

SWAN RIVER ALLUVIUM (SRA) PREDICTED VS ACTUAL SETTLEMENT BEHAVIOUR NEW PERTH STADIUM SITE, BURSWOOD PENINSULA

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**Australian
Geomechanics
Society**



Site location and future layout





Performance Criteria – Stadium Pitch

Design Life = 50 years

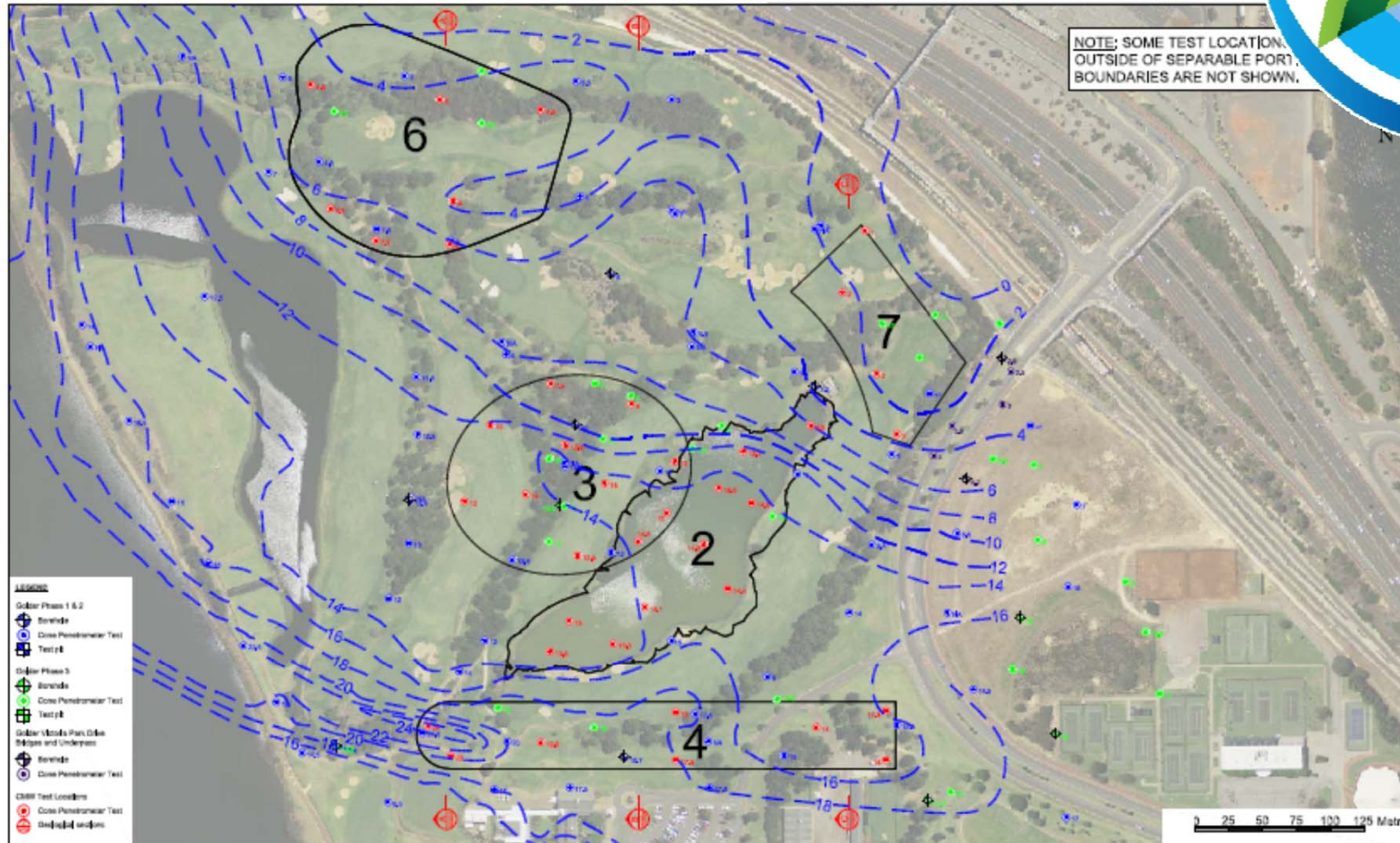
Design Finished Level = RL3.5m AHD (EGL = RL1.5m to RL5.0m AHD)

Future Dead Load = 10kPa

Max. Post Construction Vertical Settlement = 100mm

Top 1.0m of soil profile (RL2.5m to RL3.5m AHD) to comprise Clean Sand Fill with <10% non plastic fines.

SRA Distribution



LEGEND

Golden Phase 1 & 2

- Boundary
- Cone Penetrometer Test
- Test Pit

Golden Phase 3

- Boundary
- Cone Penetrometer Test
- Test Pit

Golden Victoria Park Office Buildings and Underpass

- Boundary
- Cone Penetrometer Test

Other Test Locations

- Cone Penetrometer Test
- Designated locations

1						
2						
3						
4	Updated test locations	30/10/2013	SJC	DJM	DJM	DJM
3	Updated test locations	10/06/2013	SJC	DJM	DJM	DJM
2	Updated test locations	14/06/2013	SJC	DJM	DJM	DJM
1	Updated test locations	03/01/2013	LJT/SL	MAAF	DJM	DJM
Rev	Revision Details	Date	Drawn	Checked	D.Mgr	P.S.Mgr

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PROJECT:
 The new Perth Stadium
 Pre-Construction Site Works

