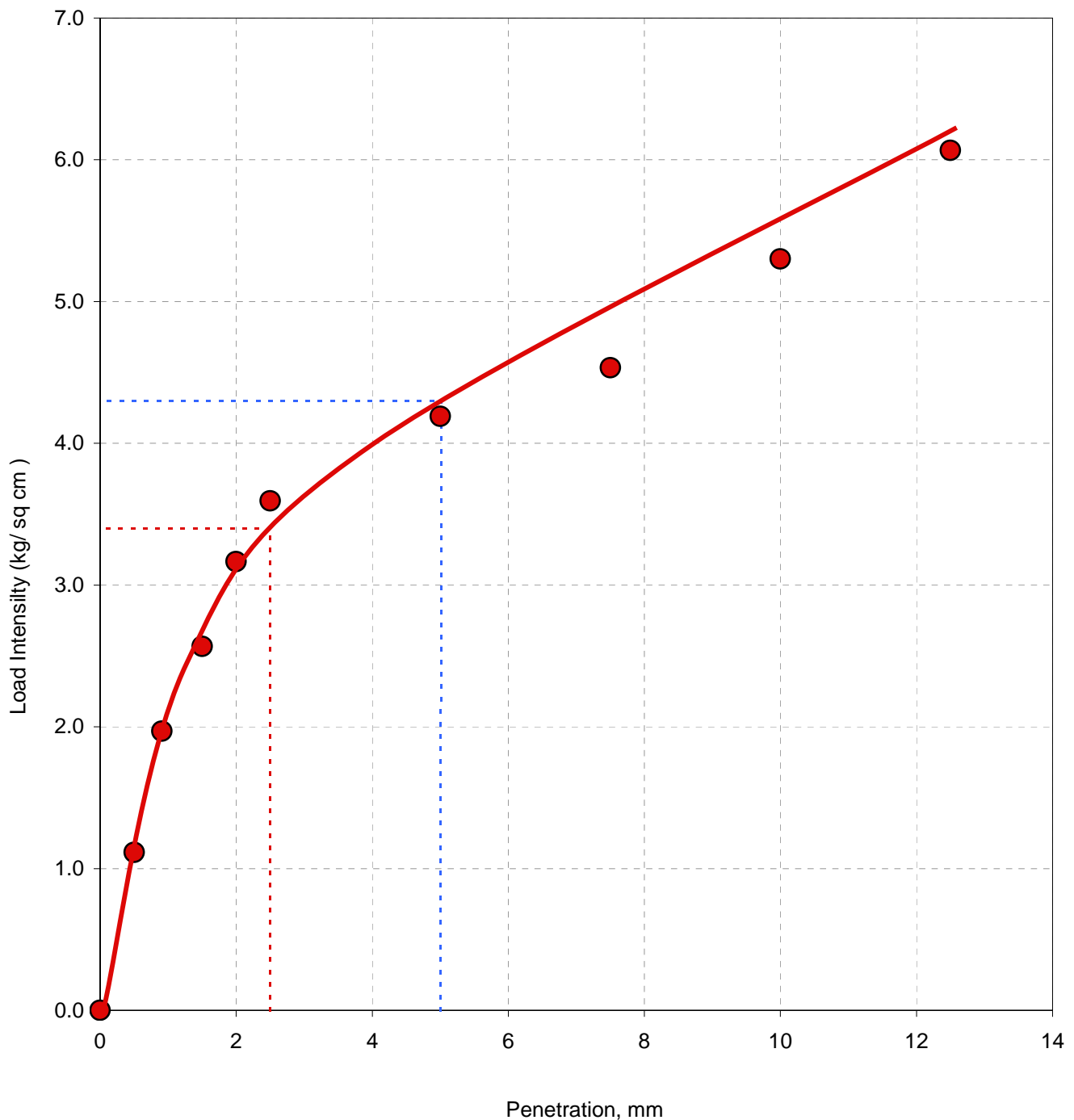
Load Intensity vs. Penetration (FCBR-17)



### Field California Bearing Ratio Test .: FCBR-18

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-18	Bearing Ratio at 2.5mm : 4.9
Test Location : Road	
Coordinates : E-699574, N-3159922	Bearing Ratio at 5.0mm : <b>4.1</b>
Test Depth : 0.15 m	
Surface Elevation : 212.253 m	Field CBR Value : <b>4.9</b>



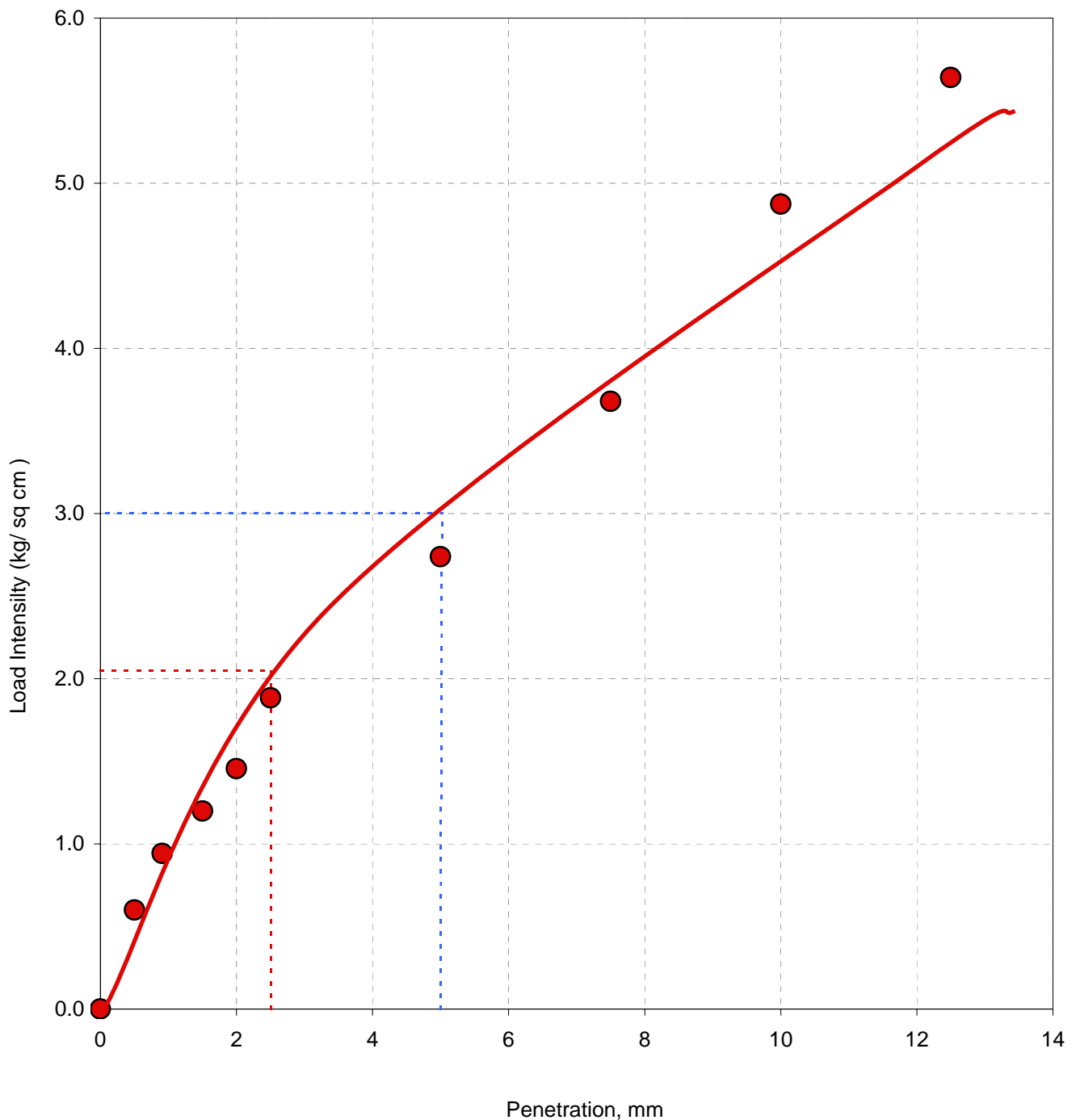
Load Intensity vs. Penetration (FCBR-18)



### Field California Bearing Ratio Test .: FCBR-19

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-19	Bearing Ratio at 2.5mm : 2.9
Test Location : Road	
Coordinates : E-699427, N-3160118	Bearing Ratio at 5.0mm : <b>2.9</b>
Test Depth : 0.15 m	
Surface Elevation : 211.467 m	Field CBR Value : <b>2.9</b>



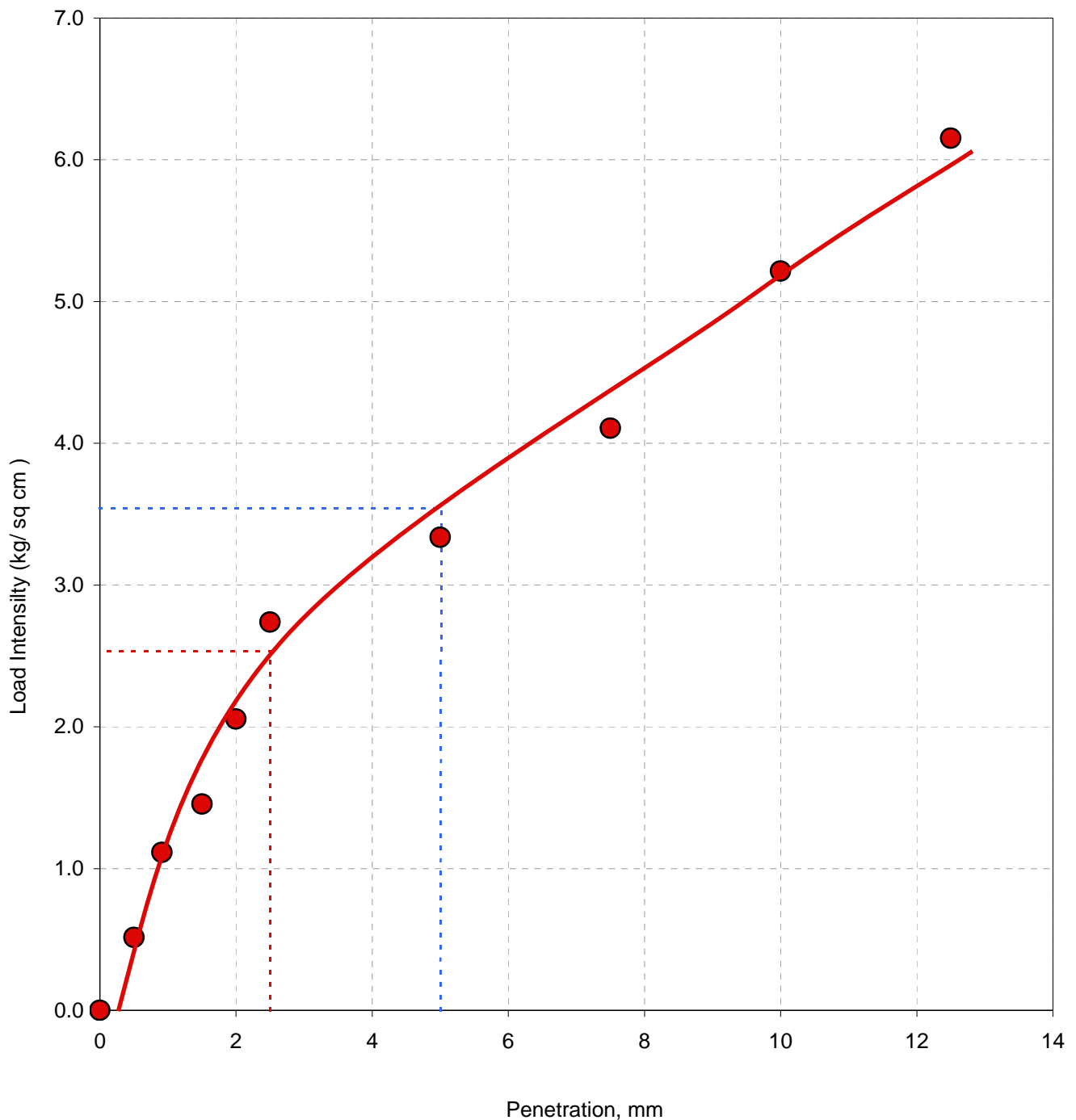
Load Intensity vs. Penetration (FCBR-19)



### Field California Bearing Ratio Test .: FCBR-20

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-20	Bearing Ratio at 2.5mm : 3.6
Test Location : Road	
Coordinates : E-699462, N-3160166	Bearing Ratio at 5.0mm : <b>3.4</b>
Test Depth : 0.15 m	
Surface Elevation : 211.562 m	Field CBR Value : <b>3.6</b>



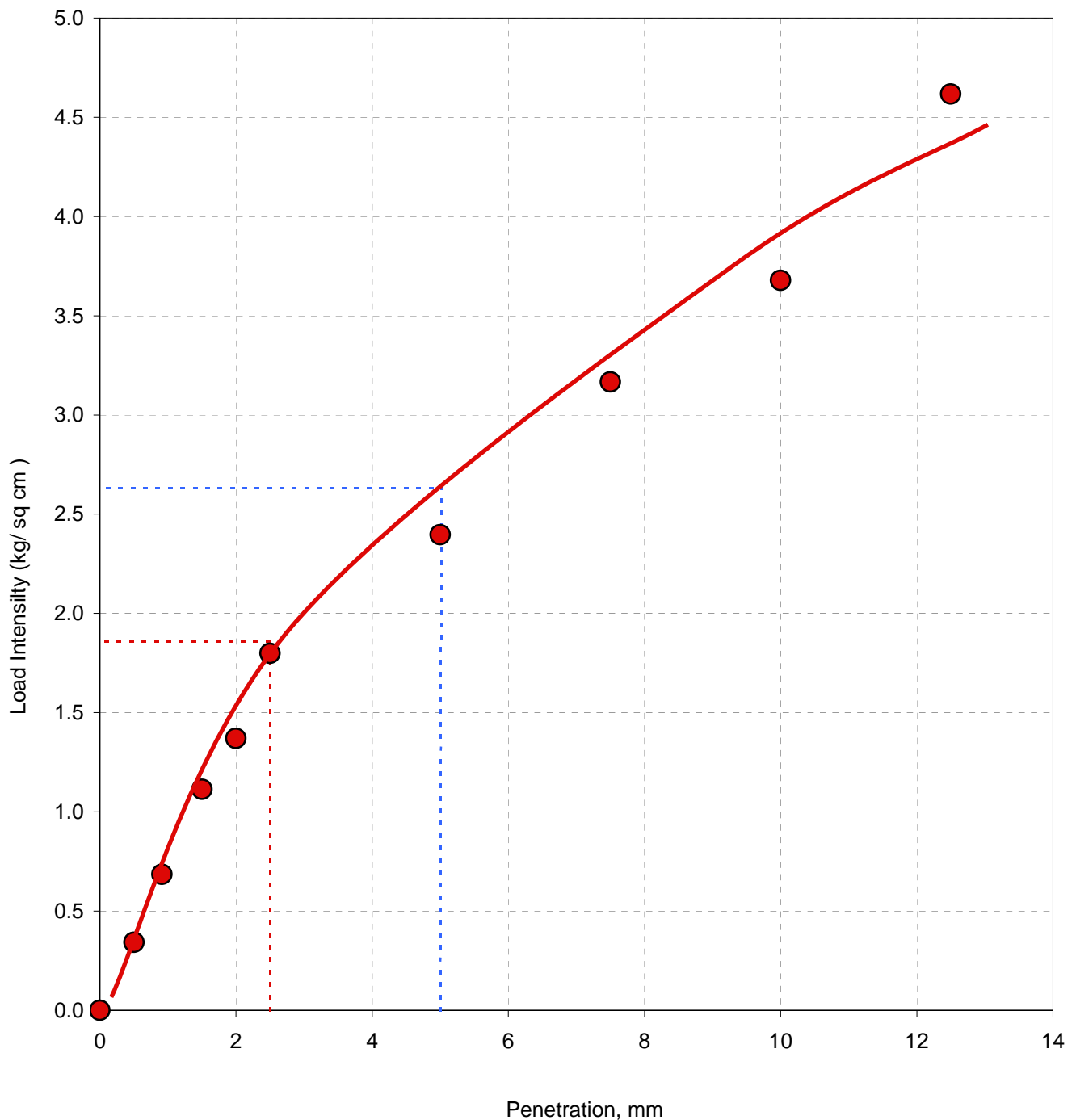
Load Intensity vs. Penetration (FCBR-20)



### Field California Bearing Ratio Test .: FCBR-21

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-21	Bearing Ratio at 2.5mm : 2.7
Test Location : Road	
Coordinates : E-699505, N-3160224	Bearing Ratio at 5.0mm : <b>2.5</b>
Test Depth : 0.15 m	
Surface Elevation : 211.500 m	Field CBR Value : <b>2.7</b>



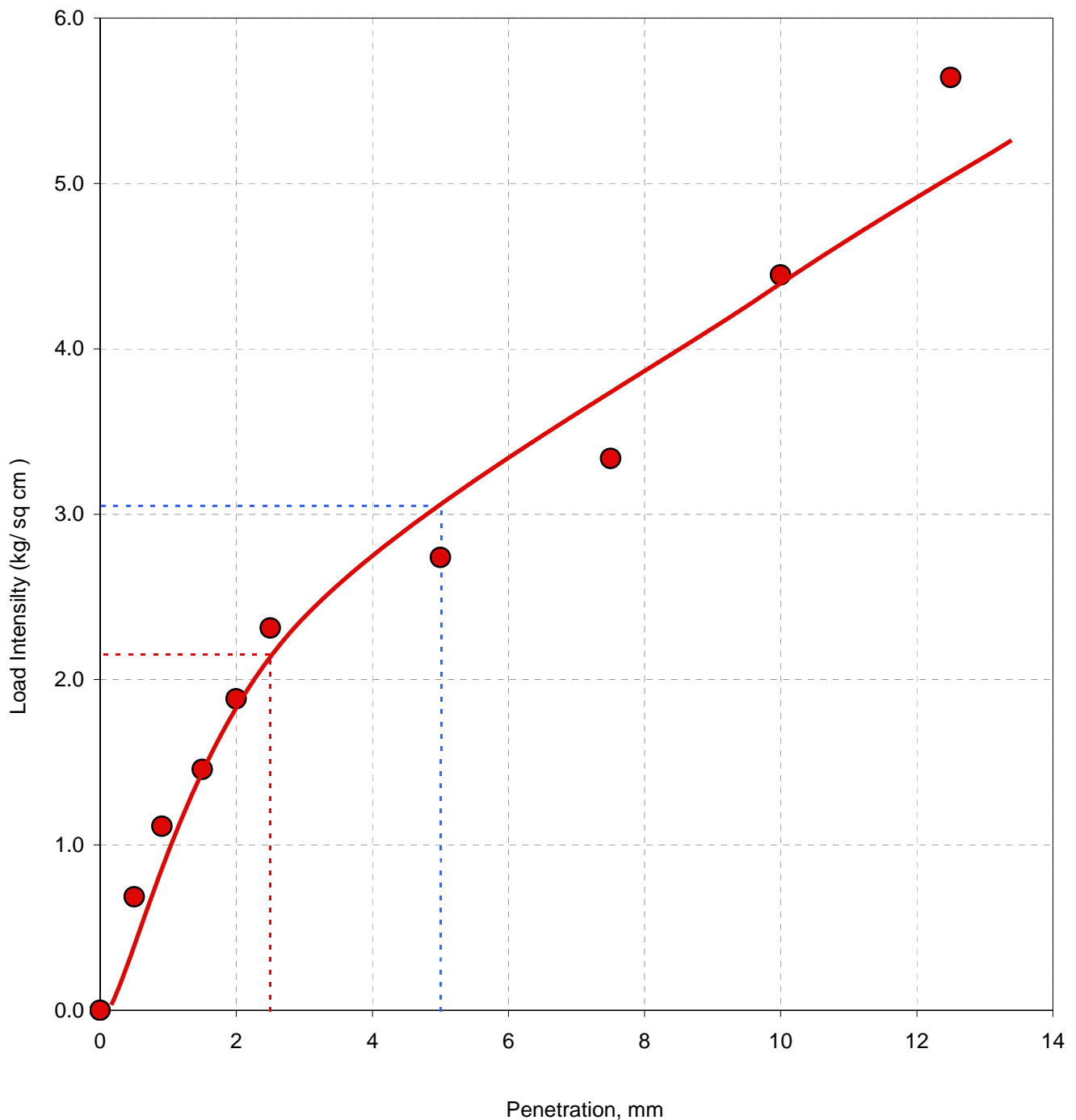
Load Intensity vs. Penetration (FCBR-21)



### Field California Bearing Ratio Test .: FCBR-22

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-22	Bearing Ratio at 2.5mm : 3.1
Test Location : Road	
Coordinates : E-699553, N-3160189	Bearing Ratio at 5.0mm : <b>2.9</b>
Test Depth : 0.15 m	
Surface Elevation : 211.645 m	Field CBR Value : <b>3.1</b>



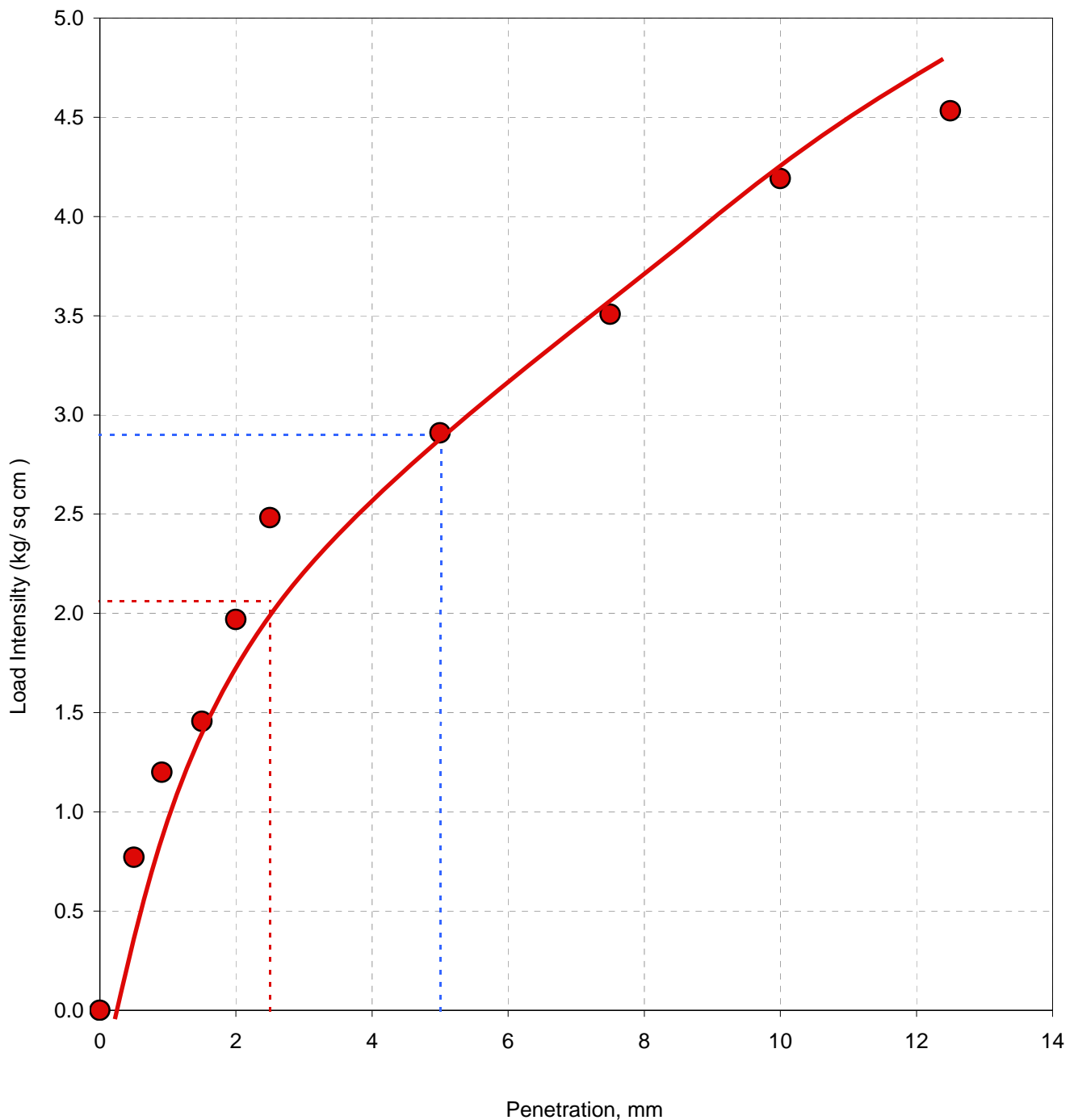
Load Intensity vs. Penetration (FCBR-22)



### Field California Bearing Ratio Test .: FCBR-23

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-23	Bearing Ratio at 2.5mm : 2.9
Test Location : Road	
Coordinates : E-699694, N-3160084	Bearing Ratio at 5.0mm : <b>2.8</b>
Test Depth : 0.15 m	
Surface Elevation : 212.331 m	Field CBR Value : <b>2.9</b>



Load Intensity vs. Penetration (FCBR-23)

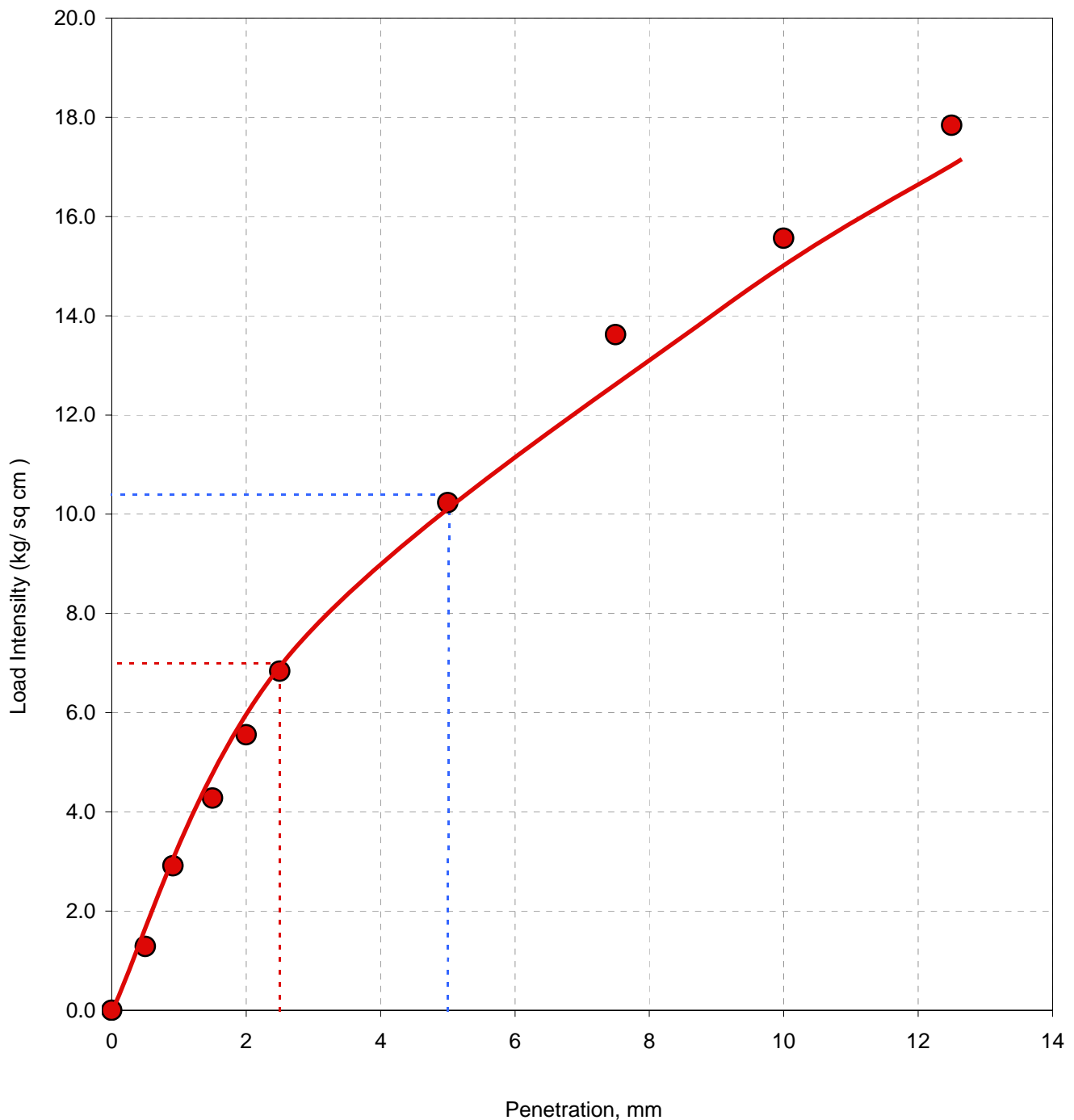




### Field California Bearing Ratio Test .: FCBR-24

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-24	Bearing Ratio at 2.5mm : 10.0
Test Location : Road	
Coordinates : E-699550, N-3160285	Bearing Ratio at 5.0mm : <b>9.9</b>
Test Depth : 0.15 m	
Surface Elevation : 212.000 m	Field CBR Value : <b>10.0</b>



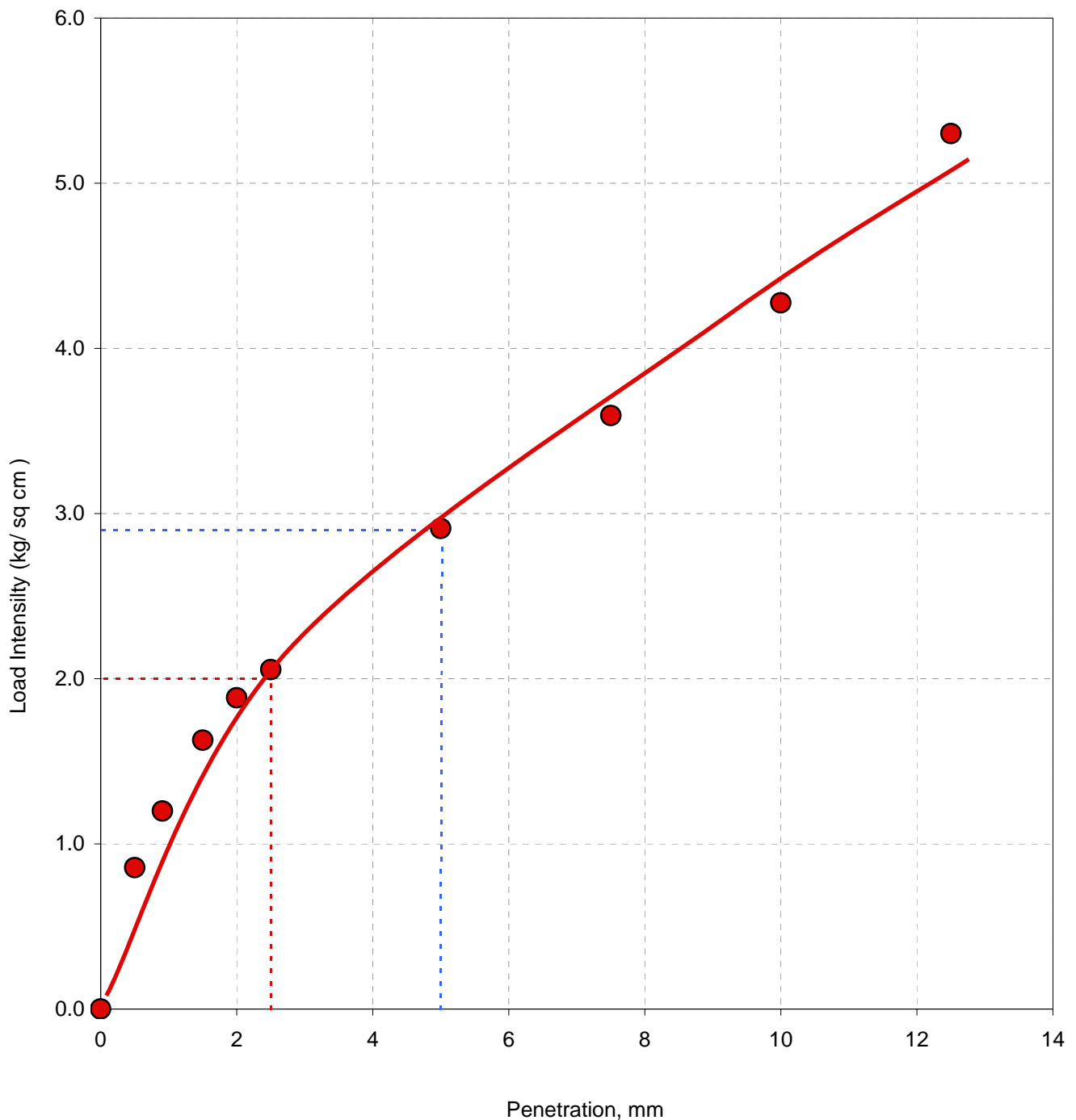
Load Intensity vs. Penetration (FCBR-24)



### Field California Bearing Ratio Test .: FCBR-25

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-25	Bearing Ratio at 2.5mm : 2.9
Test Location : Road	
Coordinates : E-699607, N-3160286	Bearing Ratio at 5.0mm : <b>2.8</b>
Test Depth : 0.15 m	
Surface Elevation : 211.500 m	Field CBR Value : <b>2.9</b>



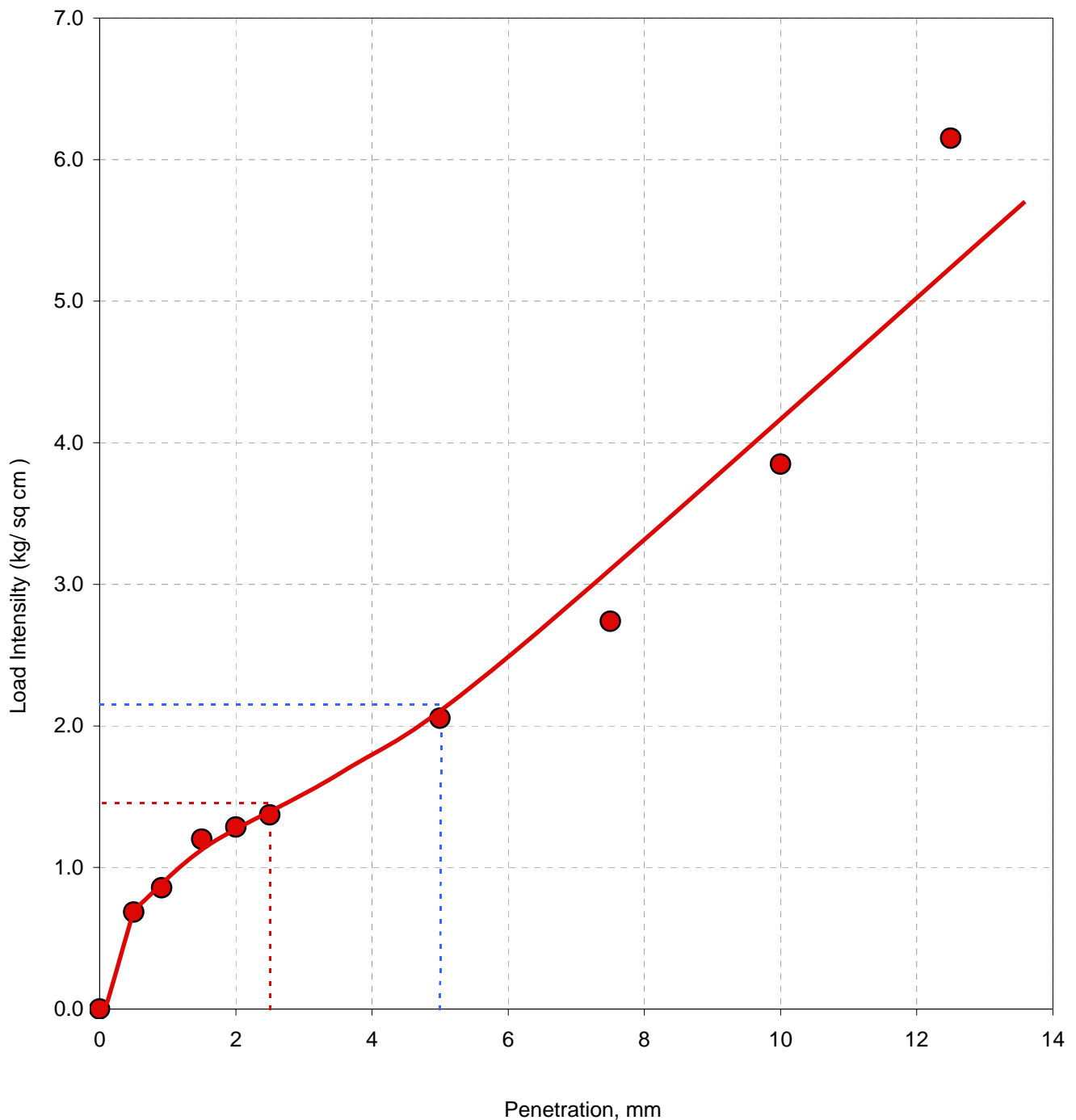
Load Intensity vs. Penetration (FCBR-25)



### Field California Bearing Ratio Test .: FCBR-26

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-26	Bearing Ratio at 2.5mm : 2.1
Test Location : Road	
Coordinates : E-699663, N-3160287	Bearing Ratio at 5.0mm : <b>2.0</b>
Test Depth : 0.15 m	
Surface Elevation : 212.078 m	Field CBR Value : <b>2.1</b>



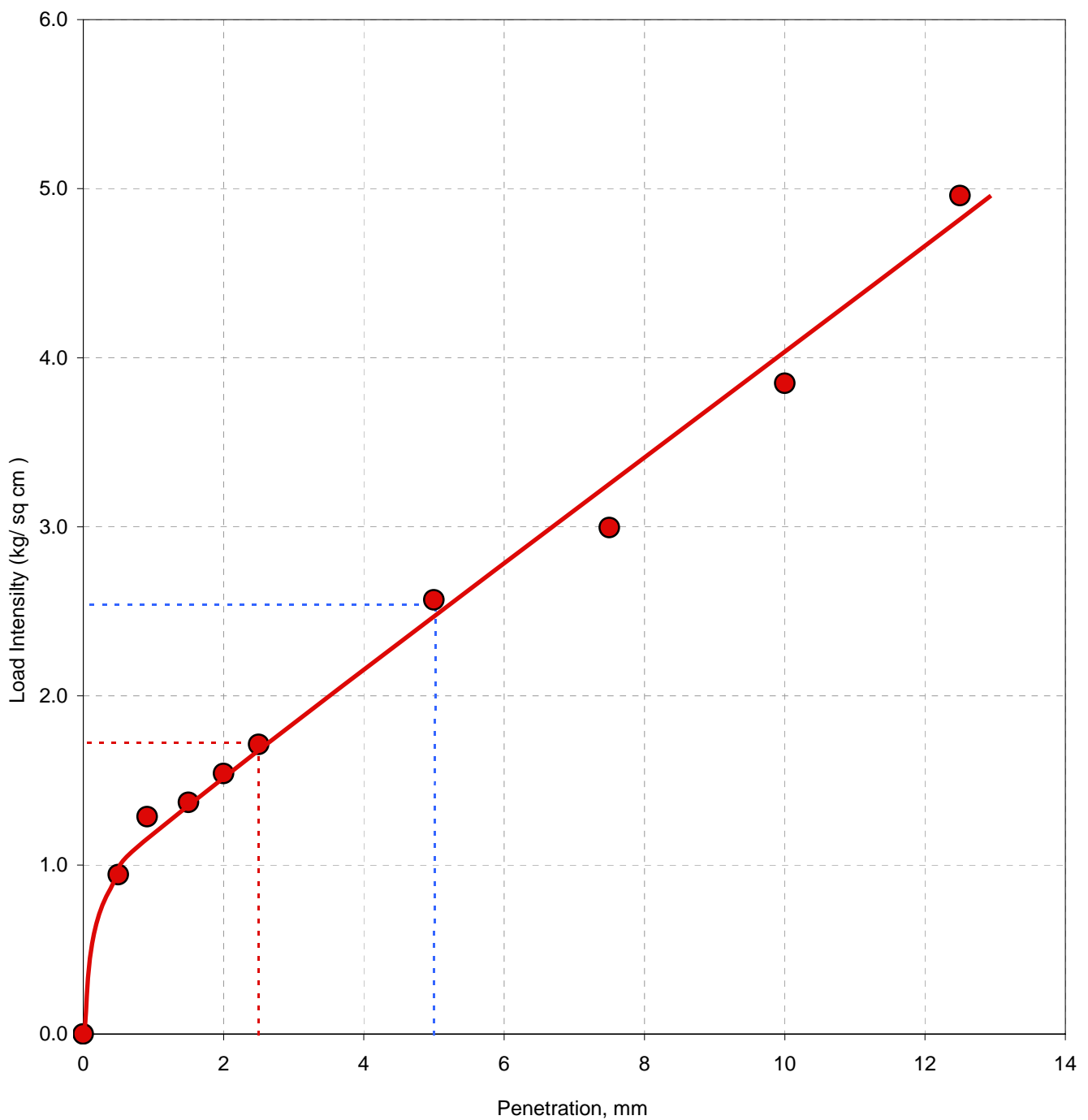
Load Intensity vs. Penetration (FCBR-26)



### Field California Bearing Ratio Test .: FCBR-27

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-27	Bearing Ratio at 2.5mm : 2.5
Test Location : Road	
Coordinates : E-699794, N-3160262	Bearing Ratio at 5.0mm : <b>2.4</b>
Test Depth : 0.15 m	
Surface Elevation : 212.721 m	Field CBR Value : <b>2.5</b>



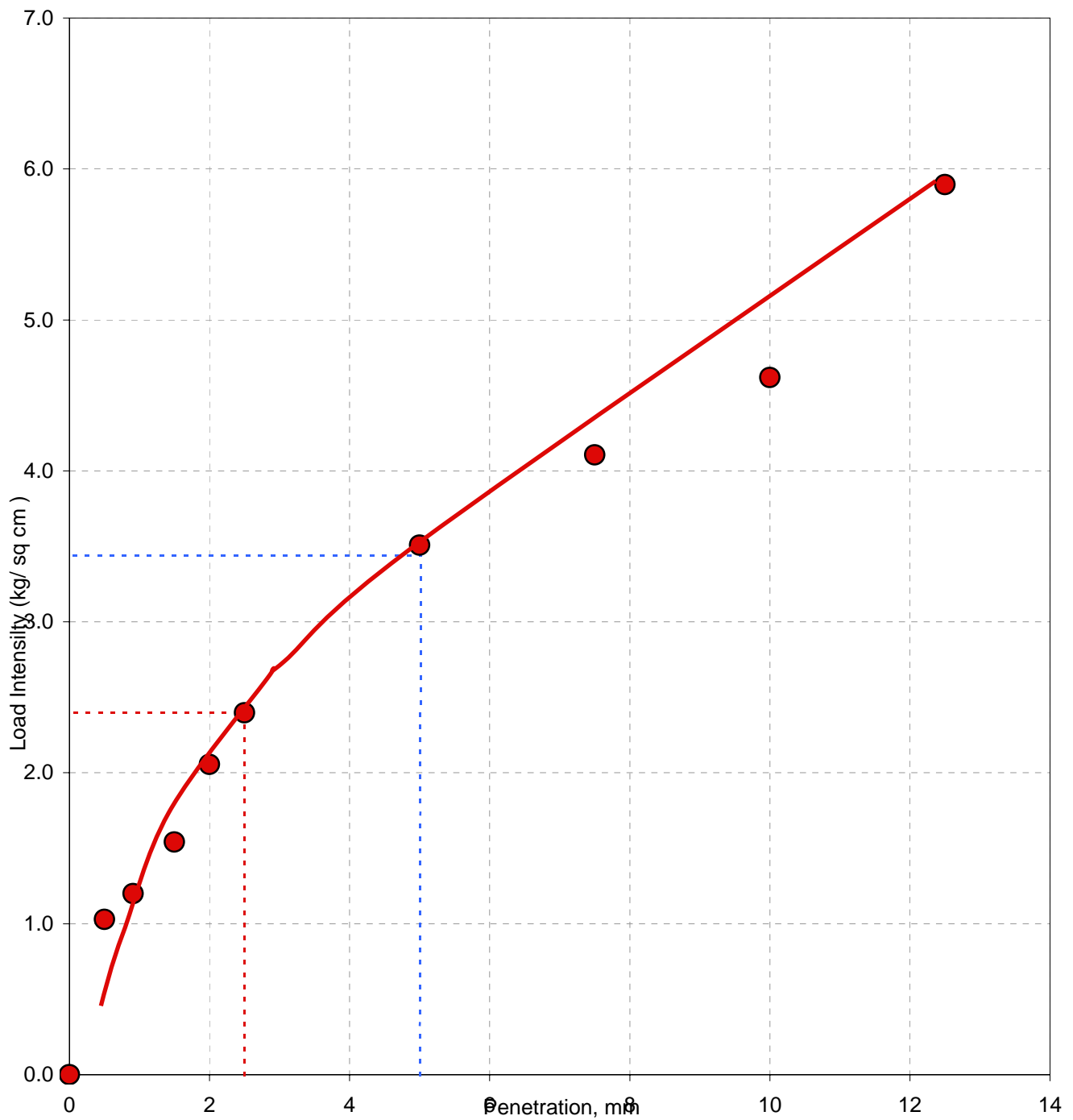
Load Intensity vs. Penetration (FCBR-27)



