cncPAVE Update

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The Concrete Institute

Developments

- **cncPAVE has been transferred to**
  - **The Concrete Institute (TCI)**

- **TCI responsible for the:**
  - **distribution of the cncPAVE program,**
  - **technical assistance in using the program,**
  - **future development,**
  - **calibration,**
  - **updating**

cncPAVE

- **Annual cost per user is R10 000 (excl. VAT)**

- **Cost includes:**
  - **Technical support (Dr Pieter Strauss)**
  - **IT support (Jaco Pretorius)**
  - **A free one-day course on the use of the program**
    - **Course venue in Gauteng**
    - **Other venues dependent on demand**

cncPAVE

- The latest cncPAVE program is a web-based
- Access system from anywhere by using a compatible Internet Browser like:
  - Microsoft Internet Explorer or Mozilla Firefox.
  - Recommend Mozilla Firefox
- Single user licence – One per company (Username/Password)
- A full presentation and demo will be given at the November RPF.

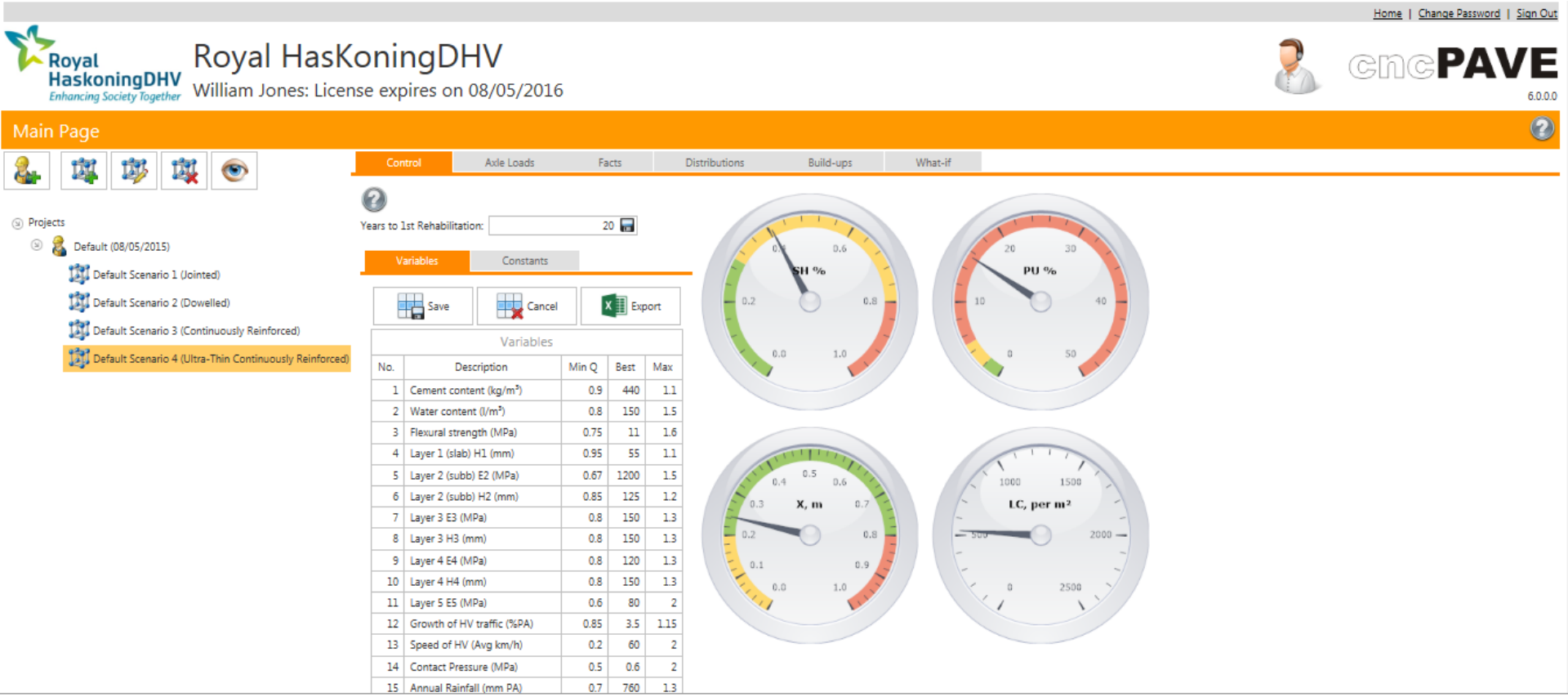
cncPAVE

- Processing and loading will be slower than a locally installed application, but;

- Comparing cncPAVE to its old version,
  - Always working with latest software
  - Data is always stored.
  - Accessing the data at any time from any location is a huge advantage.
  - Data is also stored per Company, Project and then Scenario, which makes data organizing a pleasure.

cncPAVE

- **Look and feel the same as old version**



Variables

