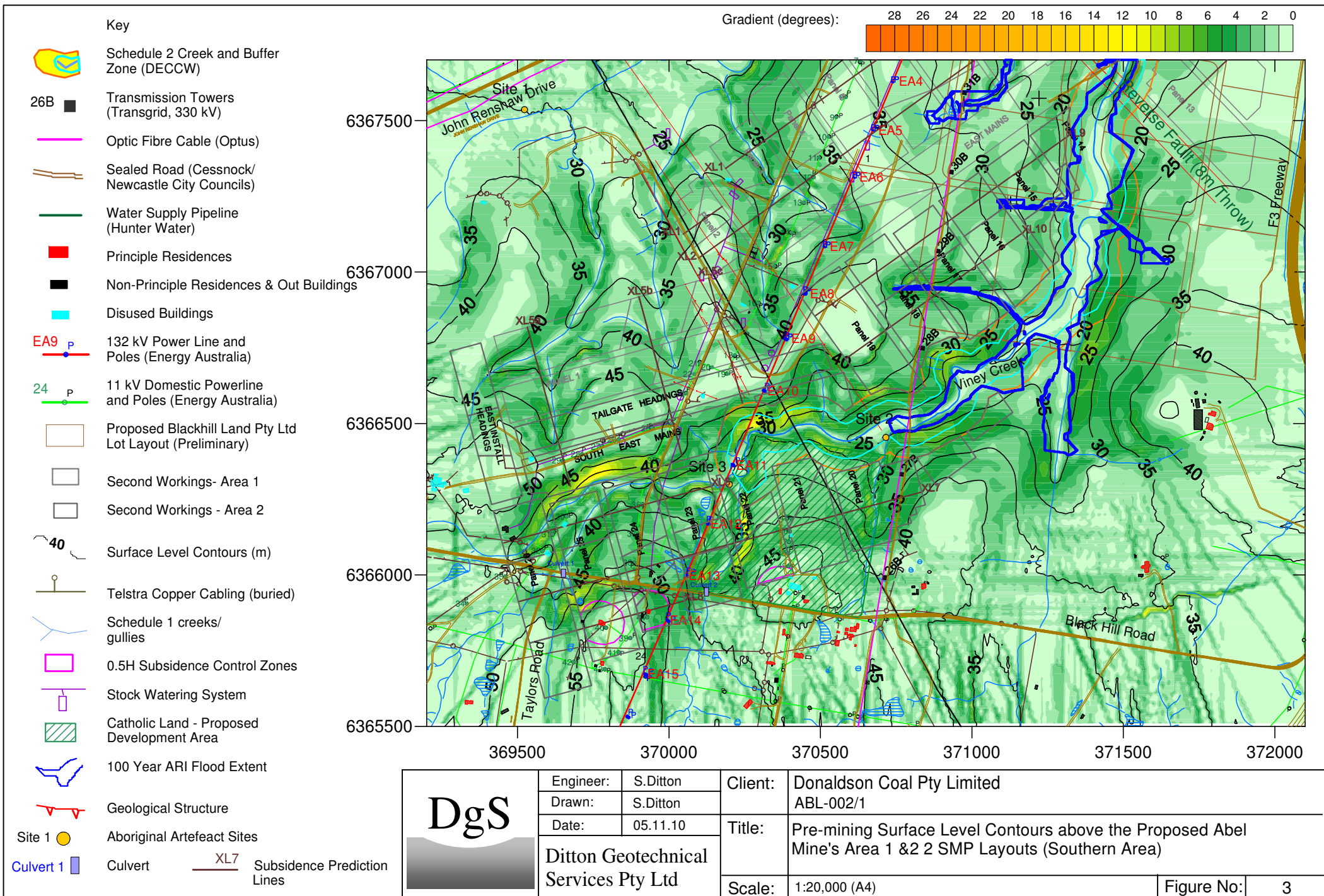
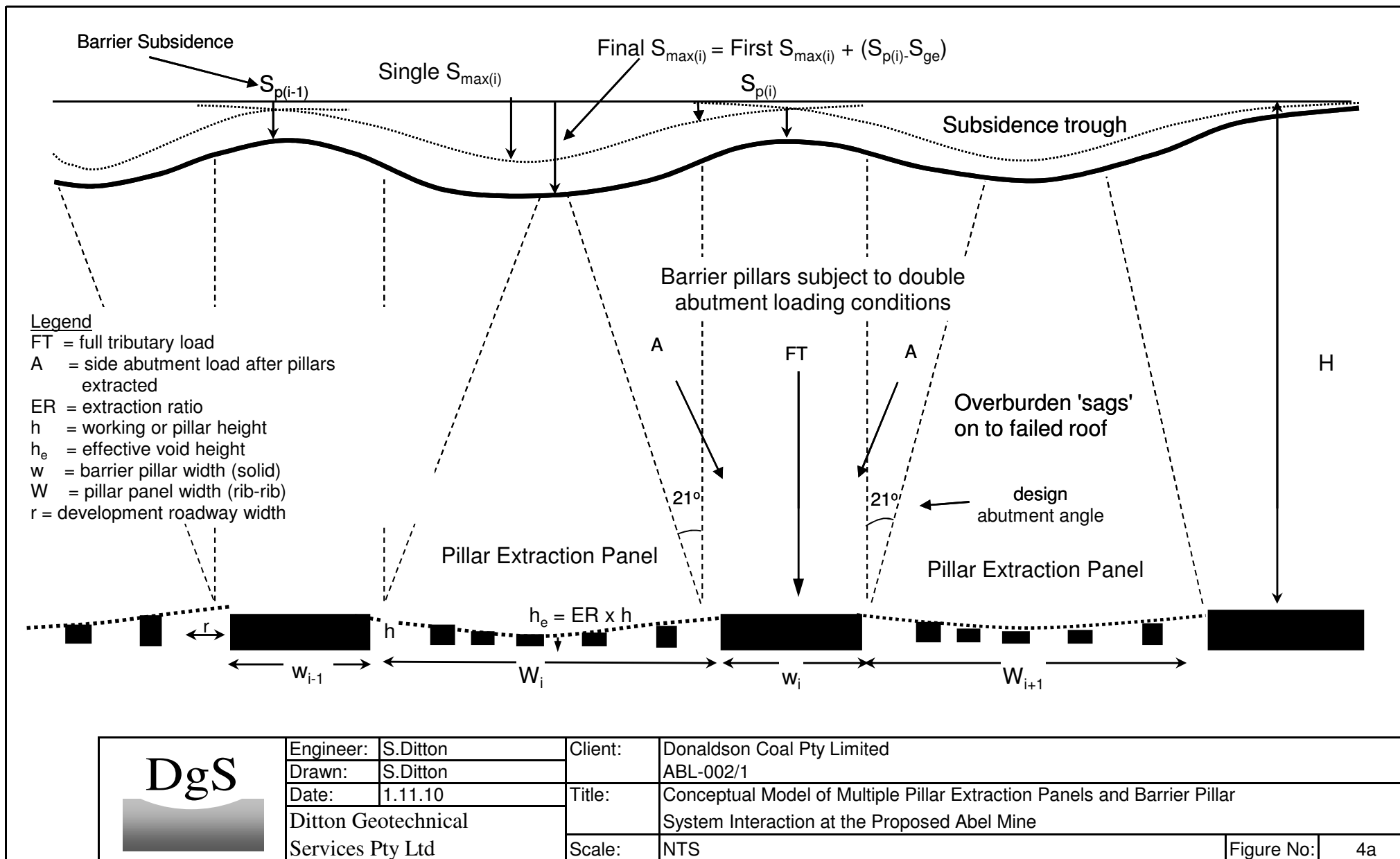
	Engineer:	S.Ditton	Client:	Donaldson Coal Pty Limited			
	Drawn:	S.Ditton		ABL-002/1			
	Date:	21.03.11	Title:	Upper Donaldson Seam Thickness Contours (C-G Plies Only) for the Proposed Abel Mine's Area 1 & 2 SMP Layouts (Southern Area)			
	Ditton Geotechnical Services Pty Ltd			Scale:	1:20,000 (A4)		Figure No:





Notes:

r = bord width (m)

w = pillar width (m)

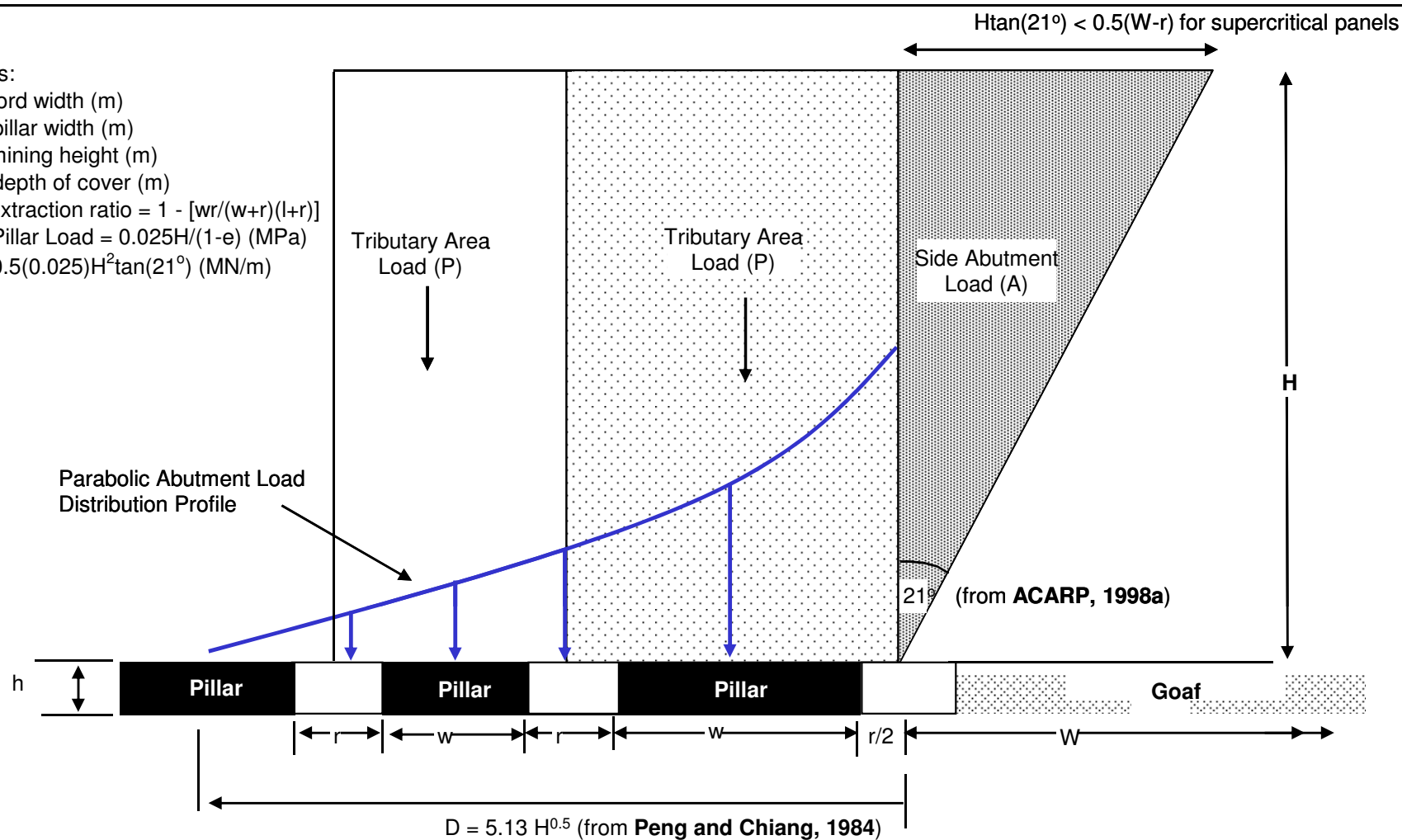
h = mining height (m)

H = depth of cover (m)

e = extraction ratio = $1 - [wr/(w+r)(l+r)]$

P = Pillar Load = $0.025H/(1-e)$ (MPa)

$A = 0.5(0.025)H^2 \tan(21^\circ)$ (MN/m)



DgS