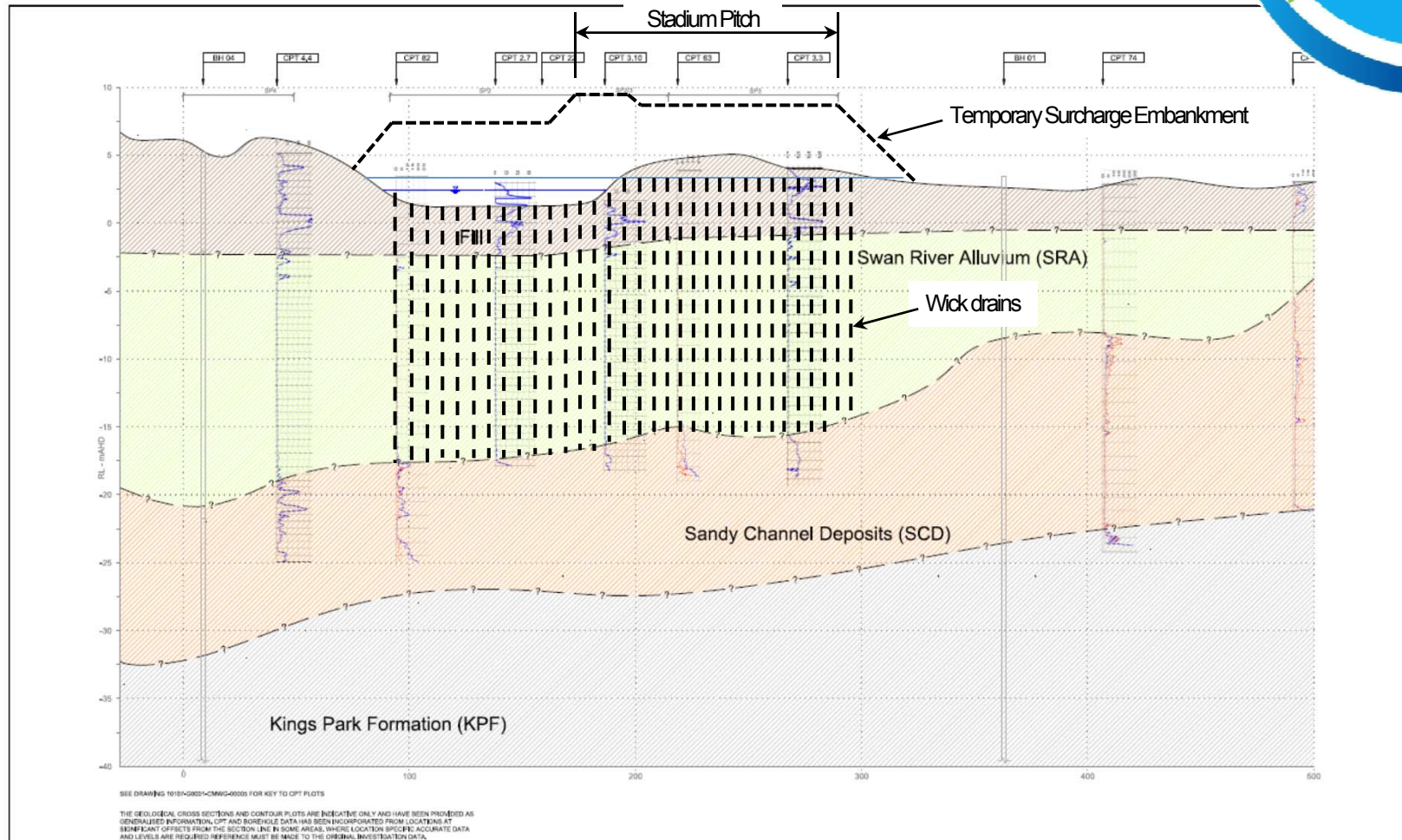
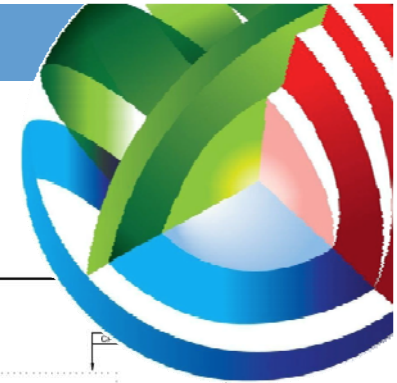
CLIENT:
 Department of Treasury
 Strategic Projects

Department of Treasury
 Strategic Projects
 Department of Sport and Recreation

DRAWING TITLE: INFERRED THICKNESS OF SWAN RIVER ALLUVIUM (SRA)

Scale: 1:2500 (A3)	Drawn by: LJT	Date: 30/07/2013
Status: DESIGN	Checked by: DJM	Approved by: EC
Rev: 4	Drawing No: 10107-G0001-CMWG-00007	