No.	Description	Min Q	Best	Max
1	Cement content (kg/m³)	0.9	440	1.1
2	Water content (l/m³)	0.8	150	1.5
3	Flexural strength (MPa)	0.75	11	1.6
4	Layer 1 (slab) H1 (mm)	0.95	55	1.1
5	Layer 2 (subb) E2 (MPa)	0.67	1200	1.5
6	Layer 2 (subb) H2 (mm)	0.85	125	1.2
7	Layer 3 E3 (MPa)	0.8	150	1.3
8	Layer 3 H3 (mm)	0.8	150	1.3
9	Layer 4 E4 (MPa)	0.8	120	1.3
10	Layer 4 H4 (mm)	0.8	150	1.3
11	Layer 5 E5 (MPa)	0.6	80	2
12	Growth of HV traffic (%PA)	0.85	3.5	1.15
13	Speed of HV (Avg km/h)	0.2	60	2
14	Contact Pressure (MPa)	0.5	0.6	2
15	Annual Rainfall (mm PA)	0.7	760	1.3

- Projects
  - Default (08/05/2015)
    - Default Scenario 1 (Jointed)
    - Default Scenario 2 (Dowelled)
    - Default Scenario 3 (Continuously Reinforced)
    - Default Scenario 4 (Ultra-Thin Continuously Reinforced)

Control | Axle Loads | Facts | Distributions | Build-ups | What-if

Years to 1st Rehabilitation: 20

Variables | Constants

Save | Cancel | Export

Variables

No.	Description	Min Q	Best	Max
1	Cement content (kg/m³)	0.9	340	1.1
2	Water content (l/m³)	0.8	170	1.5
3	Flexural strength (MPa)	0.75	4.2	1.6
4	Layer 1 (slab) H1 (mm)	0.95	185	1.1
5	Layer 2 (subb) E2 (MPa)	0.67	1200	1.5
6	Layer 2 (subb) H2 (mm)	0.85	125	1.2
7	Layer 3 E3 (MPa)	0.8	150	1.3
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14	Contact Pressure (MPa)	0.5	0.6	2
15	Annual Rainfall (mm PA)	0.7	760	1.3
16	Daily Temperature Cycle (°C)	0.6	18	1.5
17	Joint Movement (mm)	0.1	0	2.5
18	Void extra Vex (m)	0.01	0	2
19	Initial IRI (m/km)	0.7	1.5	1.5