Engineer: S.Ditton

Drawn: S.Ditton

Date: 1.11.10

Ditton Geotechnical

Services Pty Ltd

Client:

Donaldson Coal Pty Limited

ABL-002/1

Title:

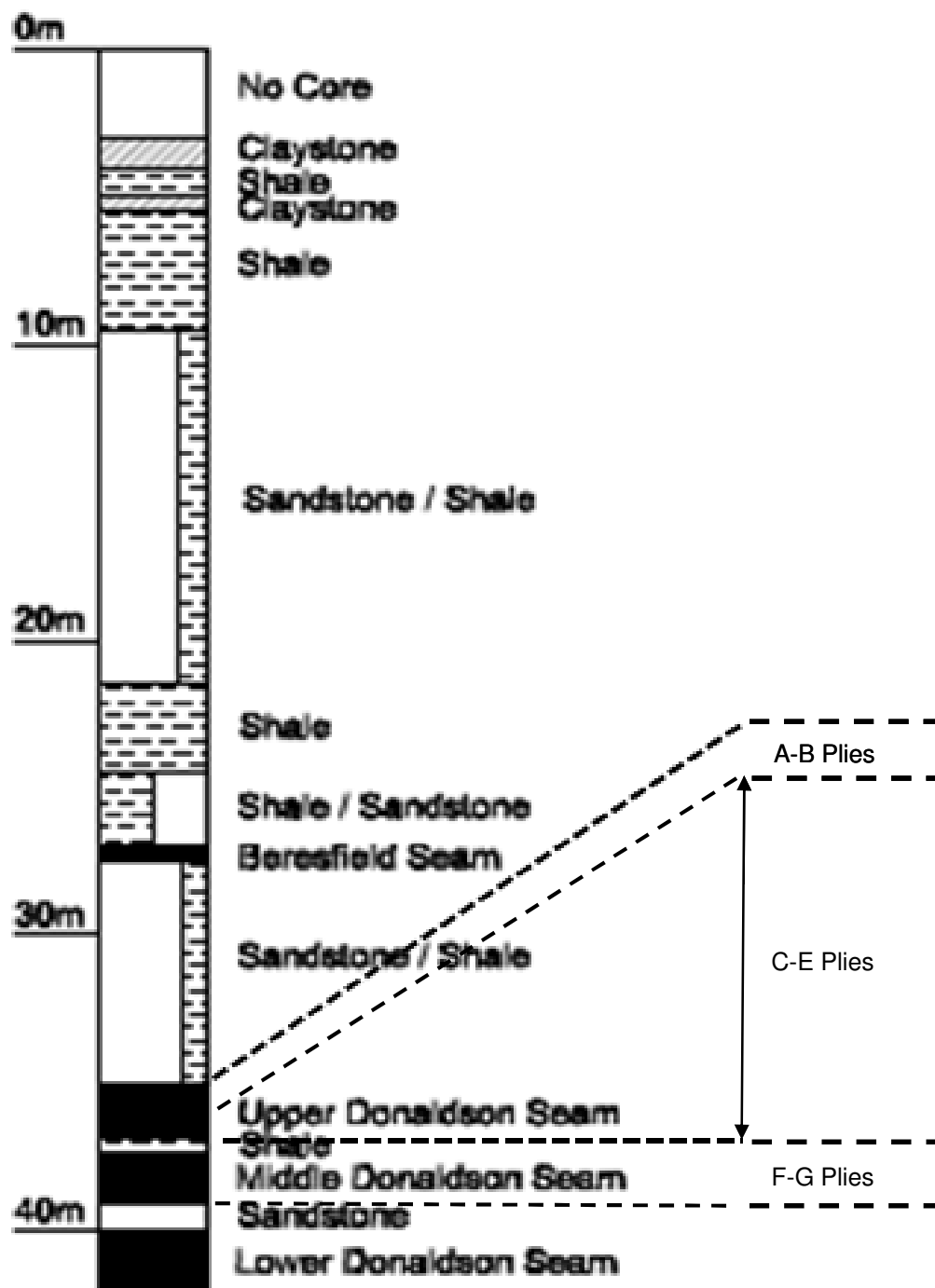
Analytical Model for Calculating Abutment Load Acting on SPZ Pillars after 2nd Workings