### Field California Bearing Ratio Test .: FCBR-28

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-28	Bearing Ratio at 2.5mm : 3.4
Test Location : Road	
Coordinates : E-699697, N-3160333	Bearing Ratio at 5.0mm : <b>3.3</b>
Test Depth : 0.15 m	
Surface Elevation : 212.291 m	Field CBR Value : <b>3.4</b>



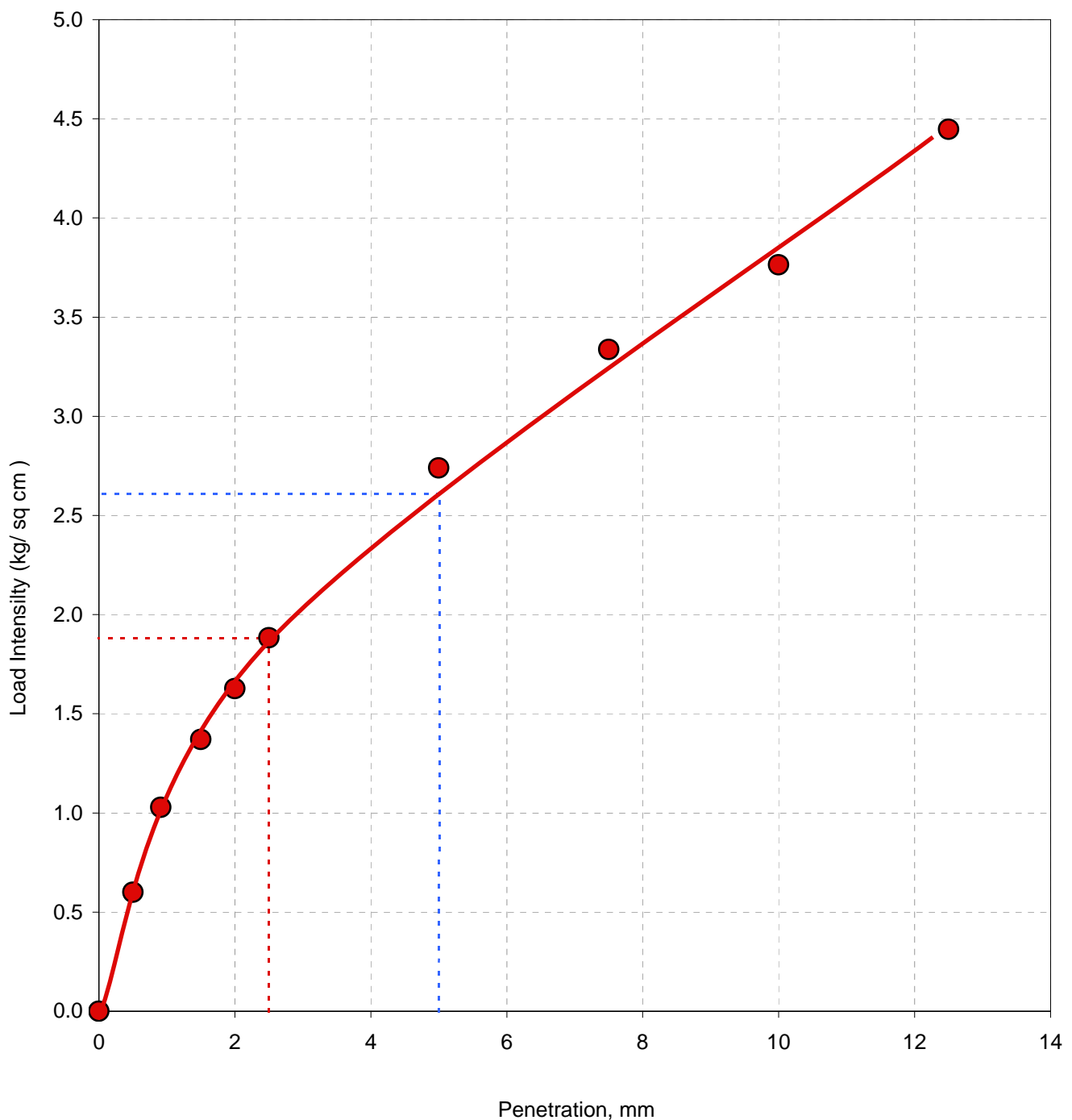
Load Intensity vs. Penetration (FCBR-28)



### Field California Bearing Ratio Test .: FCBR-29

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-29	Bearing Ratio at 2.5mm : 2.7
Test Location : Road	
Coordinates : E-699702, N-3160386	Bearing Ratio at 5.0mm : <b>2.5</b>
Test Depth : 0.15 m	
Surface Elevation : 212.224 m	Field CBR Value : <b>2.7</b>



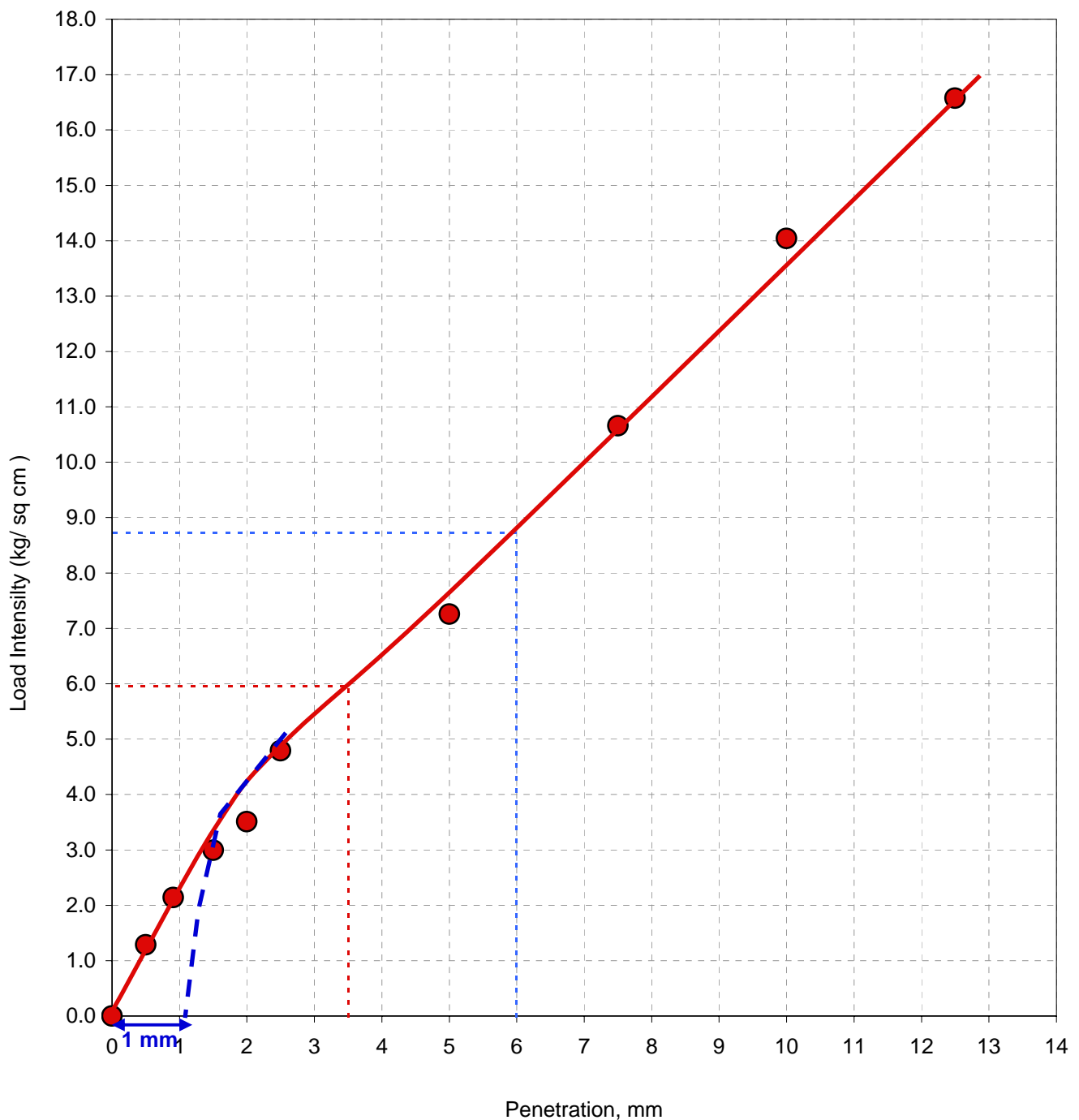
Load Intensity vs. Penetration (FCBR-29)



### Field California Bearing Ratio Test .: FCBR-30

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-30	Bearing Ratio at 2.5mm : 8.5
Test Location : Road	
Coordinates : E-699750, N-3160451	Bearing Ratio at 5.0mm : <b>8.3</b>
Test Depth : 0.15 m	
Surface Elevation : 212.264 m	Field CBR Value : <b>8.5</b>



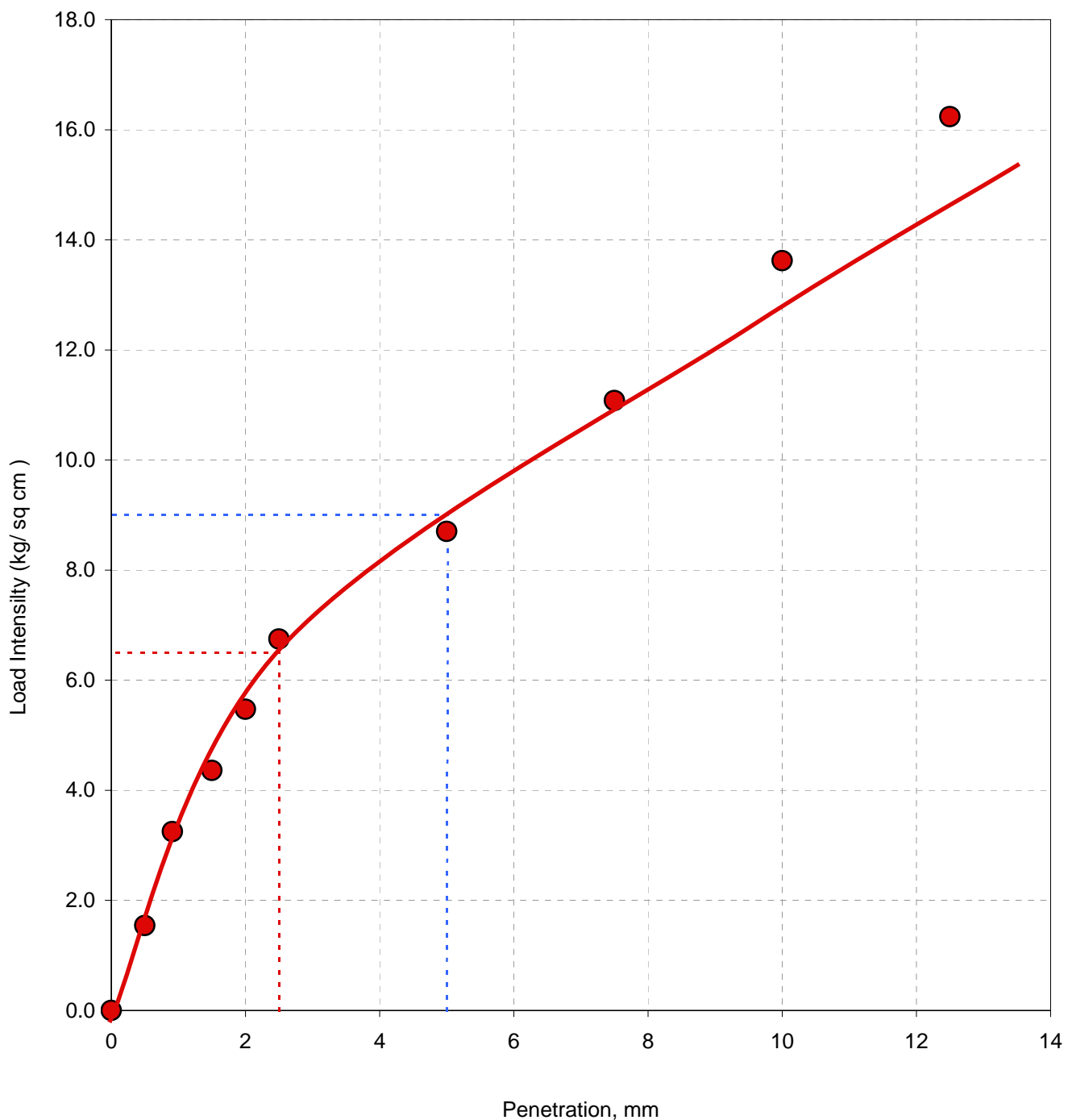
Load Intensity vs. Penetration (FCBR-30)



### Field California Bearing Ratio Test .: FCBR-31

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-31	Bearing Ratio at 2.5mm : 9.3
Test Location : Road	
Coordinates : E-699843, N-3160476	Bearing Ratio at 5.0mm : <b>8.6</b>
Test Depth : 0.15 m	
Surface Elevation : 212.363 m	Field CBR Value : <b>9.3</b>



Load Intensity vs. Penetration (FCBR-31)

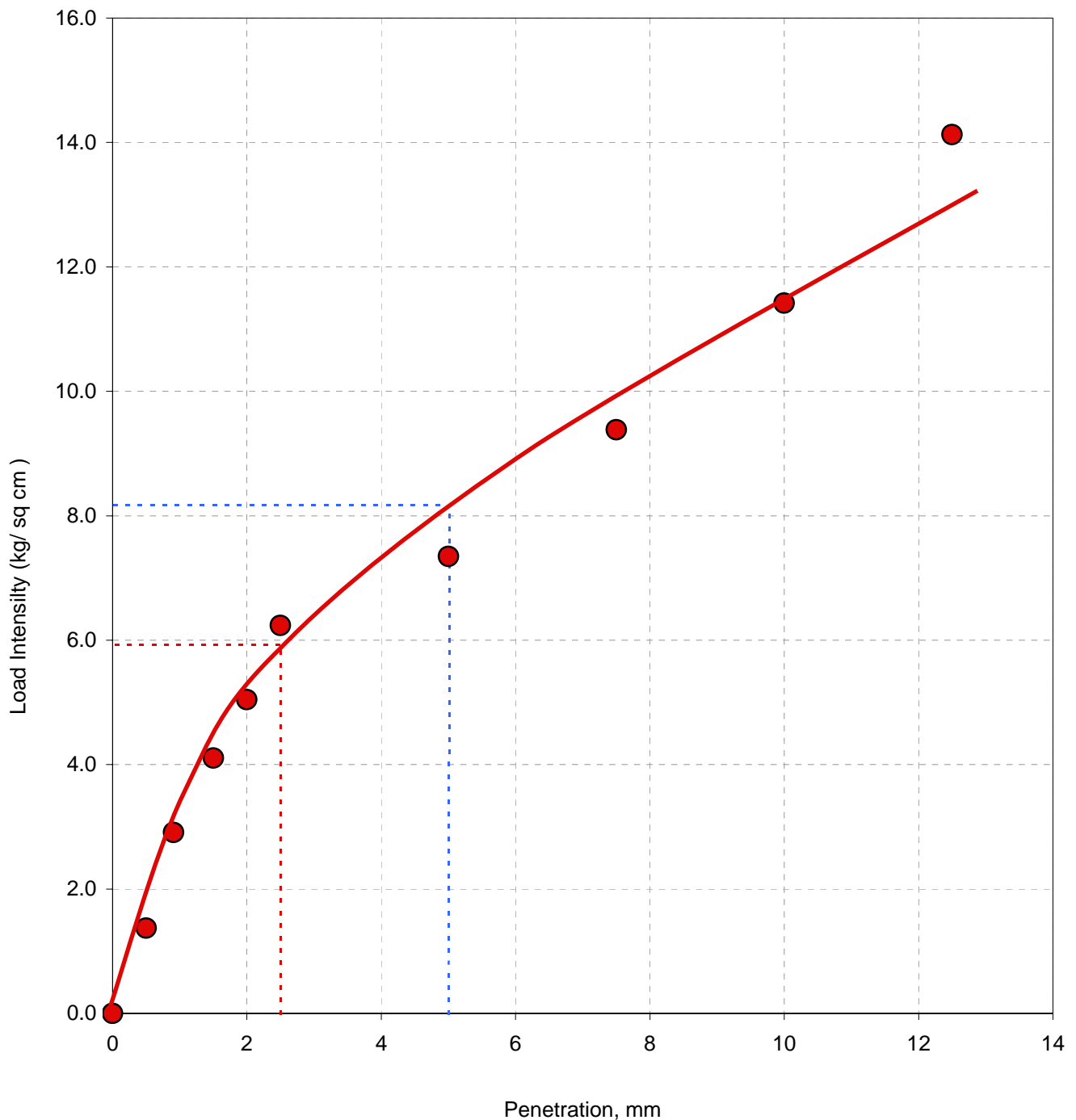




### Field California Bearing Ratio Test .: FCBR-32

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-32	Bearing Ratio at 2.5mm : 8.5
Test Location : Road	
Coordinates : E-699892, N-3160441	Bearing Ratio at 5.0mm : <b>7.8</b>
Test Depth : 0.15 m	
Surface Elevation : 212.427 m	Field CBR Value : <b>8.5</b>



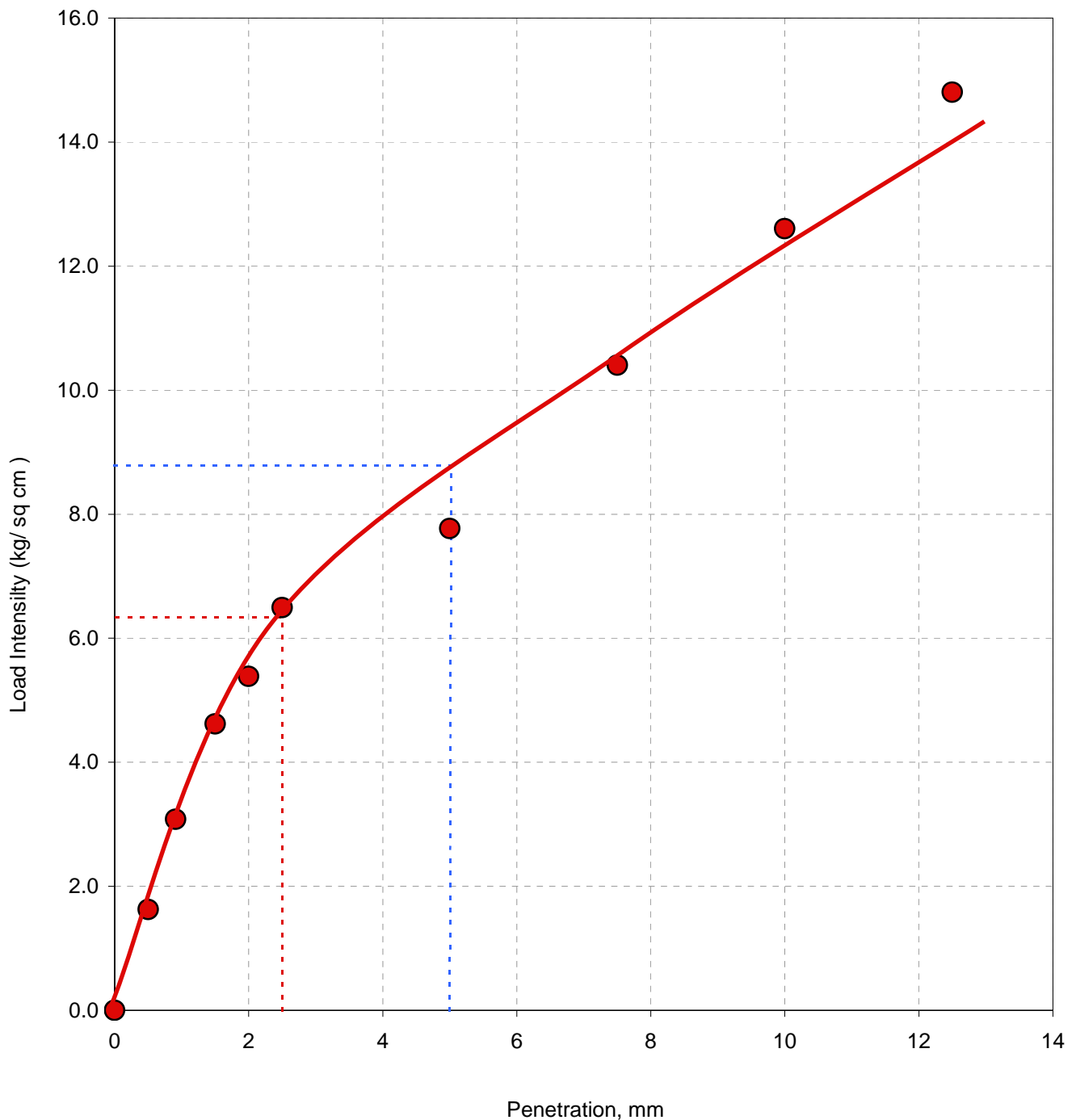
Load Intensity vs. Penetration (FCBR-32)



### Field California Bearing Ratio Test .: FCBR-33

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-33	Bearing Ratio at 2.5mm : 9.0
Test Location : Road	
Coordinates : E-699936, N-3160408	Bearing Ratio at 5.0mm : <b>8.4</b>
Test Depth : 0.15 m	
Surface Elevation : 212.528 m	Field CBR Value : <b>9.0</b>



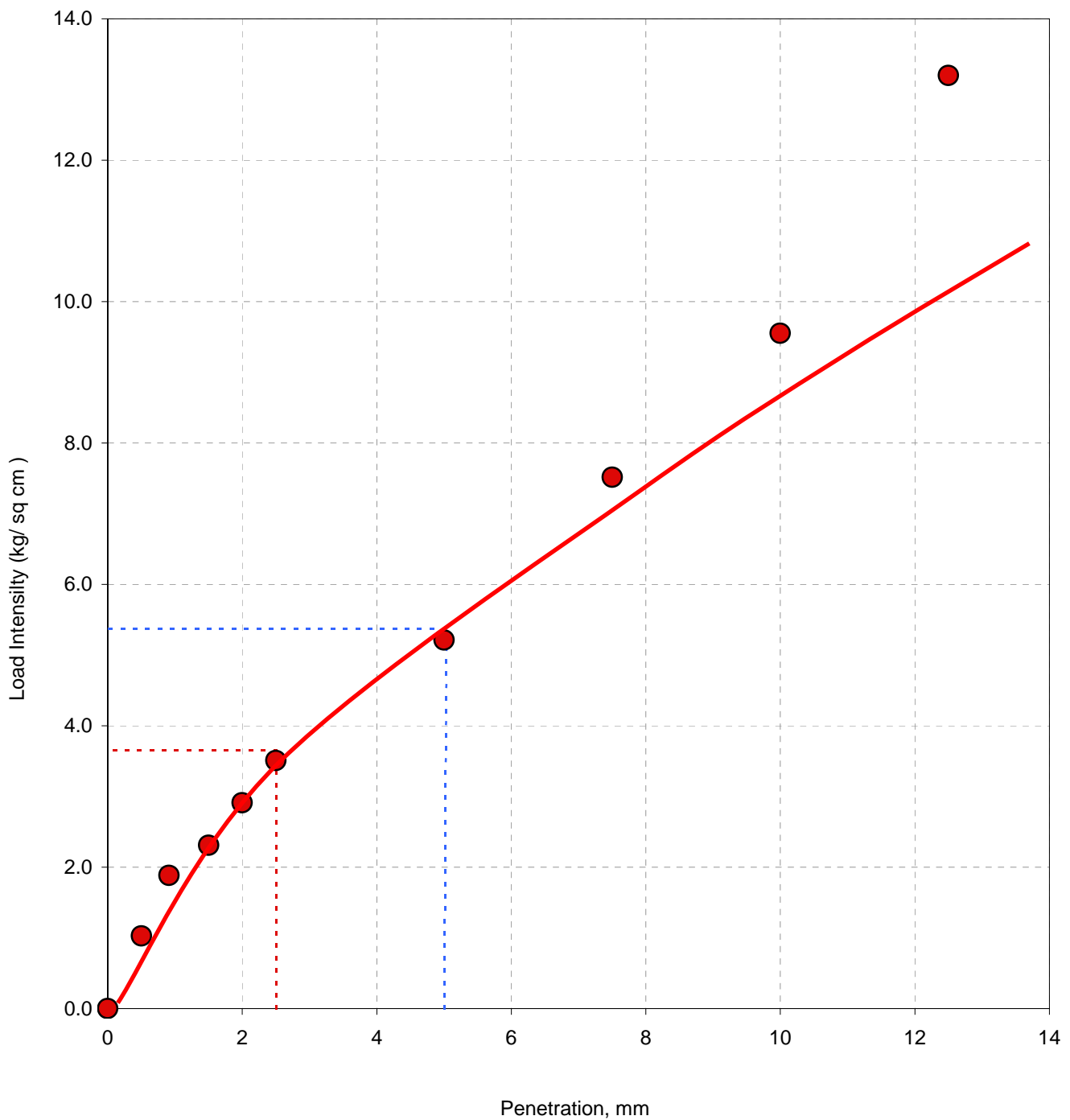
Load Intensity vs. Penetration (FCBR-33)



### Field California Bearing Ratio Test .: FCBR-34

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-34	Bearing Ratio at 2.5mm : 5.2
Test Location : Road	
Coordinates : E-699836, N-3160567	Bearing Ratio at 5.0mm : <b>5.1</b>
Test Depth : 0.15 m	
Surface Elevation : 212.801 m	Field CBR Value : <b>5.2</b>



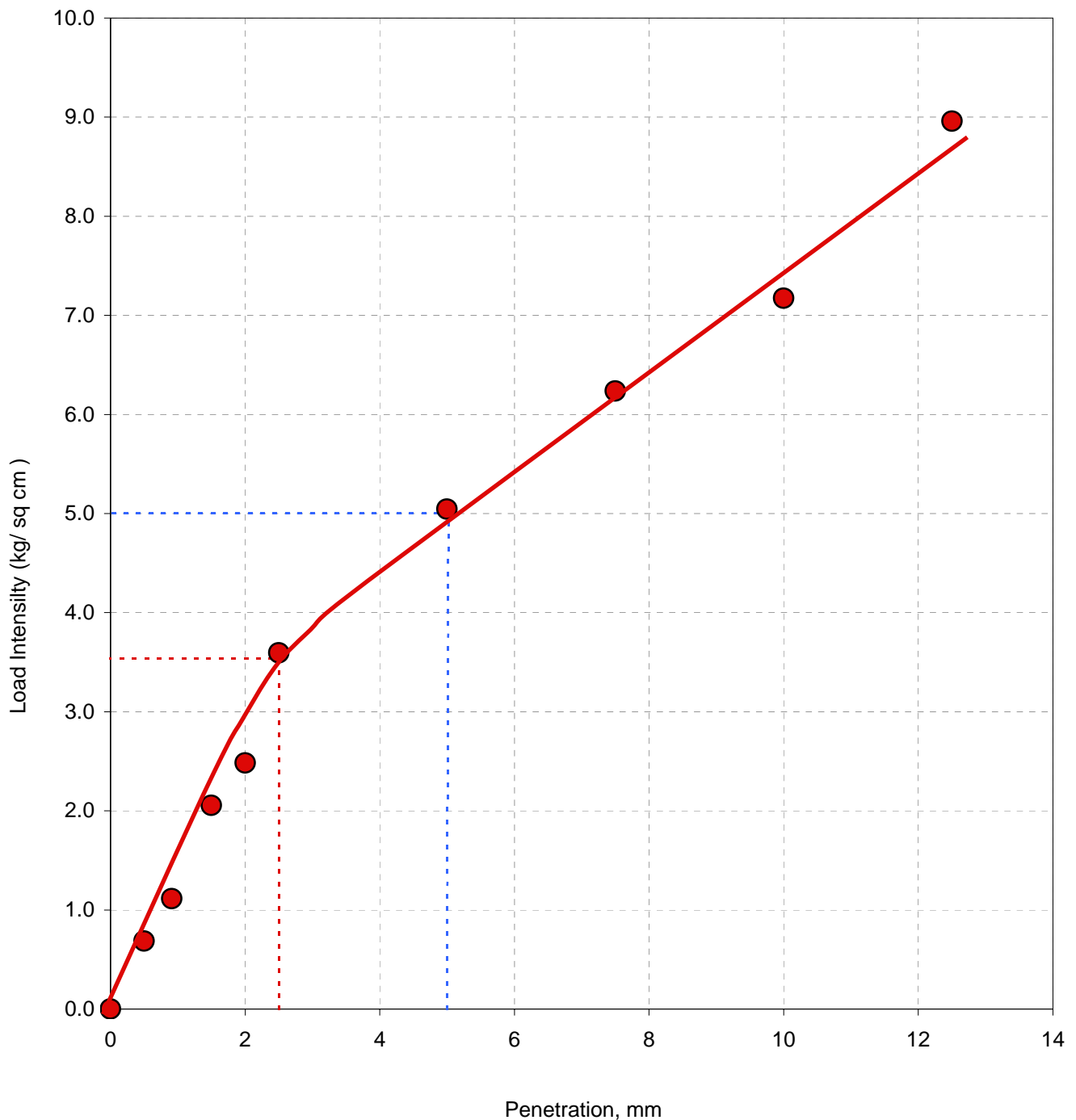
Load Intensity vs. Penetration (FCBR-34)



### Field California Bearing Ratio Test .: FCBR-35

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-35	Bearing Ratio at 2.5mm : 5.1
Test Location : Road	
Coordinates : E-699765, N-3160627	Bearing Ratio at 5.0mm : <b>4.8</b>
Test Depth : 0.15 m	
Surface Elevation : 211.653 m	Field CBR Value : <b>5.1</b>



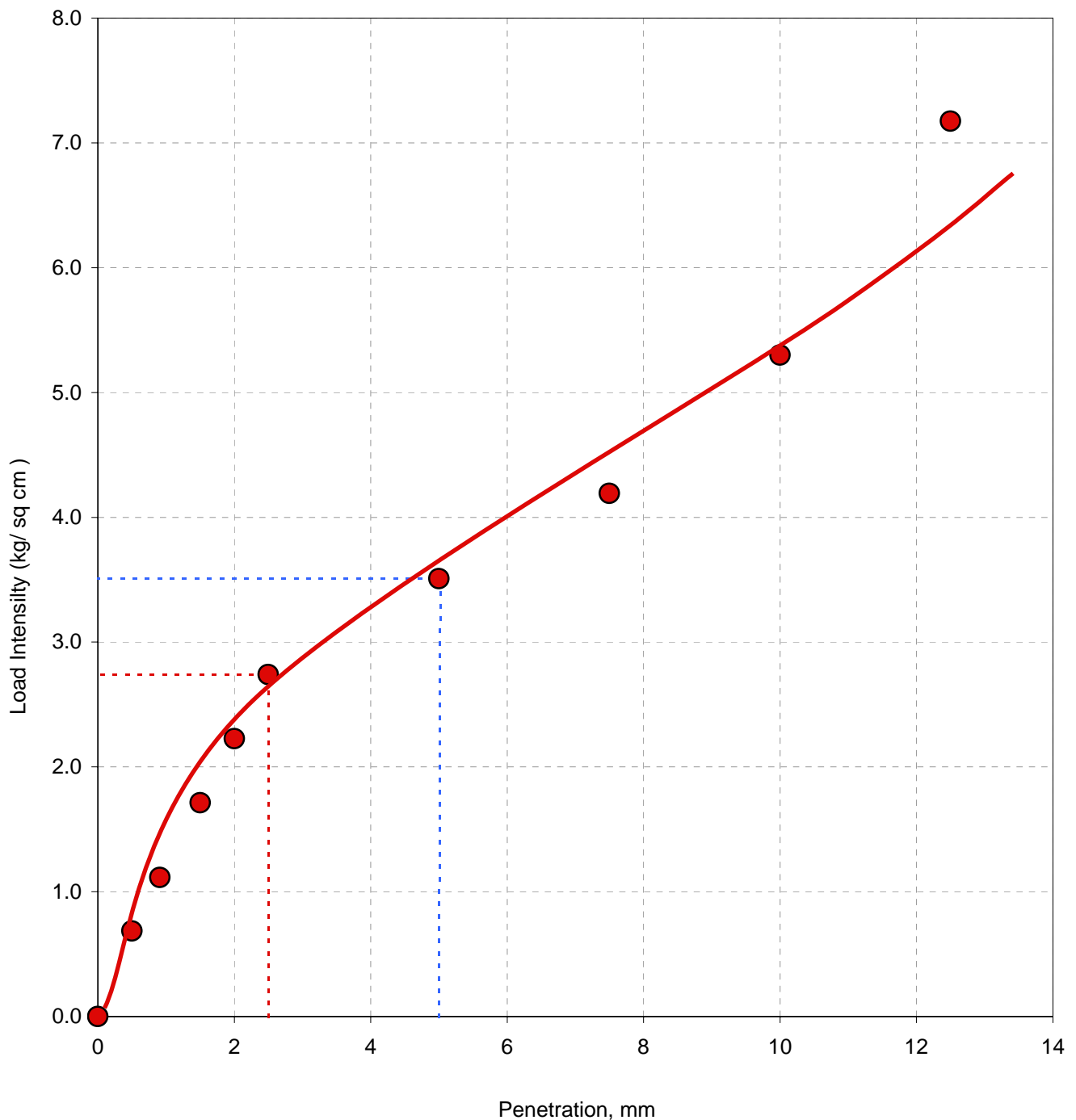
Load Intensity vs. Penetration (FCBR-35)



### Field California Bearing Ratio Test .: FCBR-36

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-36	Bearing Ratio at 2.5mm : 3.9
Test Location : Road	
Coordinates : E-699875, N-3160620	Bearing Ratio at 5.0mm : <b>3.3</b>
Test Depth : 0.15 m	
Surface Elevation : 212.681 m	Field CBR Value : <b>3.9</b>



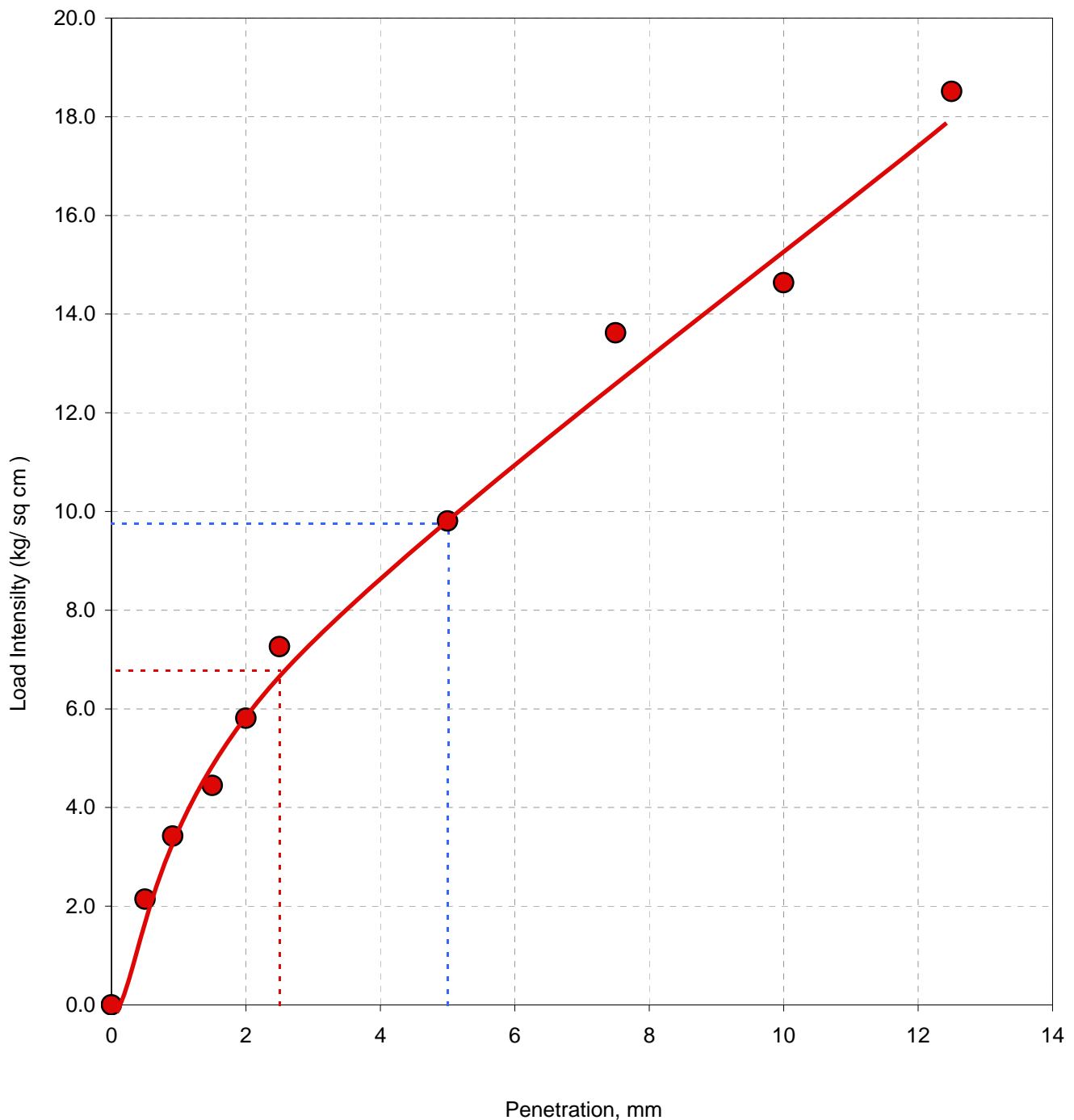
Load Intensity vs. Penetration (FCBR-36)



### Field California Bearing Ratio Test .: FCBR-37

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-37	Bearing Ratio at 2.5mm : 9.7
Test Location : Road	
Coordinates : E-699828, N-3160654	Bearing Ratio at 5.0mm : <b>9.3</b>
Test Depth : 0.15 m	
Surface Elevation : 212.649 m	Field CBR Value : <b>9.7</b>



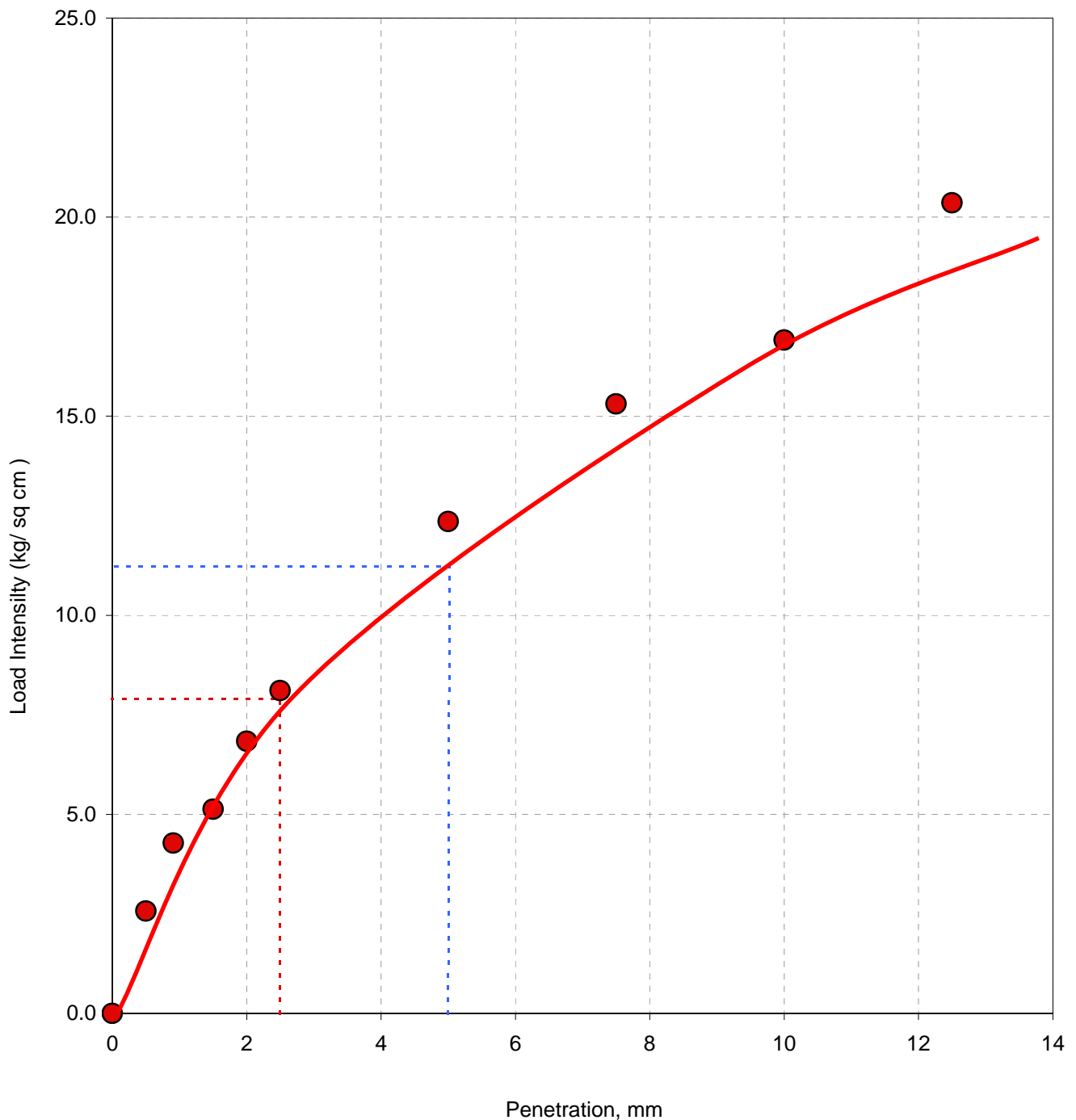
Load Intensity vs. Penetration (FCBR-37)



### Field California Bearing Ratio Test .: FCBR-38

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-38	Bearing Ratio at 2.5mm : 11.3
Test Location : Road	
Coordinates : E-699863, N-3160718	Bearing Ratio at 5.0mm : <b>10.7</b>
Test Depth : 0.15 m	
Surface Elevation : 213.609 m	Field CBR Value : <b>11.3</b>