Save | Cancel

Input Guide

Royal HasKoningDHV

William Jones: License expires on 08/05/2016

Main Page

Projects

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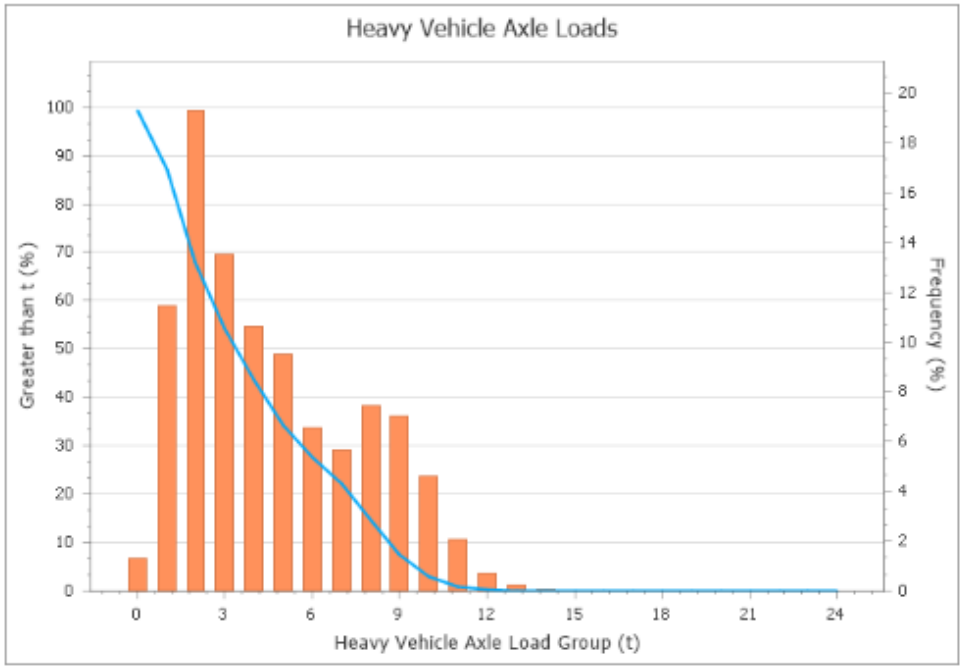
Traffic Situation : T2: %LongHV 35-55; Weak LE

Linear / Exponential K-Factor: 1

Save | Cancel

Load (t)	Frequency (%)
0.5	1.270
1.5	11.460
2.5	19.320
3.5	13.500
4.5	10.630
5.5	9.480
6.5	6.560
7.5	5.660
8.5	7.450
9.5	7.050
10.5	4.610
11.5	2.040
12.5	0.700
13.5	0.210
14.5	0.060
15.5	0.000
16.5	0.000
17.5	0.000
18.5	0.000
19.5	0.000
20.5	0.000



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Export to Excel

Typical Rehabilitation Schedule

Round	Step	Year	pwr	PWR
1	20.00	20.00	13.30	13.30
2	13.90	33.90	3.72	17.02
	(11.33	45.23)		

Export to Excel

No.	Variable	Average	Std. Dev.
1	Crack width (mm)	1.15	0.08
2	Relative movement (mm)	0.09	0.00
3	Stiffness Ee (MPa)	102.02	18.77
4	Stress Sts (MPa)	0.47	0.06
5	HV axles n (million)	62.74	1.01
6	Total E80 (million)	38.89	0.62
7	Curl (m)	0.17	0.07
8	Deflection (mm)	0.07	0.01
9	Crack space X (m)	1.33	0.20
10	Void (m)	0.25	0.08
11	Shattered SH (%)	0.39	0.27
12	Pumping PU (%)	0.01	0.01
13	Faulting FA (%)	0.00	0.00
14	Construction Cost (per m²)	642.04	11.51
15	PW Rehab (per m²)	17.33	3.62
16	Life cost (per m²)	659.37	11.51
17	IRI (m/km)	1.61	0.25