Ground Improvement Philosophy

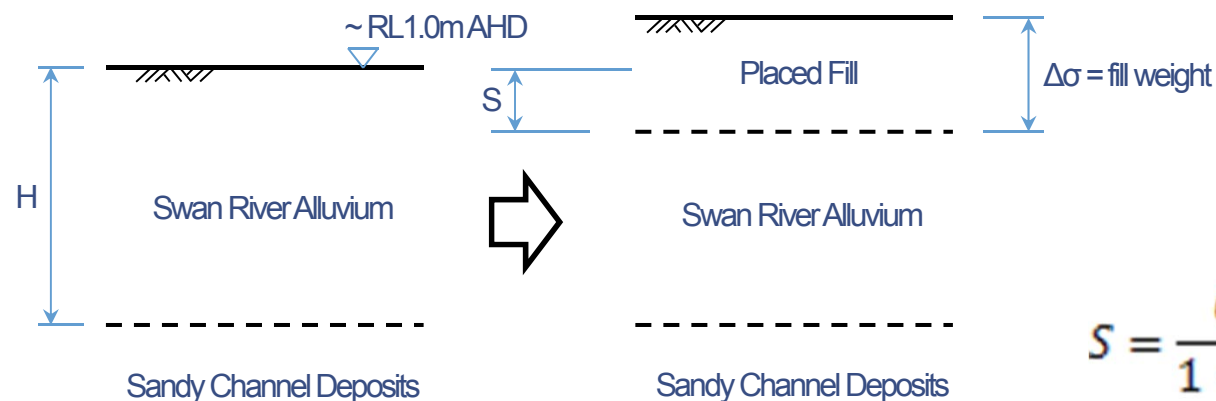


SEE DRAWING 1010100021-CMWG-00005 FOR KEY TO CPT PLOTS		DRAWING TITLE: GEOLOGICAL SECTION B-B	
<small>THE GEOLOGICAL CROSS SECTIONS AND CONTOUR PLOTS ARE INDICATIVE ONLY AND HAVE BEEN PROVIDED AS GENERALISED INFORMATION. CPT AND BOREHOLE DATA HAS BEEN INCORPORATED FROM LOCATIONS AT SIGNIFICANT OFFSETS FROM THE SECTION LINE. IN SOME AREAS, WHERE LOCATION SPECIFIC ACCURATE DATA AND LEVELS ARE REQUIRED REFERENCE MUST BE MADE TO THE ORIGINAL INVESTIGATION DATA.</small>		Scale: 1:1500 H 1:250 V A3	Date: 30/07/13
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ERTECH Keller JV Head Office Mail Ertech Keller JV 118 Melville Drive		PROJECT: The new Perth Stadium Pre-Construction Site Works	Approved by:

Surcharge Design Parameters

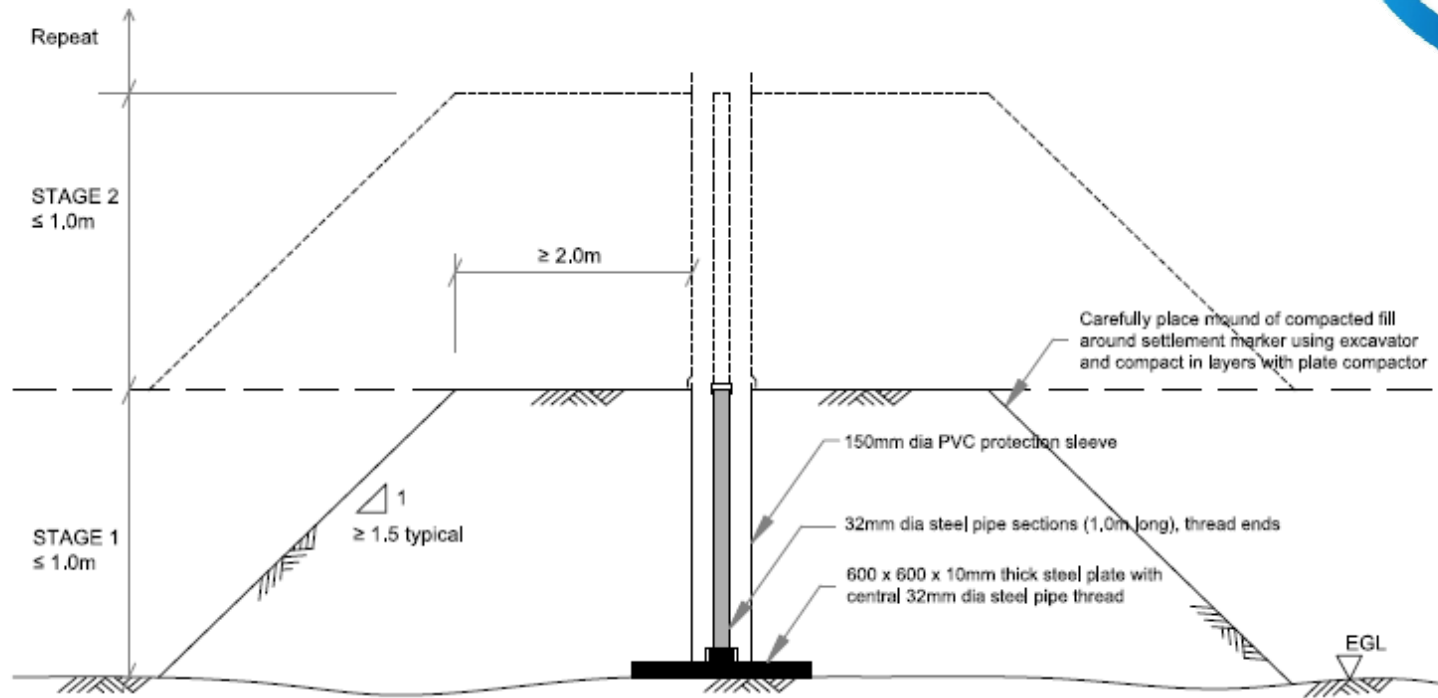


1. Review of Literature (ie. Low et al) - Hansbo
2. Geotechnical Investigation Data
3. Back Analysis of Previous Fill Settlement - Magnitude



$$S = \frac{C_c}{1 + e_0} H \cdot \log \left(\frac{\sigma'_{v_0} + \Delta\sigma}{\sigma'_{v_0}} \right)$$

