# Cracking & Seating of Existing Jointed Non-Reinforced Concrete Pavements – Airfield Pavements in the United Kingdom


## Antigo Construction *Family of Companies*

**Antigo Construction, Inc.**
**Antigo International Inc.**
**MHB (UK) Ltd**
**Badger State Highway Equipment, Inc.**



September 26, 2014

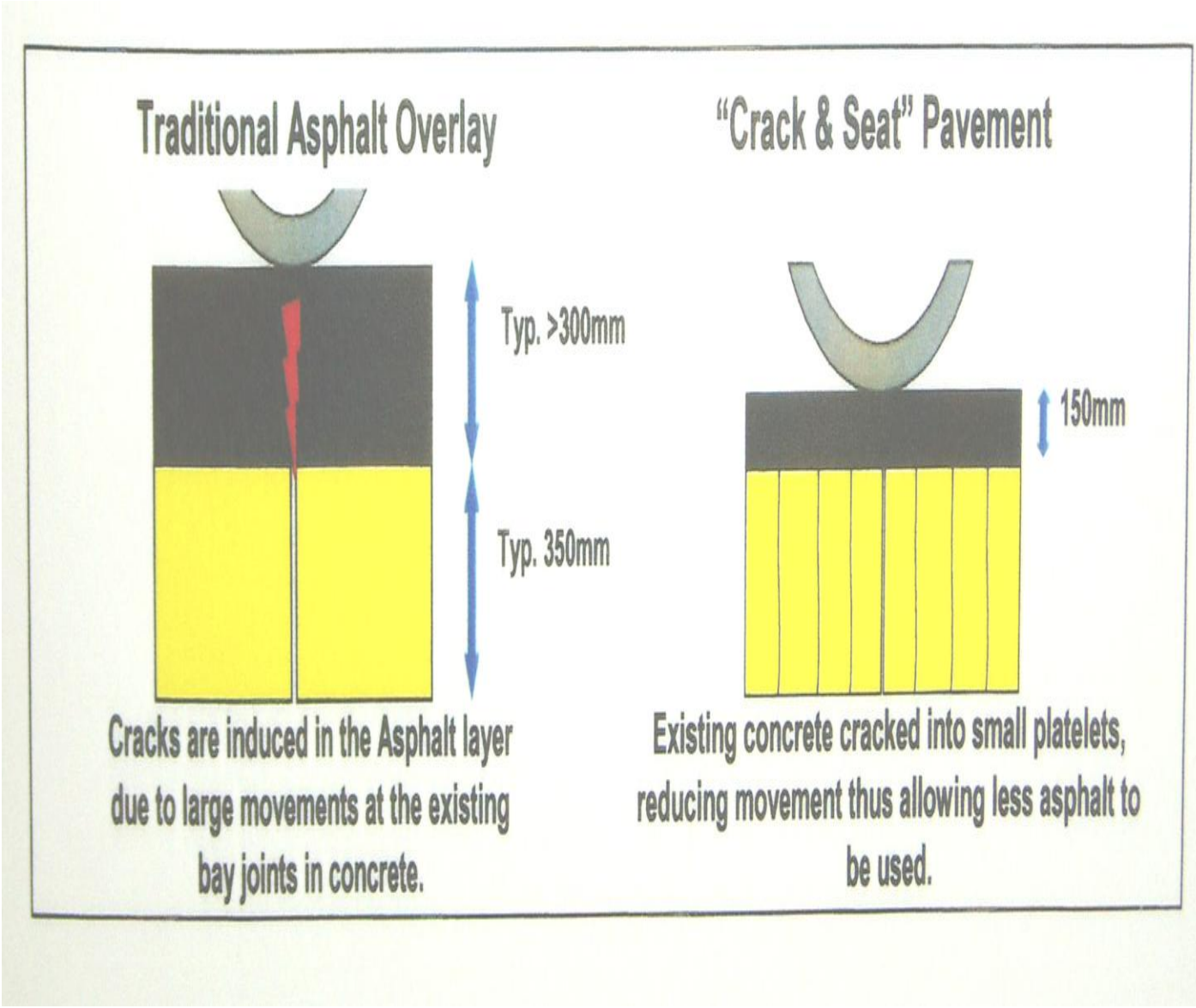
# Concept

**To minimize the extent and severity of reflective cracking in asphalt overlays of existing concrete pavements**

**Using the “fractured slab” technique:**

**Cracking & Seating**

# Principle of Cracking & Seating



# Cracking & Seating

## Equipment used for Cracking & Seating

**8600 Badger Breaker® (guillotine-style breaker)**


**20-ton Pneumatic-Tired Roller (PTR)**


- **Object**
- **To modify the existing characteristics of a rigid pavement into a more flexible structure while retaining as much of the pavement's stiffness and strength as possible to minimise the required thickness of the asphalt overlay**
- **To substantially minimize and delay the effects of reflective cracking**

- **Design Criteria**
- **Assess the state of deterioration of the existing pavement in terms of the following to determine the Project's suitability for cracking & seating:**
  - **Surface texture**
  - **Condition of joints**
  - **Existing cracking and other faults**

- **Assess the required asphalt overlay thickness with consideration of the following:**
  - **Transverse and longitudinal profiles**
  - **Traffic use**
  - **Specification of asphalt to be used**
  - **Type of construction of the drainage**
  - **Curb depths**

# Cracking & Seating Process

- **Crack the existing pavement using the parameters established during the trial and analysis stage**
- **Core once every 1000 square meters of cracked pavement to monitor effectiveness recording the results on a core log**
- **Roll the cracked pavement with a minimum of 6 passes using a 20-ton PTR**

# Typical Induced Crack

- Core taken from a 450mm thick pavement
- Broken core showing the good aggregate interlock