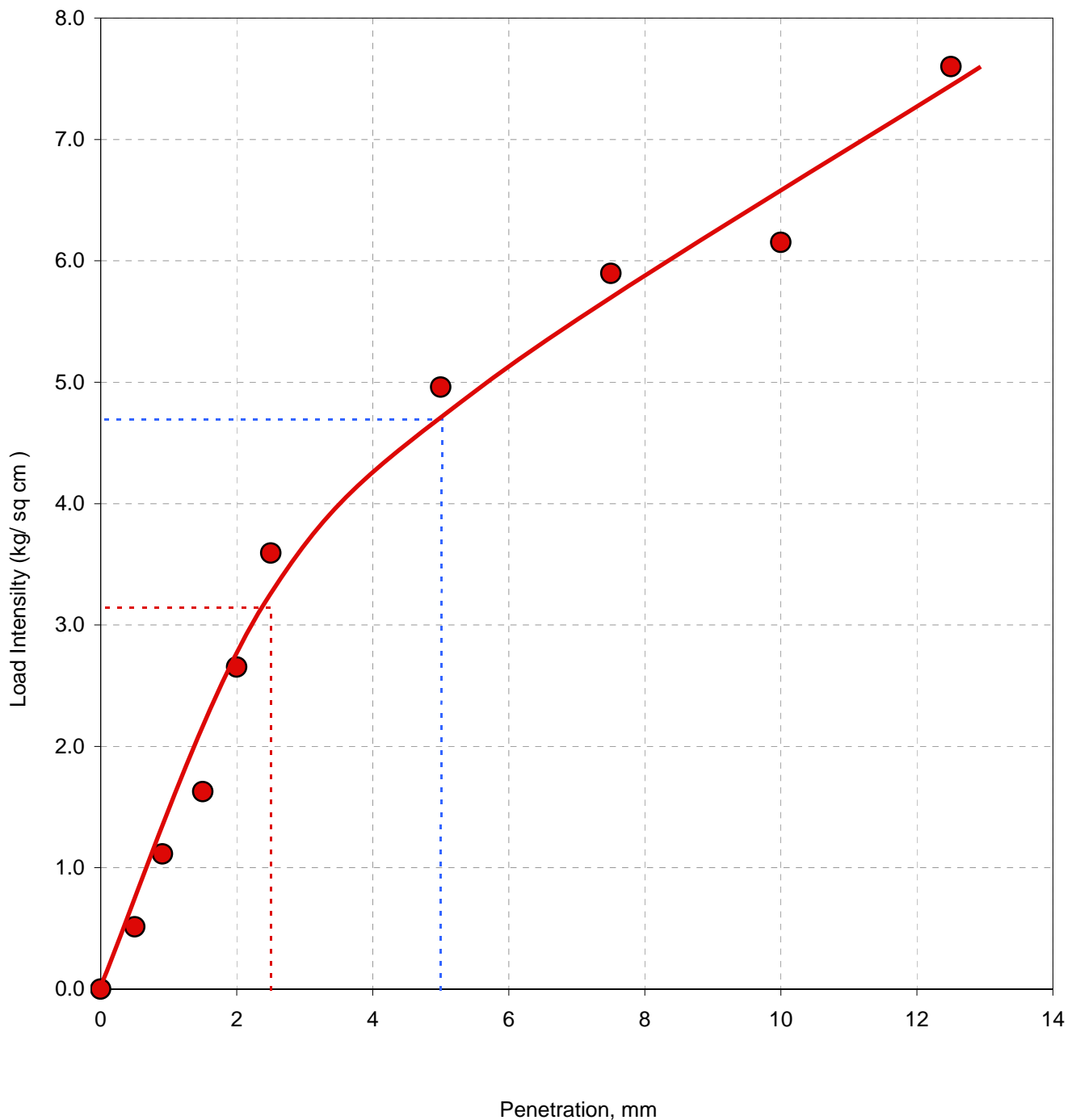
Load Intensity vs. Penetration (FCBR-38)



### Field California Bearing Ratio Test .: FCBR-39

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-39	Bearing Ratio at 2.5mm : 4.5
Test Location : Road	
Coordinates : E-699917, N-3160673	Bearing Ratio at 5.0mm : <b>4.5</b>
Test Depth : 0.15 m	
Surface Elevation : 212.361 m	Field CBR Value : <b>4.5</b>



Load Intensity vs. Penetration (FCBR-39)

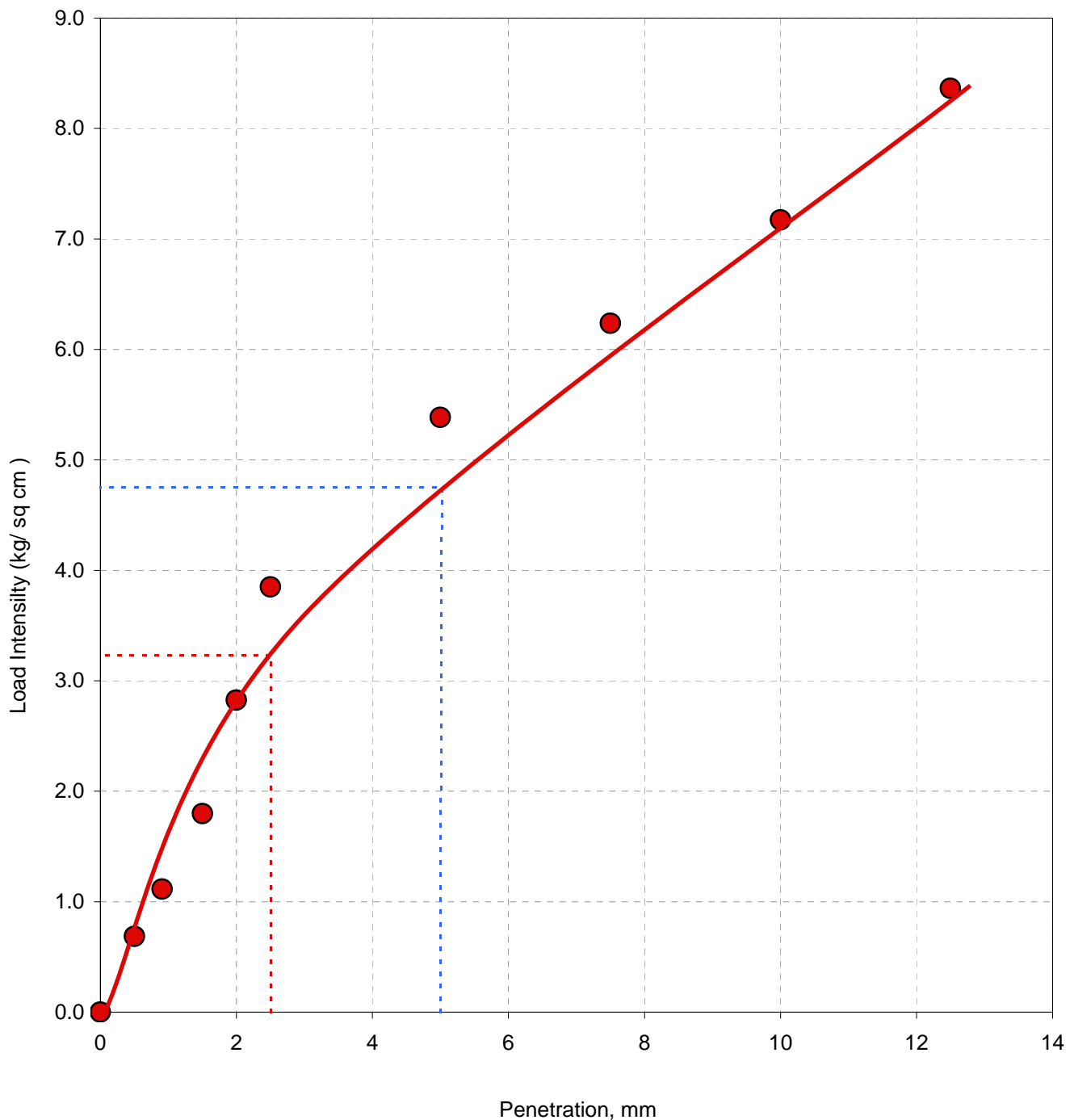




### Field California Bearing Ratio Test .: FCBR-40

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-40	Bearing Ratio at 2.5mm : 4.6
Test Location : Road	
Coordinates : E-699984, N-3160662	Bearing Ratio at 5.0mm : <b>4.5</b>
Test Depth : 0.15 m	
Surface Elevation : 212.830 m	Field CBR Value : <b>4.6</b>



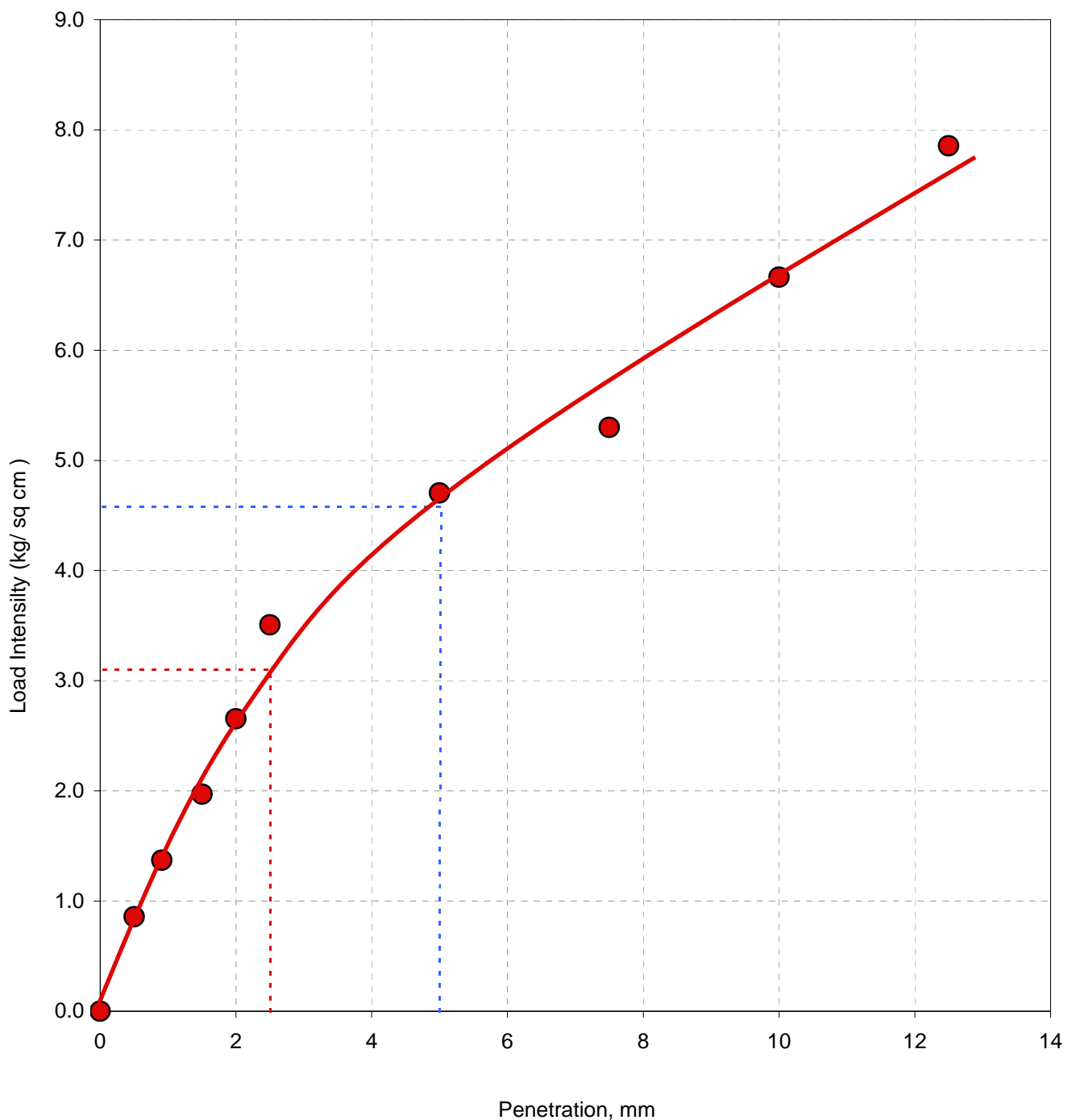
Load Intensity vs. Penetration (FCBR-40)



### Field California Bearing Ratio Test .: FCBR-41

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-41	Bearing Ratio at 2.5mm : 4.4
Test Location : Road	
Coordinates : E-699966, N-3160637	Bearing Ratio at 5.0mm : <b>4.4</b>
Test Depth : 0.15 m	
Surface Elevation : 212.539 m	Field CBR Value : <b>4.4</b>



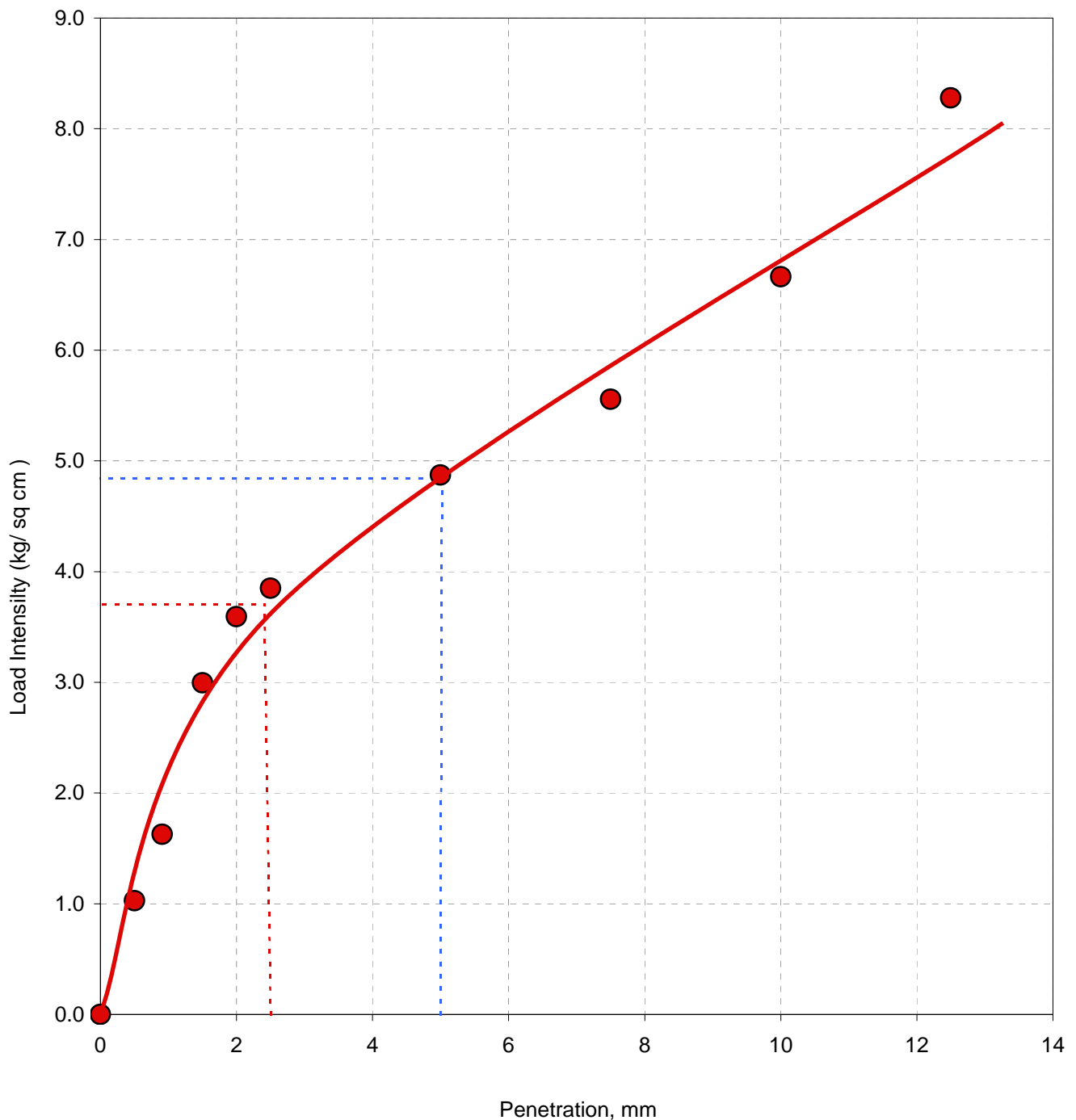
Load Intensity vs. Penetration (FCBR-41)



### Field California Bearing Ratio Test .: FCBR-42

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-42	Bearing Ratio at 2.5mm : 5.3
Test Location : Road	
Coordinates : E-700014, N-3160602	Bearing Ratio at 5.0mm : <b>4.6</b>
Test Depth : 0.15 m	
Surface Elevation : 212.657 m	Field CBR Value : <b>5.3</b>



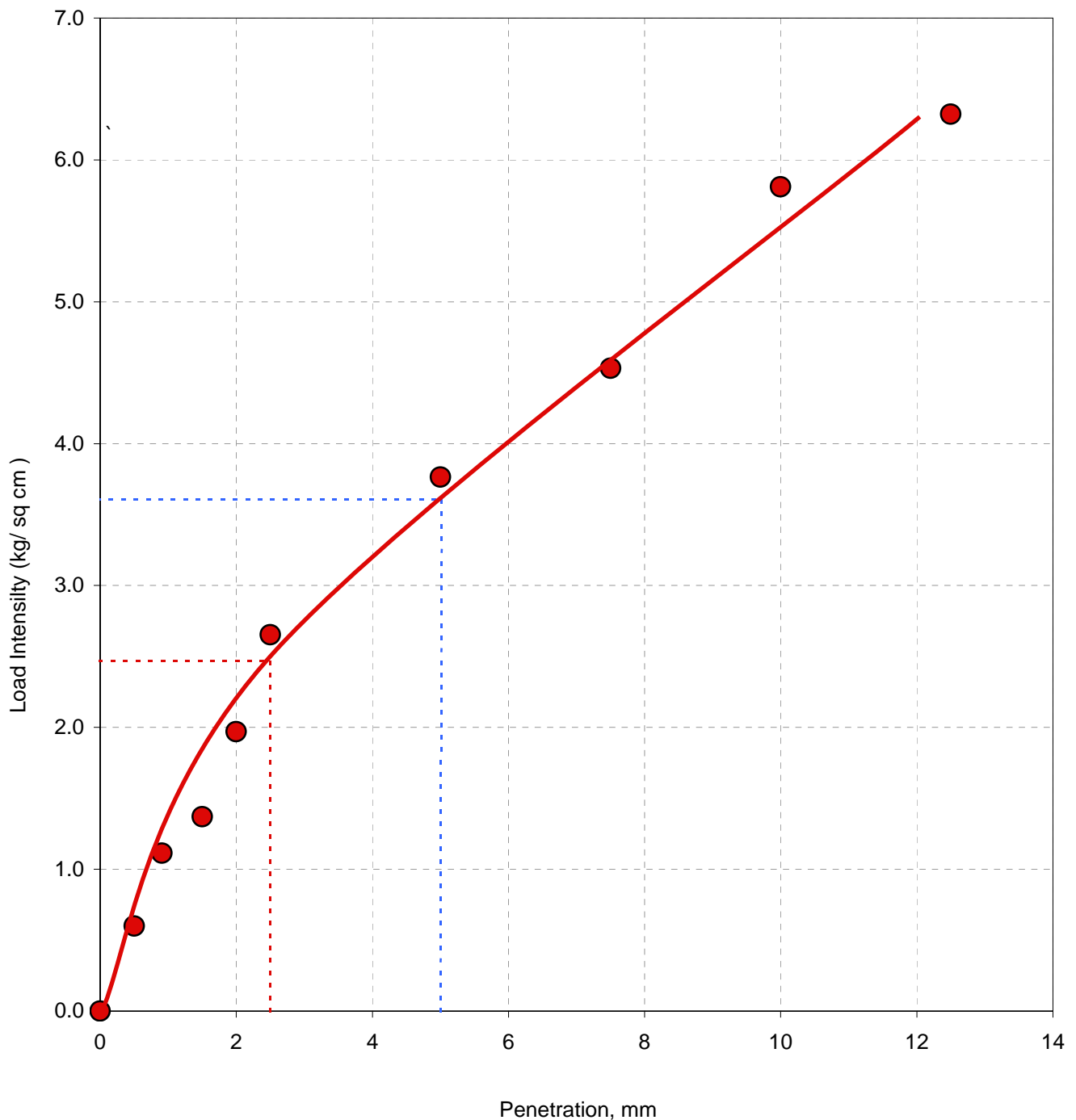
Load Intensity vs. Penetration (FCBR-42)



### Field California Bearing Ratio Test .: FCBR-43

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-43	Bearing Ratio at 2.5mm : 3.5
Test Location : Road	
Coordinates : E-700034, N-3160624	Bearing Ratio at 5.0mm : <b>3.4</b>
Test Depth : 0.15 m	
Surface Elevation : 212.817 m	Field CBR Value : <b>3.5</b>



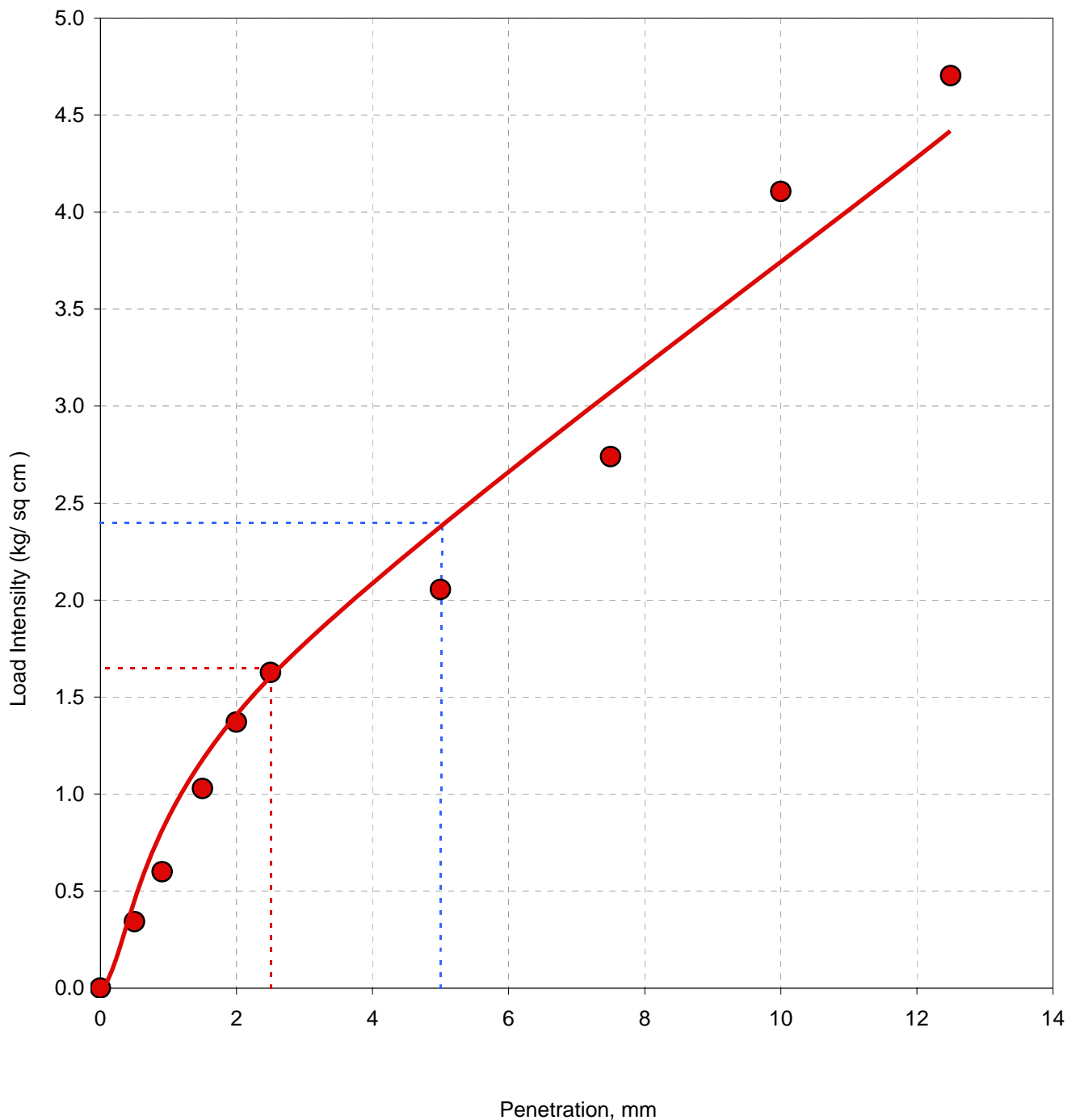
Load Intensity vs. Penetration (FCBR-43)



### Field California Bearing Ratio Test .: FCBR-44

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-44	Bearing Ratio at 2.5mm : 2.4
Test Location : Road	
Coordinates : E-700058, N-3160569	Bearing Ratio at 5.0mm : <b>2.3</b>
Test Depth : 0.15 m	
Surface Elevation : 212.600 m	Field CBR Value : <b>2.4</b>



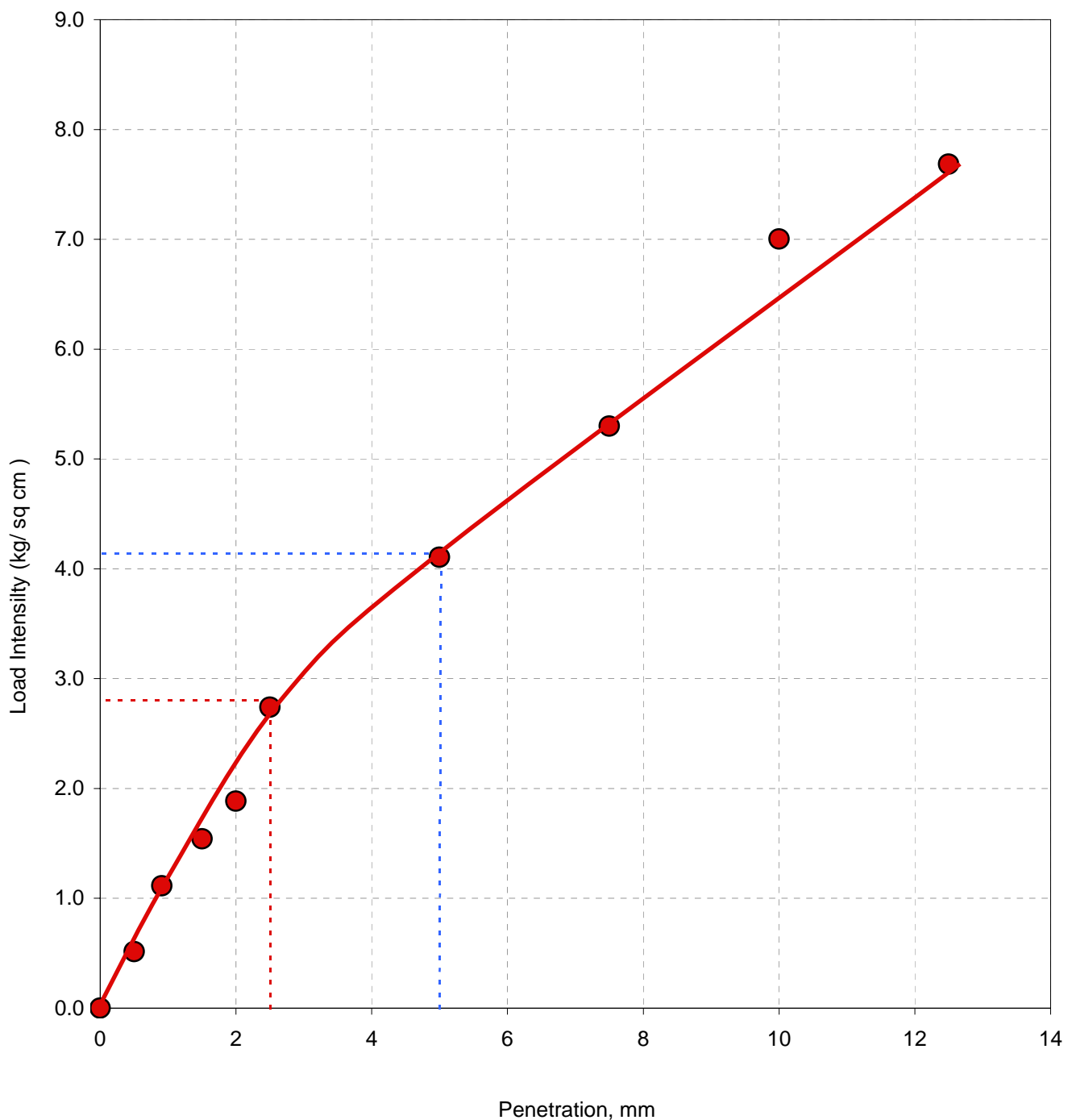
Load Intensity vs. Penetration (FCBR-44)



### Field California Bearing Ratio Test .: FCBR-45

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-45	Bearing Ratio at 2.5mm : 4.0
Test Location : Road	
Coordinates : E-700085, N-3160593	Bearing Ratio at 5.0mm : <b>3.9</b>
Test Depth : 0.15 m	
Surface Elevation : 212.500 m	Field CBR Value : <b>4.0</b>



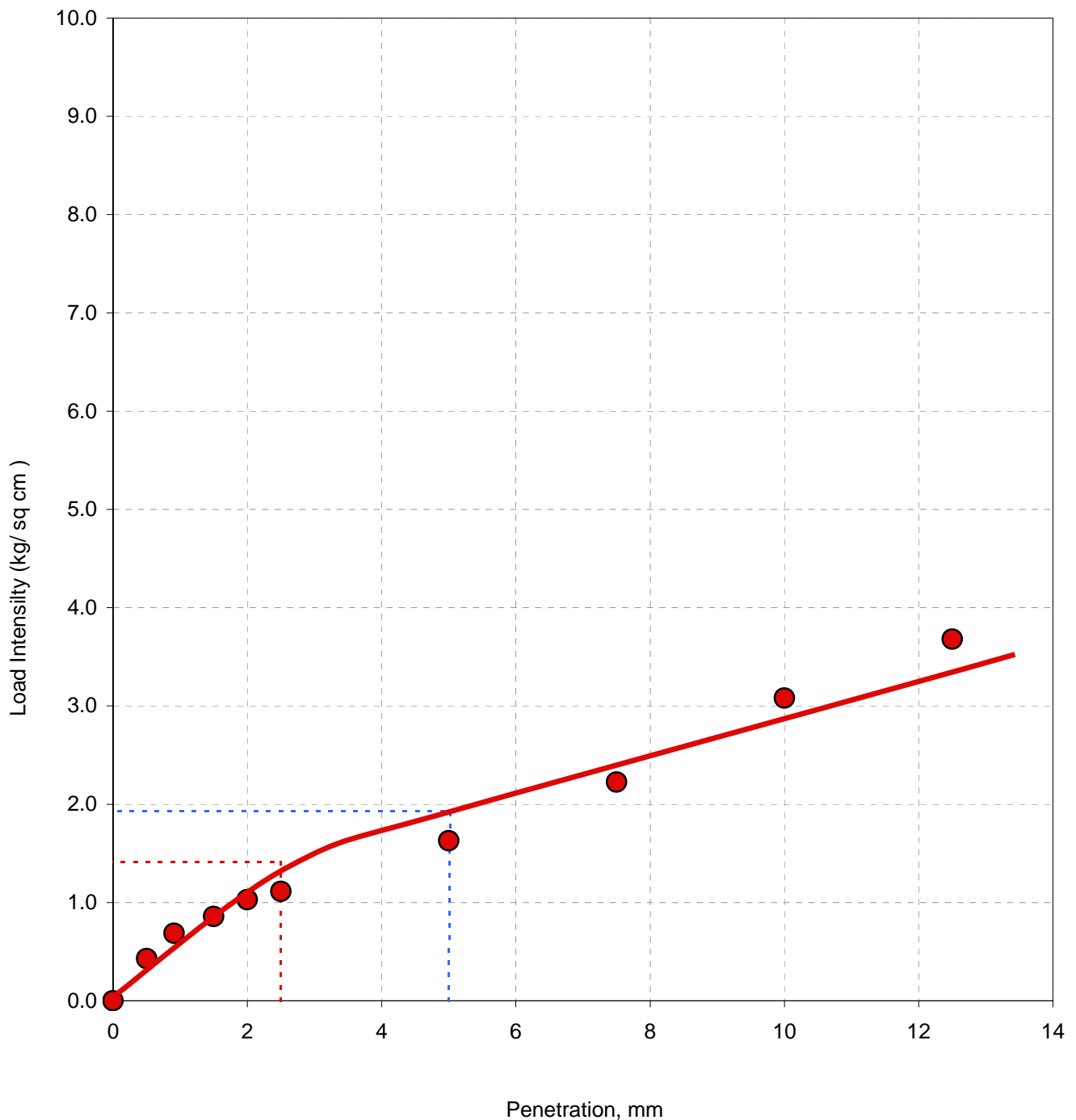
Load Intensity vs. Penetration (FCBR-45)



### Field California Bearing Ratio Test .: FCBR-46

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-46	Bearing Ratio at 2.5mm : 2.0
Test Location : Road	
Coordinates : E-700135, N-3160561	Bearing Ratio at 5.0mm : <b>1.8</b>
Test Depth : 0.15 m	
Surface Elevation : 212.473 m	Field CBR Value : <b>2.0</b>



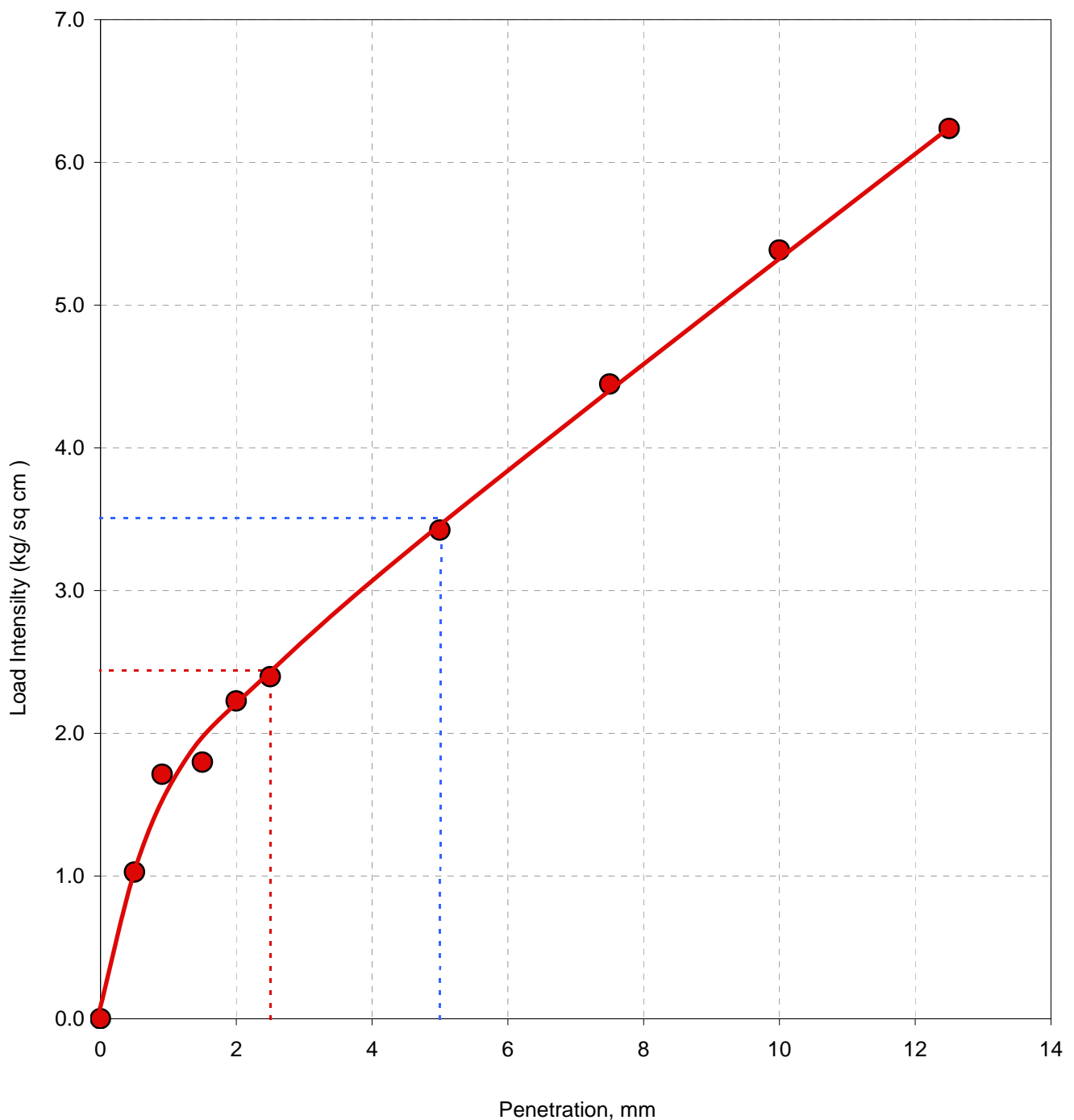
Load Intensity vs. Penetration (FCBR-46)



### Field California Bearing Ratio Test .: FCBR-47

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-47	Bearing Ratio at 2.5mm : 3.5
Test Location : Road	
Coordinates : E-3160529, N-700186	Bearing Ratio at 5.0mm : <b>3.3</b>
Test Depth : 0.15 m	
Surface Elevation : 212.700 m	Field CBR Value : <b>3.5</b>



Load Intensity vs. Penetration (FCBR-47)

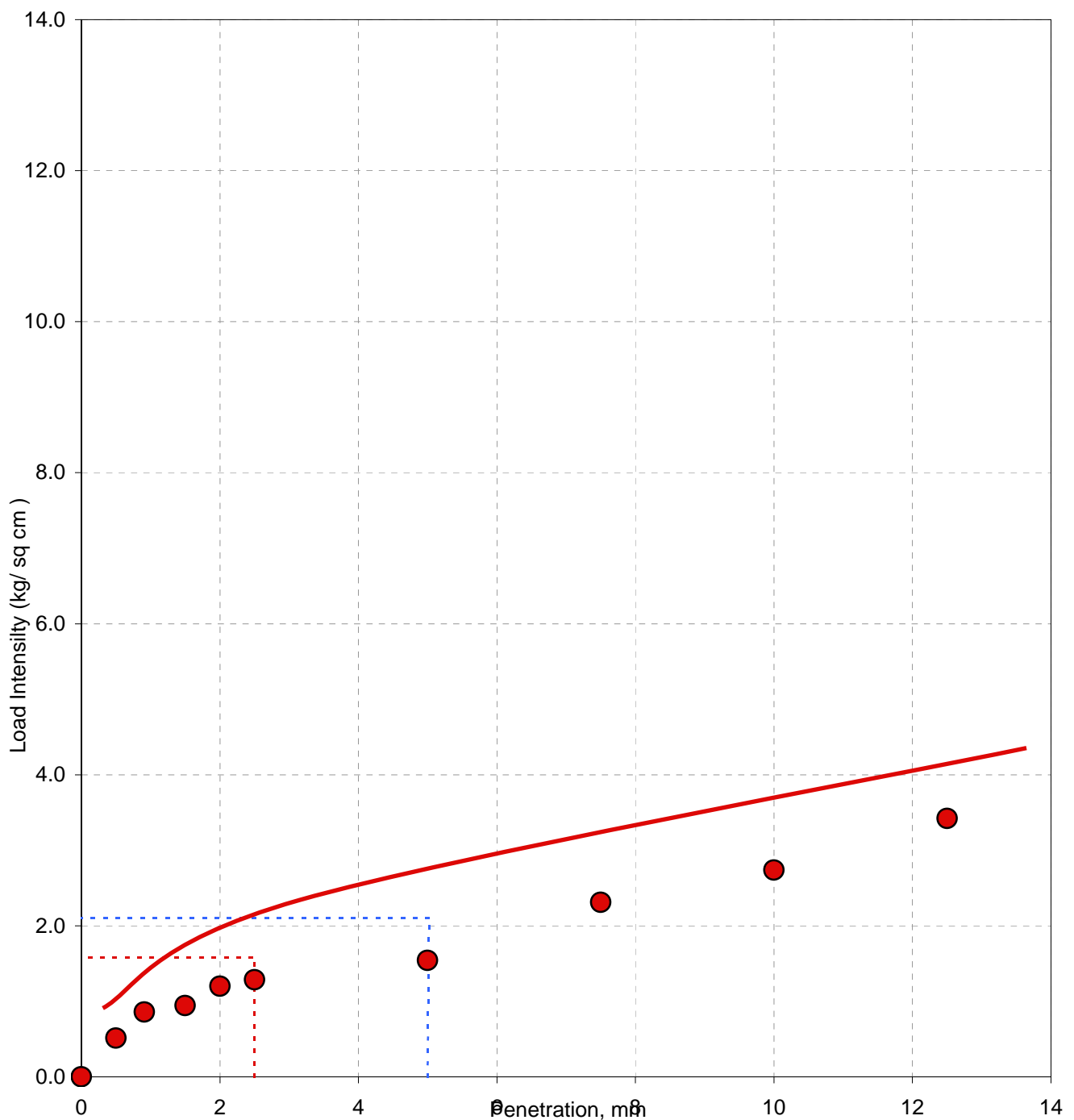




### Field California Bearing Ratio Test .: FCBR-48

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-48	Bearing Ratio at 2.5mm : 2.3
Test Location : Road	
Coordinates : E-700237, N-3160498	Bearing Ratio at 5.0mm : <b>2.0</b>
Test Depth : 0.15 m	
Surface Elevation : 212.705 m	Field CBR Value : <b>2.3</b>



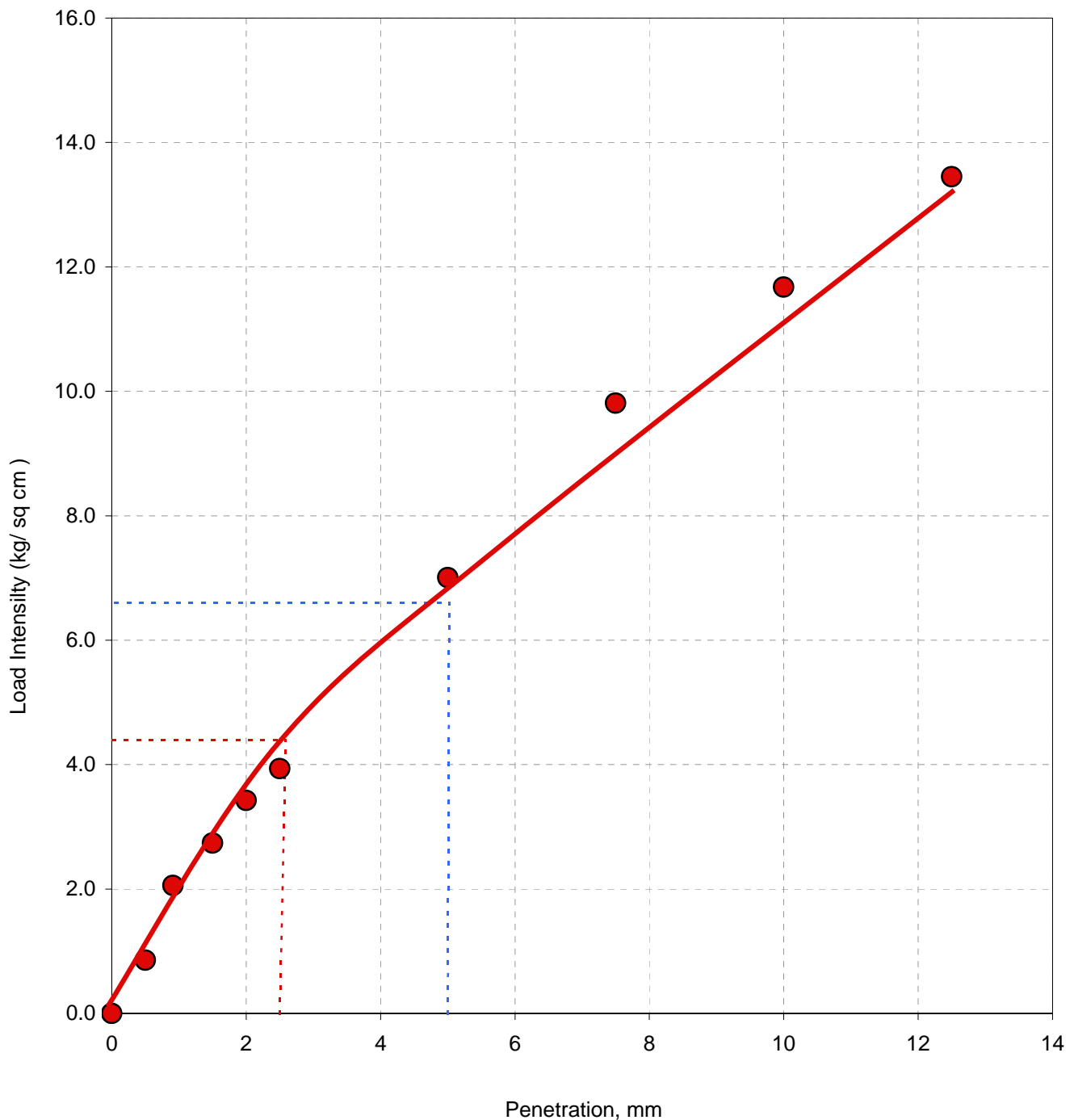
Load Intensity vs. Penetration (FCBR-48)