Instrumentation & Monitoring

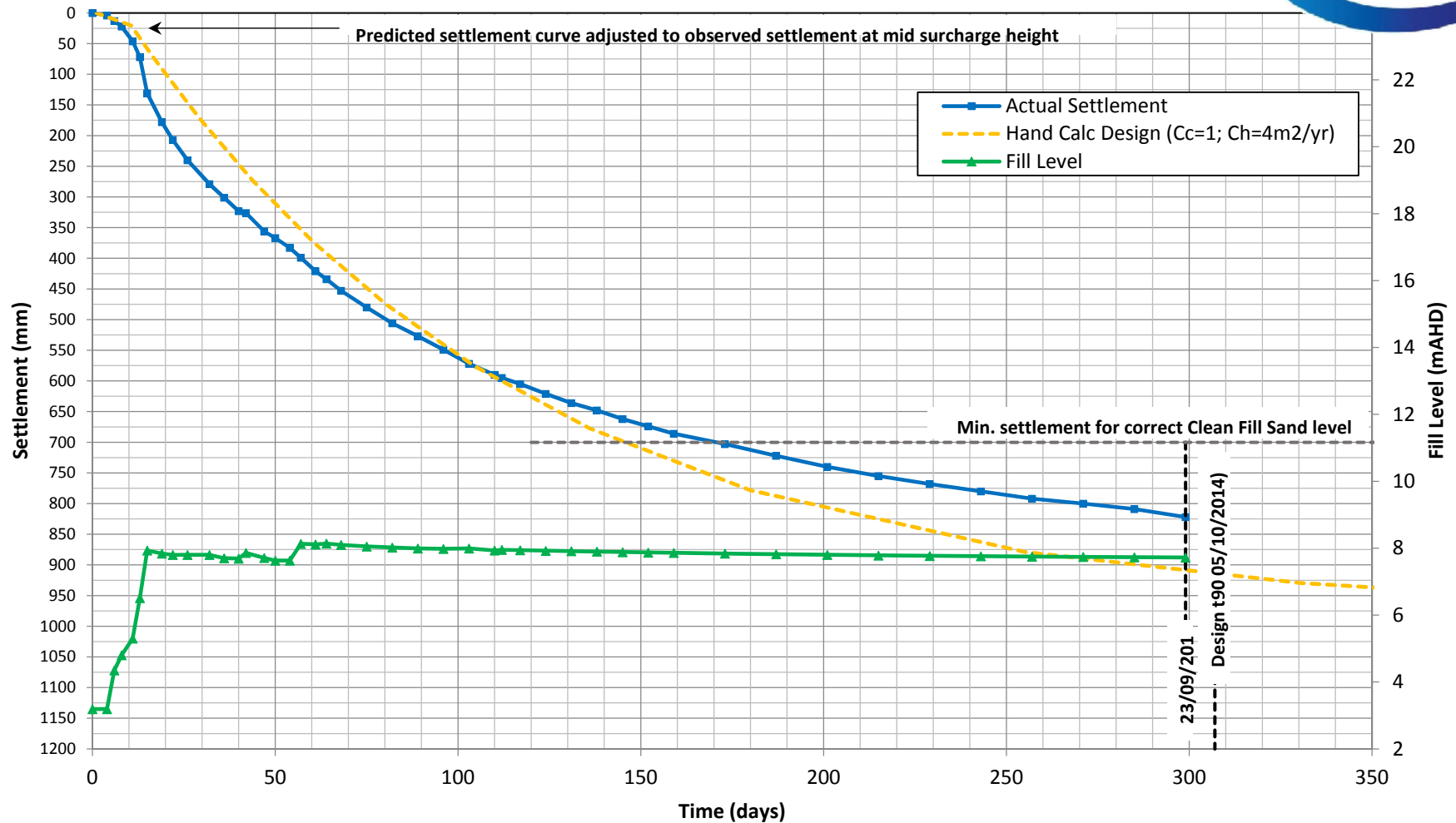


TYPICAL SETTLEMENT MARKER INSTALLATION DETAIL

Monitoring Records

PERTH STADIUM PCS WORKS
PRACTICAL COMPLETION REPORT

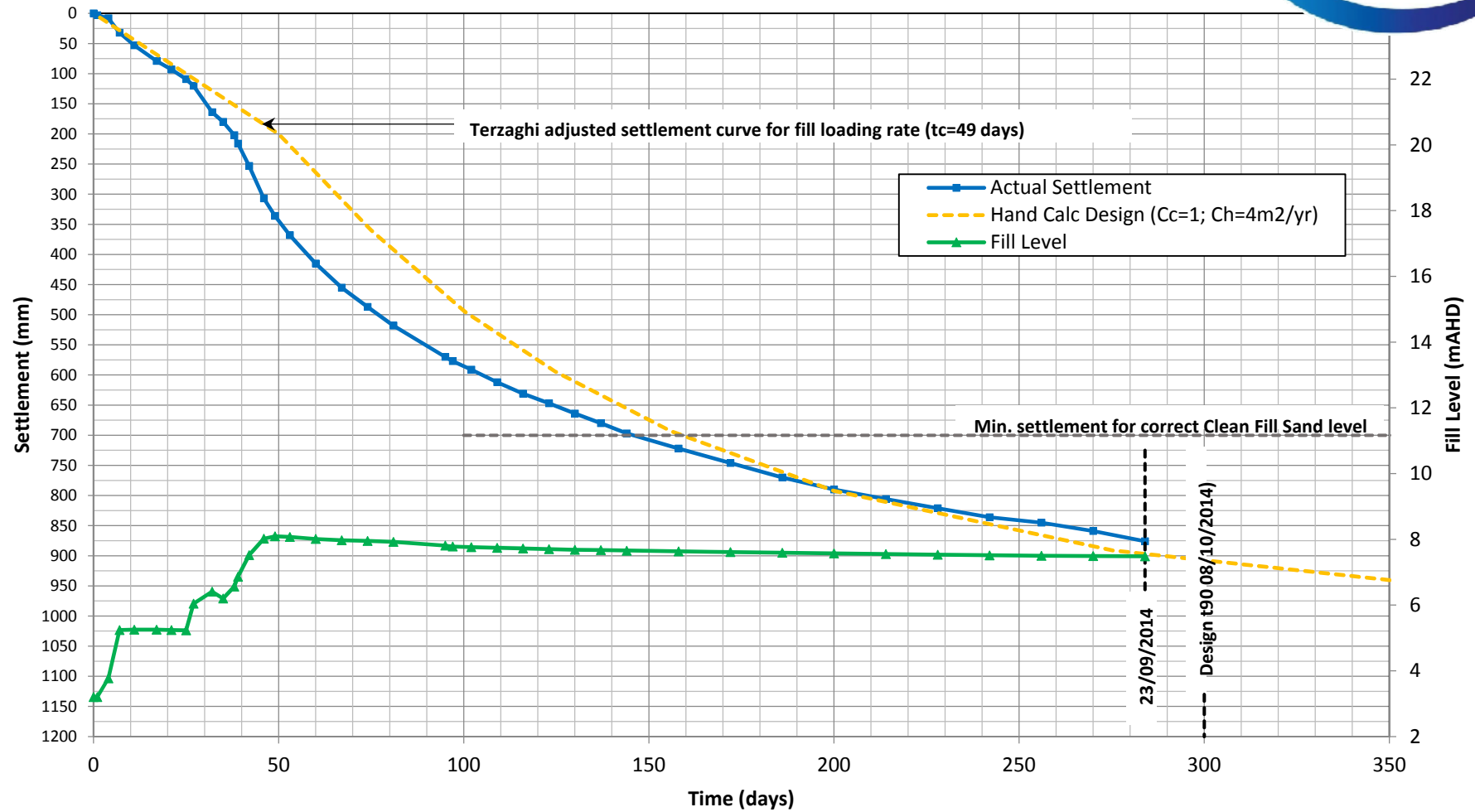