- Crack should be vertical throughout the depth of the core

# Core Records

**Antico BREAKERS LTD.**

Pavement rubblizing, cracking & seating and breaking for removal

**CORE ASSESSMENT FORM - *for Crack & Seat***

**Scheme:** B 64 X **Date:** 15-7-08

**Name:** S. MARVEL

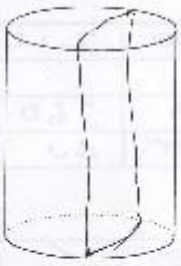
ROAD SURFACE

| | | | |
|---|---|---|---|
| Core reference | 5 | Slab number | A 1 8 |
| Core position* | T 3 | Chainage | |
| Crack length | 100% | Core depth | 350 |
| Drop height | 250 | Crack width** | F V |
| Comments: | | | |
| Drops to halve: | 1 | Comply? | ✓ |

ROAD SURFACE

| | | | |
|---|---|---|---|
| Core reference | 6 | Slab number | A 2 C |
| Core position* | L | Chainage | |
| Crack length | 100% | Core depth | 350 |
| Drop height | 250 | Crack width** | E V |
| Comments: | | | |
| Drops to halve: | 1 | Comply? | ✓ |

ROAD SURFACE



| | | | |
|---|---|---|---|
| Core reference | 7 | Slab number | B 2 5 |
| Core position* | T 2 | Chainage | |
| Crack length | 100% | Core depth | 380 |
| Drop height | 250 | Crack width** | IC |
| Comments: | | | |
| Drops to halve: | 2 | Comply? | ✓ |

ROAD SURFACE

| | | | |
|---|---|---|---|
| Core reference | 8 | Slab number | Z 28 |
| Core position* | T 2 | Chainage | |
| Crack length | 100 | Core depth | 355 |
| Drop height | 250 | Crack width** | F |
| Comments: | | | |
| Drops to halve: | 2 | Comply? | ✓ |

Checked by:

* Core position: n/s, centre, o/s + impact no. (in direction of travel)

** Crack width: vf = very fine, f = fine, ev = easily visible

QMF 16 6/1/2006

# Testing & Final Analysis

Cores showing any deviation from the normal tight, vertical crack may require a reassessment trial to establish any variations in the existing pavement (e.g. thickness or strength) which may require the resetting of the concrete breaker’s drop height

# Cracking & Seating
# London Heathrow Airport

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# London Heathrow Airport

- Photograph showing the 1m grid pattern used on the inner taxiways at London Heathrow Airport