Scale:

NTS

Figure No:

4b



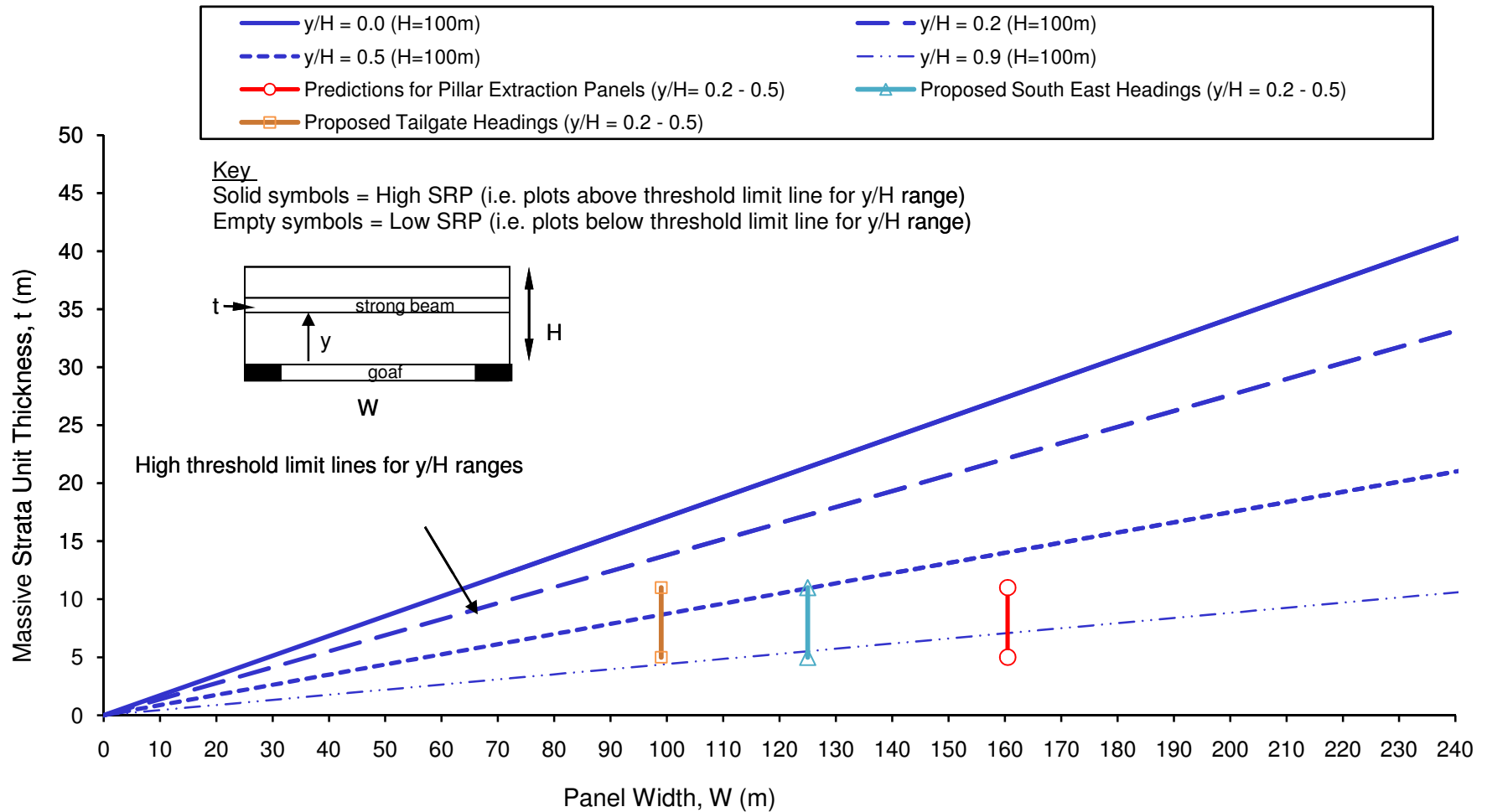
Notes:


1. Mining Horizon located in C-E and C-G Plies only and range in thickness from 1.4 m - 3.8 m.

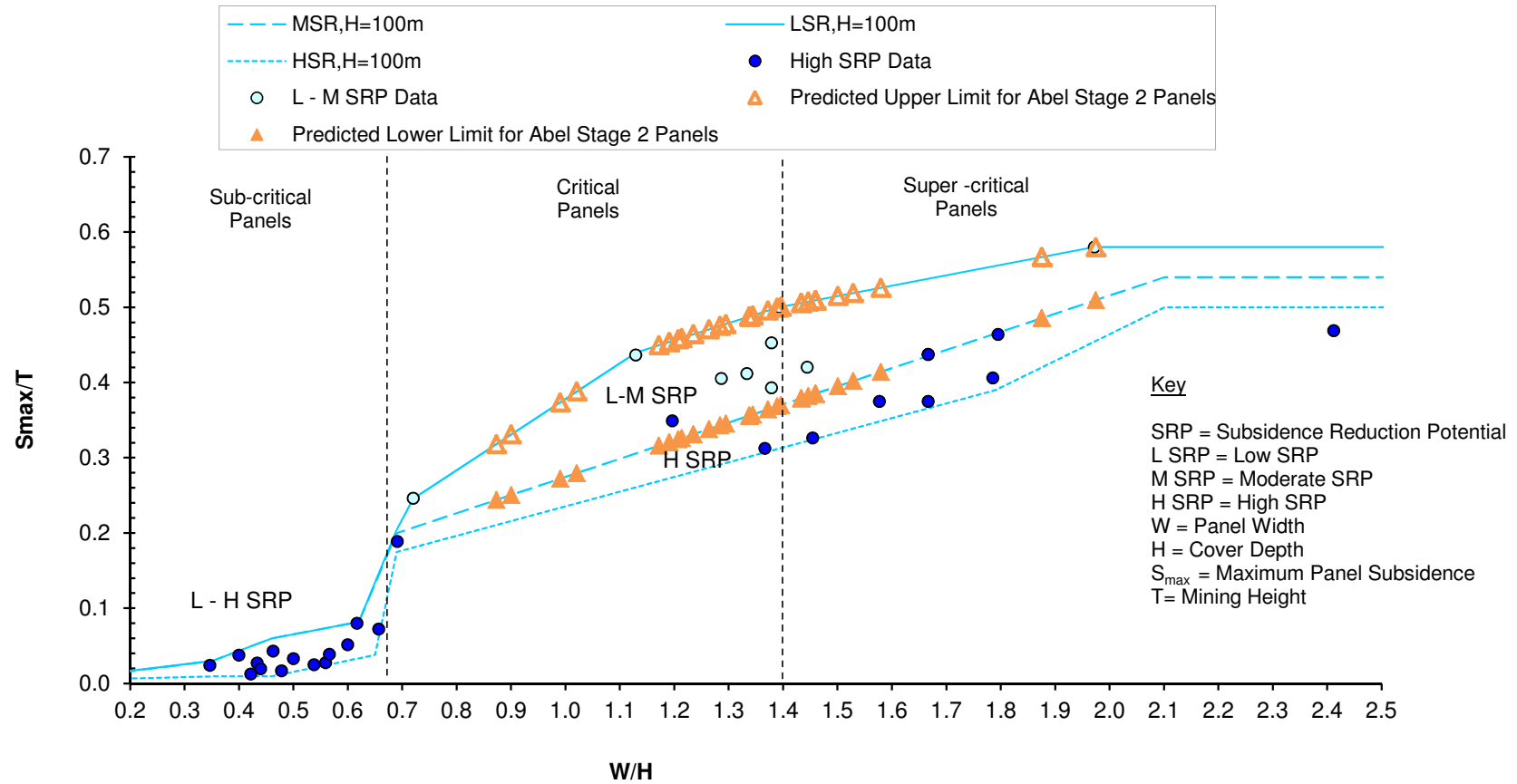
2. Typical mining height likely to range between 1.4 m and 2.8 m and is limited by development height of 2.5 - 2.6 m throughout mining area.
F-G Horizons can only be taken by ramping down from development roads.