Time Rate of Ground Settlement SM3-5



Monitoring Records

PERTH STADIUM PCS WORKS
PRACTICAL COMPLETION REPORT

Time Rate of Ground Settlement SM3-11

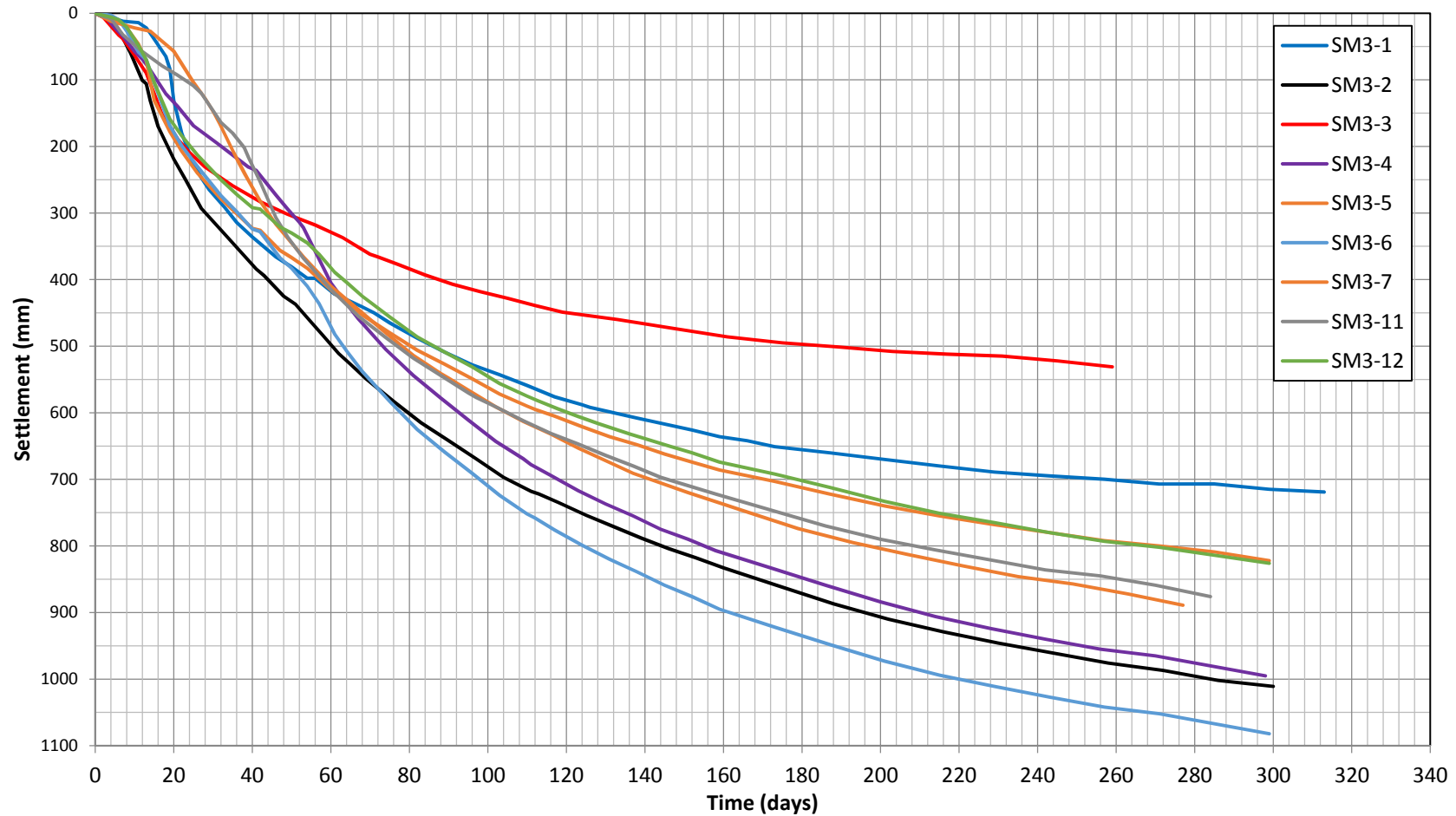


