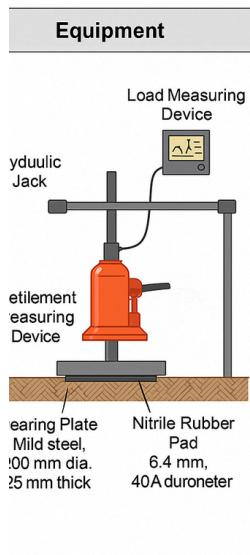




CYCLIC PLATE LOAD TEST - EIE-C4021 - EIE MAKE

Equipment	Description
	Hydraulic Jack For cyclic loading at 1 Hz
	Load Measuring Device Load cell or pressure transducer
	Bearing Plate Mild steel, 300 mm dia, 25 mm thick
	Nitrile Rubber Pad 6.4 mm, 40A durometer
	Settlement Measuring Device LVDT (Linear Variable Differential Transformer)
	Datum Beam/Rod Holds LVDT, aligned on firm support

The Cyclic Plate Load Test (CPLT) is a field performance test designed to assess the structural performance and improvement due to geosynthetic reinforcement in pavement layers. It is conducted in accordance with ASTM D8462 and is now a requirement in IRC SP 59 (2024 Amendment) for validating MIF/LCR. To simulate traffic loading through repeated cyclic loads and evaluate the: **Traffic Benefit Ratio (TBR)**

Test Setup & Instrumentation

- Bearing Plate : 300 mm diameter, 25 mm thick, rigid mild steel
- Hydraulic Jack : Applies cyclic load at approx. 1 Hz frequency
- Load Cell / Pressure Sensor : To measure applied cyclic load
- Settlement Measuring Device : LVDT (Linear Variable Differential Transformer)
- Datum Beam/Rod : Mounted with supports for LVDT, aligned level
- Loading Frequency : 1 Hz sinusoidal/haversine cyclic load
- Load Range : 0.5 kN (min) to 40 kN (max)
- Nitrile Rubber Pad : 6.4 mm thick, 40A durometer (under plate for leveling)

Test Procedure

- Place the test plate over nitrile pad and ensure leveling.
- Apply cyclic load (0.5–40 kN at 1 Hz) via hydraulic jack.
- Monitor displacement continuously using LVDTs.
- Continue loading until either:
 - Settlement reaches 20 mm, or
 - Permanent displacement per cycle is < 0.01 mm.

Data Collection

Settlement vs Number of Cycles plotted using automated digital software.

Evaluate: $TBR = \frac{N_r}{N_u}$

Equipment Description

- Hydraulic Jack : For cyclic loading at 1 Hz
- Load Measuring Device : Load cell or pressure transducer
- Bearing Plate : Mild steel, 300 mm dia, 25 mm thick
- Nitrile Rubber Pad : 6.4 mm, 40A durometer
- LVDT : For real-time displacement monitoring
- Datum Beam/Rod : Holds LVDT, aligned on firm supports
- Automated Data Logger : Records load vs displacement in real-time
- Software : For plotting and calculating TBR, LCR, MIF

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