### Field California Bearing Ratio Test .: FCBR-49

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-49	Bearing Ratio at 2.5mm : 6.3
Test Location : Road	
Coordinates : E-700288, N-3160466	Bearing Ratio at 5.0mm : <b>6.3</b>
Test Depth : 0.15 m	
Surface Elevation : 213.000 m	Field CBR Value : <b>6.3</b>



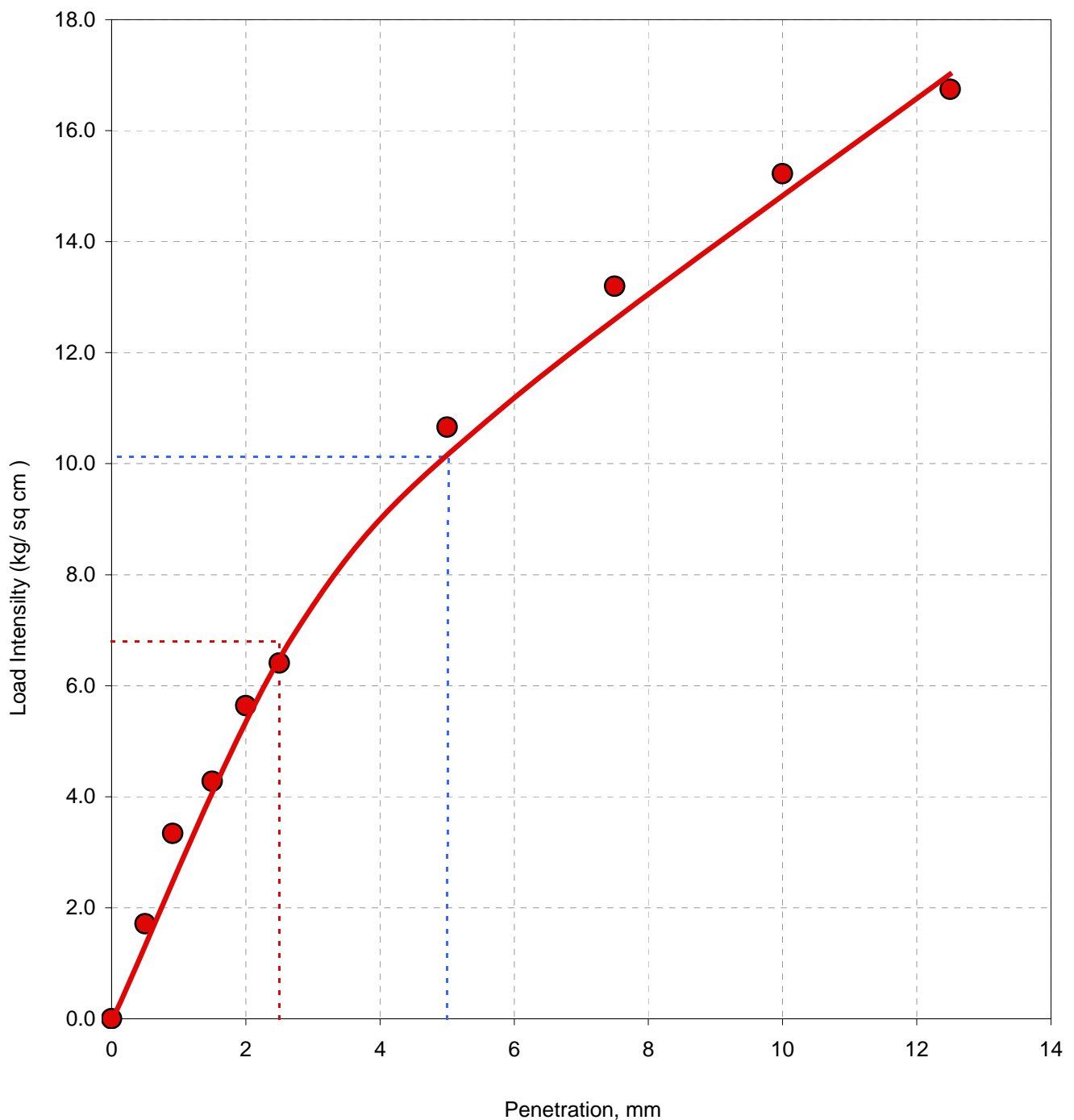
Load Intensity vs. Penetration (FCBR-49)



### Field California Bearing Ratio Test .: FCBR-50

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-50	Bearing Ratio at 2.5mm : 9.7
Test Location : Road	
Coordinates : E-700339, N-3160434	Bearing Ratio at 5.0mm : <b>9.6</b>
Test Depth : 0.15 m	
Surface Elevation : 213.176 m	Field CBR Value : <b>9.7</b>



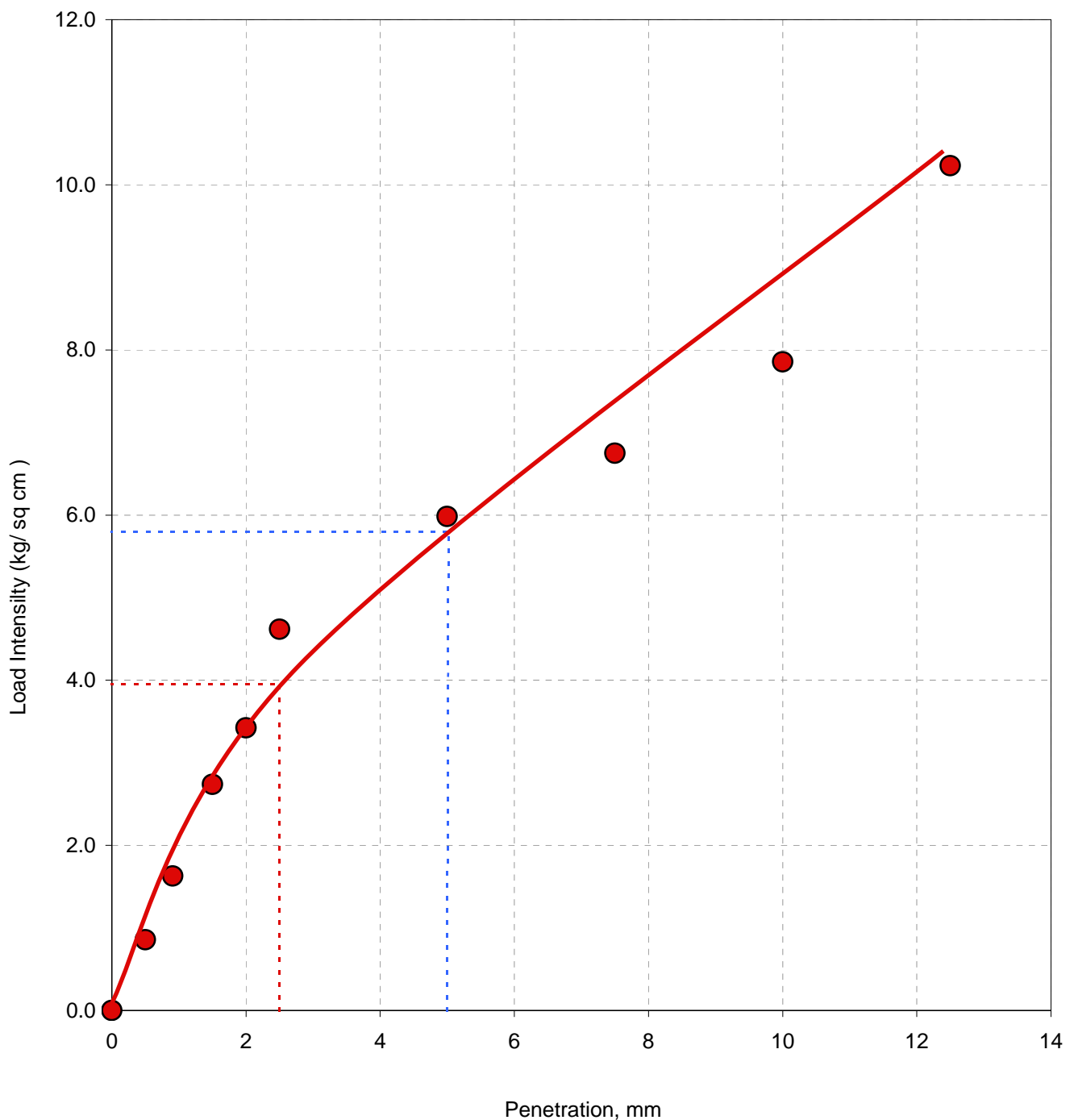
Load Intensity vs. Penetration (FCBR-50)



### Field California Bearing Ratio Test .: FCBR-51

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-51	Bearing Ratio at 2.5mm : 5.6
Test Location : Road	
Coordinates : E-700416, N-3160230	Bearing Ratio at 5.0mm : <b>5.5</b>
Test Depth : 0.15 m	
Surface Elevation : m	Field CBR Value : <b>5.6</b>



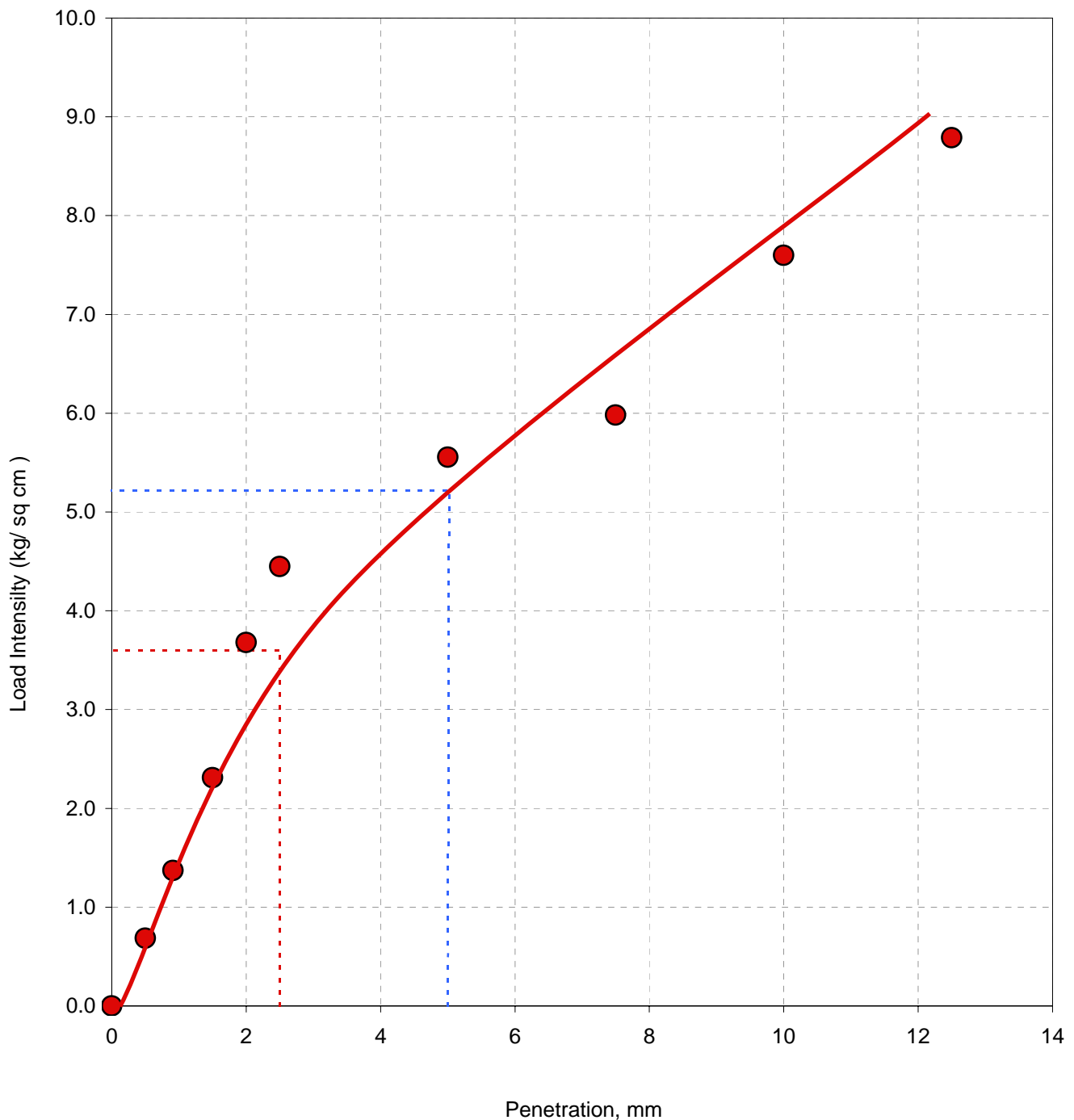
Load Intensity vs. Penetration (FCBR-51)



### Field California Bearing Ratio Test .: FCBR-52

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-52	Bearing Ratio at 2.5mm : 5.1
Test Location : Road	
Coordinates : E-700383, N-3160181	Bearing Ratio at 5.0mm : <b>5.0</b>
Test Depth : 0.15 m	
Surface Elevation : 214.000 m	Field CBR Value : <b>5.1</b>



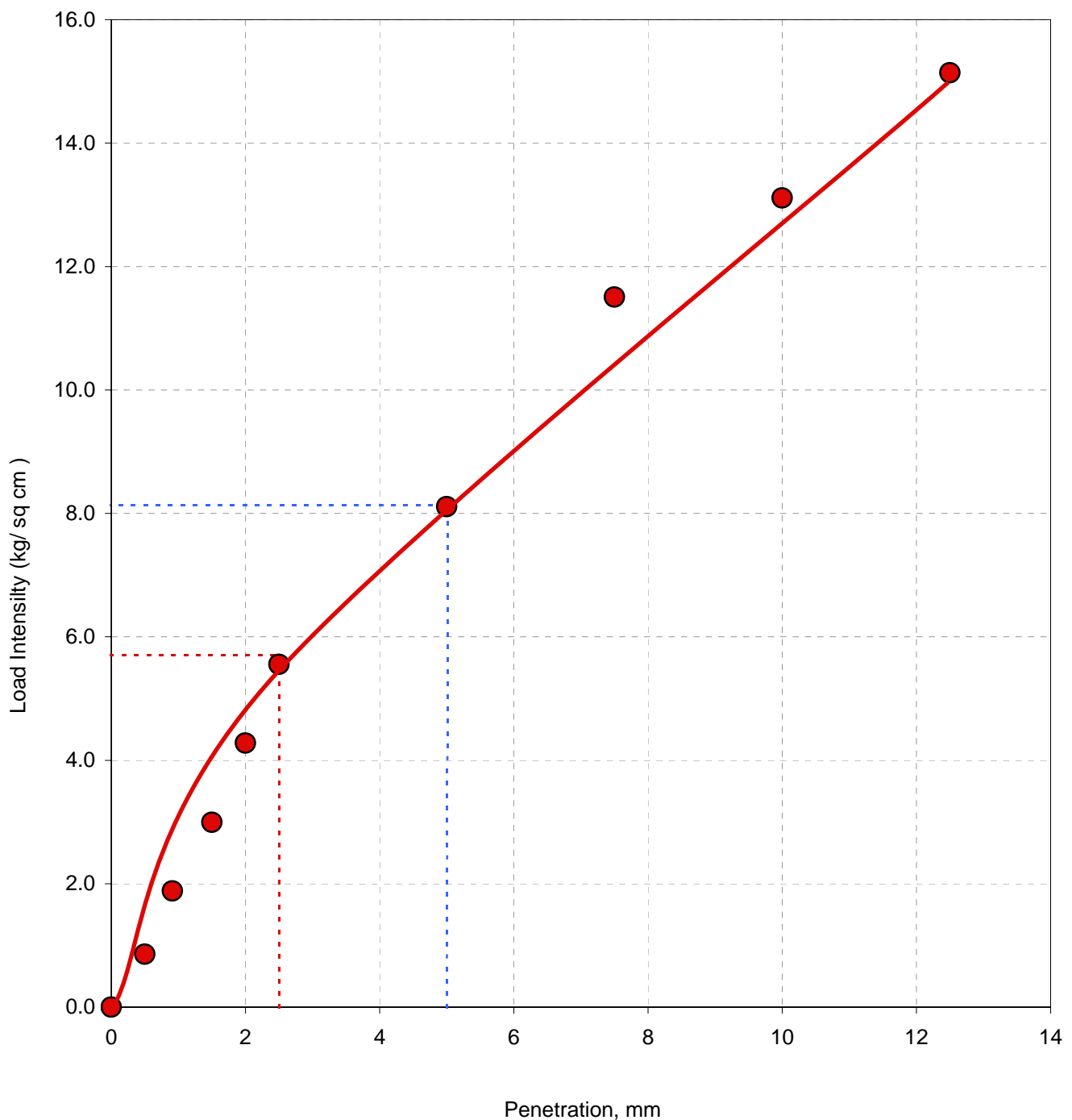
Load Intensity vs. Penetration (FCBR-52)



### Field California Bearing Ratio Test .: FCBR-53

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-53	Bearing Ratio at 2.5mm : 8.1
Test Location : Road	
Coordinates : E-700340, N-3160125	Bearing Ratio at 5.0mm : <b>7.7</b>
Test Depth : 0.15 m	
Surface Elevation : 213.508 m	Field CBR Value : <b>8.1</b>



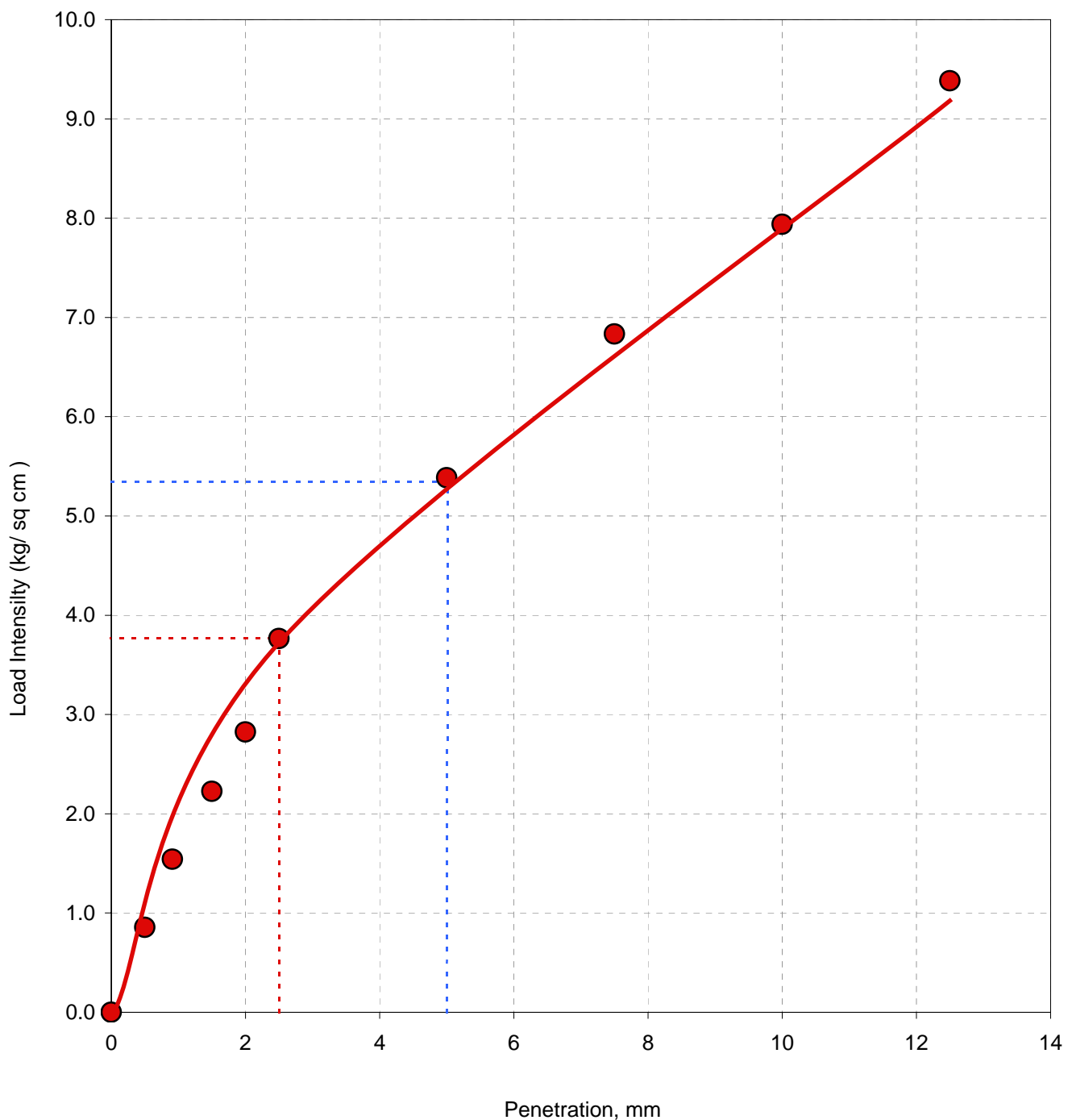
Load Intensity vs. Penetration (FCBR-53)



### Field California Bearing Ratio Test .: FCBR-54

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-54	Bearing Ratio at 2.5mm : 5.4
Test Location : Road	
Coordinates : E-700299, N-3160070	Bearing Ratio at 5.0mm : <b>5.1</b>
Test Depth : 0.15 m	
Surface Elevation : 213.500 m	Field CBR Value : <b>5.4</b>



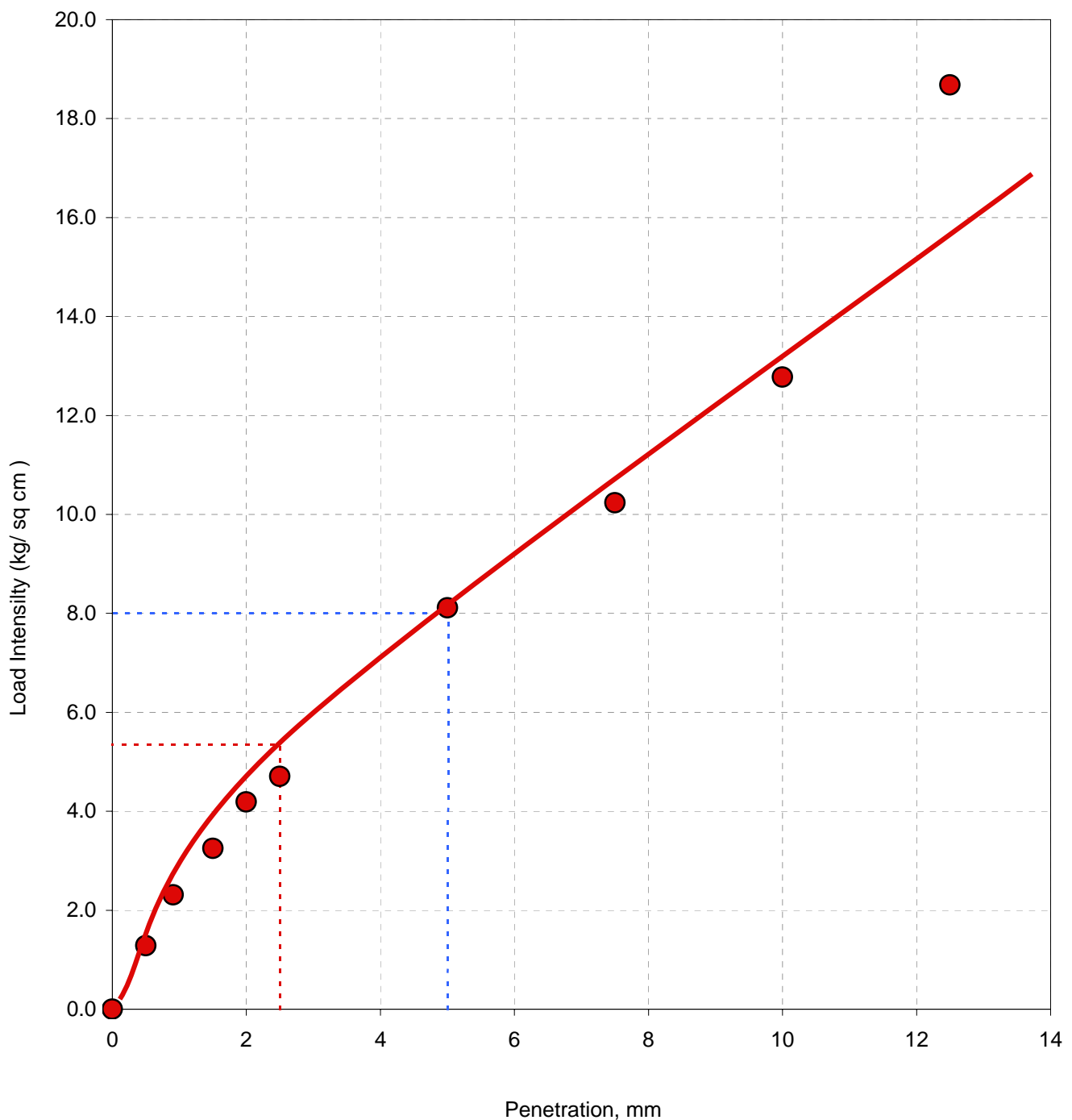
Load Intensity vs. Penetration (FCBR-54)



### Field California Bearing Ratio Test .: FCBR-55

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-55	Bearing Ratio at 2.5mm : 7.6
Test Location : Road	
Coordinates : E-700259, N-3160099	Bearing Ratio at 5.0mm : <b>7.6</b>
Test Depth : 0.15 m	
Surface Elevation : 213.500 m	Field CBR Value : <b>7.6</b>



Load Intensity vs. Penetration (FCBR-55)

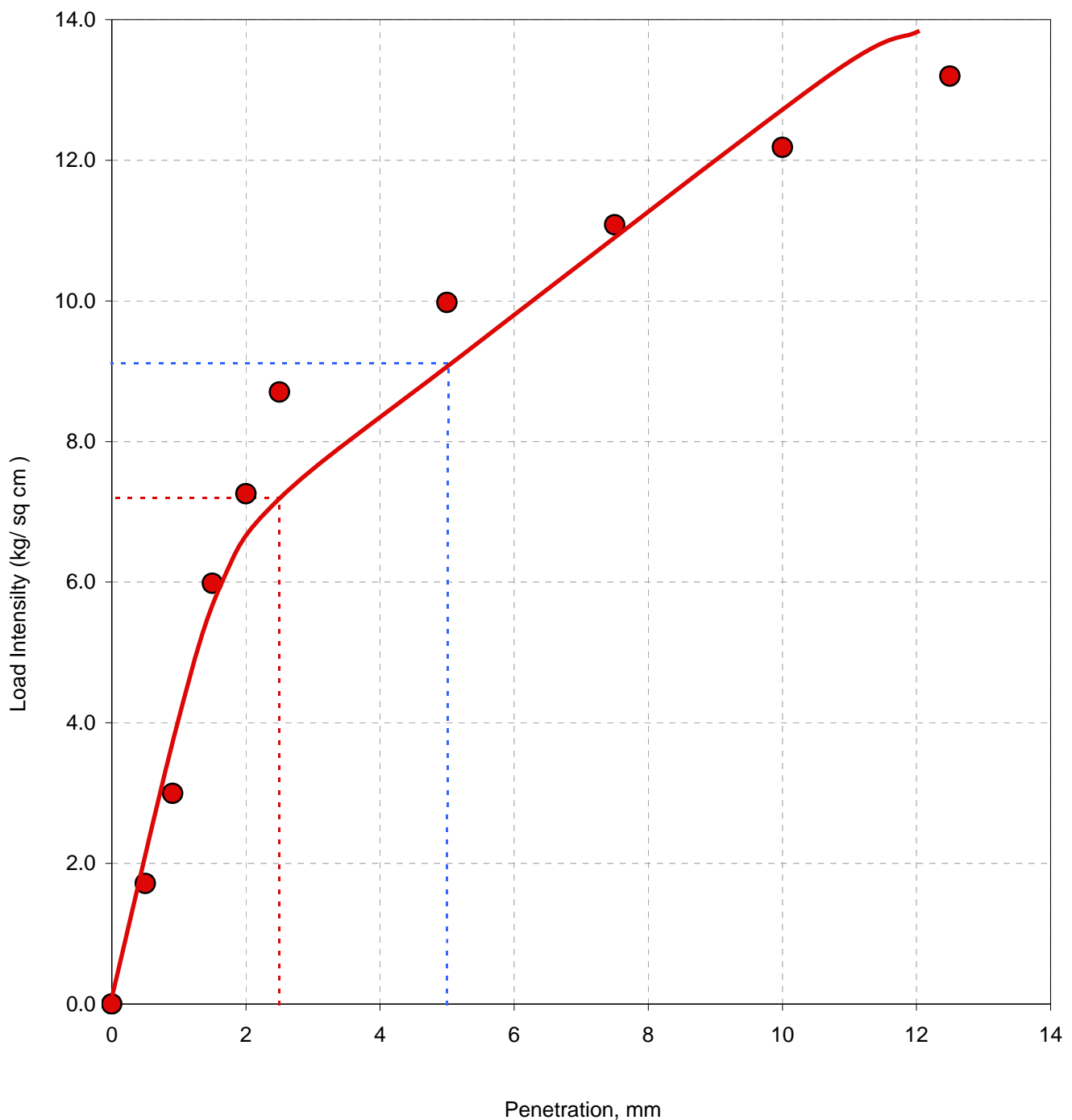




### Field California Bearing Ratio Test .: FCBR-56

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-56	Bearing Ratio at 2.5mm : 10.3
Test Location : Road	
Coordinates : E-700258, N-3160013	Bearing Ratio at 5.0mm : <b>8.7</b>
Test Depth : 0.15 m	
Surface Elevation : 213.350 m	Field CBR Value : <b>10.3</b>



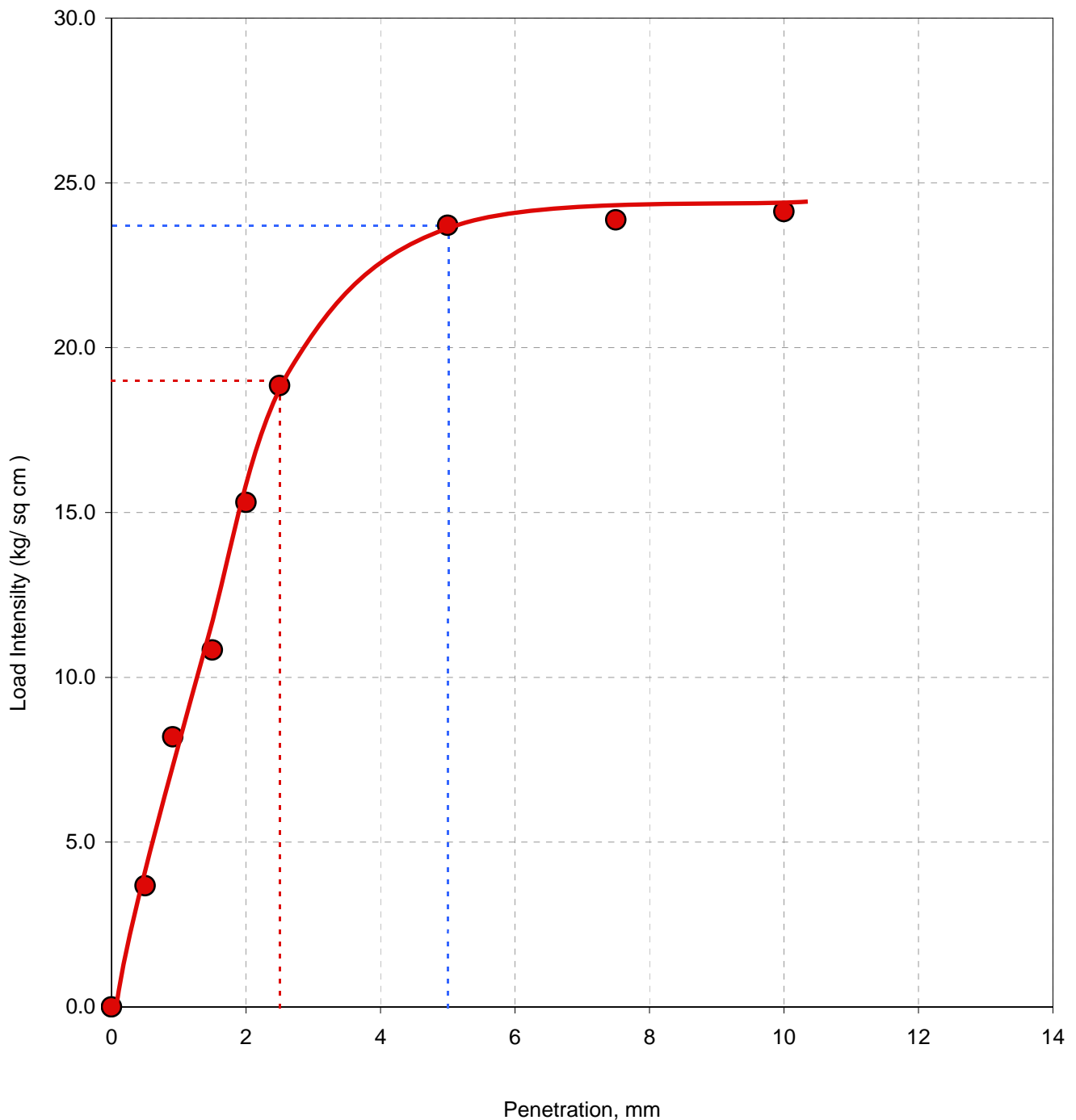
Load Intensity vs. Penetration (FCBR-56)



### Field California Bearing Ratio Test .: FCBR-57

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-57	Bearing Ratio at 2.5mm : 27.1
Test Location : Road	
Coordinates : E-700213, N-3159953	Bearing Ratio at 5.0mm : <b>22.6</b>
Test Depth : 0.15 m	
Surface Elevation : 213.500 m	Field CBR Value : <b>27.1</b>



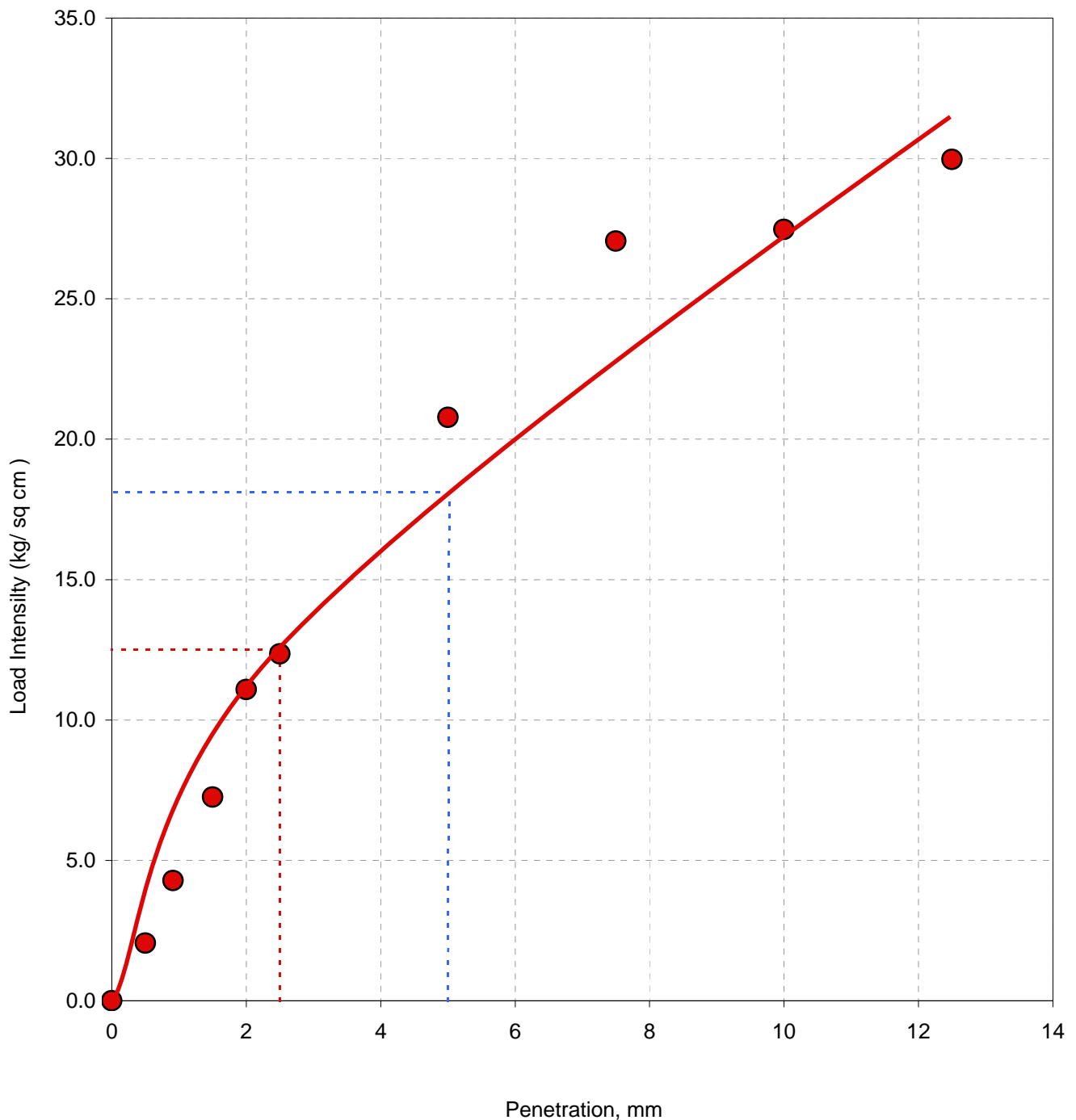
Load Intensity vs. Penetration (FCBR-57)



### Field California Bearing Ratio Test .: FCBR-58

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-58	Bearing Ratio at 2.5mm : 17.9
Test Location : Road	
Coordinates : E-700165, N-3159989	Bearing Ratio at 5.0mm : <b>17.3</b>
Test Depth : 0.15 m	
Surface Elevation : 213.380 m	Field CBR Value : <b>17.9</b>



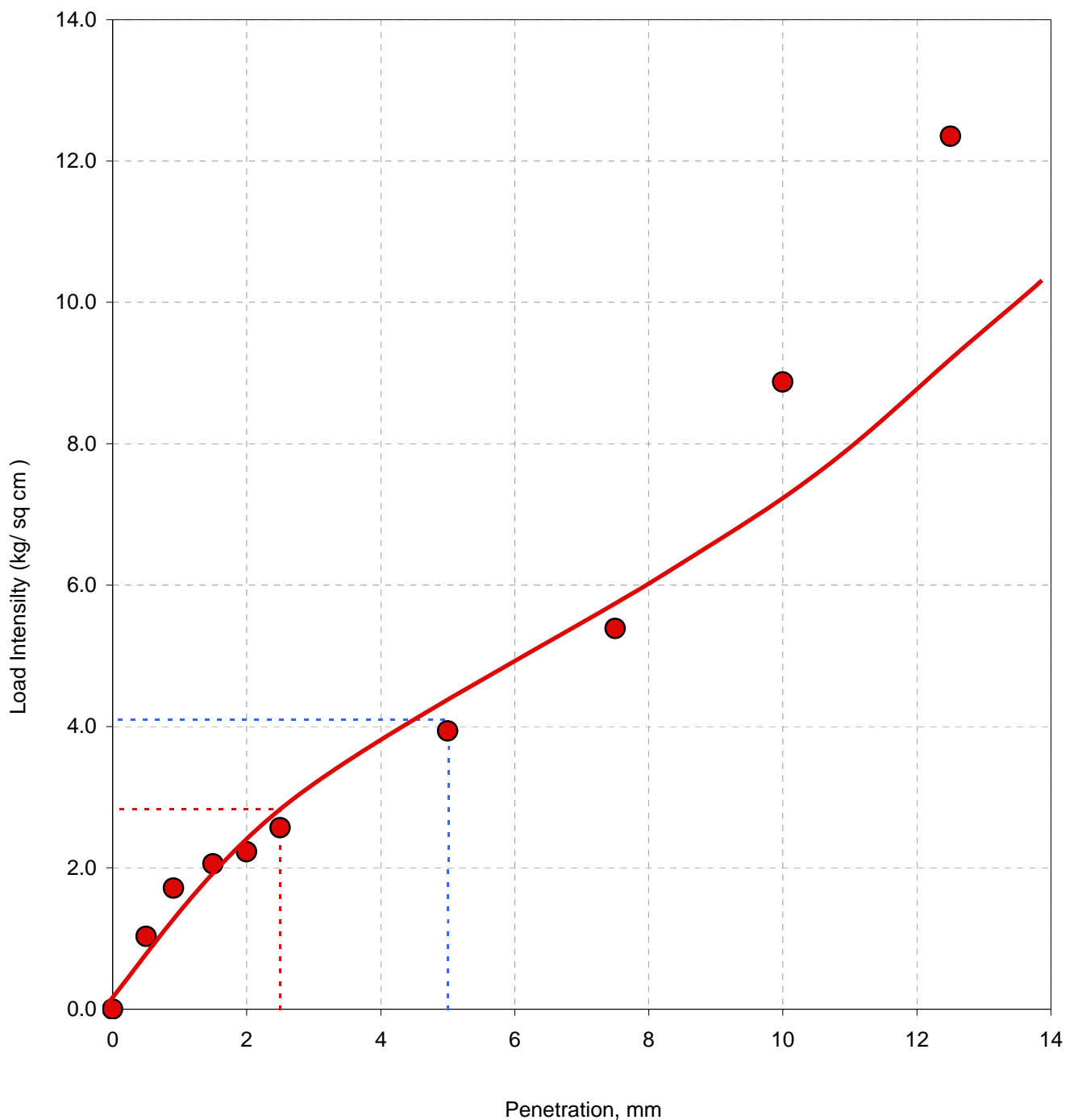
Load Intensity vs. Penetration (FCBR-58)



### Field California Bearing Ratio Test .: FCBR-59

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-59	Bearing Ratio at 2.5mm : 4.0
Test Location : Road	
Coordinates : E-700116, N-3160024	Bearing Ratio at 5.0mm : <b>3.9</b>
Test Depth : 0.15 m	
Surface Elevation : 213.500 m	Field CBR Value : <b>4.0</b>



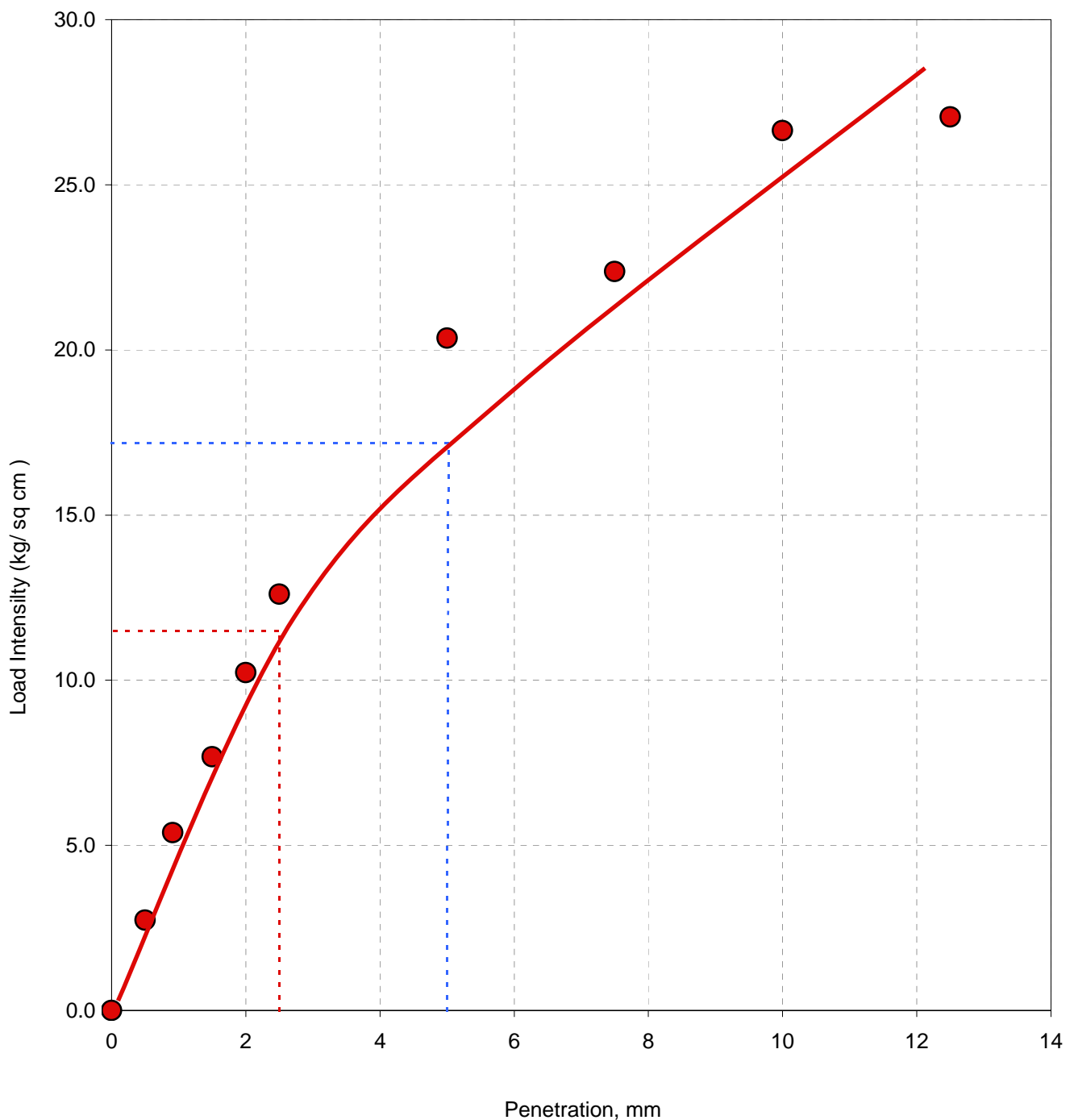
Load Intensity vs. Penetration (FCBR-59)