Settlement Monitoring Summary



PERTH STADIUM PCS WORKS
PRACTICAL COMPLETION REPORT

Summary of SP3 Settlement

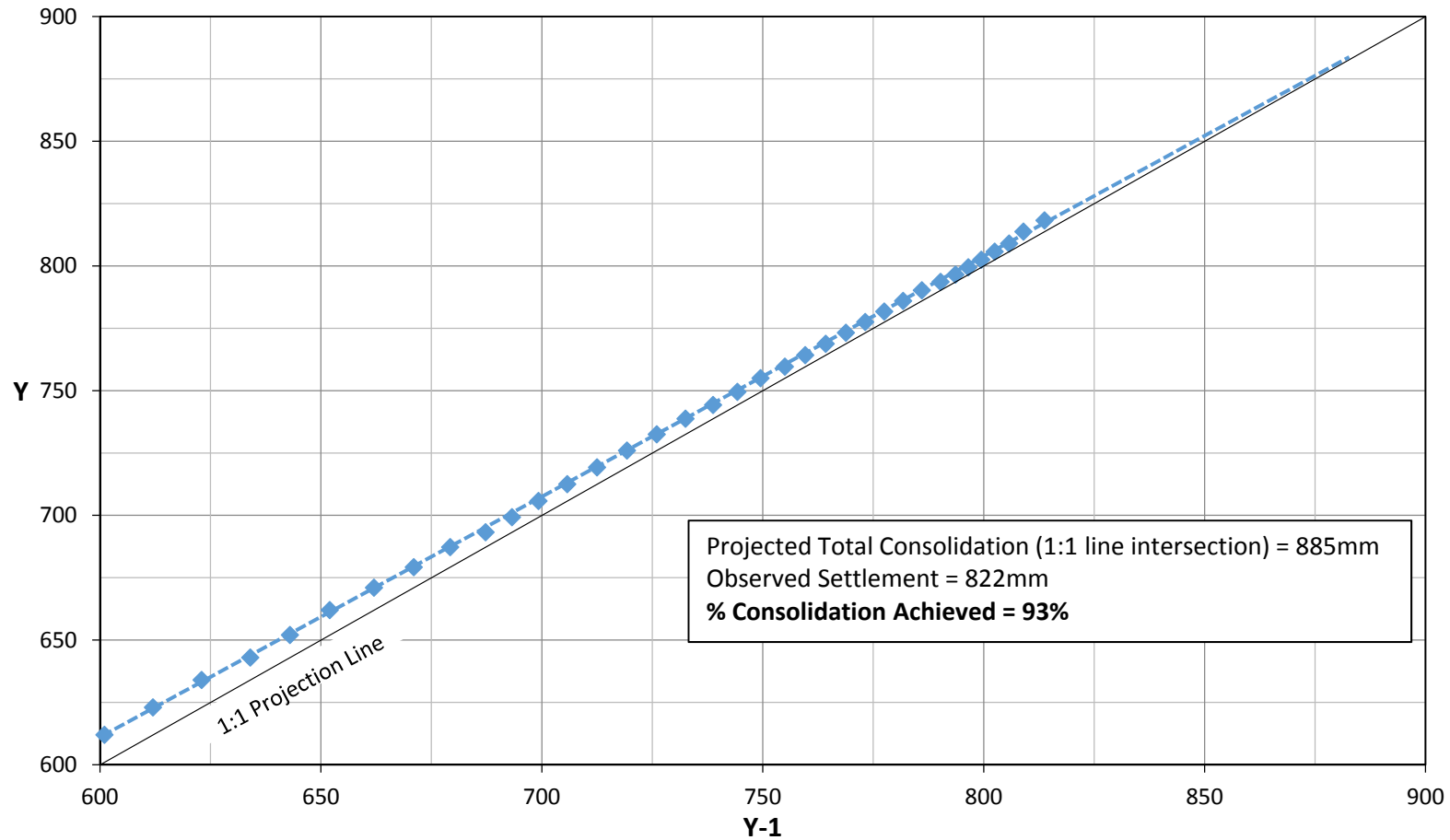


Performance Assessment – Asaoka A

PERTH STADIUM PCS WORKS