Engineer:	S.Ditton	Client:	Donaldson Coal Pty Limited
Drawn:	S.Ditton		ABL-002/1
Date:	1.11.10	Title:	Typical Overburden Stratigraphy above the Abel Mine's SMP Area
Ditton Geotechnical Services Pty Ltd		Scale:	NTS
		Figure No:	5a

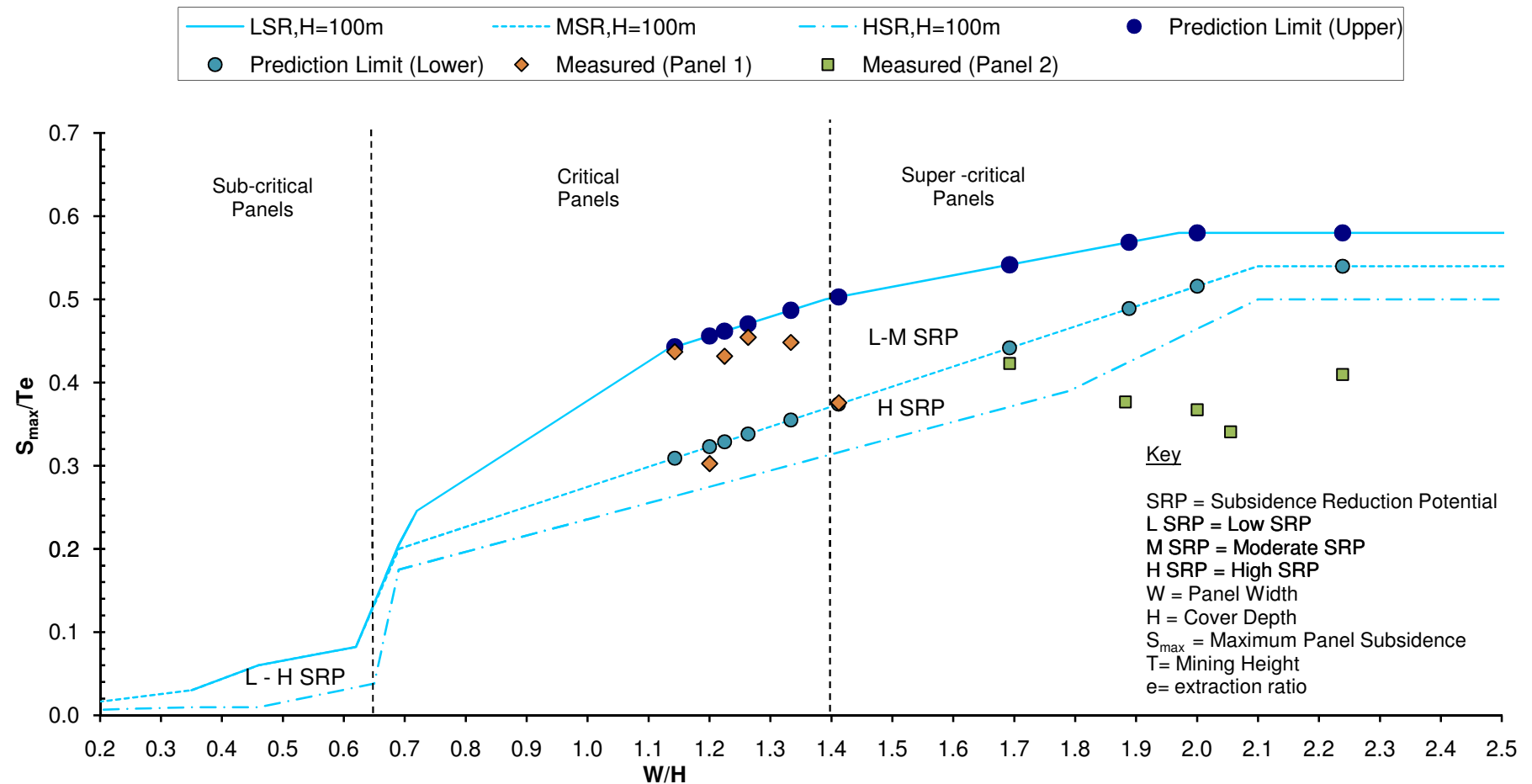


	Engineer:	S.Ditton	Client:	Donaldson Coal Pty Limited		
	Drawn:	S.Ditton		ABL-002/1		
	Date:	01.11.10	Title:	Predicted Subsidence Reduction Potential of Sandstone Units Above Proposed		
	Ditton Geotechnical			Abel SMP Mine Layout		
	Services Pty Ltd		Scale:	NTS		Figure No:




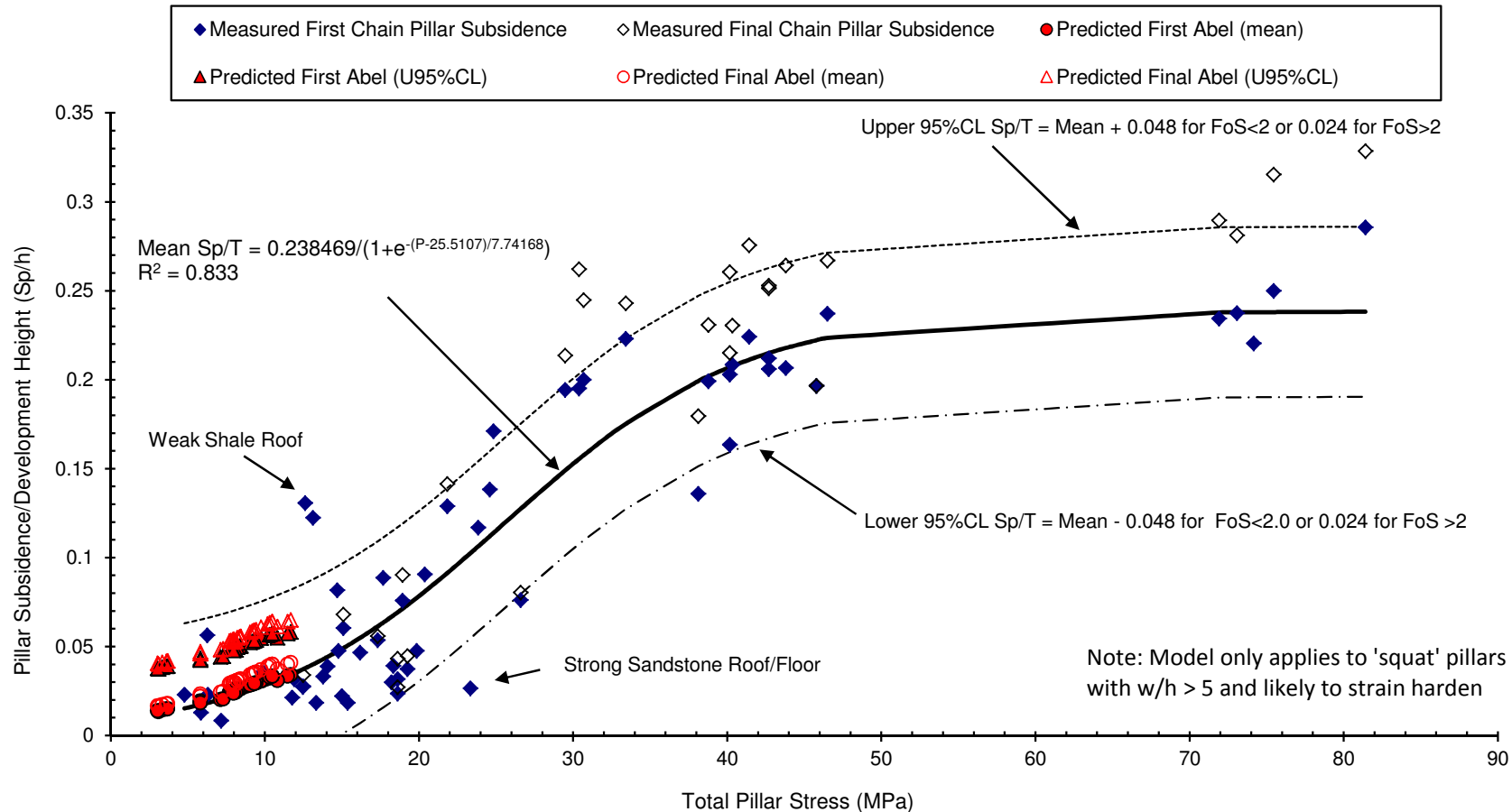
Note: No SRP distinguishment for panels with $W/H < 0.65$

	Engineer:	S.Ditton	Client:	Donaldson Coal - Abel Mine			
	Drawn:	S.Ditton		ABL-002/1			
	Date:	1.11.10	Title:	Empirical Model for Predicting Subsidence Above Pillar Extraction Panels with Cover Depths			
	Ditton Geotechnical			Between 50 and 150 m and Low to High SRP Zones			
	Services Pty Ltd		Scale:	NTS		Figure No:	6a