### Field California Bearing Ratio Test .: FCBR-60

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-60	Bearing Ratio at 2.5mm : 16.4
Test Location : Road	
Coordinates : E-700068, N-3160060	Bearing Ratio at 5.0mm : <b>16.4</b>
Test Depth : 0.15 m	
Surface Elevation : 213.162 m	Field CBR Value : <b>16.4</b>



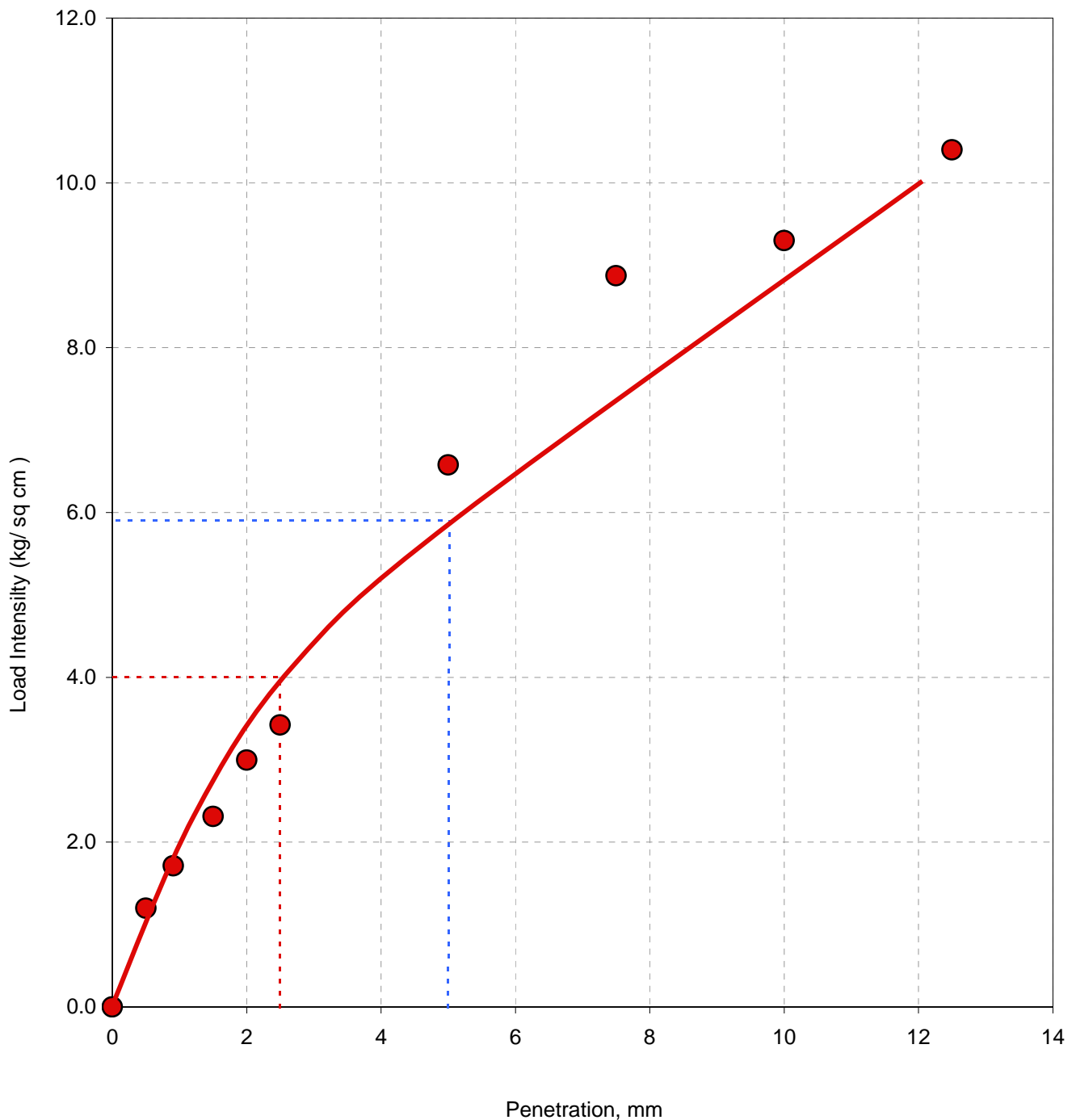
Load Intensity vs. Penetration (FCBR-60)



### Field California Bearing Ratio Test .: FCBR-61

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-61	Bearing Ratio at 2.5mm : 5.7
Test Location : Road	
Coordinates : E-700030, N-3160088	Bearing Ratio at 5.0mm : <b>5.6</b>
Test Depth : 0.15 m	
Surface Elevation : 213.000 m	Field CBR Value : <b>5.7</b>



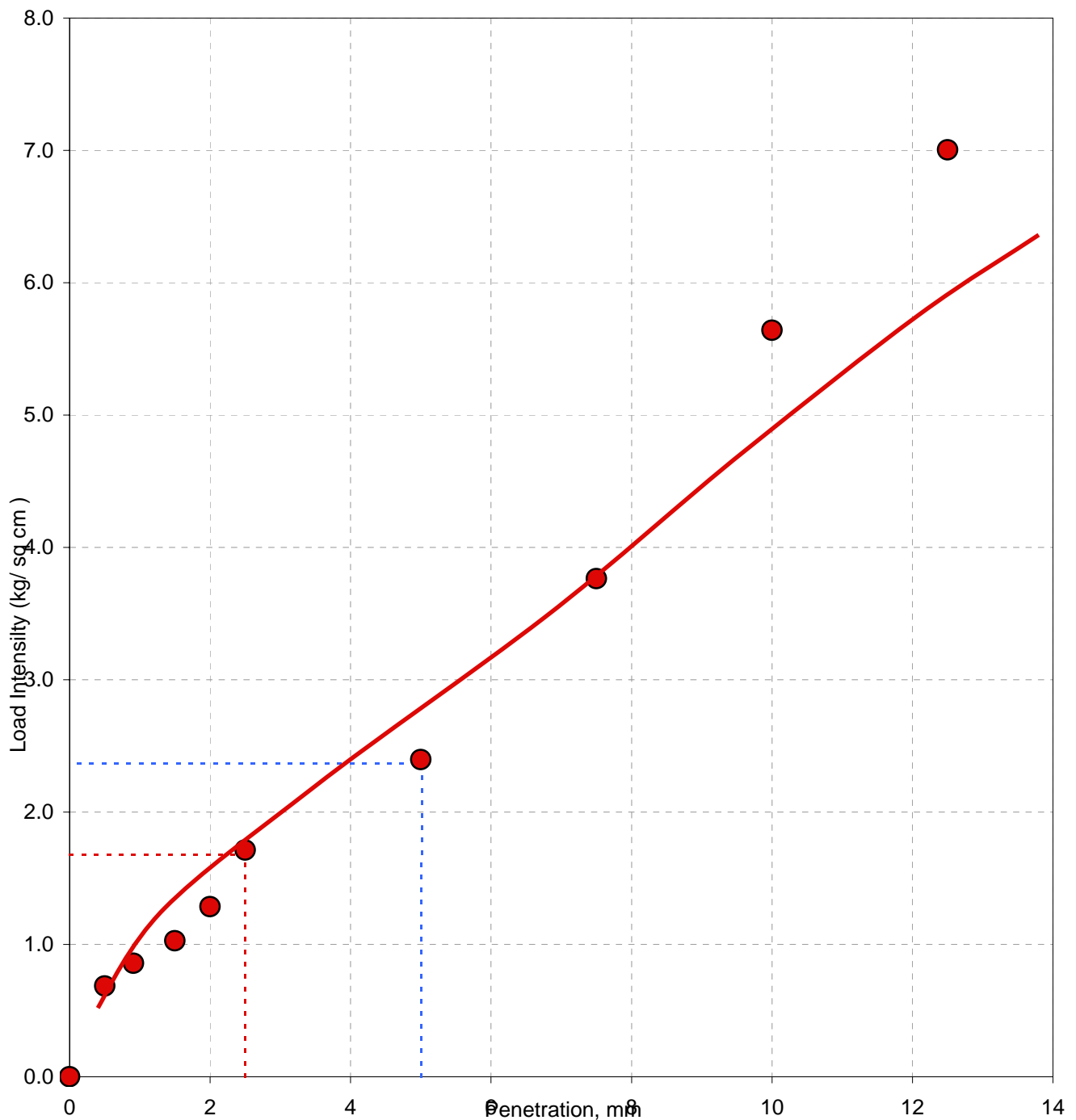
Load Intensity vs. Penetration (FCBR-61)



## Field California Bearing Ratio Test .: FCBR-62

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-62	Bearing Ratio at 2.5mm : 2.4
Test Location : Road	
Coordinates : E-699988, N-3160120	Bearing Ratio at 5.0mm : <b>2.3</b>
Test Depth : 0.15 m	
Surface Elevation : 213.330 m	Field CBR Value : <b>2.4</b>



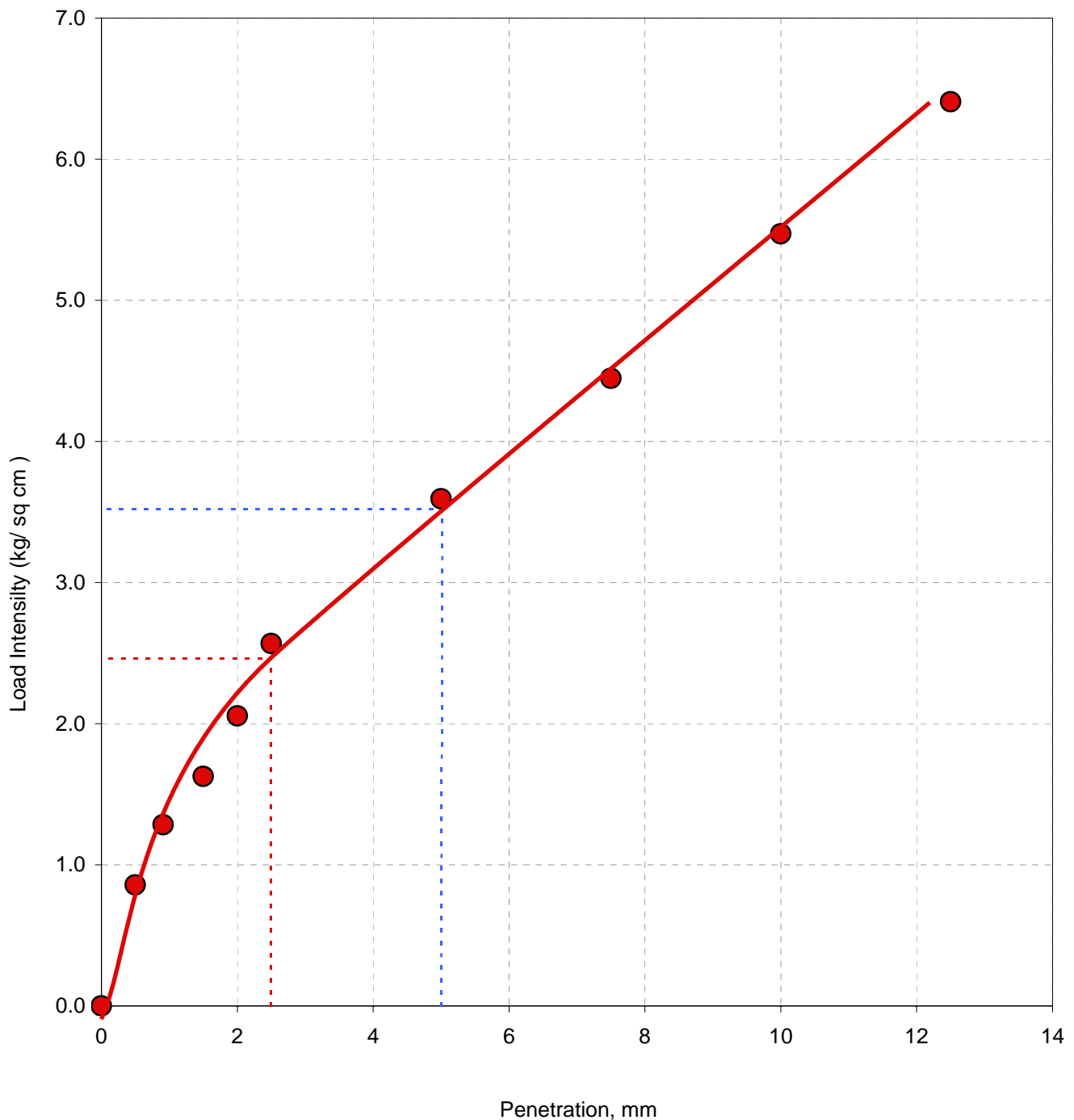
Load Intensity vs. Penetration (FCBR-62)



### Field California Bearing Ratio Test .: FCBR-63

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-63	Bearing Ratio at 2.5mm : 3.5
Test Location : Road	
Coordinates : E-700001, N-3160048	Bearing Ratio at 5.0mm : <b>3.4</b>
Test Depth : 0.15 m	
Surface Elevation : 213.500 m	Field CBR Value : <b>3.5</b>



Load Intensity vs. Penetration (FCBR-63)

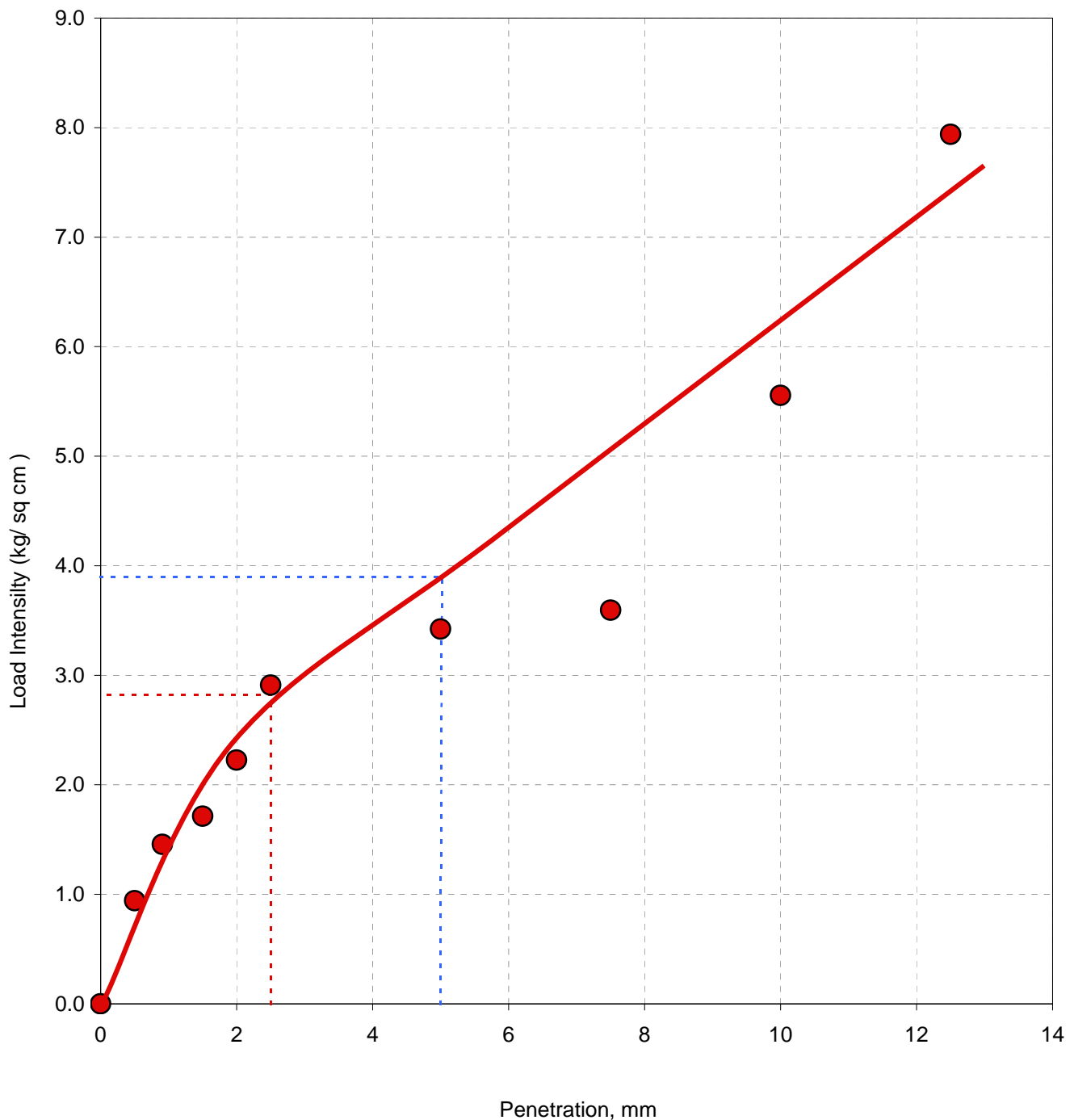




### Field California Bearing Ratio Test .: FCBR-64

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-64	Bearing Ratio at 2.5mm : 4.0
Test Location : Road	
Coordinates : E-700130, N-3159841	Bearing Ratio at 5.0mm : <b>3.7</b>
Test Depth : 0.15 m	
Surface Elevation : 213.706 m	Field CBR Value : <b>4.0</b>



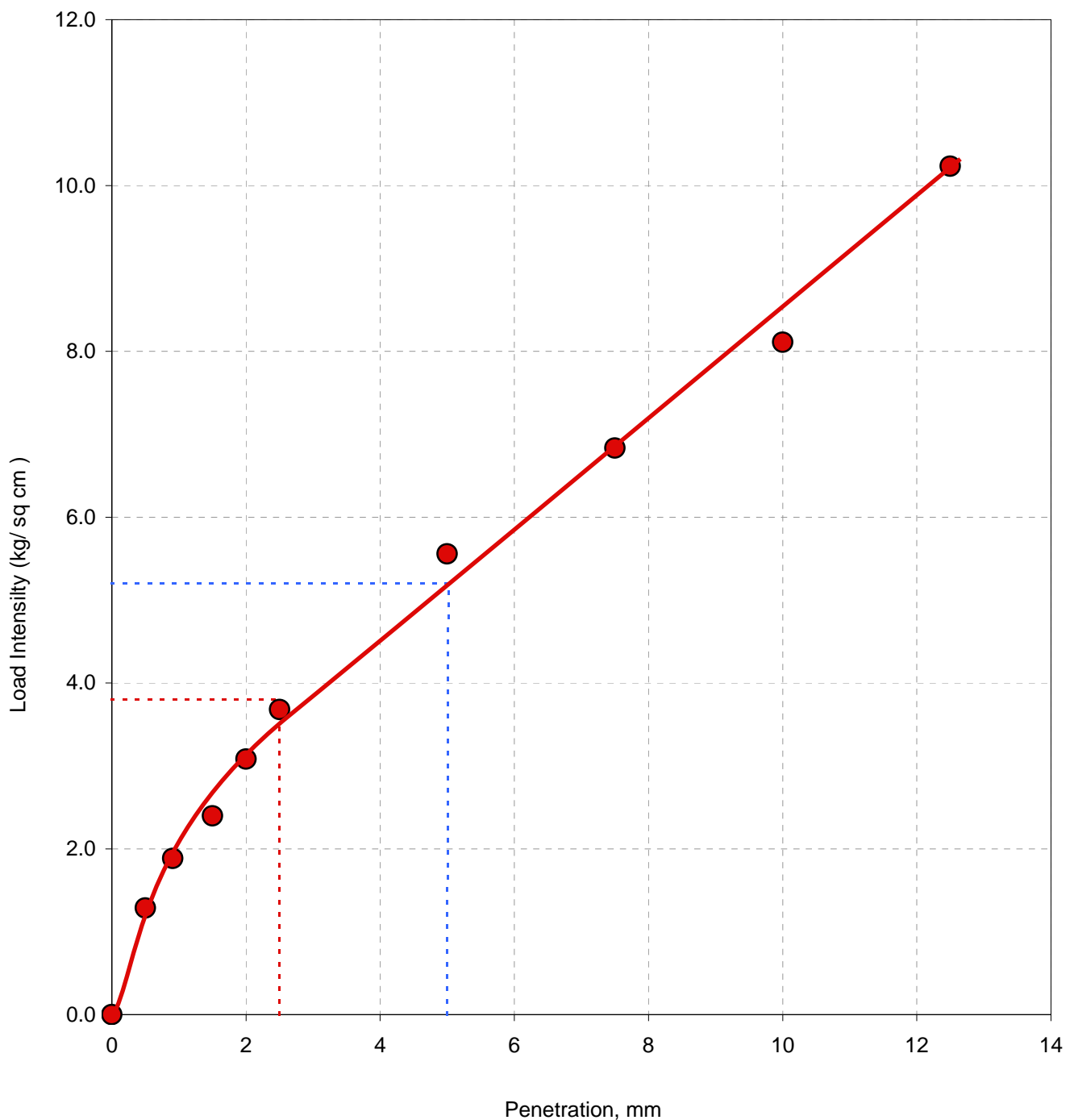
Load Intensity vs. Penetration (FCBR-64)



### Field California Bearing Ratio Test .: FCBR-65

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-65	Bearing Ratio at 2.5mm : 5.4
Test Location : Road	
Coordinates : E-699939, N-3159965	Bearing Ratio at 5.0mm : <b>5.0</b>
Test Depth : 0.15 m	
Surface Elevation : 212.534 m	Field CBR Value : <b>5.4</b>



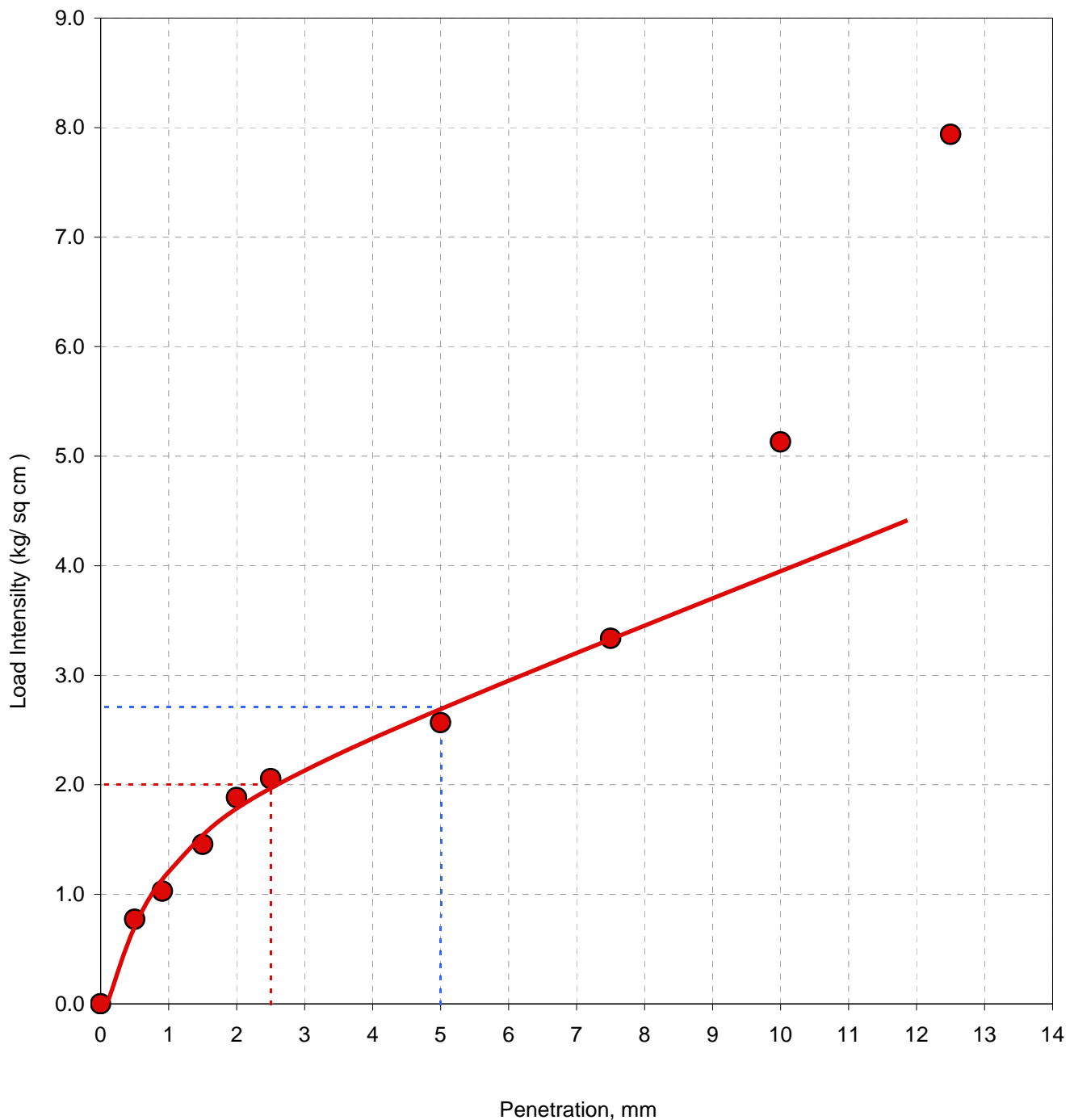
Load Intensity vs. Penetration (FCBR-65)



### Field California Bearing Ratio Test .: FCBR-66

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-66	Bearing Ratio at 2.5mm : 2.9
Test Location : Road	
Coordinates : E-700092, N-3159789	Bearing Ratio at 5.0mm : <b>2.6</b>
Test Depth : 0.15 m	
Surface Elevation : 213.635 m	Field CBR Value : <b>2.9</b>



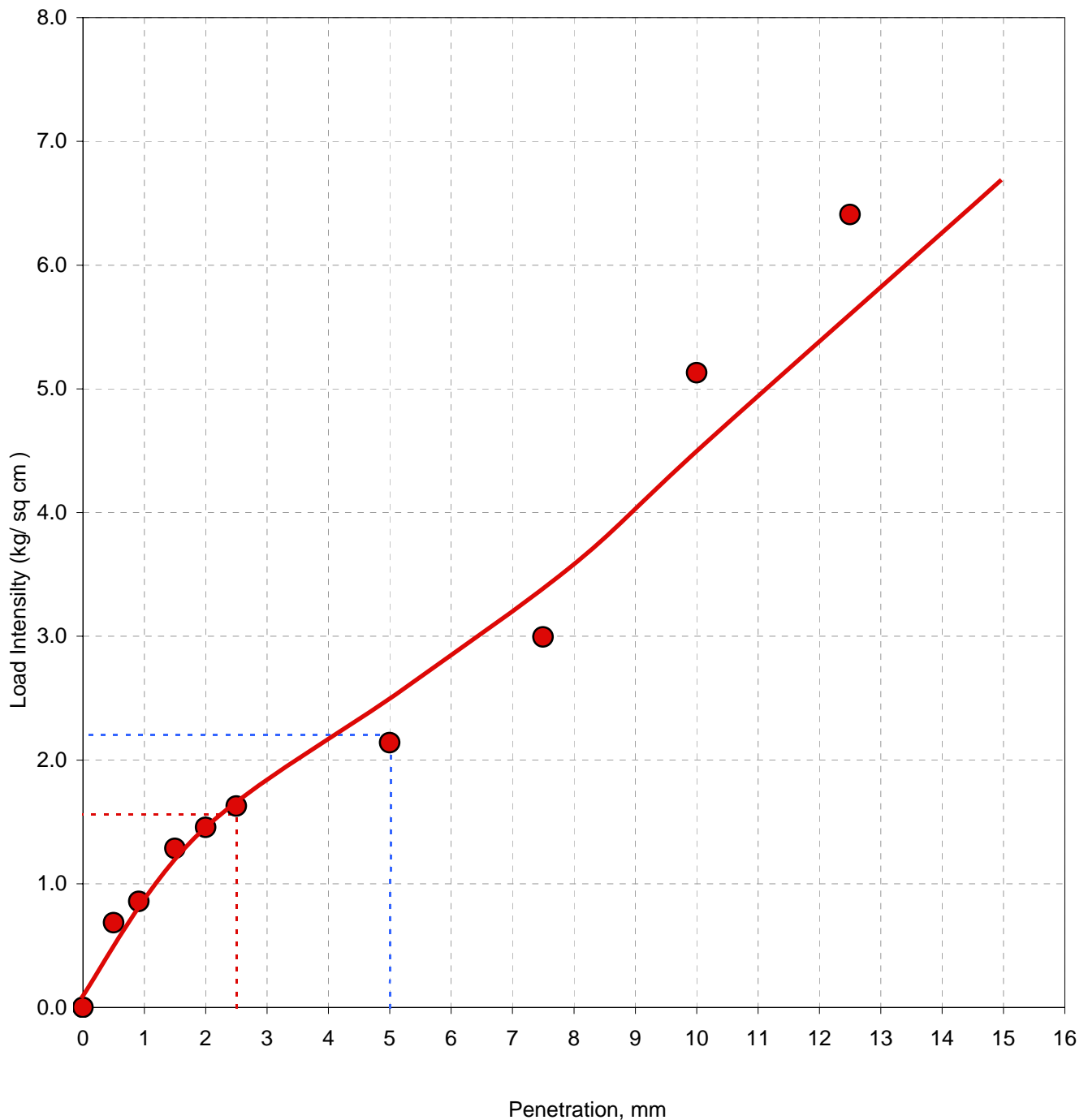
Load Intensity vs. Penetration (FCBR-66)



### Field California Bearing Ratio Test .: FCBR-67

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-67	Bearing Ratio at 2.5mm : 2.2
Test Location : Road	
Coordinates : E-700044, N-3159825	Bearing Ratio at 5.0mm : <b>2.1</b>
Test Depth : 0.15 m	
Surface Elevation : 213.500 m	Field CBR Value : <b>2.2</b>



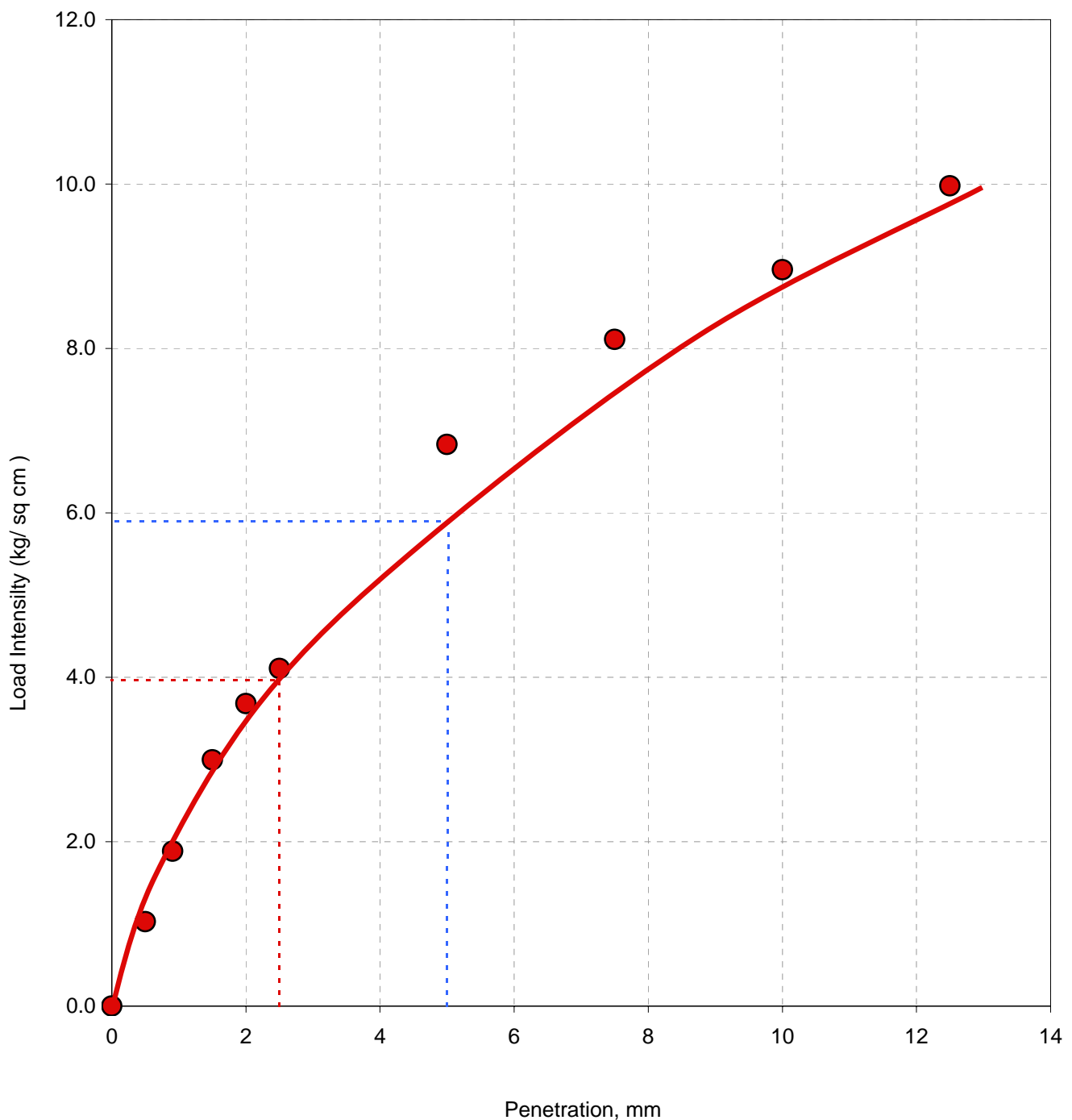
Load Intensity vs. Penetration (FCBR-67)



### Field California Bearing Ratio Test .: FCBR-68

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-68	Bearing Ratio at 2.5mm : 5.7
Test Location : Road	
Coordinates : E-699995, N-3159860	Bearing Ratio at 5.0mm : <b>5.6</b>
Test Depth : 0.15 m	
Surface Elevation : 213.507 m	Field CBR Value : <b>5.7</b>



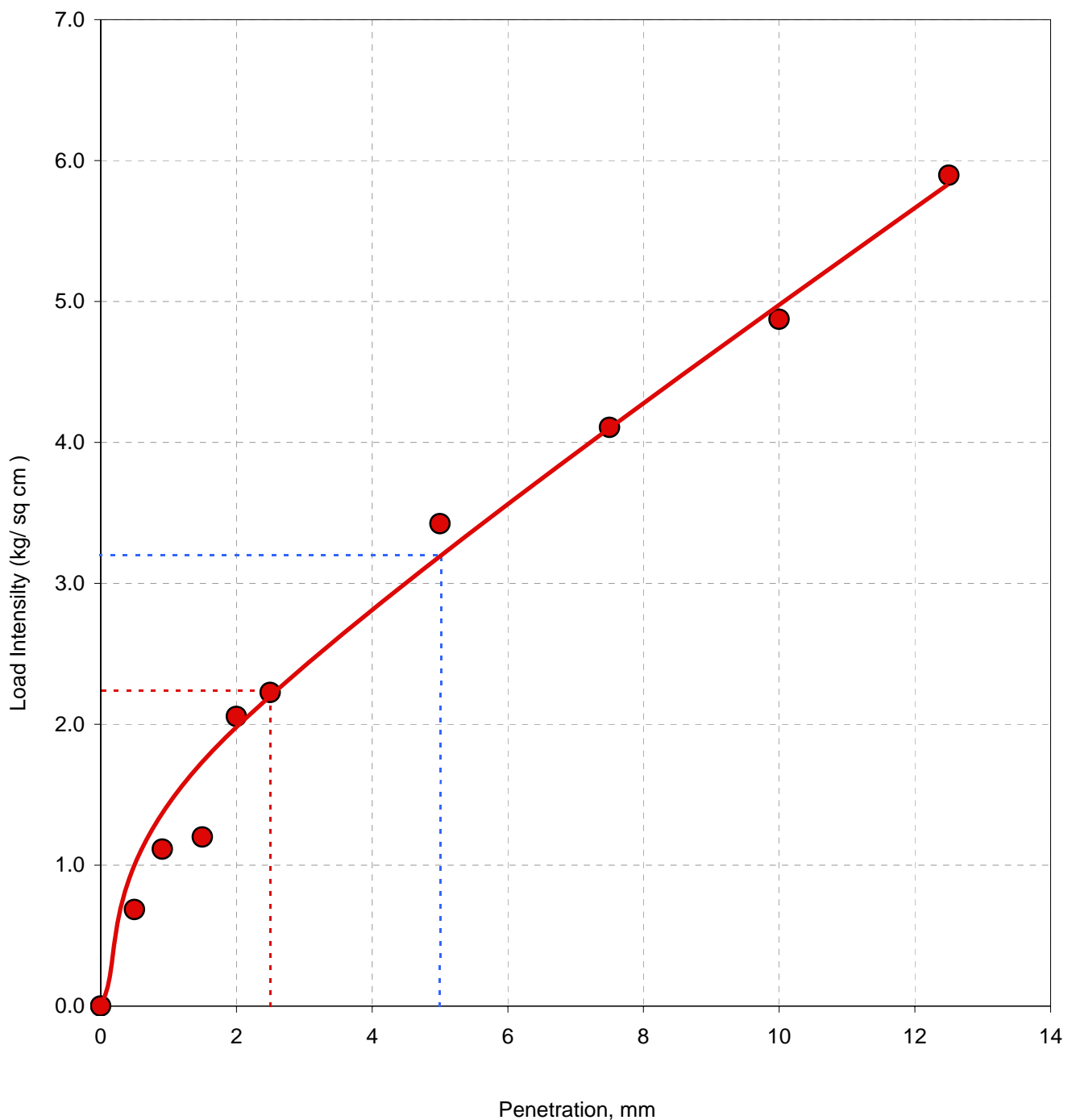
Load Intensity vs. Penetration (FCBR-68)



### Field California Bearing Ratio Test .: FCBR-69

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-69	Bearing Ratio at 2.5mm : 3.2
Test Location : Road	
Coordinates : E-699947, N-3159895	Bearing Ratio at 5.0mm : <b>3.0</b>
Test Depth : 0.15 m	
Surface Elevation : 213.480 m	Field CBR Value : <b>3.2</b>



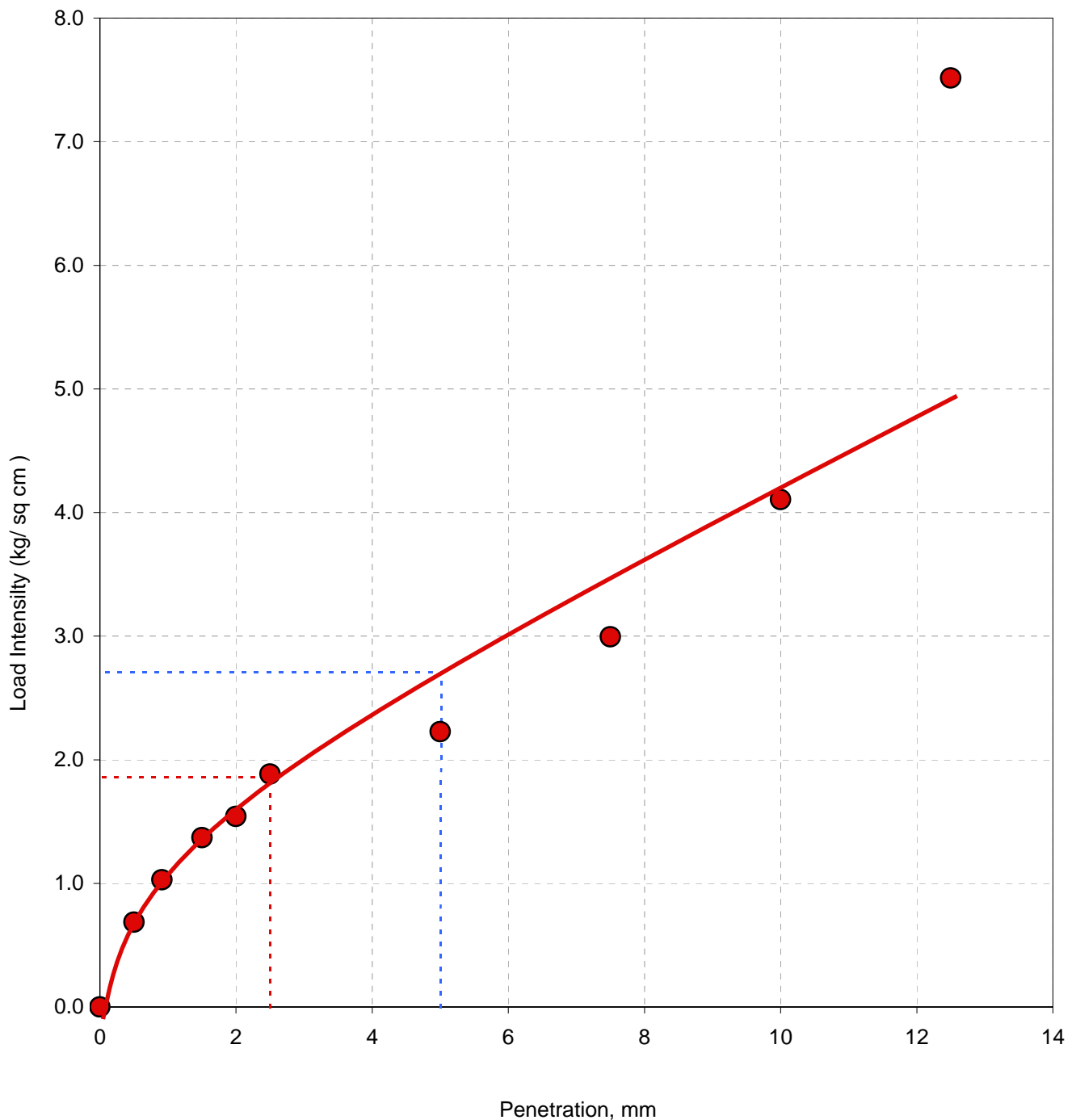
Load Intensity vs. Penetration (FCBR-69)



### Field California Bearing Ratio Test .: FCBR-70

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-70	Bearing Ratio at 2.5mm : 2.7
Test Location : Road	
Coordinates : E-699909, N-3159924	Bearing Ratio at 5.0mm : <b>2.6</b>
Test Depth : 0.15 m	
Surface Elevation : 213.075 m	Field CBR Value : <b>2.7</b>



