Continuous Reinforced Concrete Pavement

PATENT: ZAR 2011/08865

- Acronym for Post tensioned.
- Concrete pavements can be improved.
- JRCP (joint reinforced concrete pavement)
- used 40 years ago.
 - >Transverse cracks & wide joints.
 - Less than ideal lifespan

CRCP

- (Continuous Reinforced Concrete Pavement)
- Accepted World Wide as most durable to date



CRCP

- Y20 typical rebar
- Y16 dowels connects lanes dowel dependant
- Construction long and costly
- Large areas large machinery
- Concrete logistics
- Different weather different thermal curing gradients
- Truck axles place separate loads on separate lanes
- Only longitudinal rebar no transverse
- Site access for paving path and mixer trucks
- Contraflow restrictions
- Work zone very busy
- Curing tents always breaking
- Sand blasting time and costs

CRCP

Busy work zones



PCPS

(Precast Concrete paving System)

- Factory cast and cured
- Quality control constant
- Precast months in advance
- Limited to Transport regulations
- Post tensioned cable system
- Uses Dowel for joining lanes

HYBRID

- Need to embrace both systems
- Need major CRCP benefits, long life
- Need PCPS quality and short construction time
- Remove dowel system

- Y20 longitudinal rebar
- Y16 transverse connects lanes <u>creates rebar mesh</u>
- Ref 395 mesh top and bottom <u>added structural integrity</u>
- Construction very fast and easy
- Large areas single medium or truck crane
- NO Concrete logistics
- Weather does not affect
- Truck axle loads on shared equally
- Less Contraflow restrictions due to smaller areas
- Work zone not busy
- No Curing tents
- No Sand blasting
- Can load after grouting
- Can line paint and road stud in factory, saving time

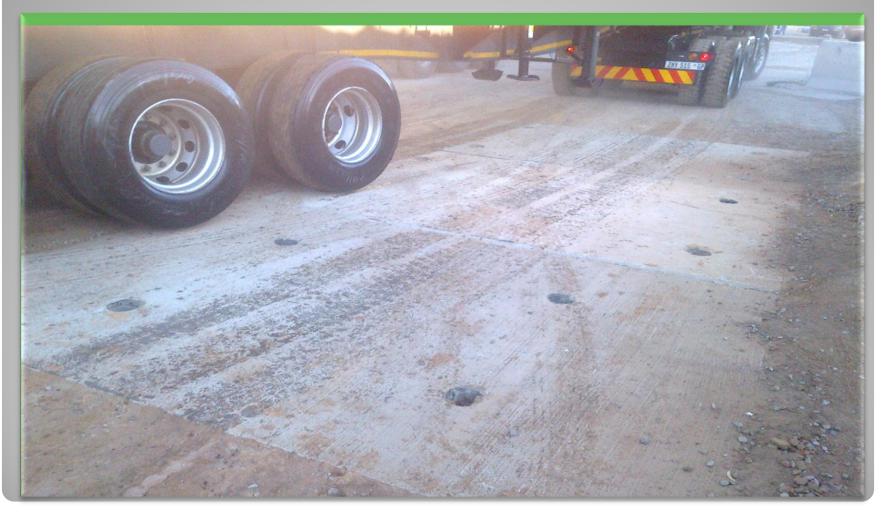
EASY work zones



EASY work zones



complete



Comparison

CRCP construction time

Postten construction time

	Days		HOURS
Hand over and fix steel	- 2	Set level equipment	- 1.5
Cast spray membrane	- 2	Place 24 slabs	- 8
Remove tent and cure	- 7	Place 26 slabs and grout	- 10
Sand blast and clean	- 2	Complete grout and clear	n - 8
150 meters	13	150 meters 85 % time save	20

CONCEPT

- Simple precast slab with tube voids
- Recessed cone voids to receive rebar connectors
- Transport to site
- Place on shims to keep final road level
- Insert rebar "torque rods" into tubes
- Torque up to spec
- Pump colloidal grout into all voids and underside of slabs
- Allow to cure
- LOAD IT

Torque rods



APPLICATIONS

- 1 2 3 4 5 6 lane roadways
- Container yards
- Harbours
- Runways, aprons
- Hard standing areas.

ends