PRACTICAL COMPLETION REPORT



Asaoka Plot - SM3-5

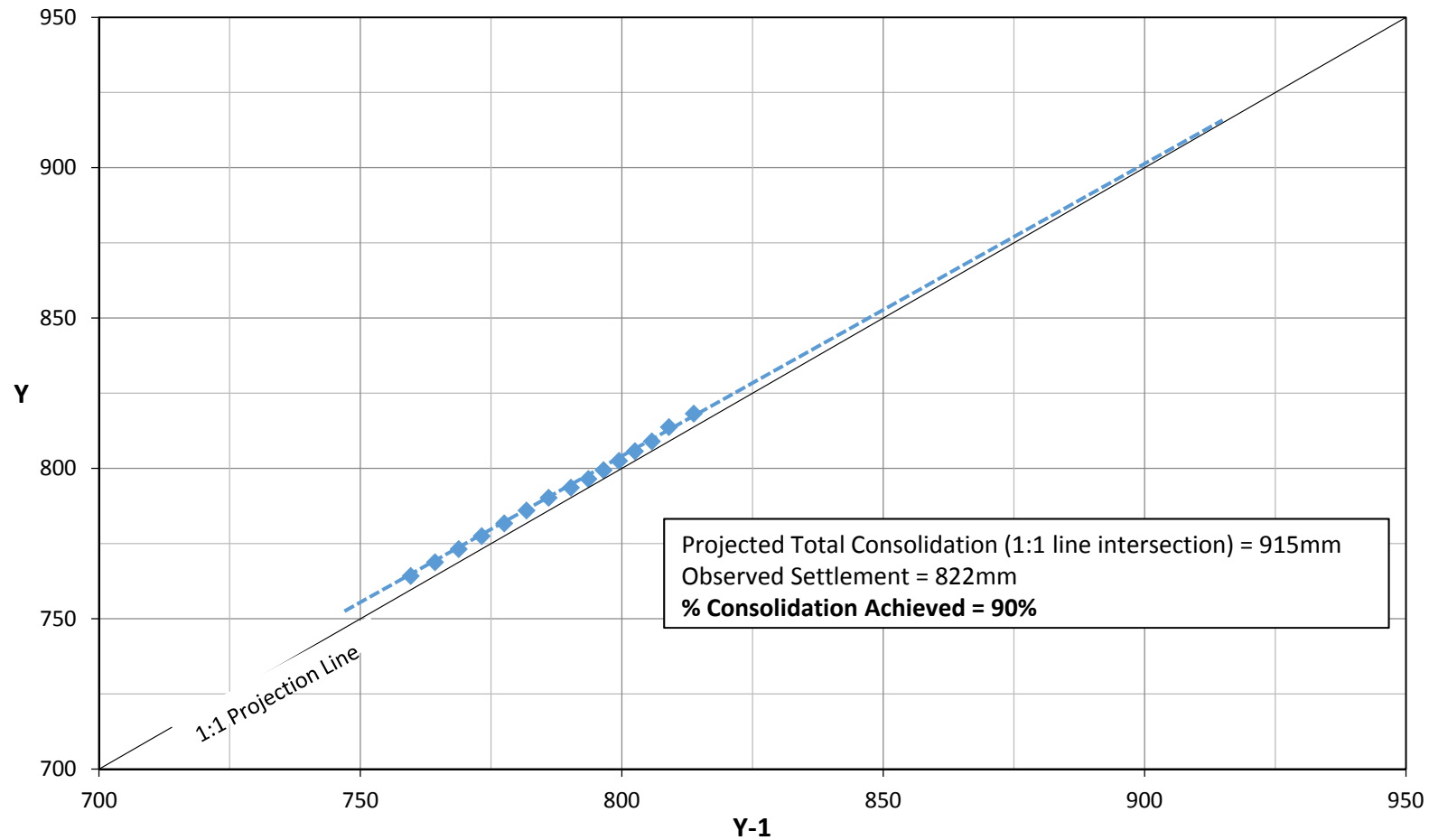


Performance Assessment – Asaoka B

PERTH STADIUM PCS WORKS
PRACTICAL COMPLETION REPORT



Asaoka Plot - SM3-5 (Last 75 days)