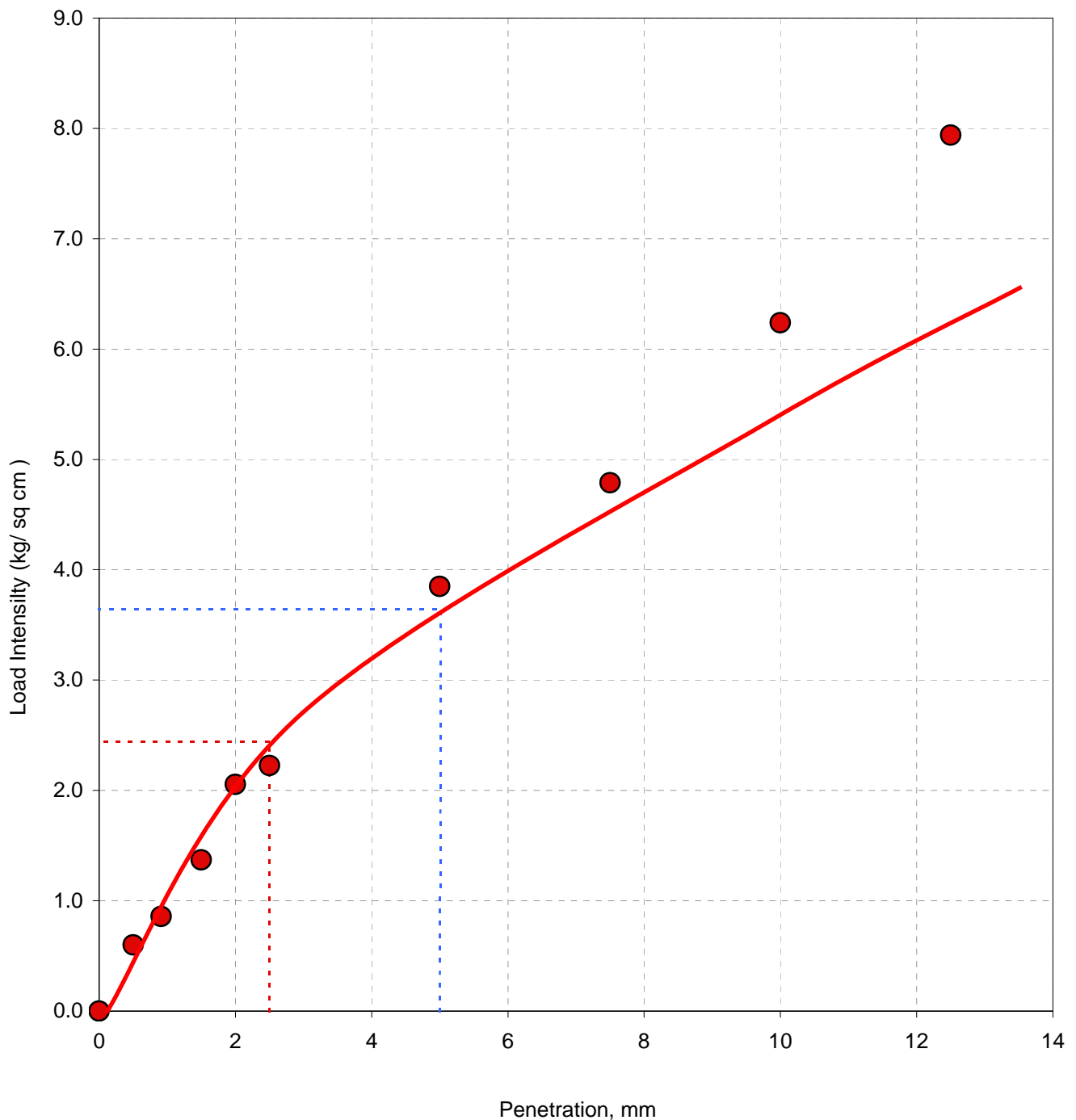
Load Intensity vs. Penetration (FCBR-70)



### Field California Bearing Ratio Test .: FCBR-71

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-71	Bearing Ratio at 2.5mm : 3.5
Test Location : Road	
Coordinates : E-699869, N-3159954	Bearing Ratio at 5.0mm : <b>3.5</b>
Test Depth : 0.15 m	
Surface Elevation : 212.271 m	Field CBR Value : <b>3.5</b>



Load Intensity vs. Penetration (FCBR-71)

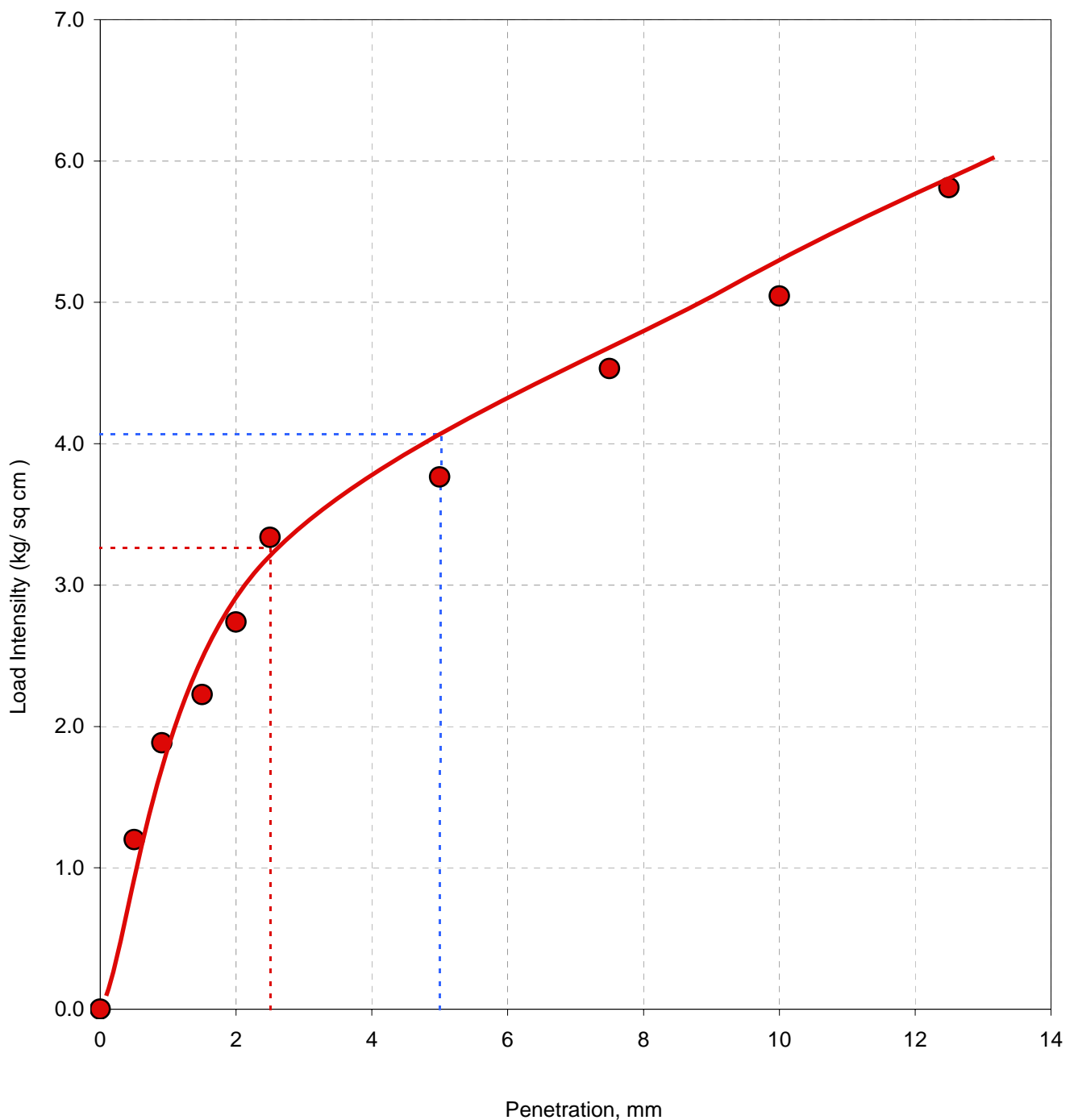




### Field California Bearing Ratio Test .: FCBR-72

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-72	Bearing Ratio at 2.5mm : 4.7
Test Location : Road	
Coordinates : E-699878, N-3159883	Bearing Ratio at 5.0mm : <b>3.9</b>
Test Depth : 0.15 m	
Surface Elevation : 213.314 m	Field CBR Value : <b>4.7</b>



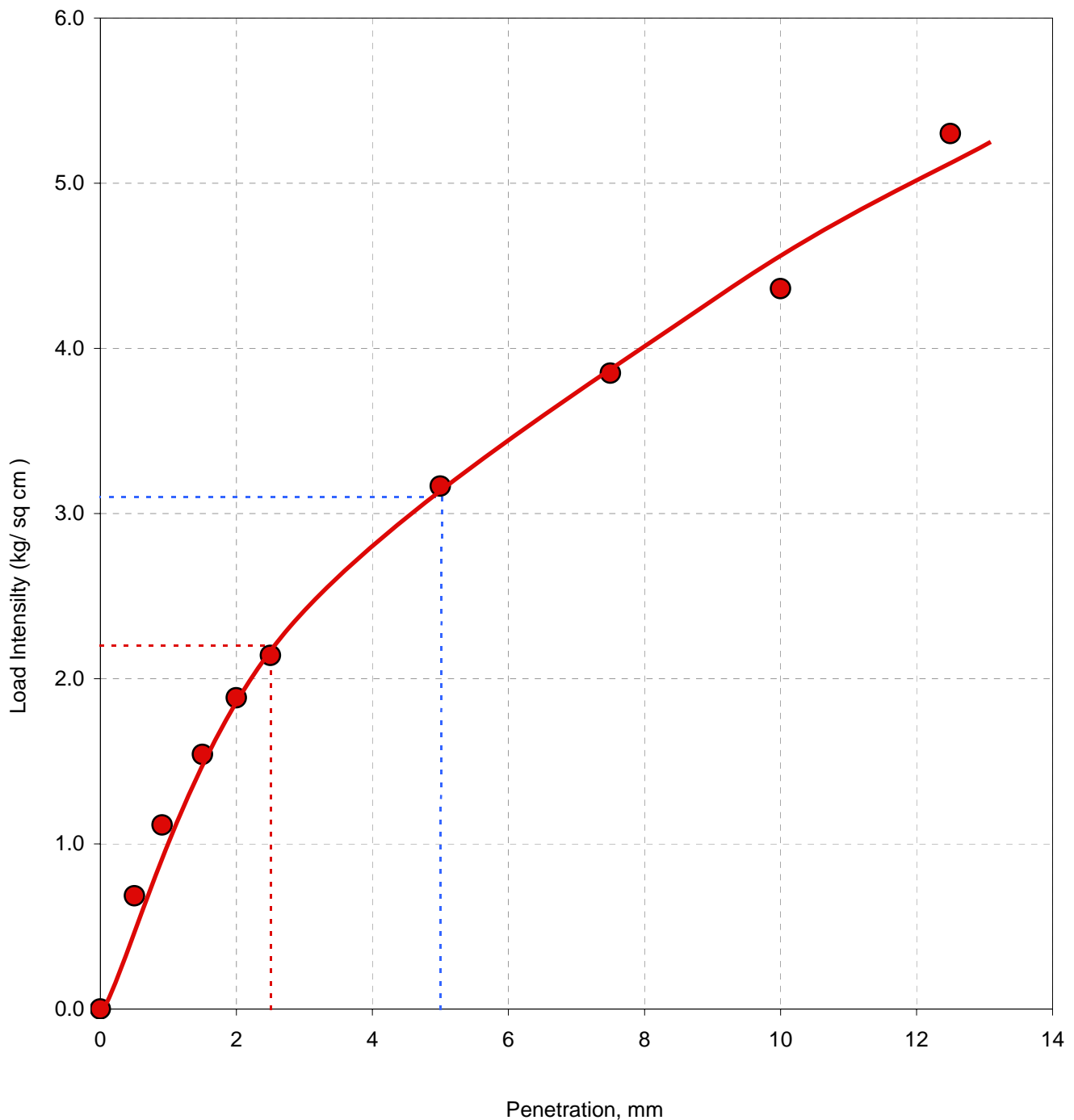
Load Intensity vs. Penetration (FCBR-72)



### Field California Bearing Ratio Test .: FCBR-73

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-73	Bearing Ratio at 2.5mm : 3.1
Test Location : Road	
Coordinates : E-699994, N-3159733	Bearing Ratio at 5.0mm : <b>3.0</b>
Test Depth : 0.15 m	
Surface Elevation : 213.448 m	Field CBR Value : <b>3.1</b>



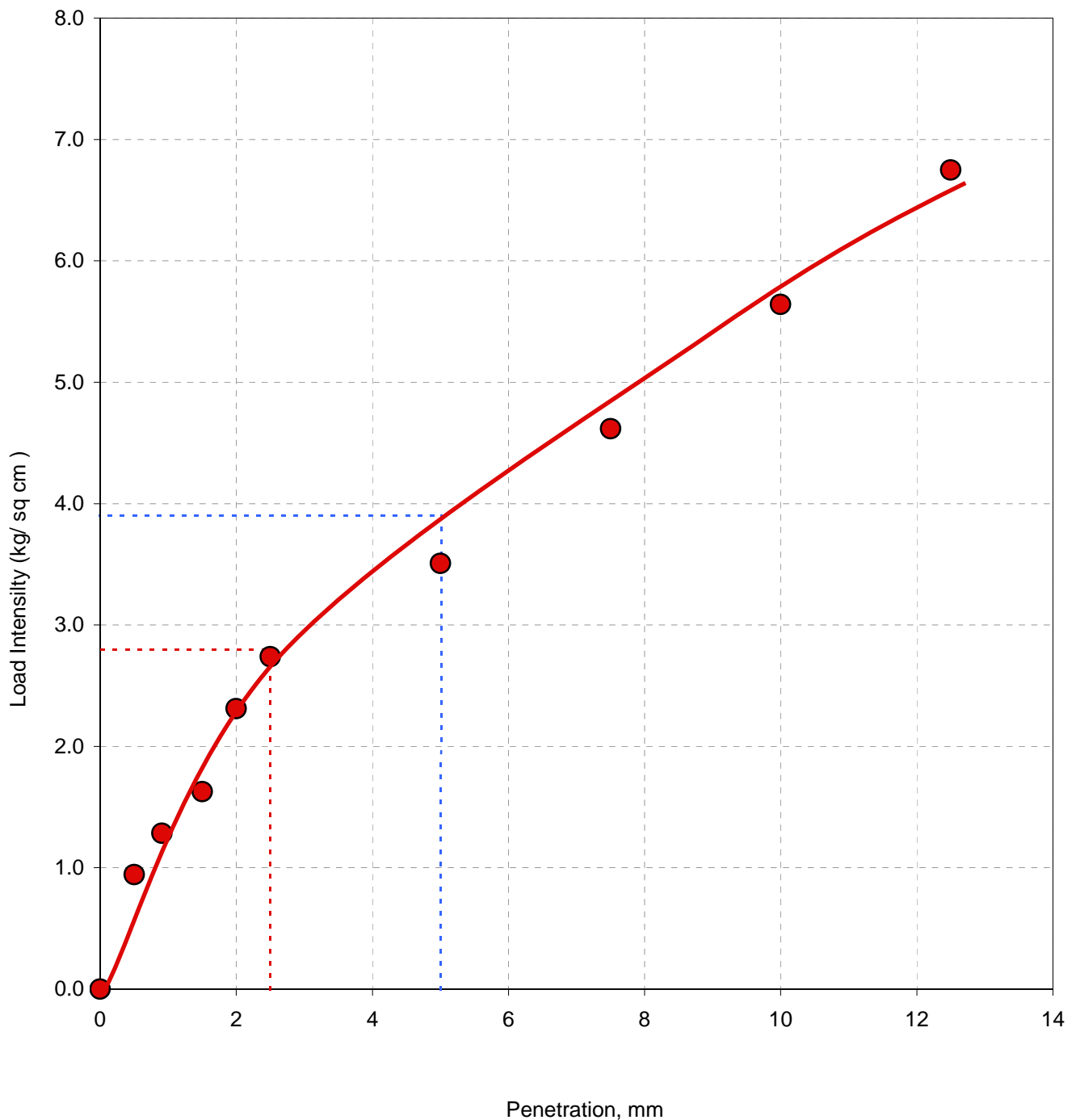
Load Intensity vs. Penetration (FCBR-73)



### Field California Bearing Ratio Test .: FCBR-74

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-74	Bearing Ratio at 2.5mm : 4.0
Test Location : Road	
Coordinates : E-699886, N-3159813	Bearing Ratio at 5.0mm : <b>3.7</b>
Test Depth : 0.15 m	
Surface Elevation : 213.429 m	Field CBR Value : <b>4.0</b>



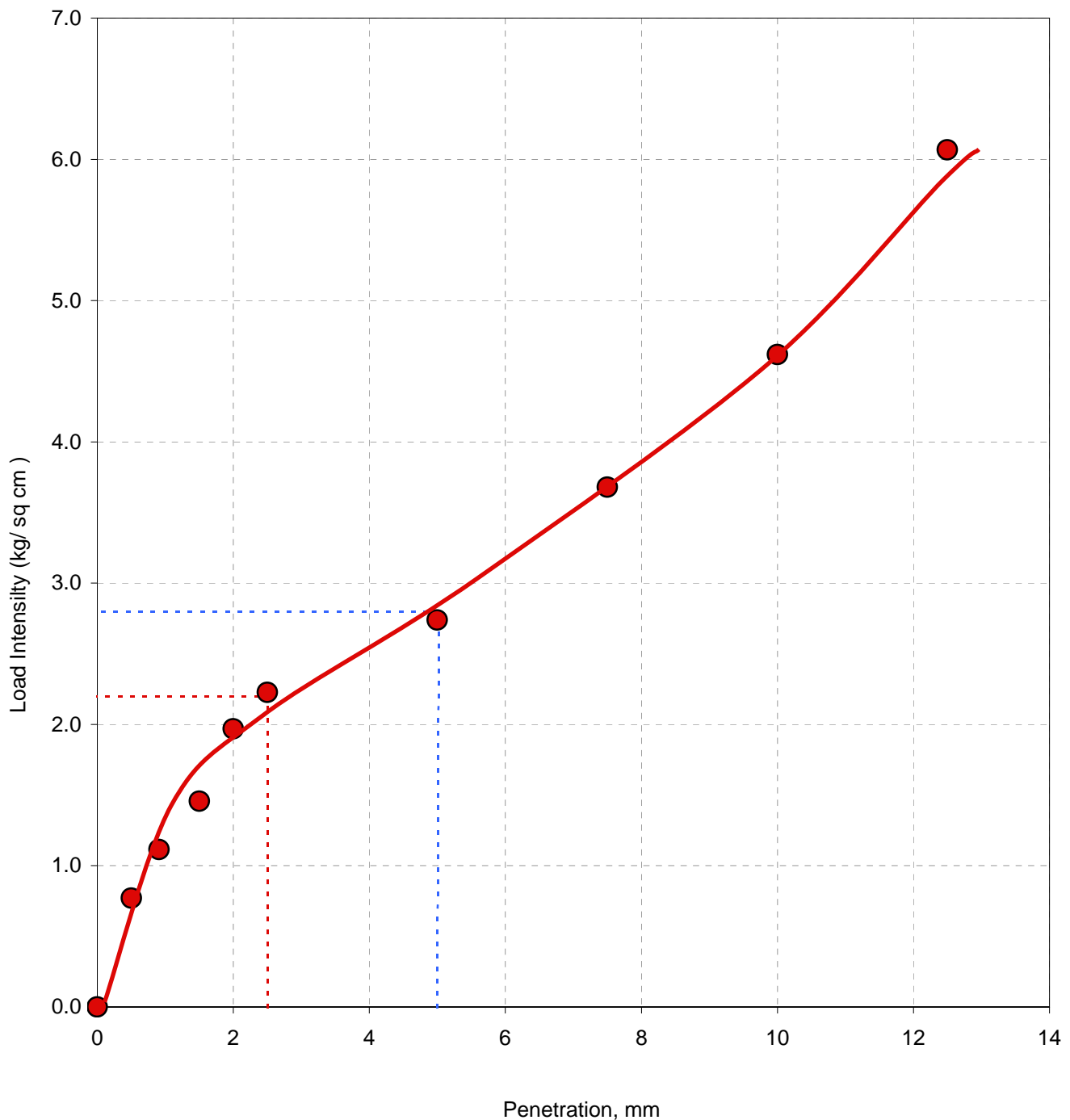
Load Intensity vs. Penetration (FCBR-74)



### Field California Bearing Ratio Test .: FCBR-75

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-75	Bearing Ratio at 2.5mm : 3.1
Test Location : Road	
Coordinates : E-699848, N-3159842	Bearing Ratio at 5.0mm : <b>2.7</b>
Test Depth : 0.15 m	
Surface Elevation : 212.997 m	Field CBR Value : <b>3.1</b>



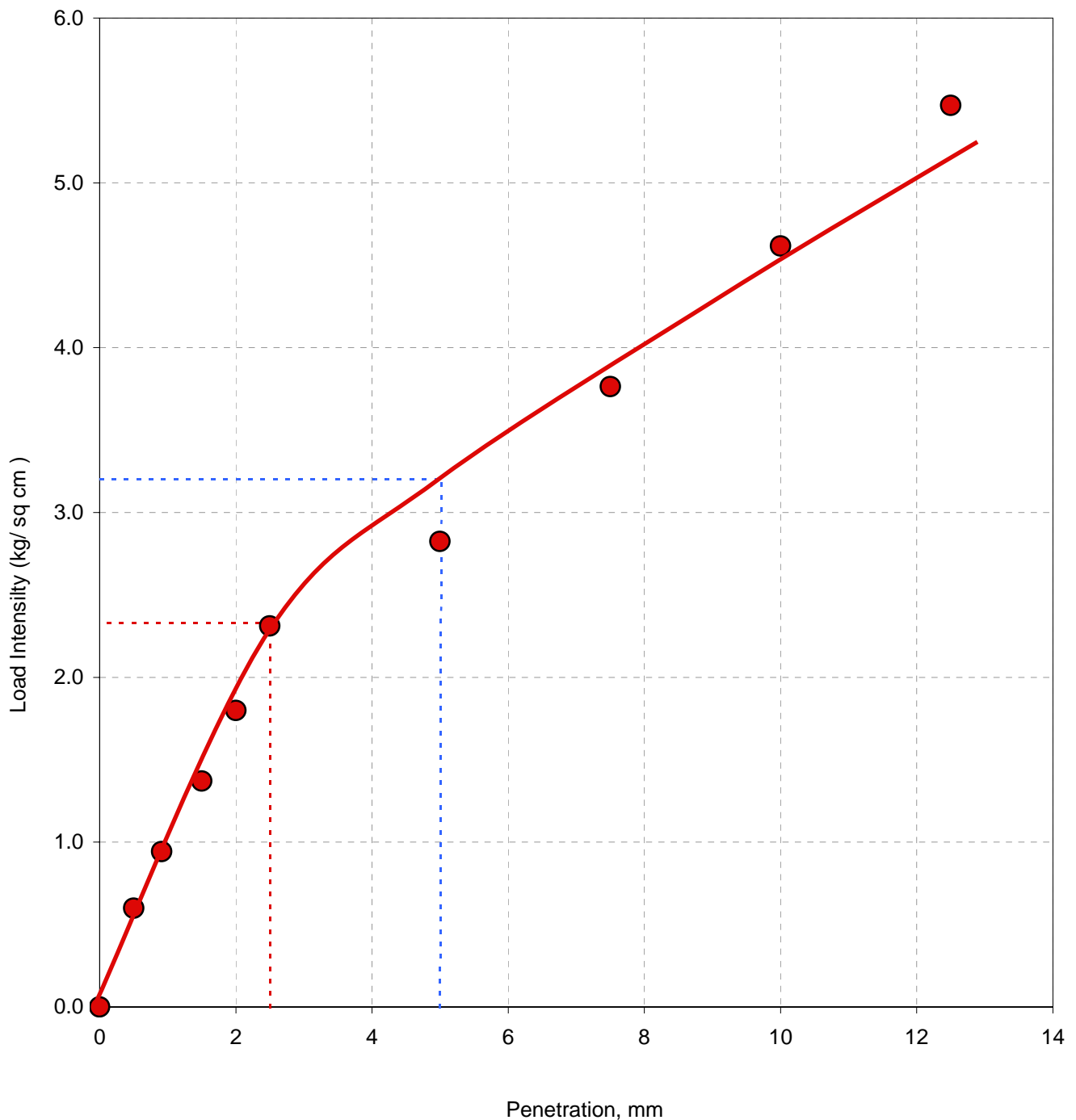
Load Intensity vs. Penetration (FCBR-75)



### Field California Bearing Ratio Test .: FCBR-76

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-76	Bearing Ratio at 2.5mm : 3.3
Test Location : Road	
Coordinates : E-699807, N-3159871	Bearing Ratio at 5.0mm : <b>3.0</b>
Test Depth : 0.15 m	
Surface Elevation : 213.061 m	Field CBR Value : <b>3.3</b>



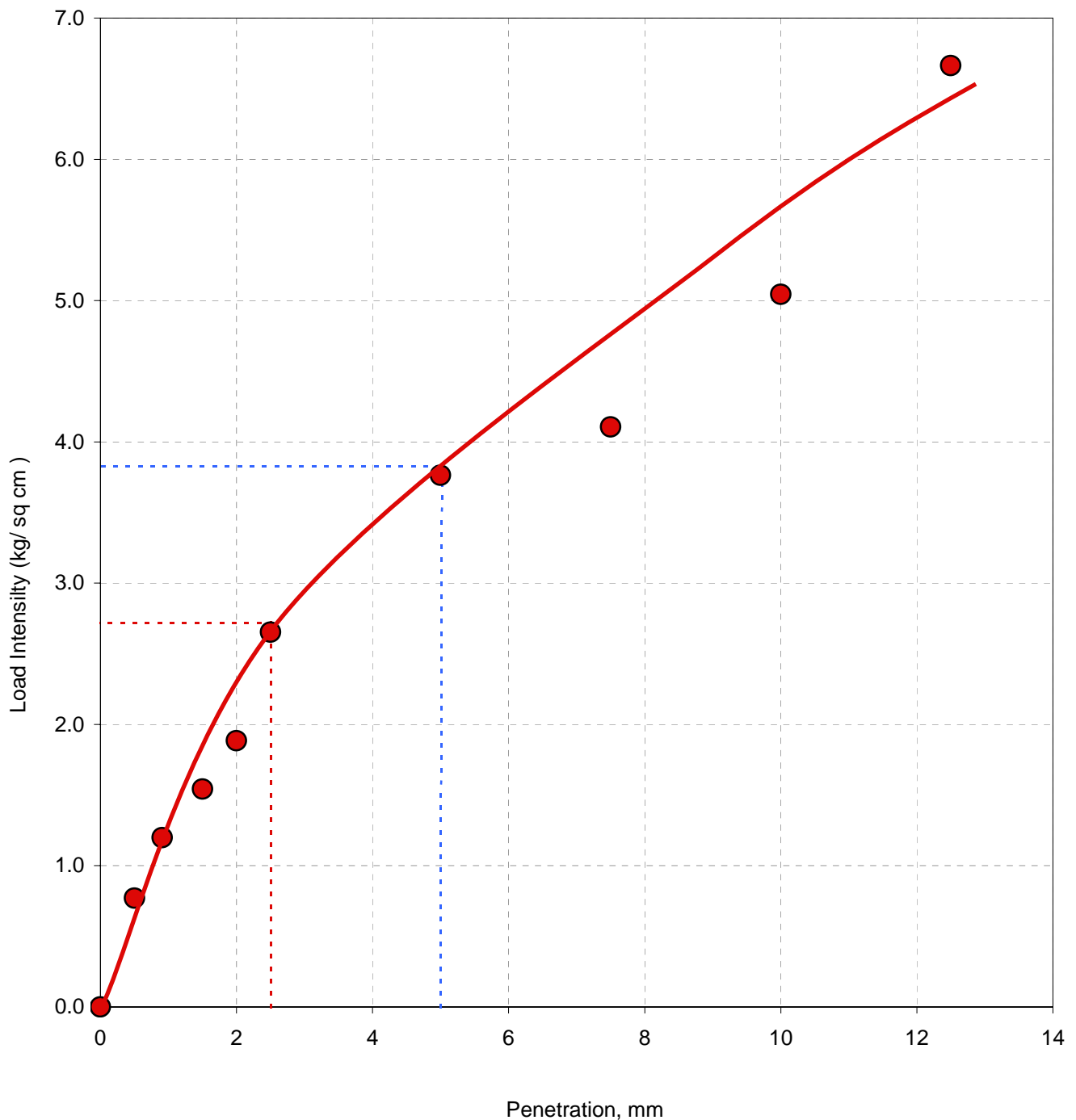
Load Intensity vs. Penetration (FCBR-76)



### Field California Bearing Ratio Test .: FCBR-77

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-77	Bearing Ratio at 2.5mm : 3.9
Test Location : Road	
Coordinates : E-699995, N-3159658	Bearing Ratio at 5.0mm : <b>3.6</b>
Test Depth : 0.15 m	
Surface Elevation : 213.587 m	Field CBR Value : <b>3.9</b>



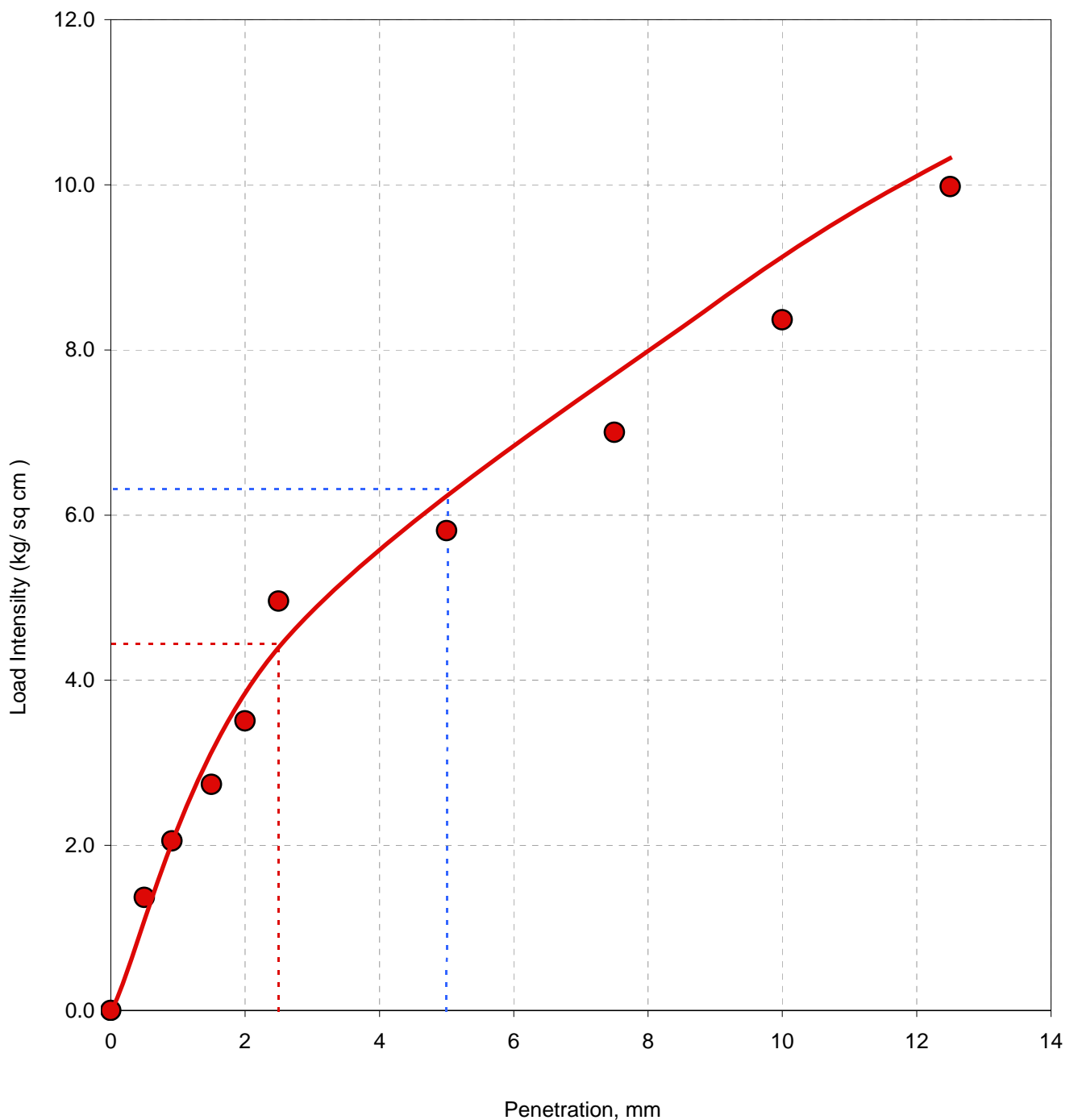
Load Intensity vs. Penetration (FCBR-77)



### Field California Bearing Ratio Test .: FCBR-78

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-78	Bearing Ratio at 2.5mm : 6.3
Test Location : Road	
Coordinates : E-699817, N-3159800	Bearing Ratio at 5.0mm : <b>6.0</b>
Test Depth : 0.15 m	
Surface Elevation : 213.280 m	Field CBR Value : <b>6.3</b>



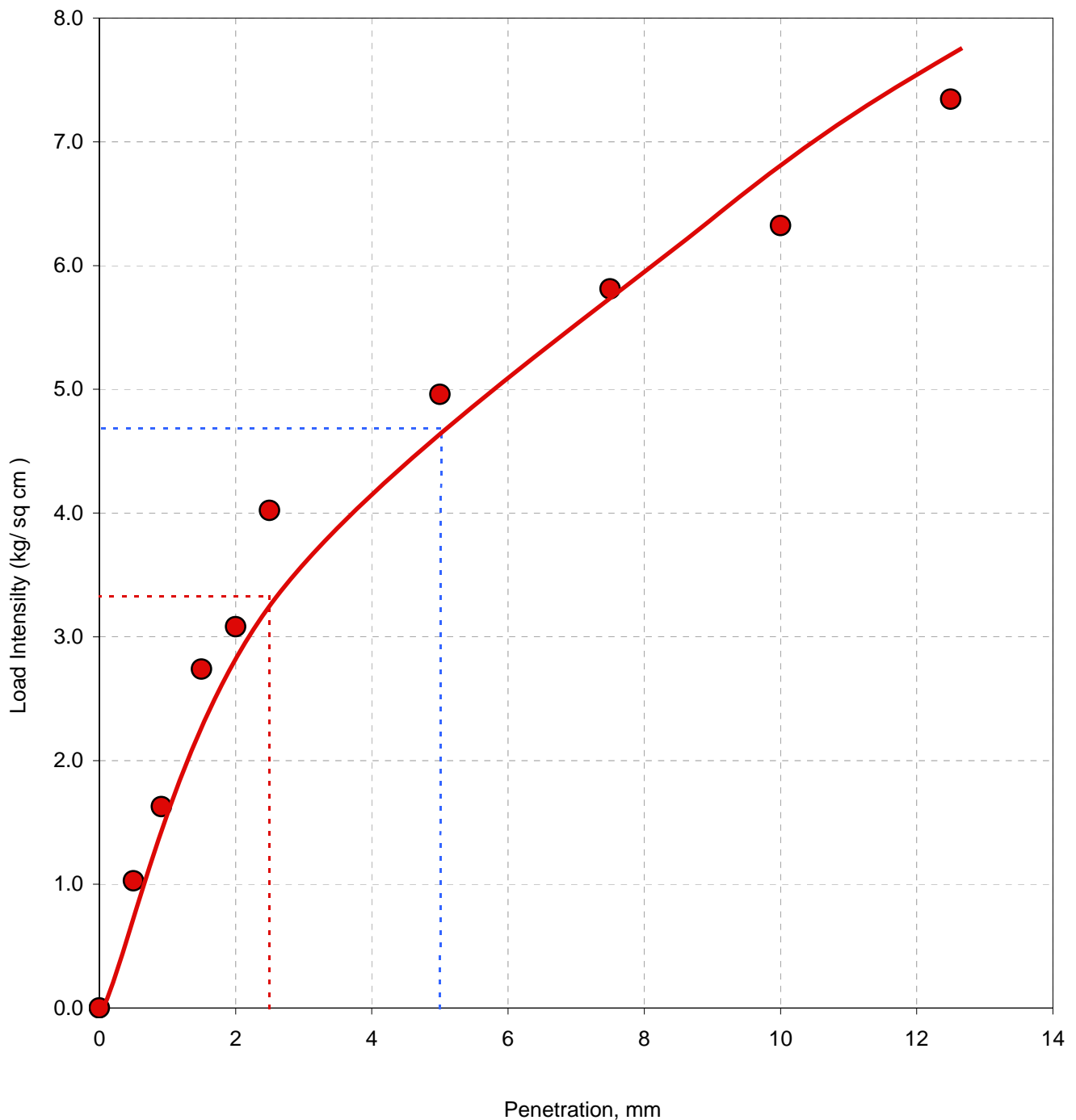
Load Intensity vs. Penetration (FCBR-78)



### Field California Bearing Ratio Test .: FCBR-79

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-79	Bearing Ratio at 2.5mm : 4.8
Test Location : Road	
Coordinates : E-699959, N-3159610	Bearing Ratio at 5.0mm : <b>4.5</b>
Test Depth : 0.15 m	
Surface Elevation : 213.681 m	Field CBR Value : <b>4.8</b>



Load Intensity vs. Penetration (FCBR-79)

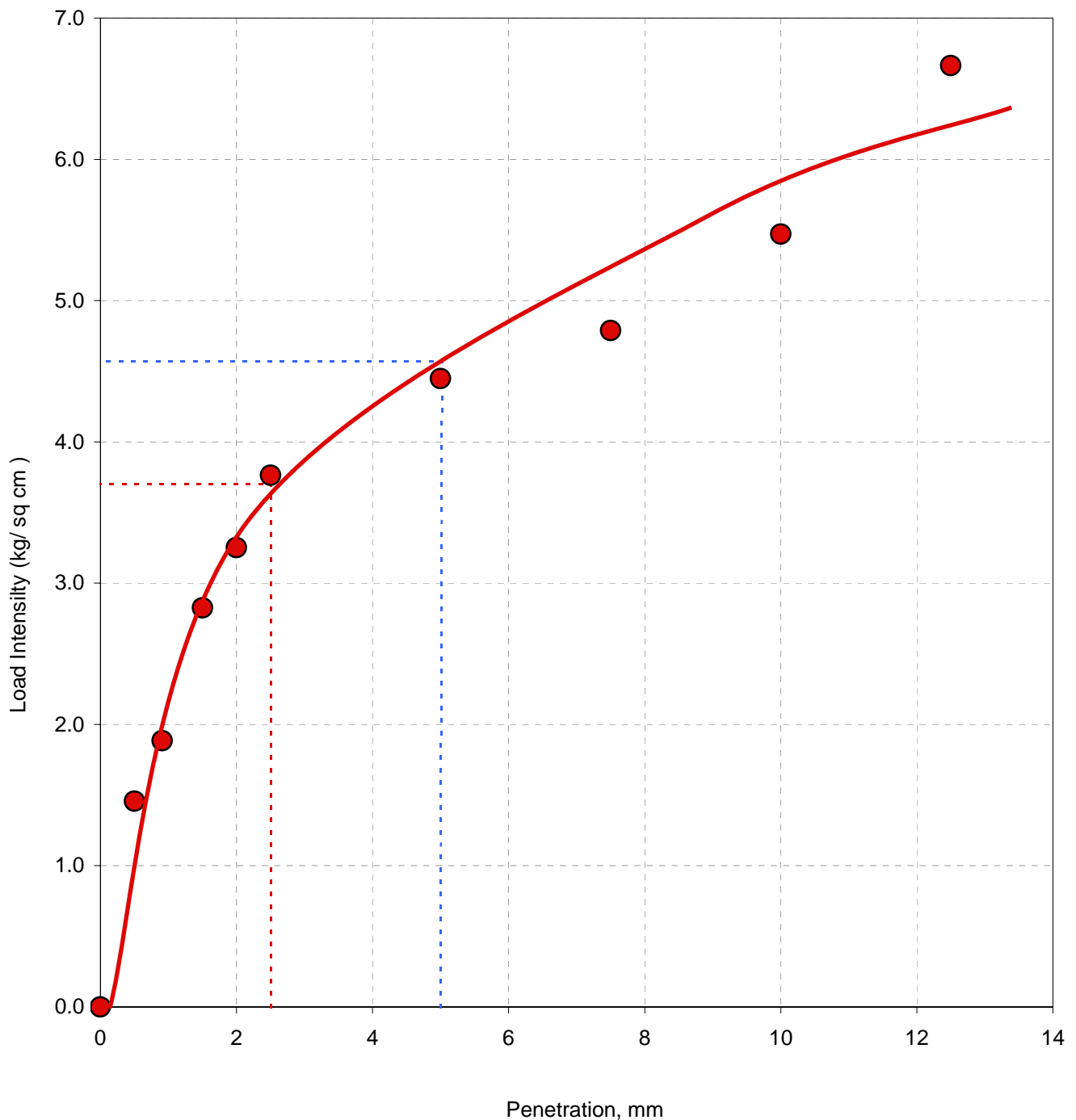




### Field California Bearing Ratio Test .: FCBR-80

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-80	Bearing Ratio at 2.5mm : 5.3
Test Location : Road	
Coordinates : E-699825, N-3159730	Bearing Ratio at 5.0mm : <b>4.4</b>
Test Depth : 0.15 m	
Surface Elevation : 213.276 m	Field CBR Value : <b>5.3</b>



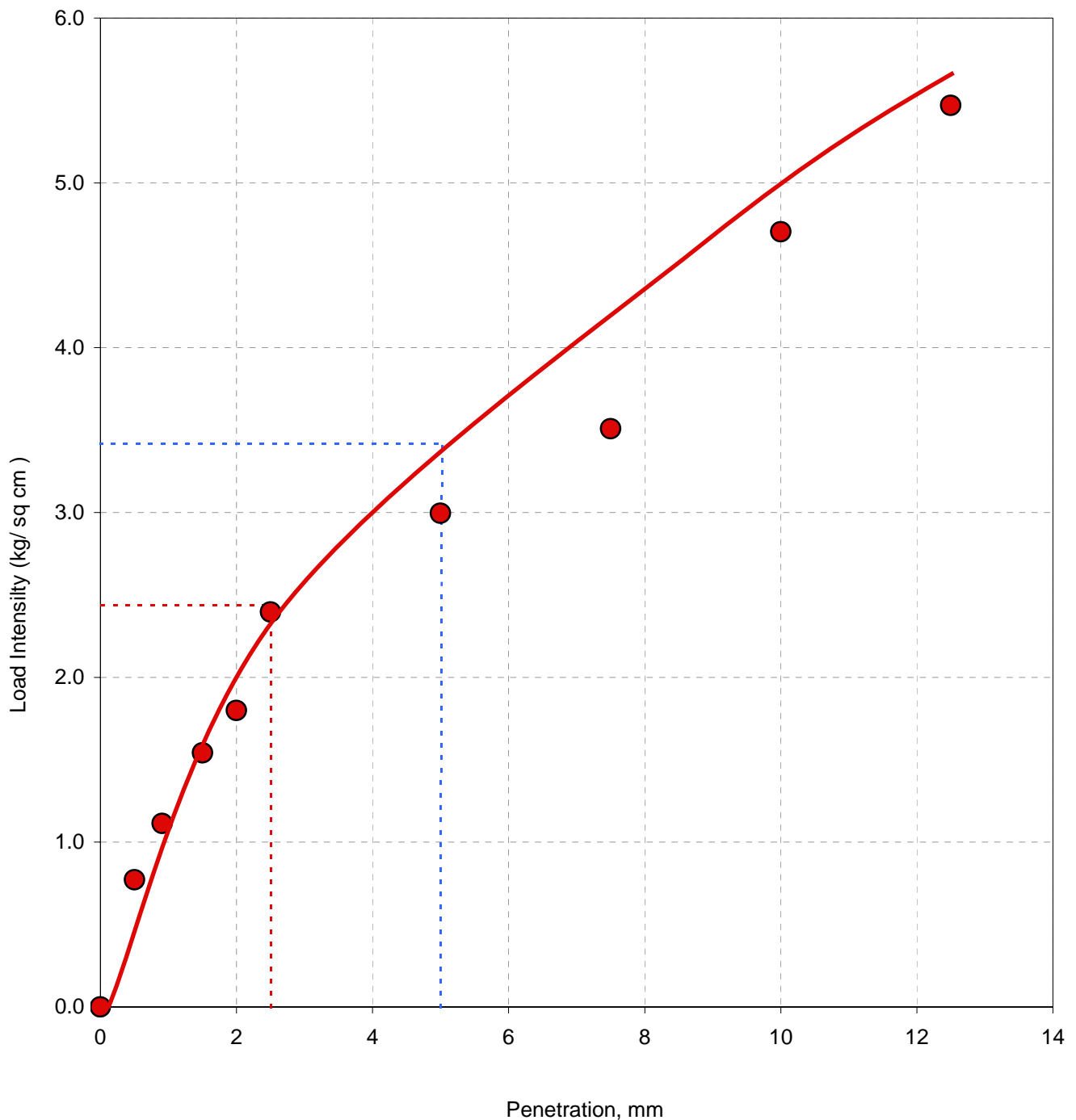
Load Intensity vs. Penetration (FCBR-80)