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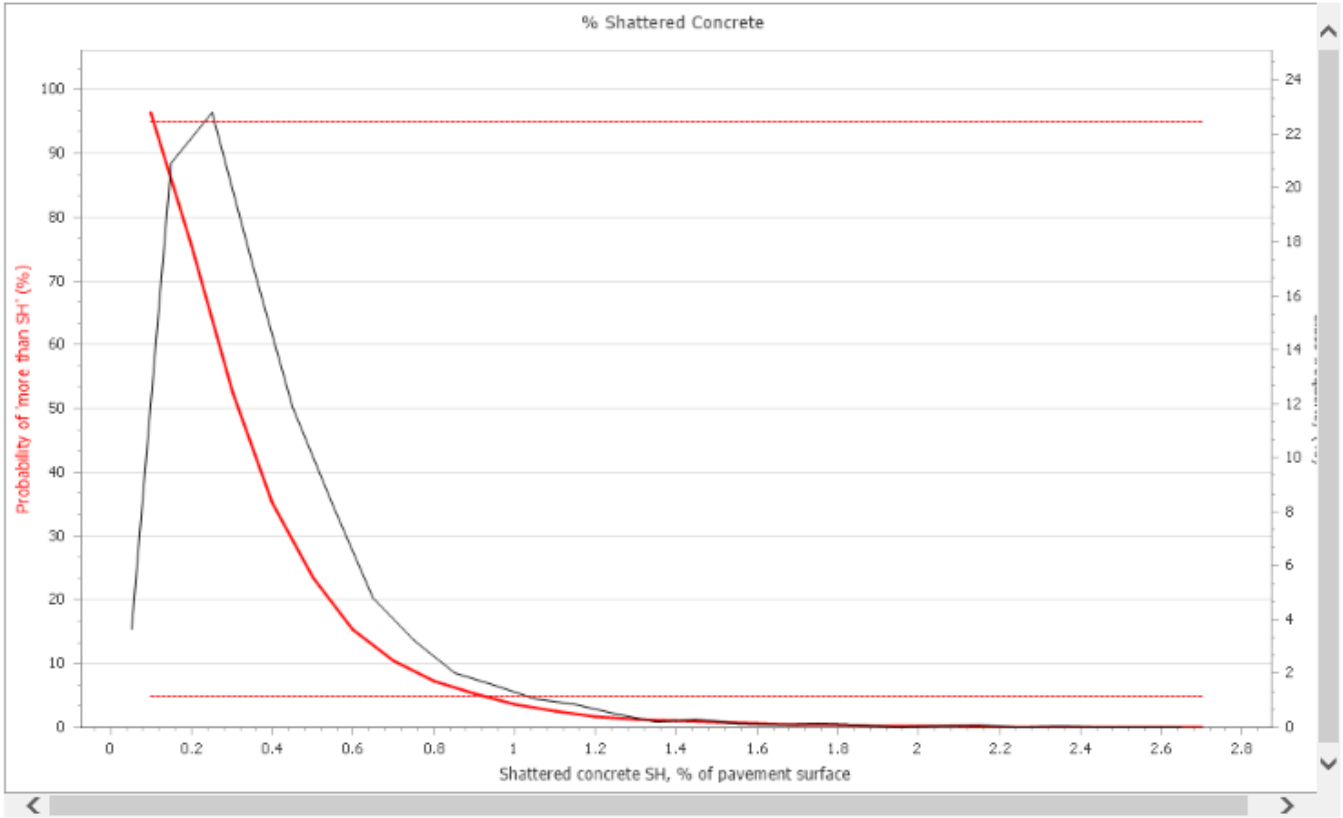
Chart to print: Surface Pumping