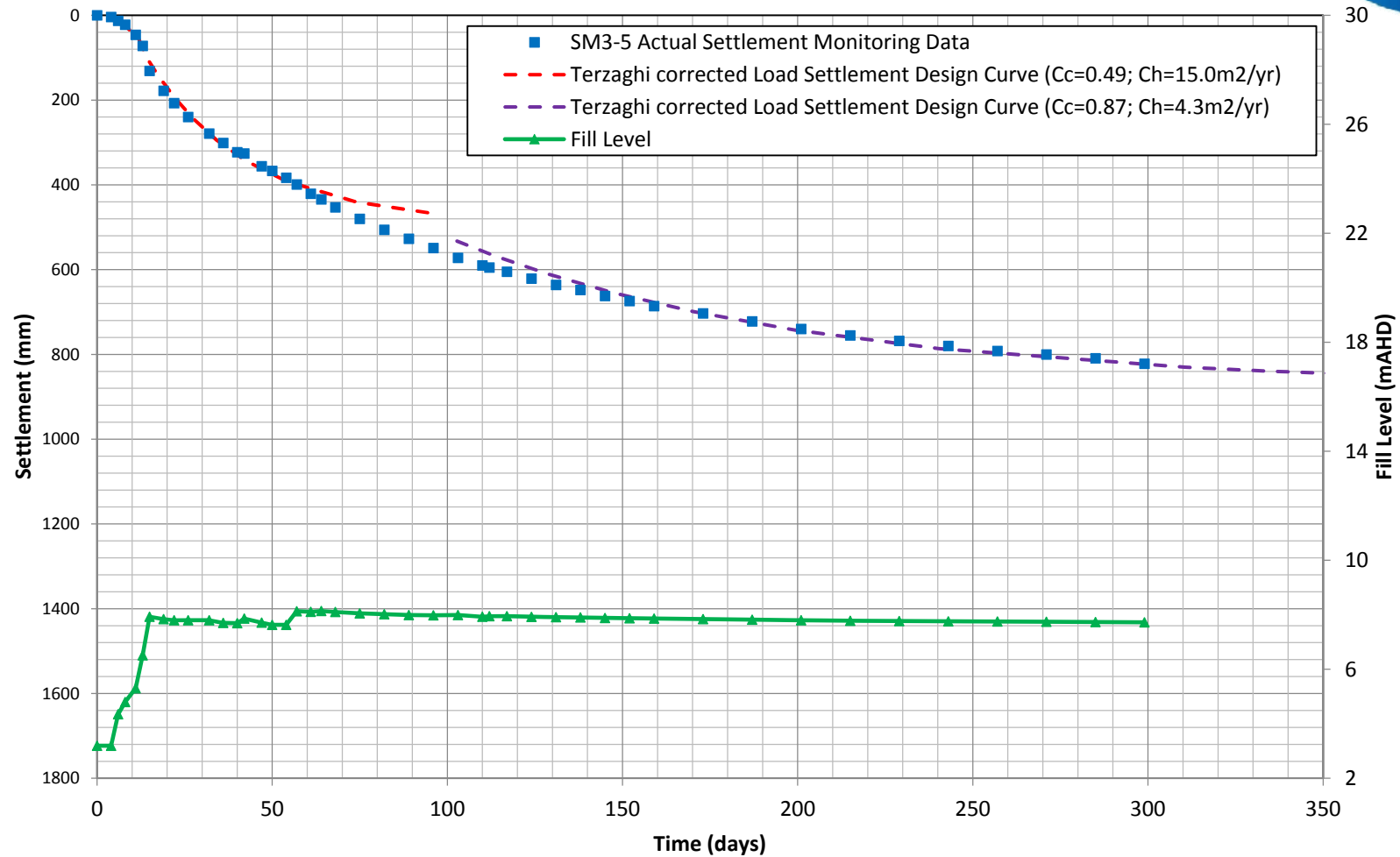


Performance Assessment – Curve Fitting

PERTH STADIUM PCS WORKS
SM3-5 BACK ANALYSIS

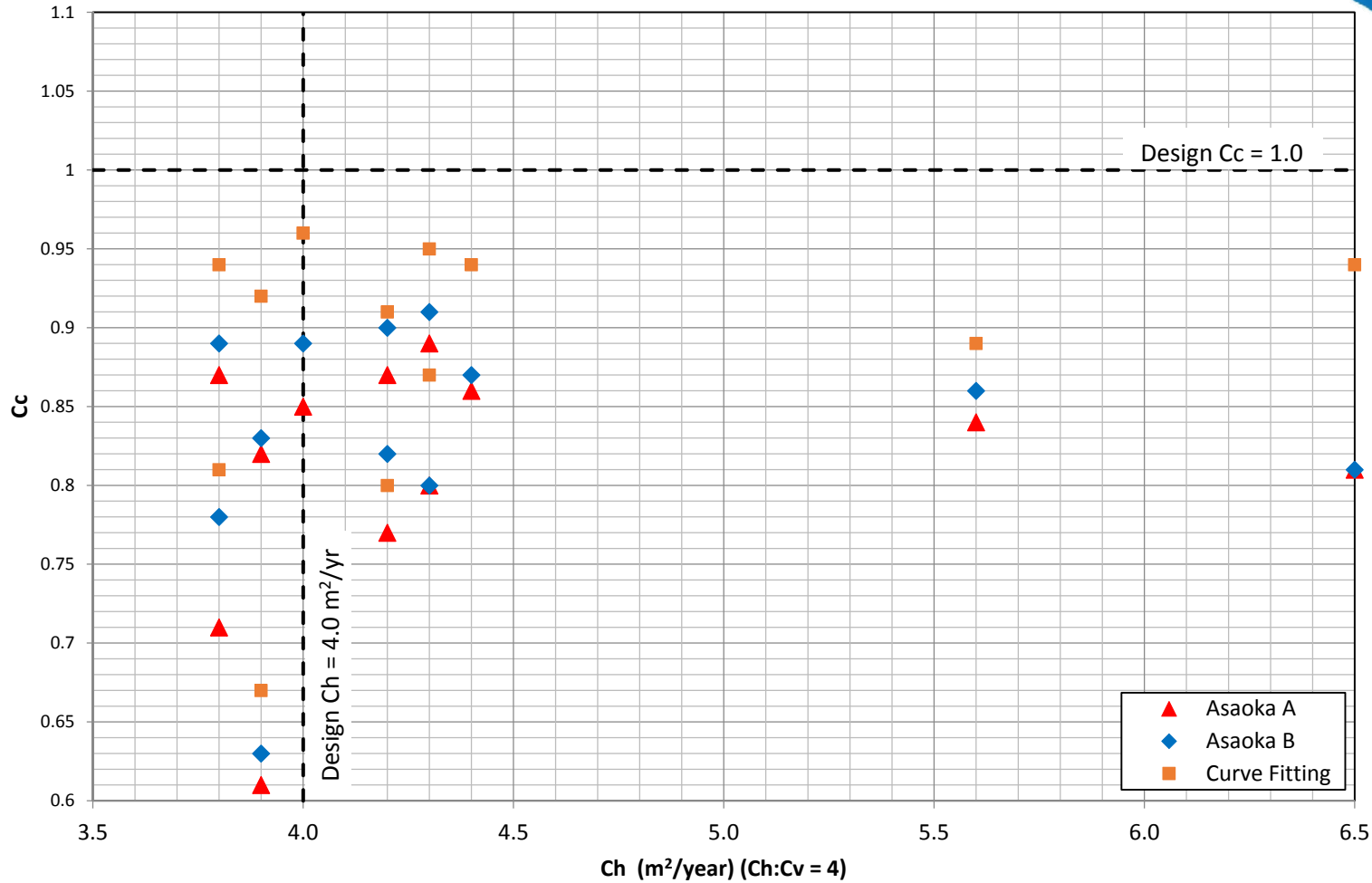


Time Rate of Ground Settlement SM3-5



Back calculated Cc values – Curve fitting & Asaoka

PERTH STADIUM PCS WORKS
BACK ANALYSED SRA PARAMETERS





**Special thanks to EKJV and the State
Government for allowing presentation of
these preliminary findings**

Thank you for listening