### Field California Bearing Ratio Test .: FCBR-81

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-81	Bearing Ratio at 2.5mm : 3.5
Test Location : Road	
Coordinates : E-699786, N-3159759	Bearing Ratio at 5.0mm : <b>3.3</b>
Test Depth : 0.15 m	
Surface Elevation : 213.144 m	Field CBR Value : <b>3.5</b>



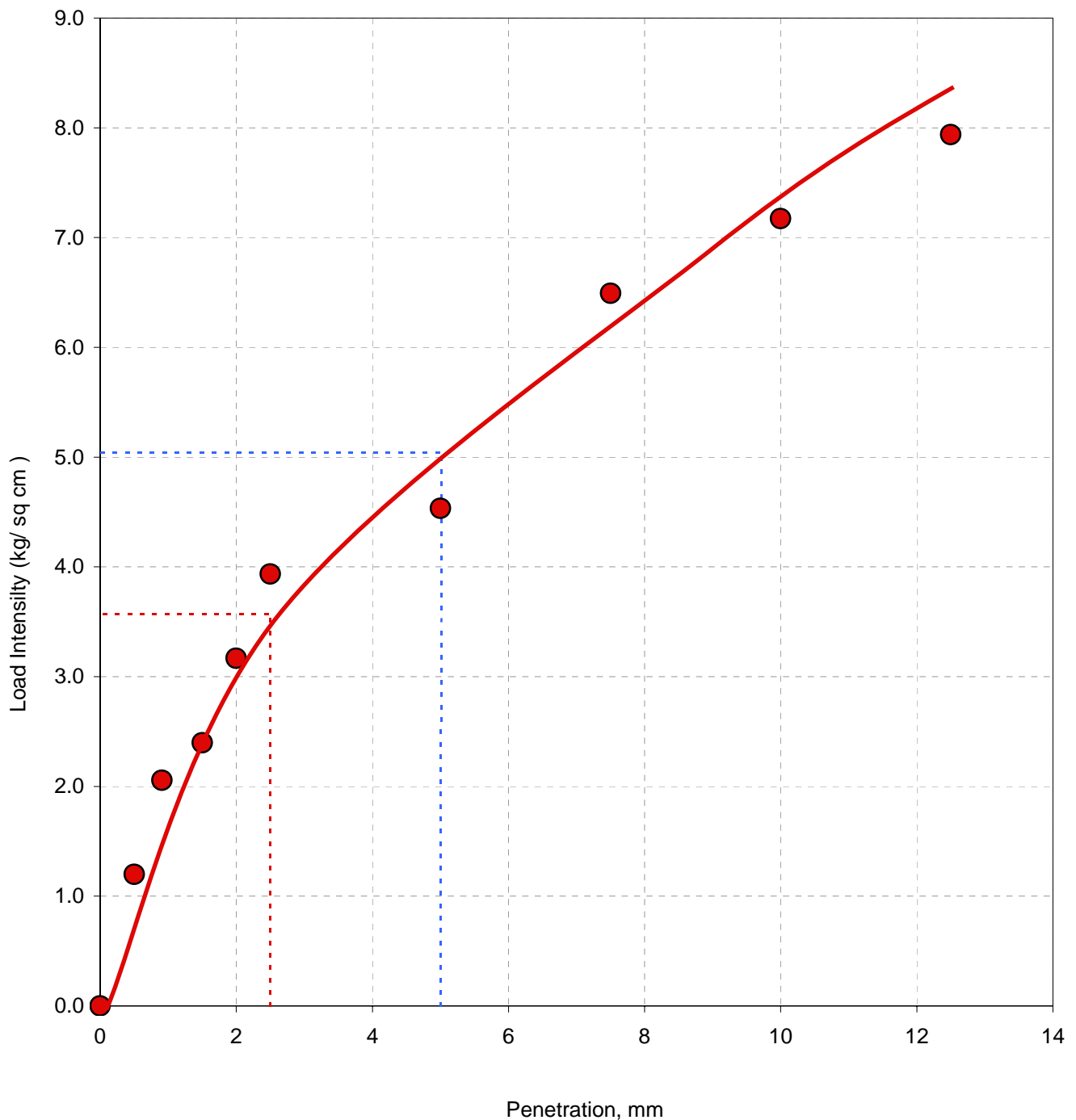
Load Intensity vs. Penetration (FCBR-81)



### Field California Bearing Ratio Test .: FCBR-82

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-82	Bearing Ratio at 2.5mm : 5.1
Test Location : Road	
Coordinates : E-699746, N-3159788	Bearing Ratio at 5.0mm : <b>4.8</b>
Test Depth : 0.15 m	
Surface Elevation : 212.000 m	Field CBR Value : <b>5.1</b>



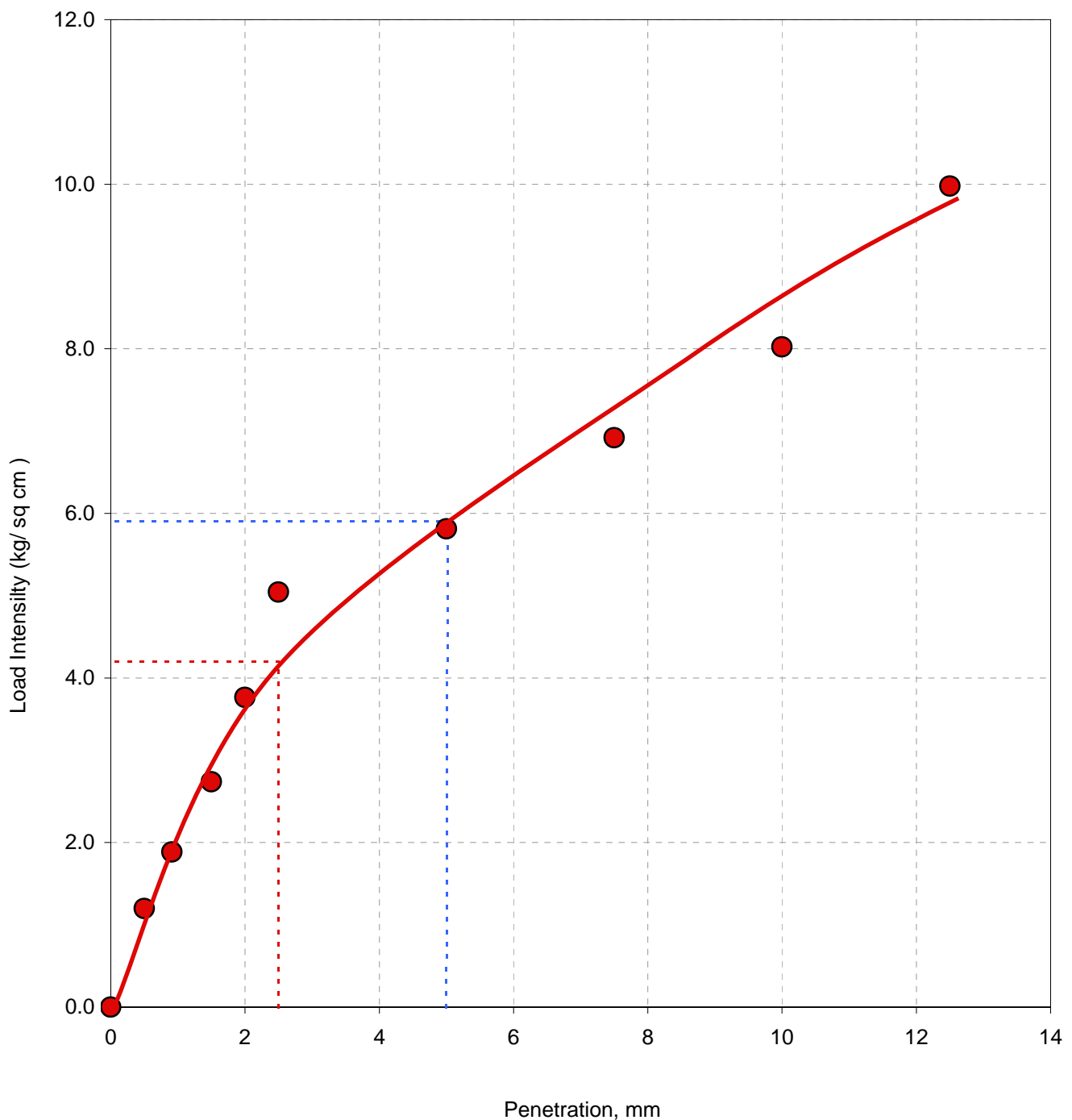
Load Intensity vs. Penetration (FCBR-82)



### Field California Bearing Ratio Test .: FCBR-83

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-83	Bearing Ratio at 2.5mm : 6.0
Test Location : Road	
Coordinates : E-699924, N-3159562	Bearing Ratio at 5.0mm : <b>5.6</b>
Test Depth : 0.15 m	
Surface Elevation : 213.522 m	Field CBR Value : <b>6.0</b>



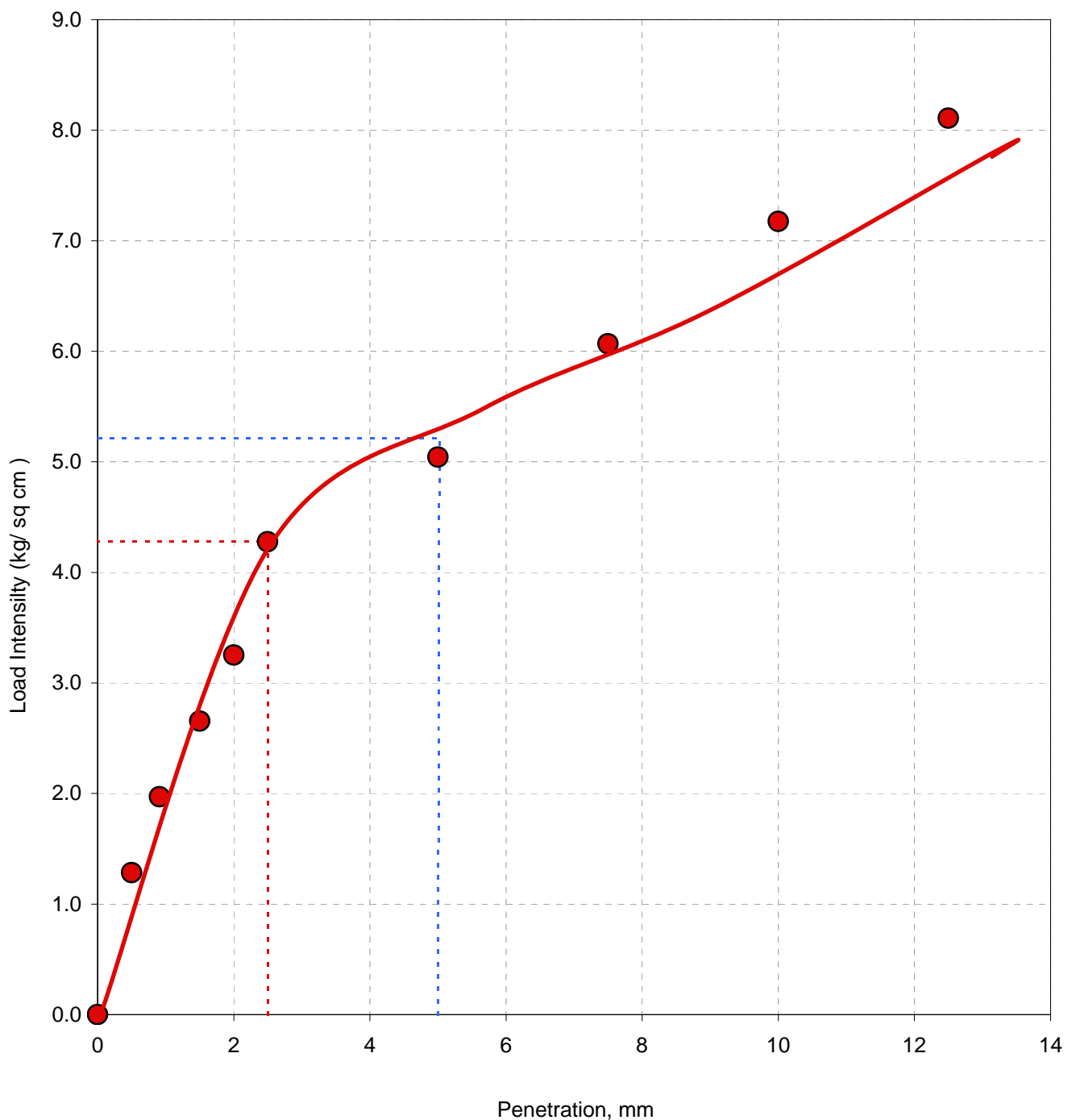
Load Intensity vs. Penetration (FCBR-83)



### Field California Bearing Ratio Test .: FCBR-84

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-84	Bearing Ratio at 2.5mm : 6.1
Test Location : Road	
Coordinates : E-699757, N-3159719	Bearing Ratio at 5.0mm : <b>5.0</b>
Test Depth : 0.15 m	
Surface Elevation : 213.225 m	Field CBR Value : <b>6.1</b>



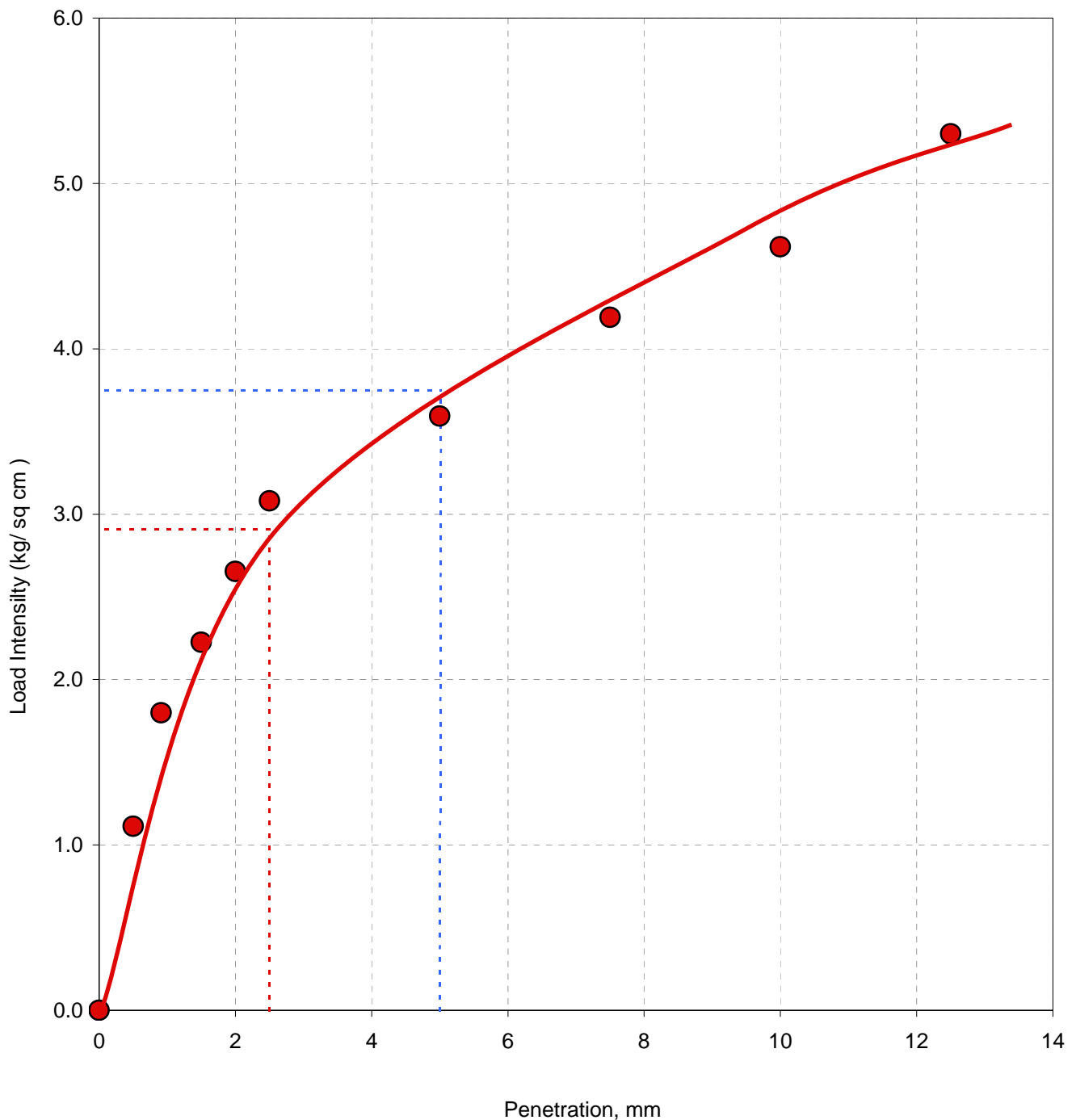
Load Intensity vs. Penetration (FCBR-84)



### Field California Bearing Ratio Test .: FCBR-85

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-85	Bearing Ratio at 2.5mm : 4.2
Test Location : Road	
Coordinates : E-699888, N-3159513	Bearing Ratio at 5.0mm : <b>3.6</b>
Test Depth : 0.15 m	
Surface Elevation : 213.236 m	Field CBR Value : <b>4.2</b>



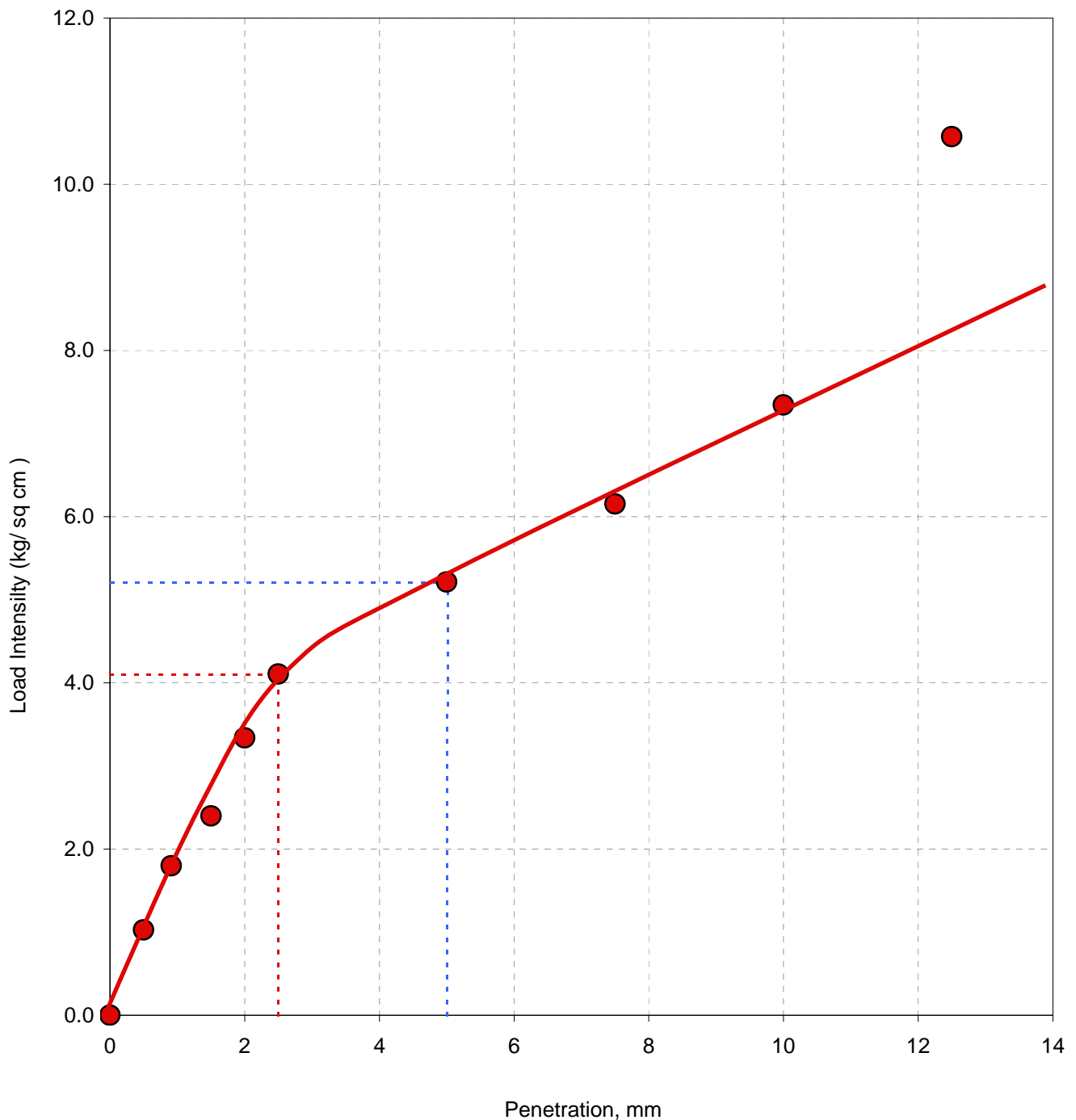
Load Intensity vs. Penetration (FCBR-85)



### Field California Bearing Ratio Test .: FCBR-86

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-86	Bearing Ratio at 2.5mm : 5.9
Test Location : Road	
Coordinates : E-699727, N-3159679	Bearing Ratio at 5.0mm : <b>5.0</b>
Test Depth : 0.15 m	
Surface Elevation : 213.500 m	Field CBR Value : <b>5.9</b>



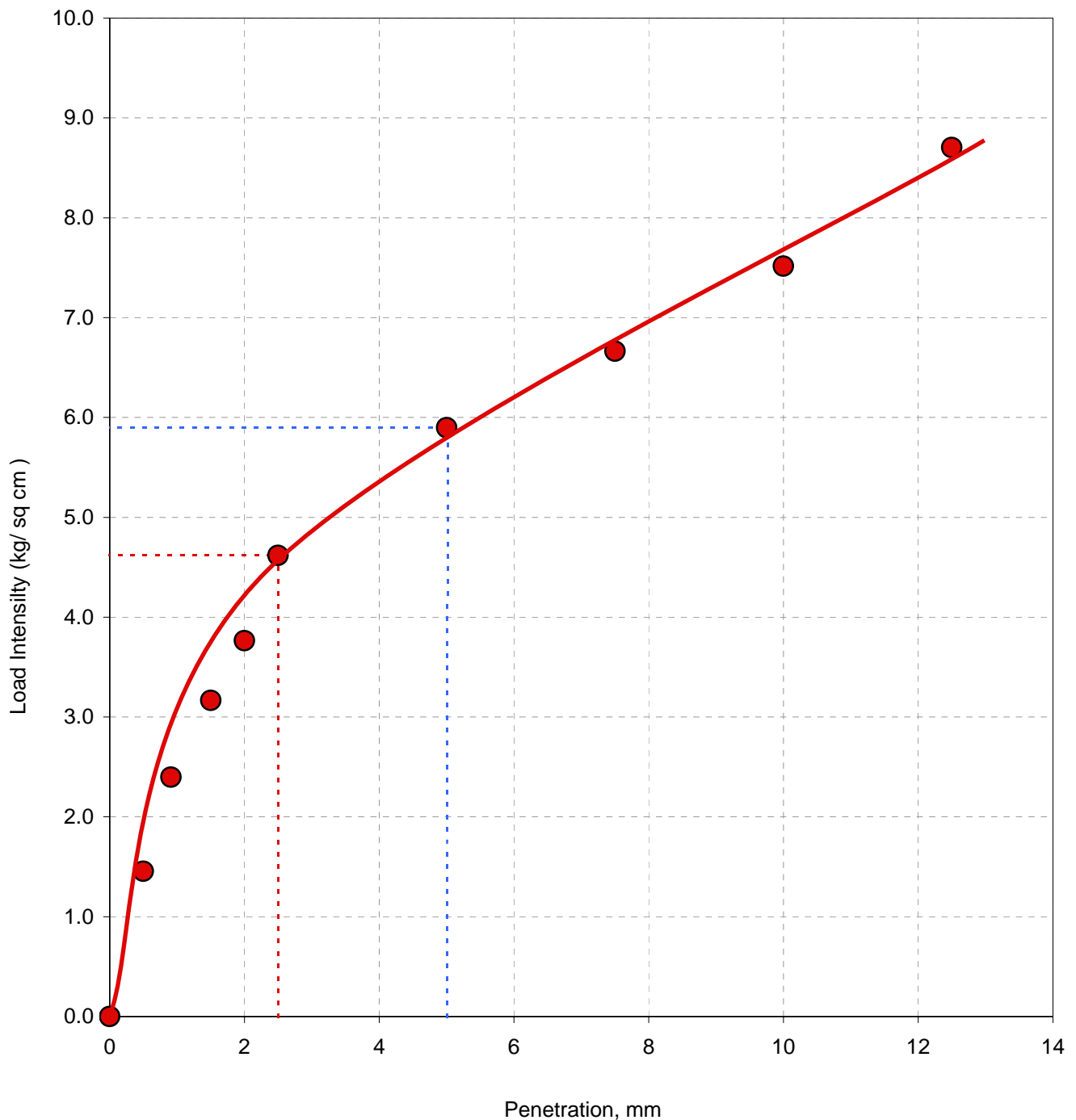
Load Intensity vs. Penetration (FCBR-86)



### Field California Bearing Ratio Test .: FCBR-87

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-87	Bearing Ratio at 2.5mm : 6.6
Test Location : Road	
Coordinates : E-699668, N-3159675	Bearing Ratio at 5.0mm : <b>5.6</b>
Test Depth : 0.15 m	
Surface Elevation : 212.615 m	Field CBR Value : <b>6.6</b>



Load Intensity vs. Penetration (FCBR-87)

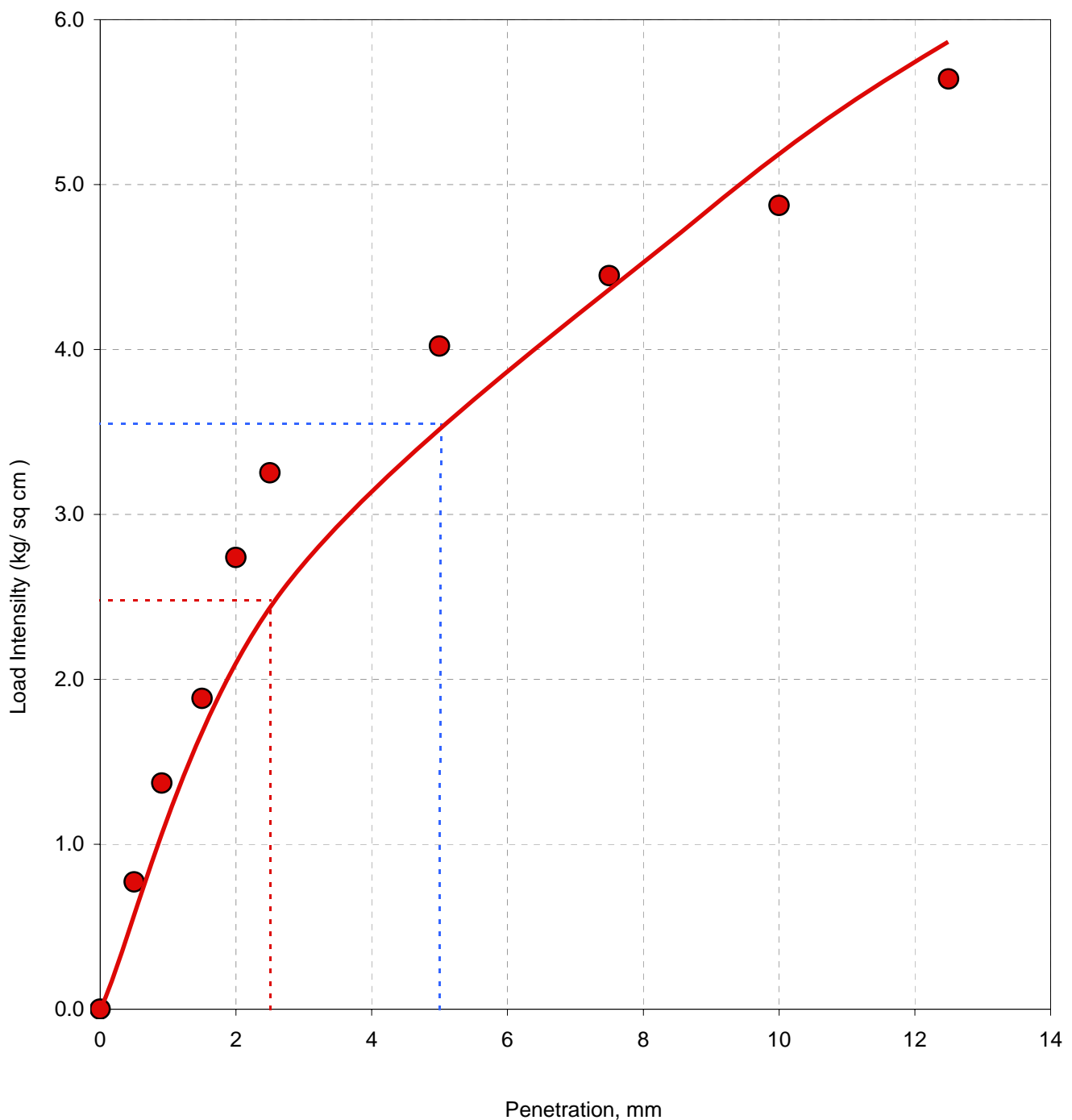




### Field California Bearing Ratio Test .: FCBR-88

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-88	Bearing Ratio at 2.5mm : 3.5
Test Location : Road	
Coordinates : E-699879, N-3159469	Bearing Ratio at 5.0mm : <b>3.4</b>
Test Depth : 0.15 m	
Surface Elevation : 213.298 m	Field CBR Value : <b>3.5</b>



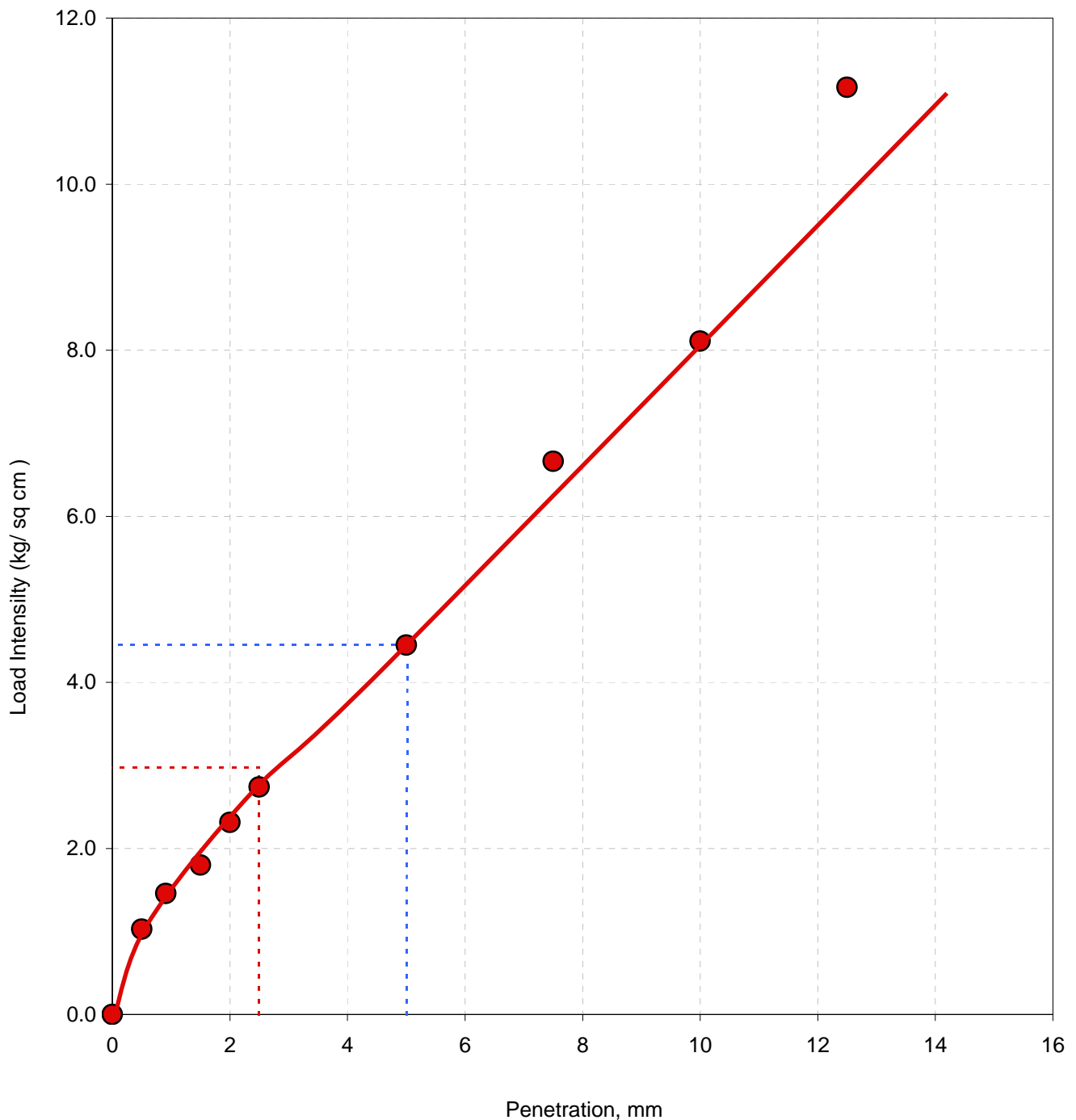
Load Intensity vs. Penetration (FCBR-88)



### Field California Bearing Ratio Test .: FCBR-89

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-89	Bearing Ratio at 2.5mm : 4.2
Test Location : Road	
Coordinates : E-699840, N-3159503	Bearing Ratio at 5.0mm : <b>4.2</b>
Test Depth : 0.15 m	
Surface Elevation : 213.500 m	Field CBR Value : <b>4.2</b>



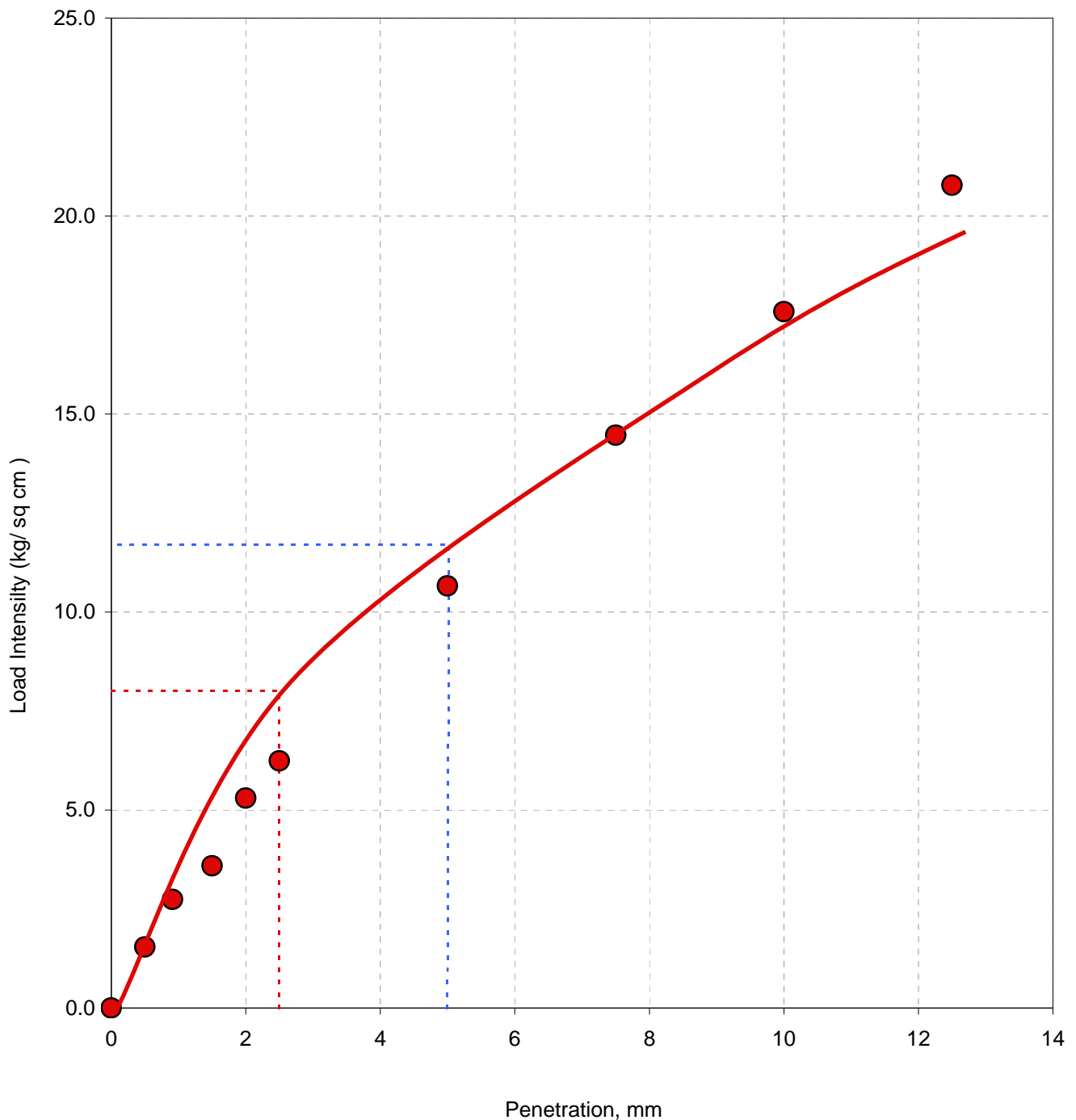
Load Intensity vs. Penetration (FCBR-89)



### Field California Bearing Ratio Test .: FCBR-90

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-90	Bearing Ratio at 2.5mm : 11.4
Test Location : Road	
Coordinates : E-699788, N-3159534	Bearing Ratio at 5.0mm : <b>11.2</b>
Test Depth : 0.15 m	
Surface Elevation : 213.282 m	Field CBR Value : <b>11.4</b>



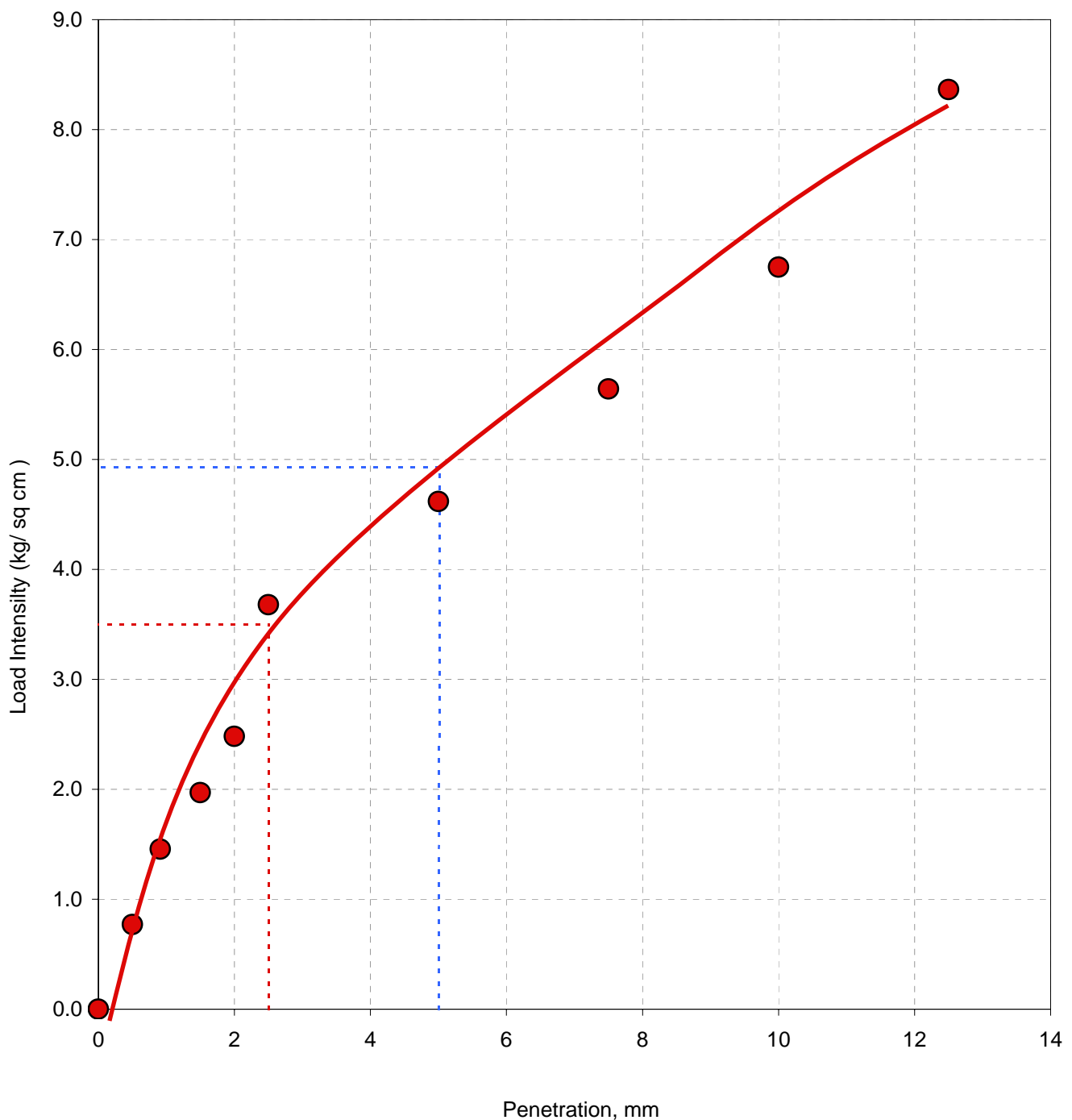
Load Intensity vs. Penetration (FCBR-90)



### Field California Bearing Ratio Test .: FCBR-91

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-91	Bearing Ratio at 2.5mm : 5.0
Test Location : Road	
Coordinates : E-699737, N-3159564	Bearing Ratio at 5.0mm : <b>4.7</b>
Test Depth : 0.15 m	
Surface Elevation : 212.825 m	Field CBR Value : <b>5.0</b>



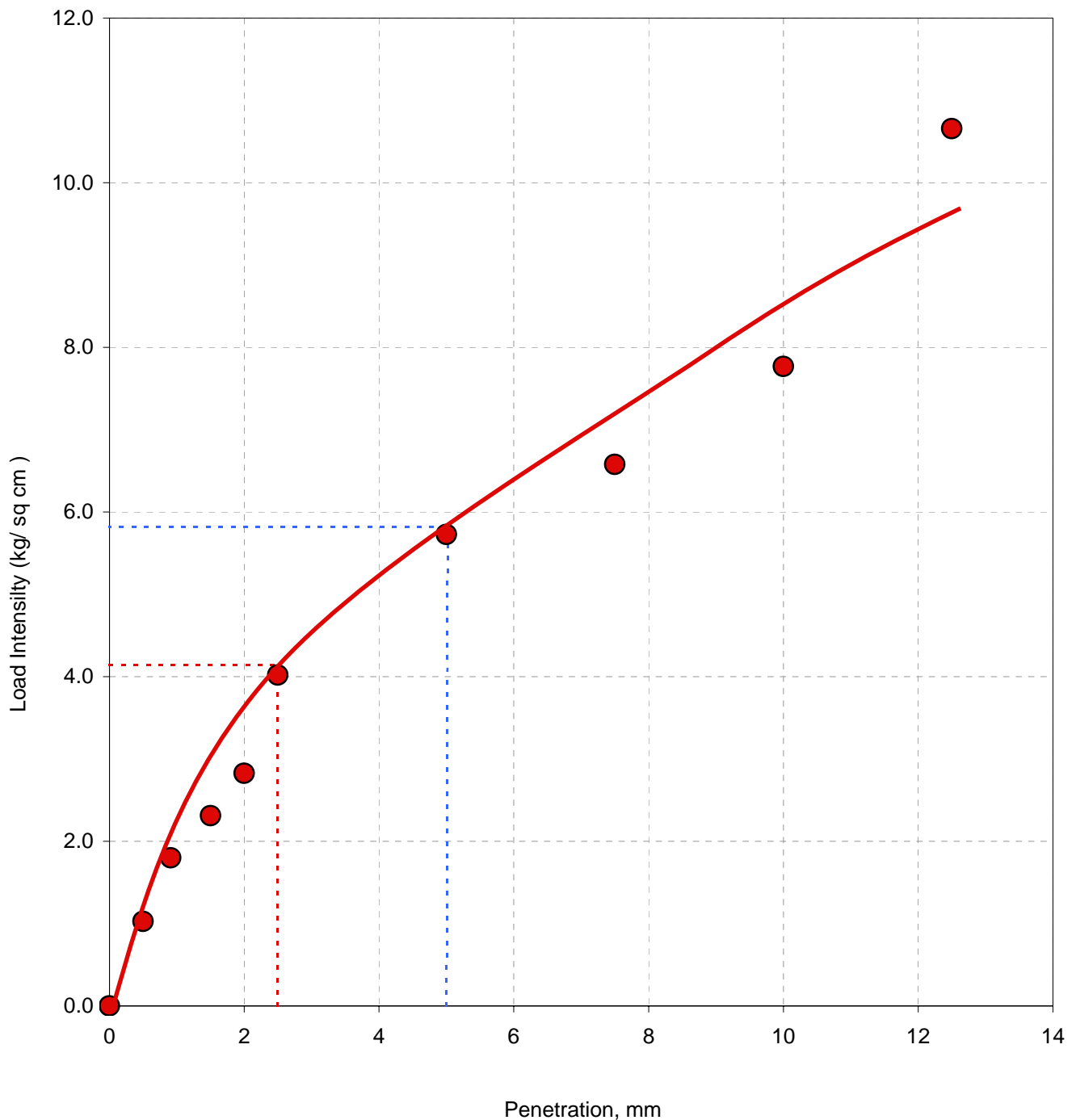
Load Intensity vs. Penetration (FCBR-91)