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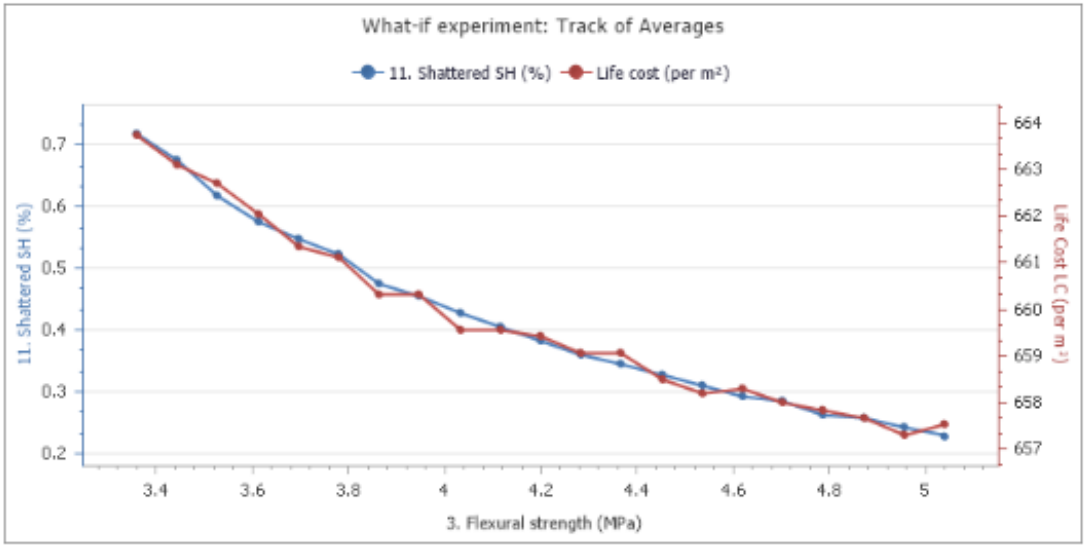
Input Value: 4.2

21-Point Range Width: Zero | ±10% | ±20%

Variability: Yes | No

Input to test: 3. Flexural strength (MPa)

Output to watch: 11. Shattered SH (%)



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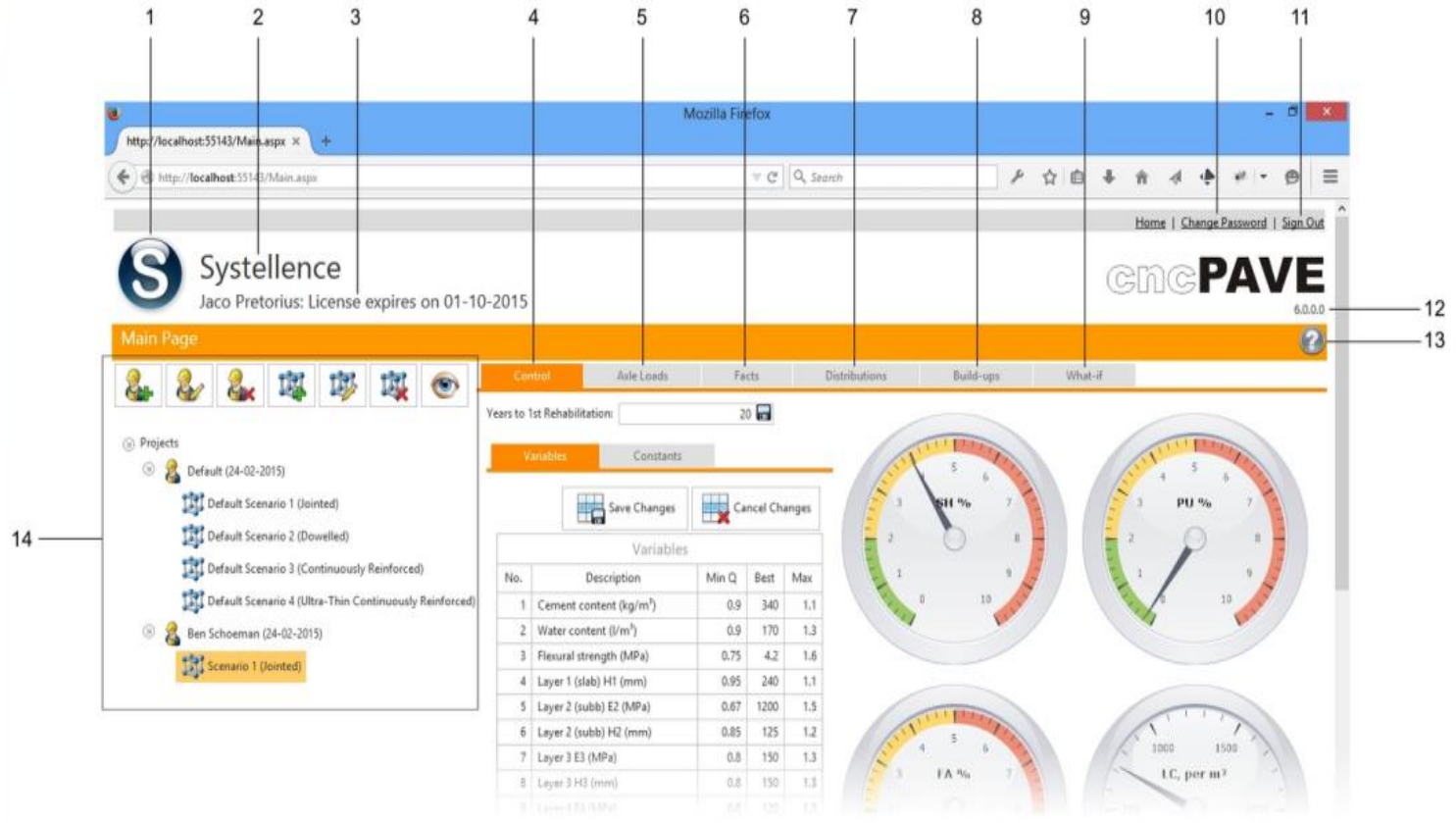
The Sign-in Window
Using cncPAVE
Important Notes
A Summary of the Interface
Changing my Password
Creating Projects and Scenarios
Control
Axle Loads
Facts
Distributions
Build-ups
What-If
General Concepts
Pavement Concepts
Traffic Concepts
Statistical Concepts
Economic Concepts
Literature

A Summary of the Interface

Once signed into the system, a window as illustrated below will appear:



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2	Water content (l/m³)	0.9	170	1.3
3	Flexural strength (MPa)	0.75	4.2	1.6
4	Layer 1 (slab) H1 (mm)	0.95	240	1.1
5	Layer 2 (subb) E2 (MPa)	0.67	1200	1.5
6	Layer 2 (subb) H2 (mm)	0.85	125	1.2
7	Layer 3 E3 (MPa)	0.8	150	1.3
8	Layer 3 H3 (mm)	0.8	150	1.3

Below, all points are discussed. The idea of this discussion is just to give an overview of the Main Interface of cncPAVE. A more detailed discussion on each section will follow later within this Help facility.

1 - At this point, your Company's logo will be displayed.
2 - The name of your Company will appear at this point.
3 - User and Subscription details. At this point, your name, surname and the expiry date of your subscription will be displayed.
4 - Control. By clicking the page button at this point, you will view and configure all properties under Control. The system is divided into different sections by making use of a Page Control as illustrated.
5 - Axle Loads. All the Traffic Situation Values can be configured by clicking the page button at this point.
6 - After running calculations as discussed later, Facts and a Typical Rehabilitation Schedule will be available at this point.
7 - Distribution Graphs will be available after running calculations as discussed later. By clicking the Page Button at this point these graphs can be viewed and exported.
8 - Build-up Graphs will be available after running calculations as discussed later. By clicking the Page Button at this point these graphs can be viewed and exported.
9 - By accessing this section, What-If analysis can be done.
10 - To change your password, click the link at this location.
11 - To sign out of cncPAVE, click the link at this location. As discussed before, it is very important to sign out before closing the Internet Browser.
12 - cncPAVE's version information is displayed at this point.
13 - To access this Help facility, simply click the button at this point.
14 - Projects and Scenarios section. Within this section, Projects and Scenarios are listed. This will be discussed in more detail.

cncPAVE

- For more information
- www.theconcreteinstitute.org.za
- Contact Loré de Bernier 011 315 0300 or loredb@theconcreteinstitute.org.za
- Details will shortly be available on the TCI website: www.theconcreteinstitute.org.za

Developments