### Field California Bearing Ratio Test .: FCBR-92

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-92	Bearing Ratio at 2.5mm : 5.9
Test Location : Road	
Coordinates : E-699671, N-3159603	Bearing Ratio at 5.0mm : <b>5.5</b>
Test Depth : 0.15 m	
Surface Elevation : 212.679 m	Field CBR Value : <b>5.9</b>



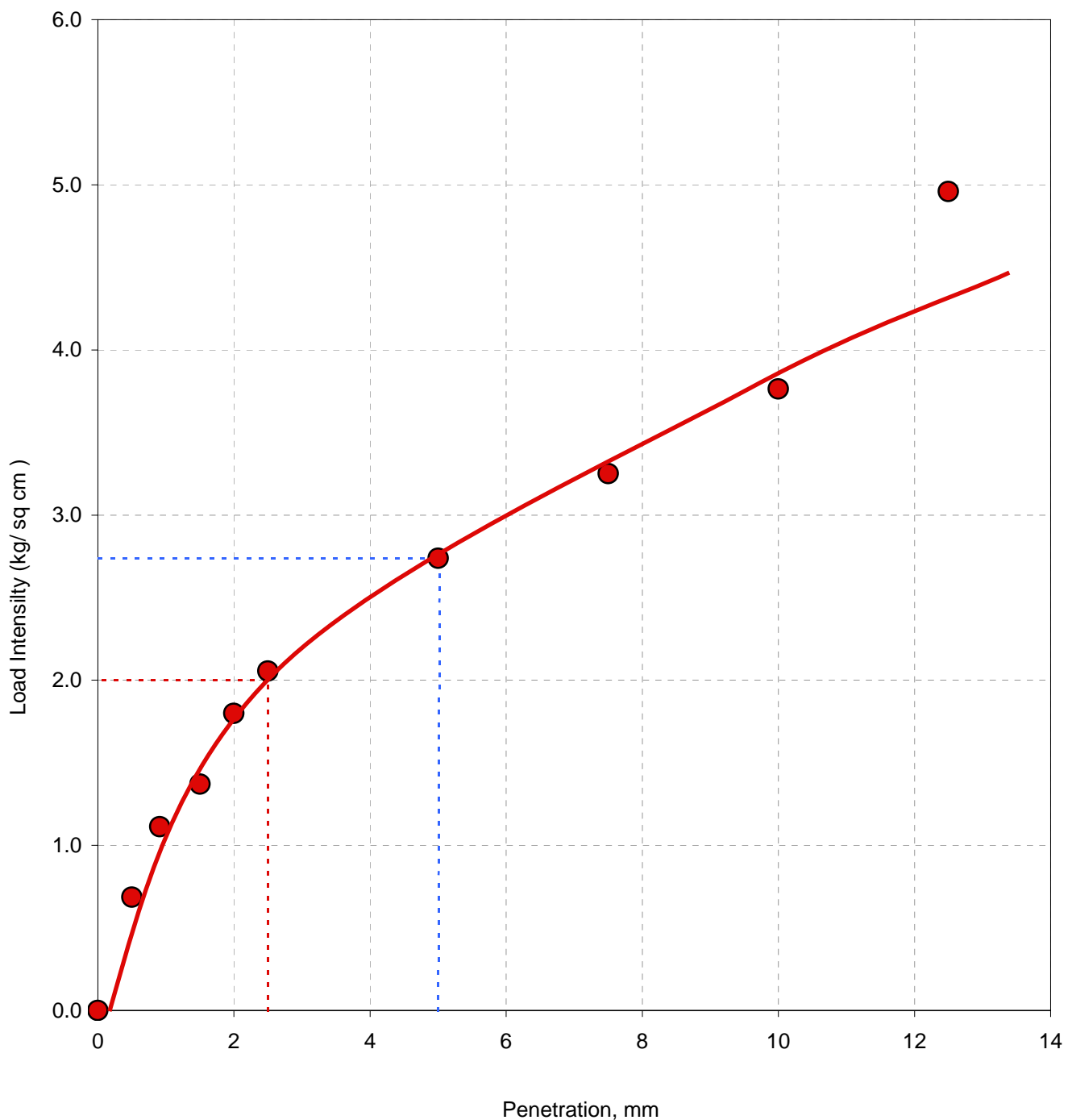
Load Intensity vs. Penetration (FCBR-92)



### Field California Bearing Ratio Test .: FCBR-93

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-93	Bearing Ratio at 2.5mm : 2.9
Test Location : Road	
Coordinates : E-699482, N-3159990	Bearing Ratio at 5.0mm : <b>2.6</b>
Test Depth : 0.15 m	
Surface Elevation : 212.164 m	Field CBR Value : <b>2.9</b>



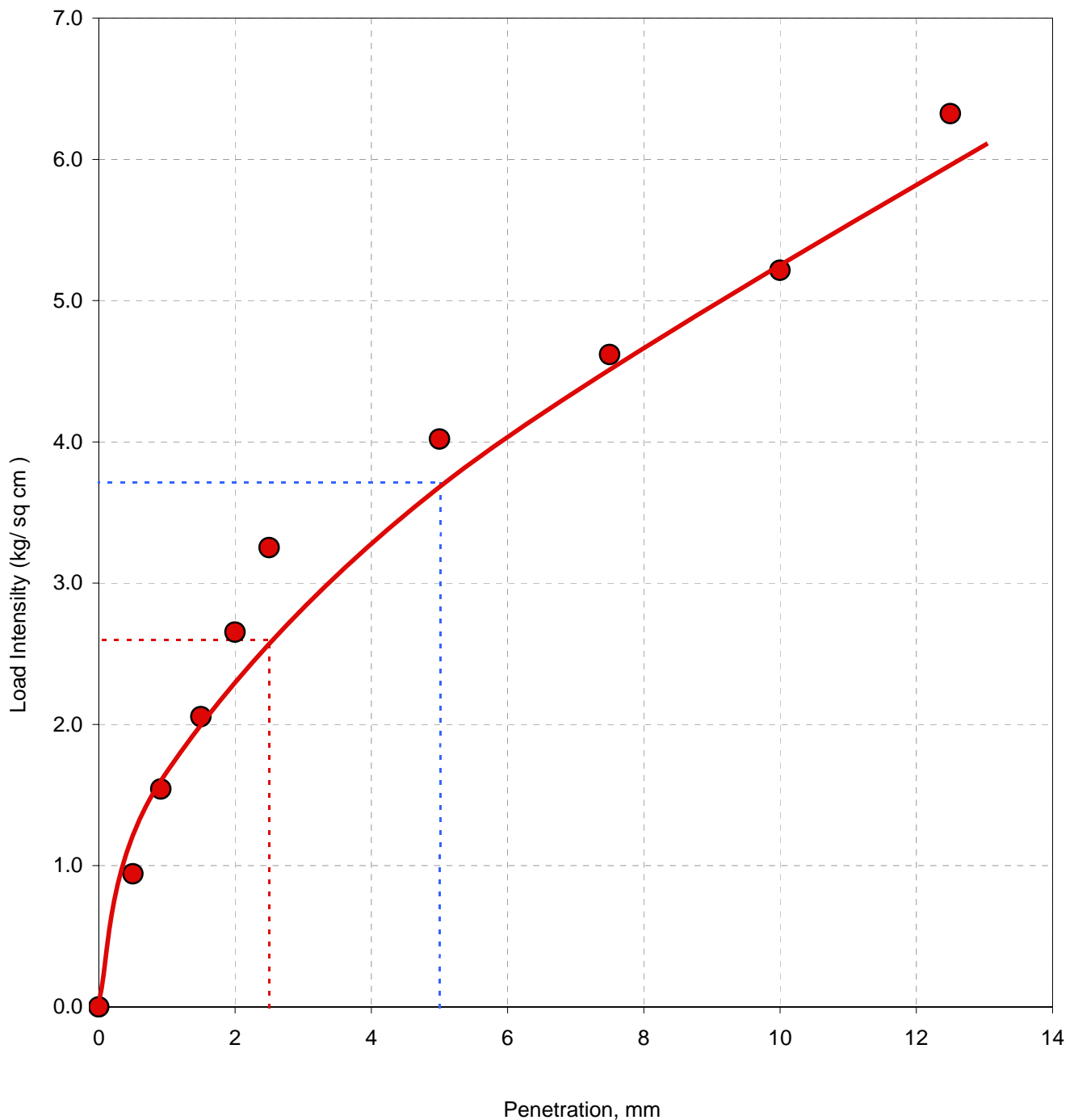
Load Intensity vs. Penetration (FCBR-93)



### Field California Bearing Ratio Test .: FCBR-94

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-94	Bearing Ratio at 2.5mm : 3.7
Test Location : Road	
Coordinates : E-699530, N-3159955	Bearing Ratio at 5.0mm : <b>3.5</b>
Test Depth : 0.15 m	
Surface Elevation : 212.288 m	Field CBR Value : <b>3.7</b>



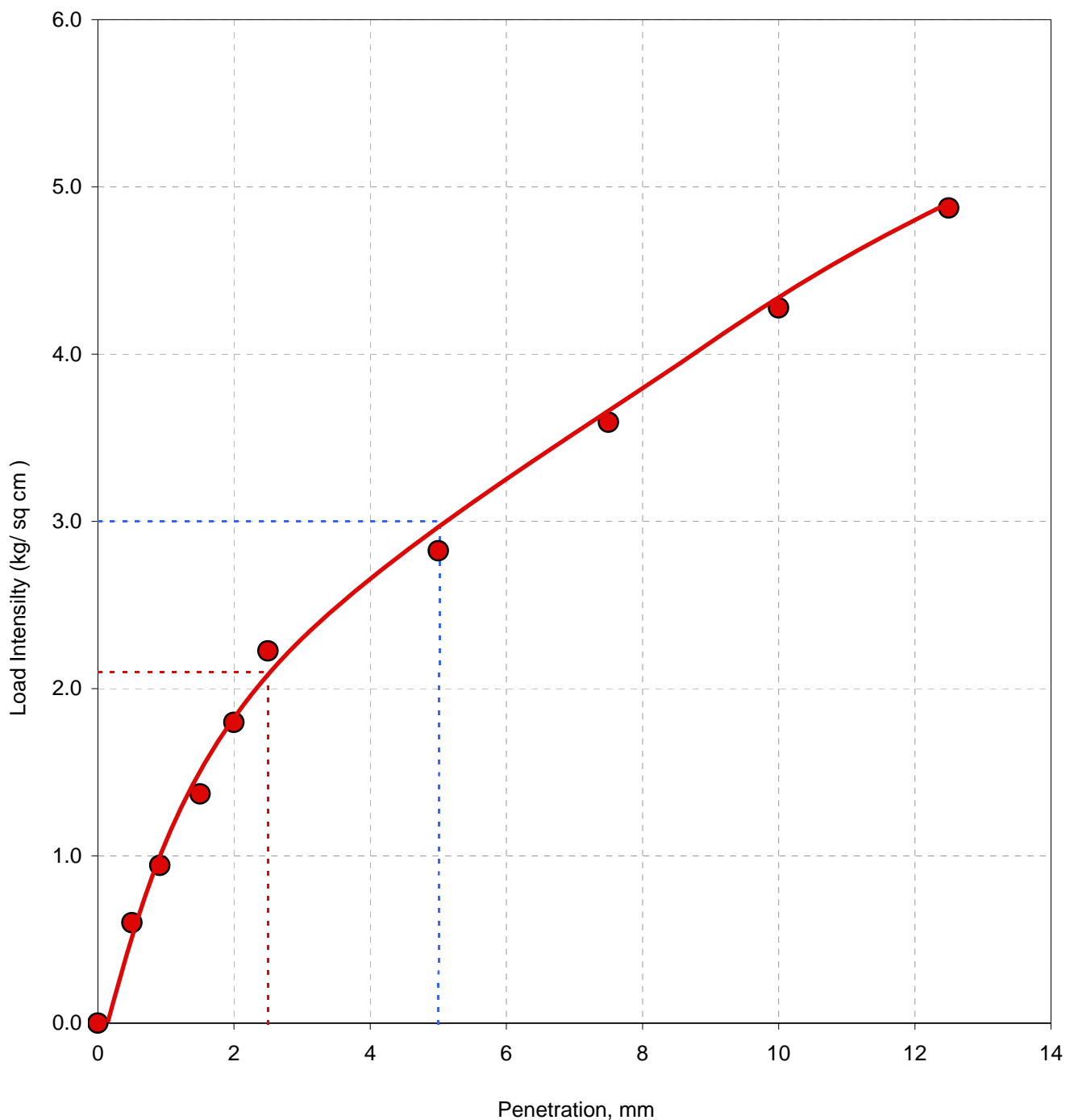
Load Intensity vs. Penetration (FCBR-94)



### Field California Bearing Ratio Test .: FCBR-95

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-95	Bearing Ratio at 2.5mm : 3.0
Test Location : Road	
Coordinates : E-699602, N-3160153	Bearing Ratio at 5.0mm : <b>2.9</b>
Test Depth : 0.15 m	
Surface Elevation : 211.894 m	Field CBR Value : <b>3.0</b>



Load Intensity vs. Penetration (FCBR-95)

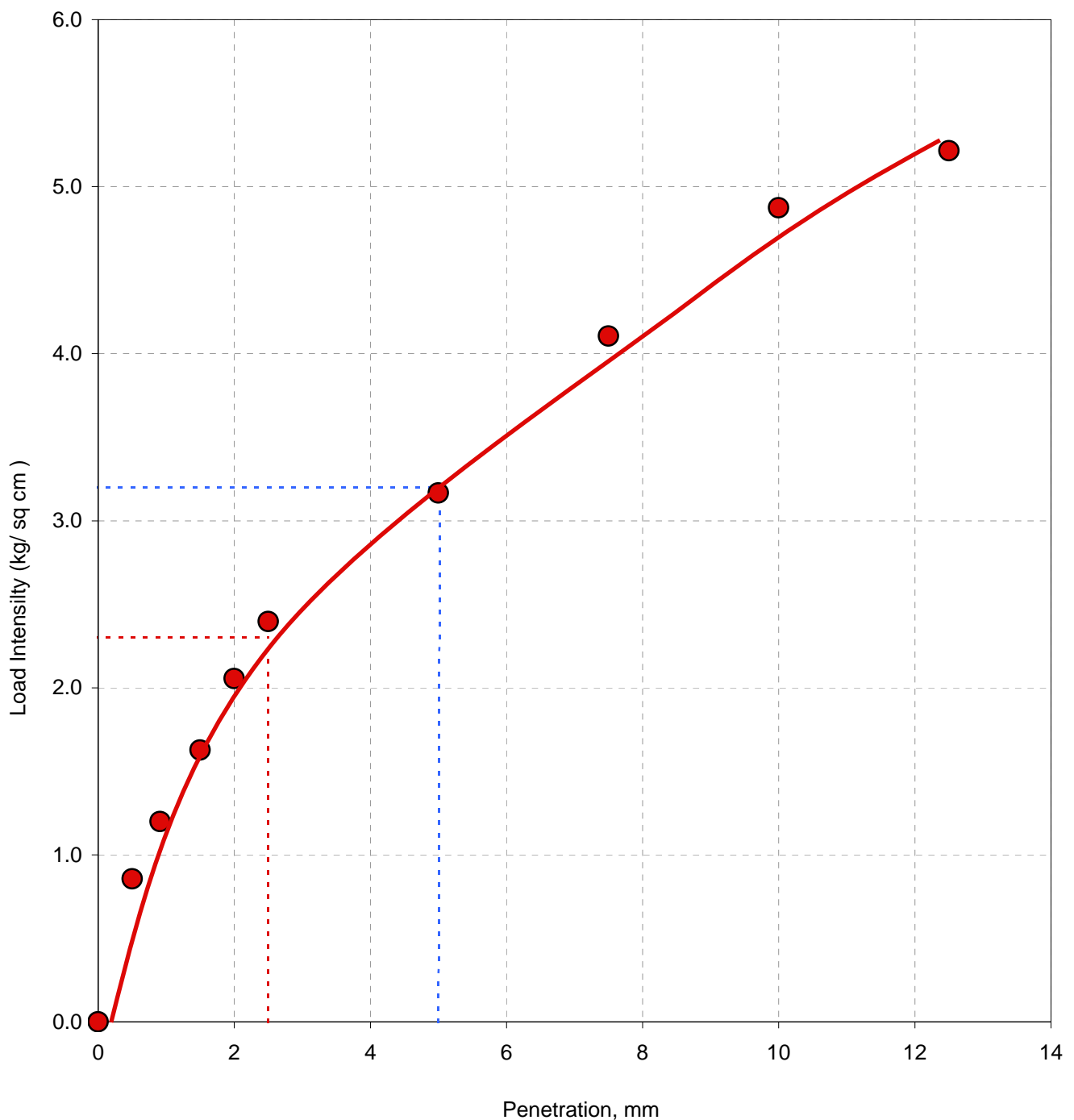




### Field California Bearing Ratio Test .: FCBR-96

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-96	Bearing Ratio at 2.5mm : 3.3
Test Location : Road	
Coordinates : E-699650, N-3160117	Bearing Ratio at 5.0mm : <b>3.0</b>
Test Depth : 0.15 m	
Surface Elevation : 212.112 m	Field CBR Value : <b>3.3</b>



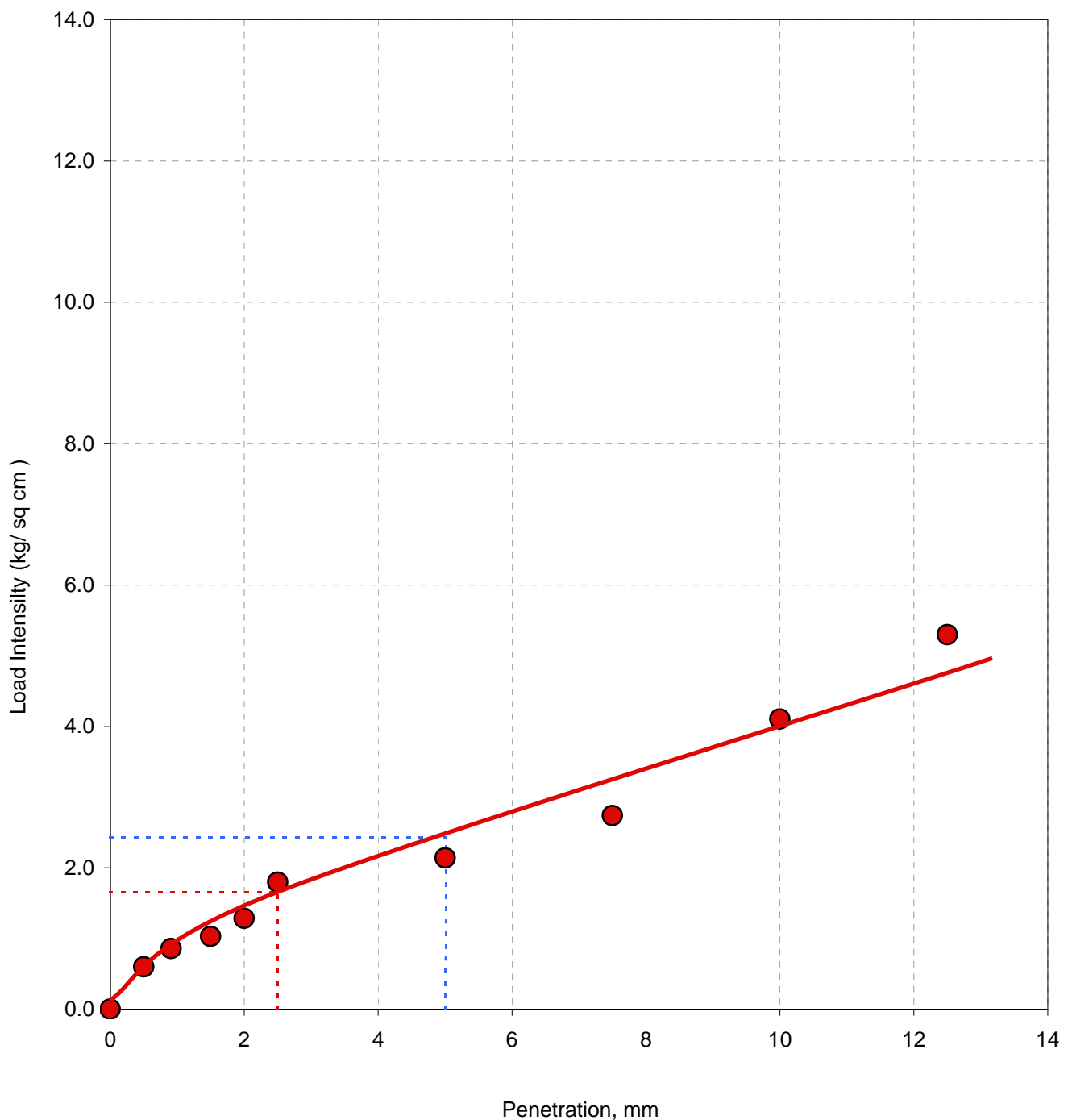
Load Intensity vs. Penetration (FCBR-96)



### Field California Bearing Ratio Test .: FCBR-97

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-97	Bearing Ratio at 2.5mm : 2.4
Test Location : Road	
Coordinates : E-699746, N-3160298	Bearing Ratio at 5.0mm : <b>2.3</b>
Test Depth : 0.15 m	
Surface Elevation : 212.481 m	Field CBR Value : <b>2.4</b>



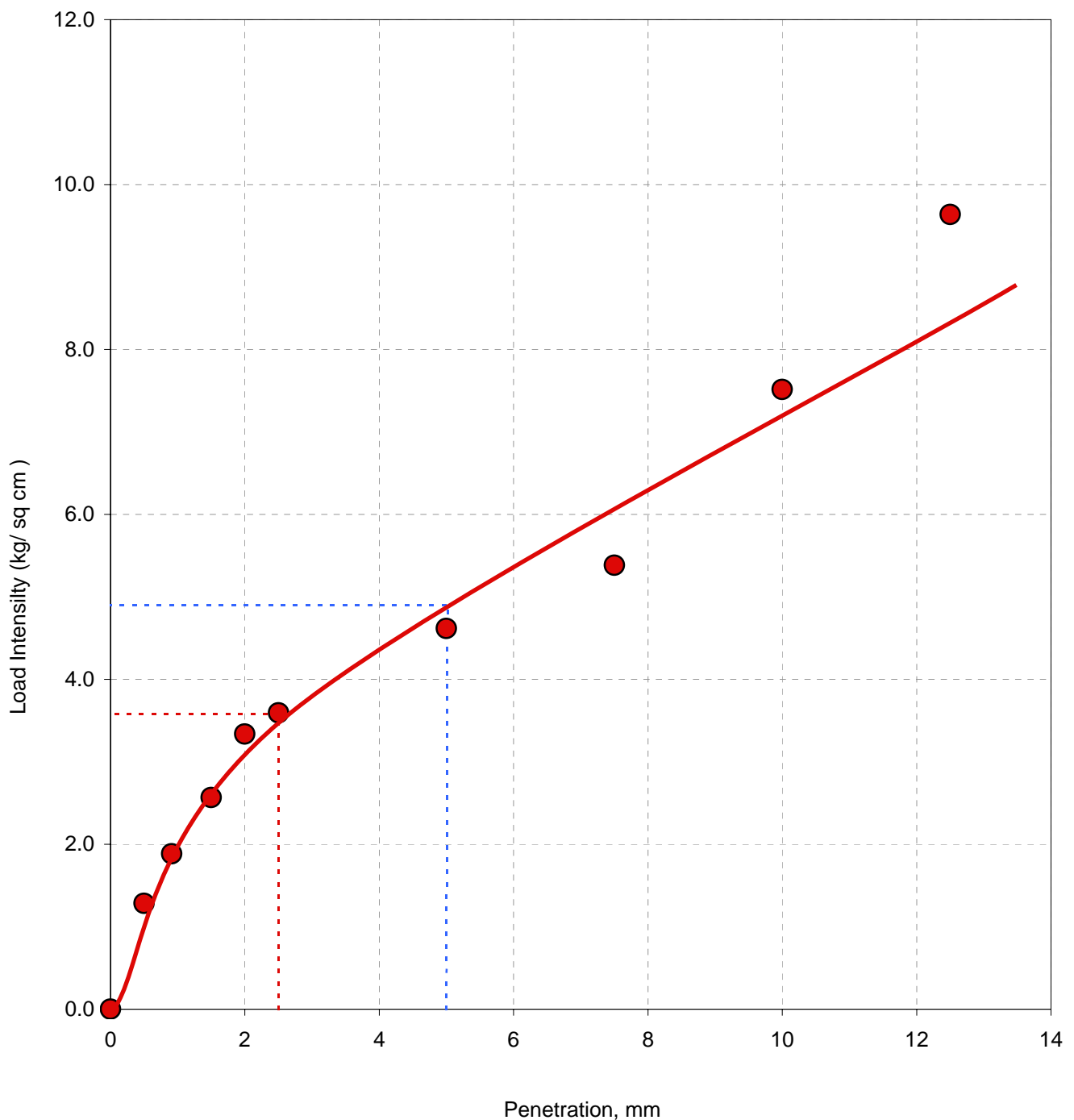
Load Intensity vs. Penetration (FCBR-97)



### Field California Bearing Ratio Test .: FCBR-98

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-98	Bearing Ratio at 2.5mm : 5.1
Test Location : Road	
Coordinates : E-700171, N-3159897	Bearing Ratio at 5.0mm : <b>4.7</b>
Test Depth : 0.15 m	
Surface Elevation : 213.706 m	Field CBR Value : <b>5.1</b>



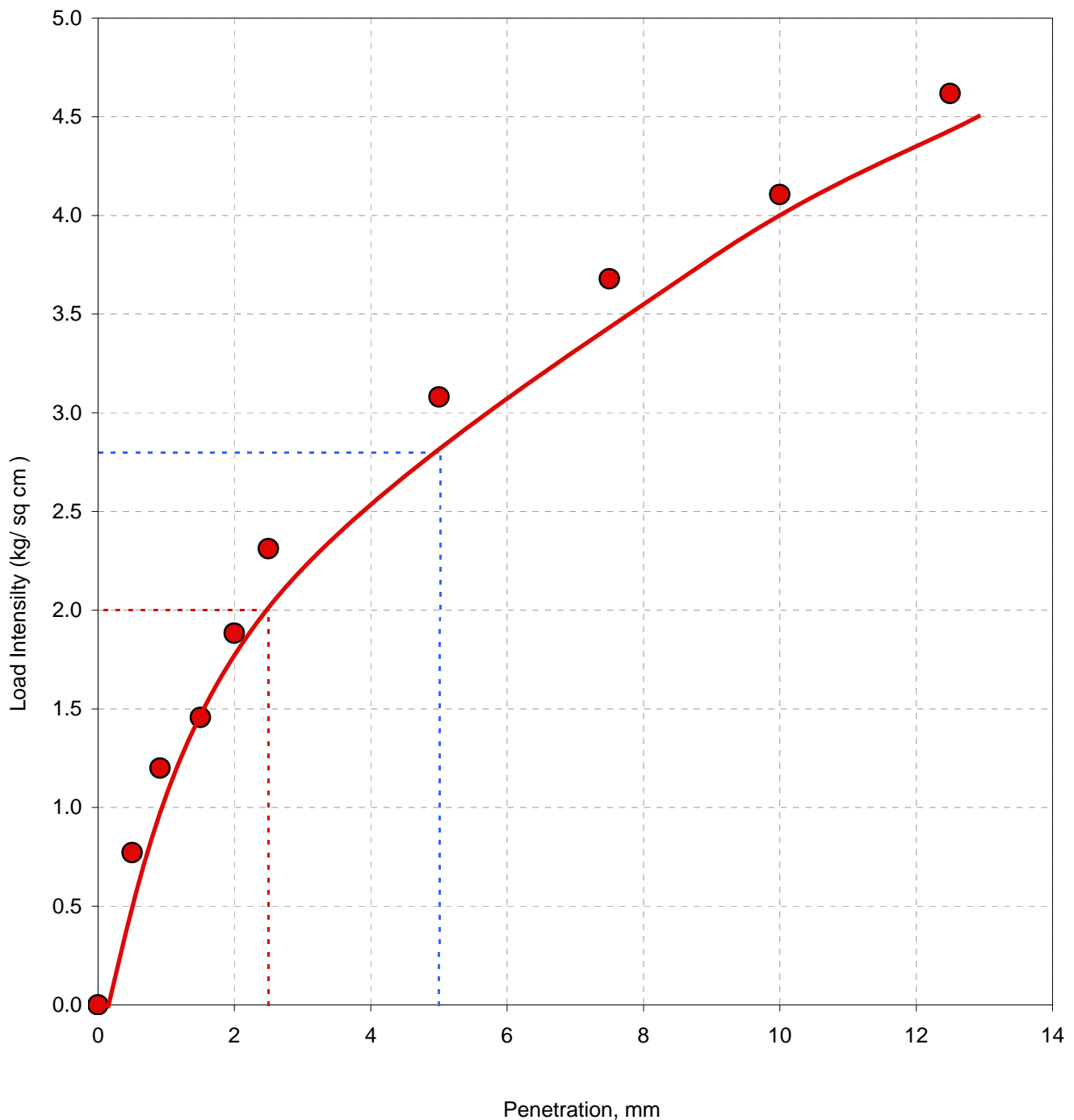
Load Intensity vs. Penetration (FCBR-98)



### Field California Bearing Ratio Test .: FCBR-99

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-99	Bearing Ratio at 2.5mm : 2.9
Test Location : Road	
Coordinates : E-700031, N-3159706	Bearing Ratio at 5.0mm : <b>2.7</b>
Test Depth : 0.15 m	
Surface Elevation : 213.603 m	Field CBR Value : <b>2.9</b>



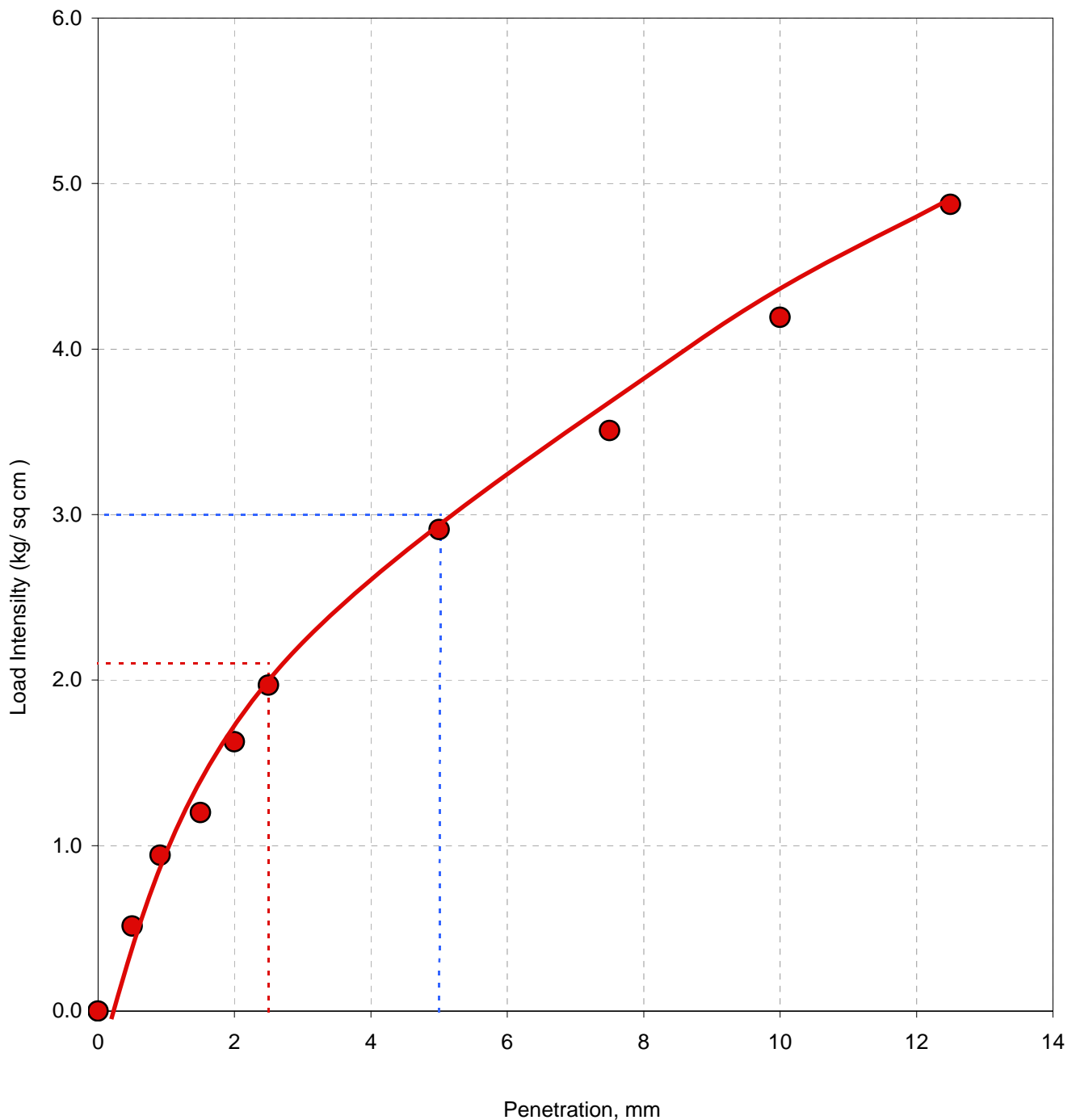
Load Intensity vs. Penetration (FCBR-99)



### Field California Bearing Ratio Test .: FCBR-100

IS: 2720-Part-31-1990, RA- 2010

Sample Details	Test Results
Test Designation : FCBR-100	Bearing Ratio at 2.5mm : 3.0
Test Location : Road	
Coordinates : E-700060, N-3159746	Bearing Ratio at 5.0mm : <b>2.9</b>
Test Depth : 0.15 m	
Surface Elevation : 213.695 m	Field CBR Value : <b>3.0</b>



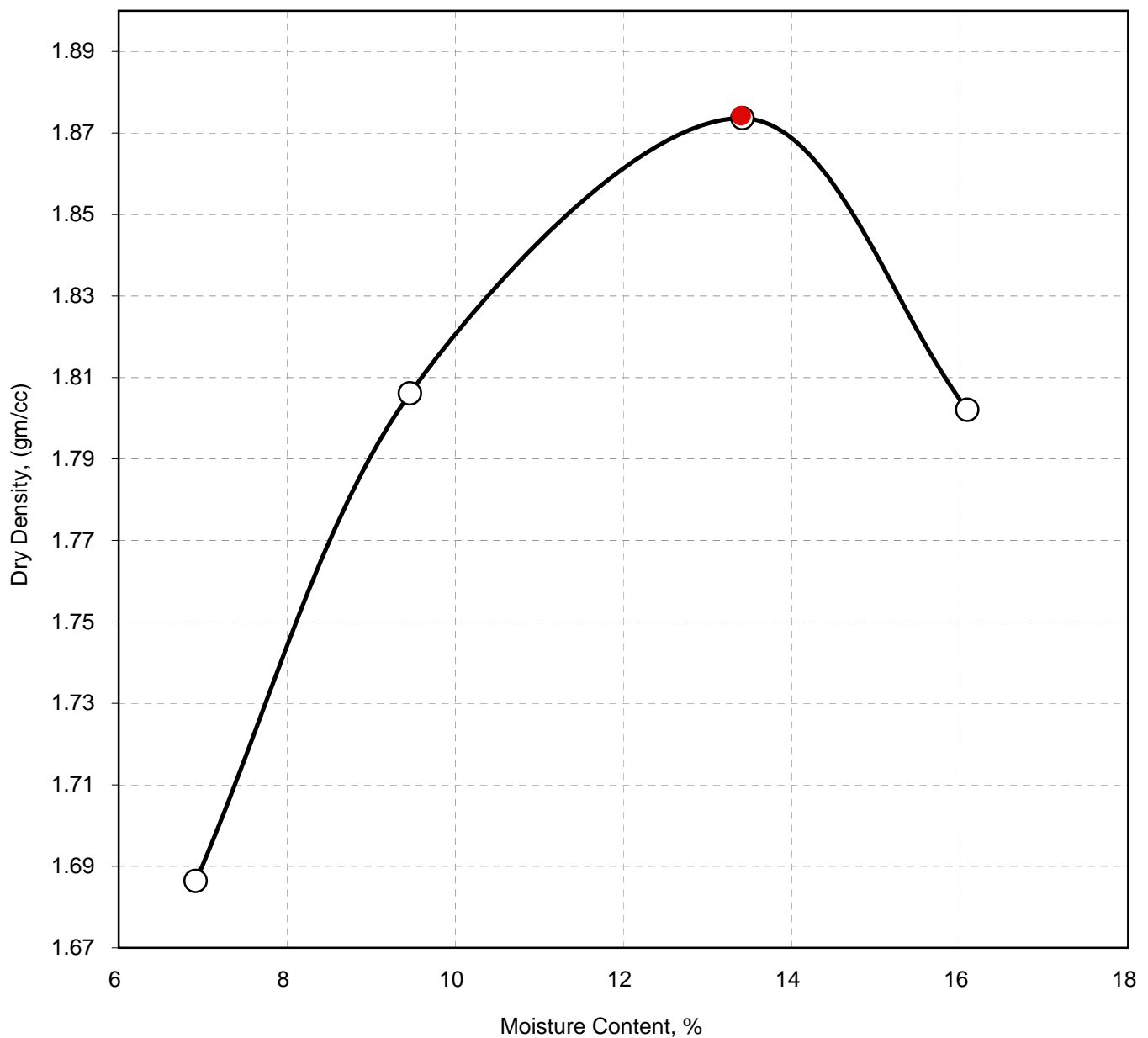
Load Intensity vs. Penetration (FCBR-100)



## Standard Proctor Compaction Test

IS : 2720 (Part-7) -1980, RA-2007

Sample Details	Sample Location :	FCBR-46
	Sample Depth :	0.15
	Sample Description :	Sandy silt
Test Results	Maximum Dry Density, g/cm <sup>3</sup> :	1.87
	Optimum Moisture Content, % :	13.4



Density vs. Moisture Content (1)

ISO/IEC 17025:2005  
Certified Laboratory  
(NABL)  
Certificate No. T-1741

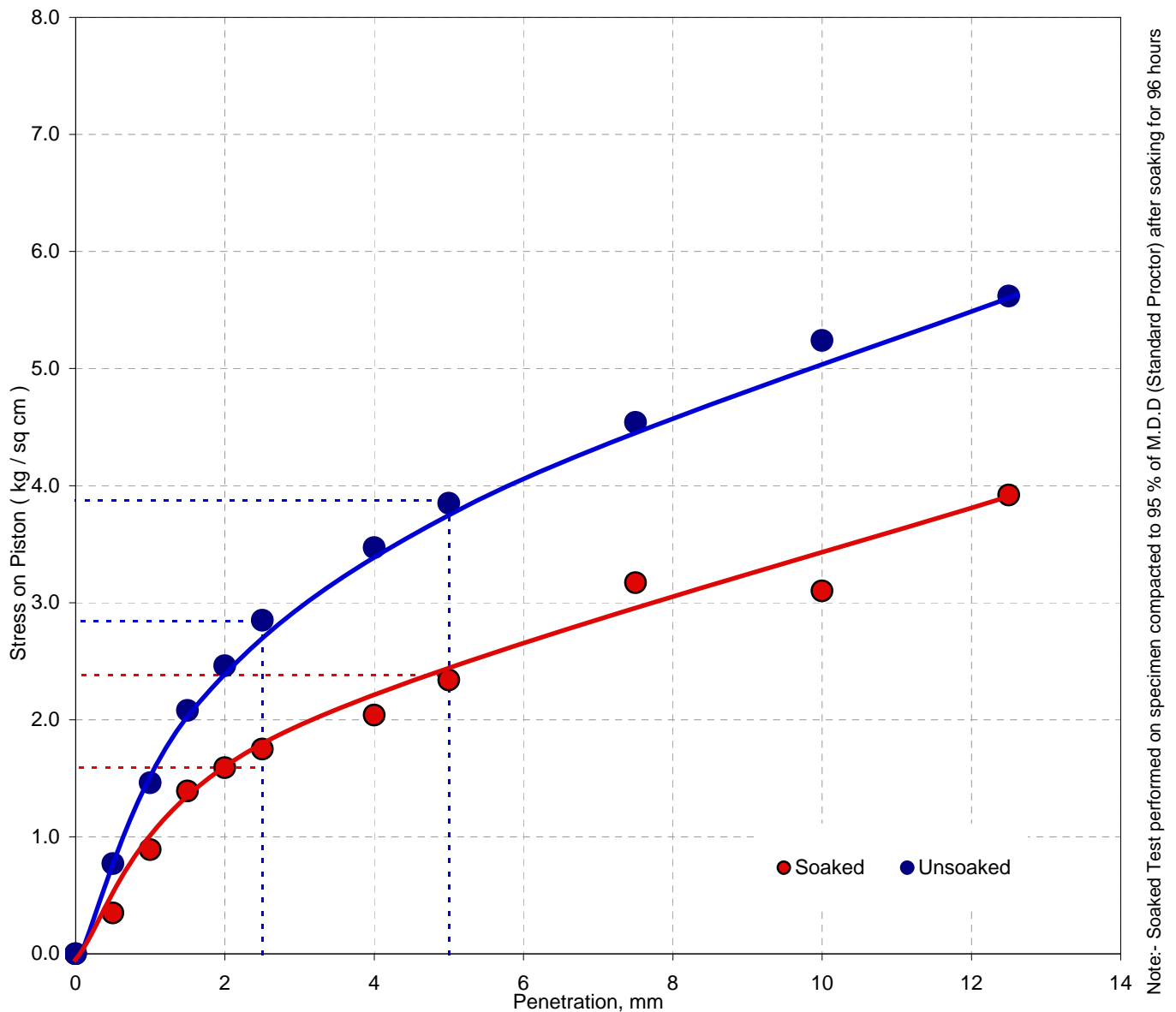




### Laboratory California Bearing Ratio Test : 1

IS : 2720 (Part-16) -1987, RA-2007

Sample Details	Sample No.:	FCBR-46	
	Sample Depth :	0.15	
	Sample Description:	Sandy silt	
	Dry Density before soaking, ( $\gamma_d$ ), g/cm <sup>3</sup> :	1.79	
	Water Content before compaction, w%:	15.5	
Test Results	Penetration, mm :	2.5	5.0
	Unsoaked CBR, % :	4.1	3.7
	Soaked CBR, % :	2.3	2.3



Load Intensity vs. Penetration (1)



**APPENDIX-A**  
**SITE PHOTOGRAPHS**





FCBR-34



FCBR-36



FCBR-61



FCBR-64

### Site Photographs





PLT-6

### Site Photographs