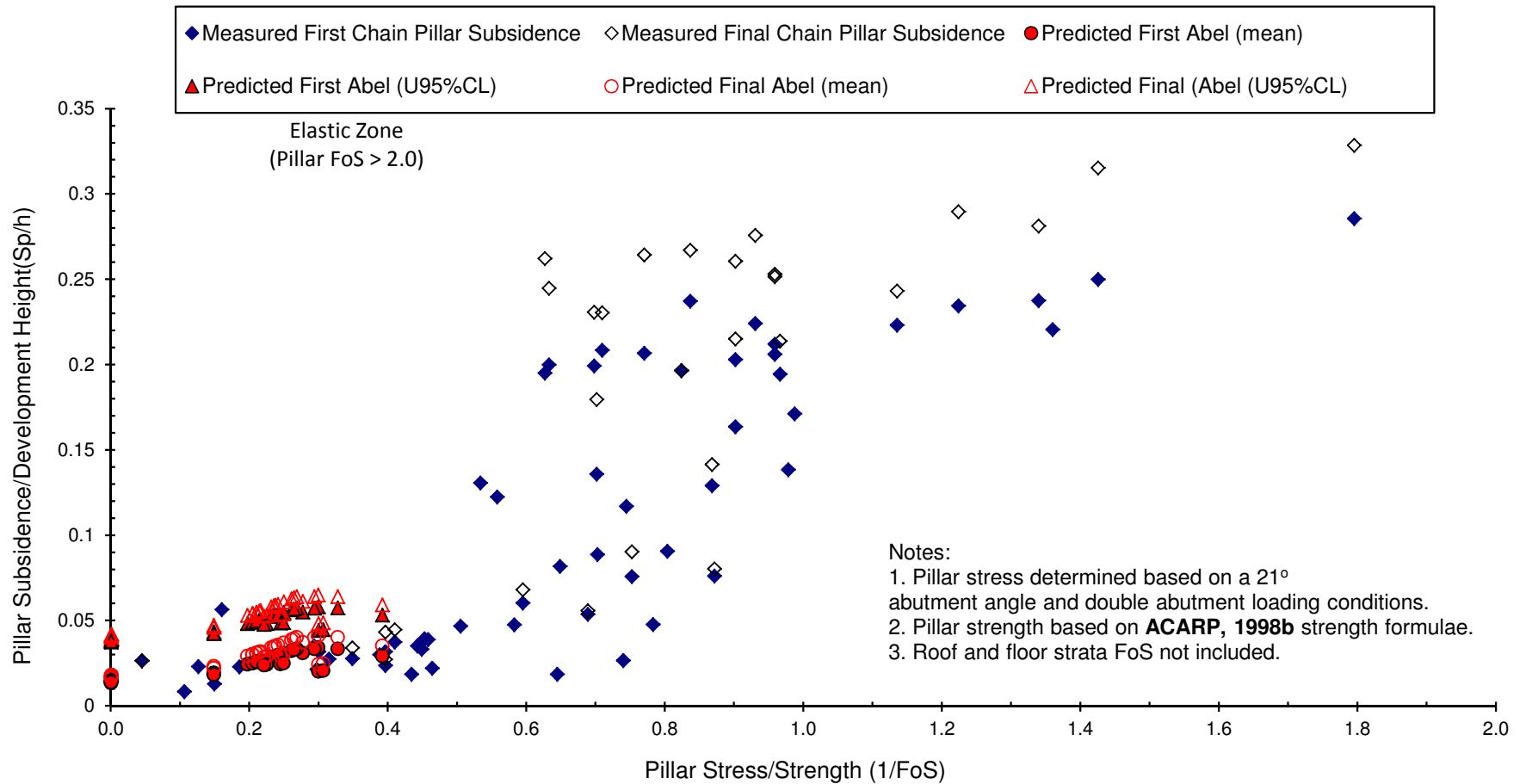


Note: No SRP distinguishment for panels with $W/H < 0.65$

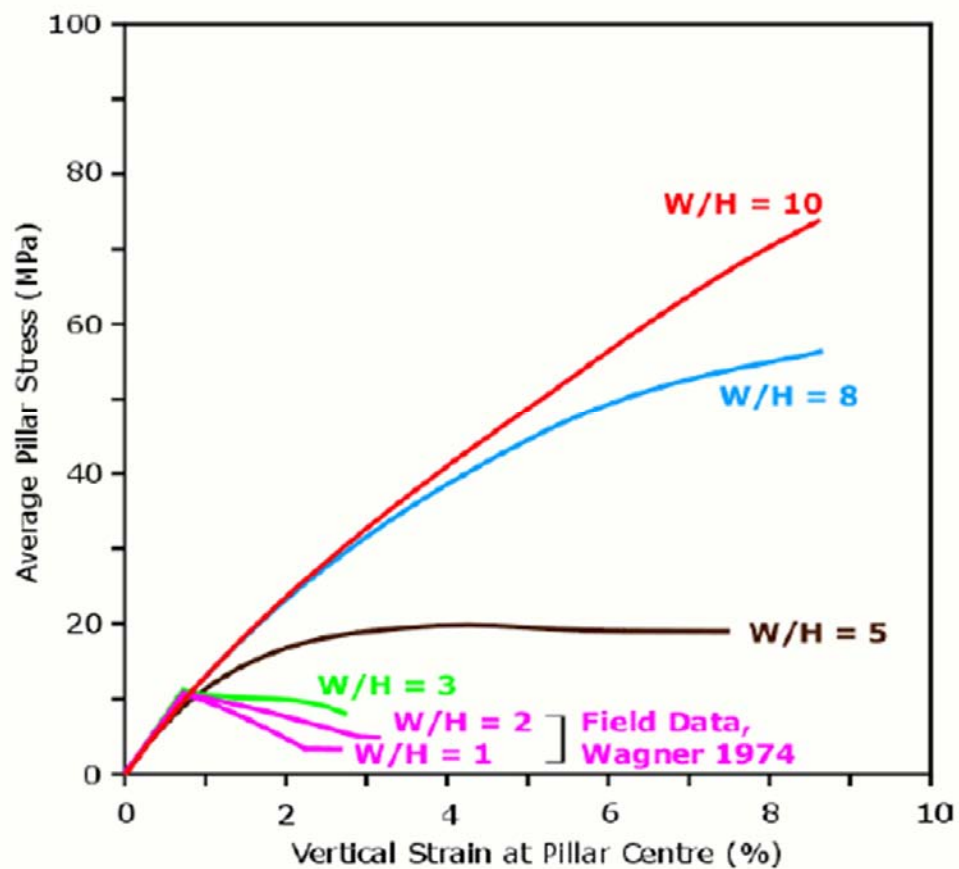
	Engineer:	S.Ditton	Client:	Donaldson Coal - Abel Mine		
	Drawn:	S.Ditton		ABL-002/1		
	Date:	1.11.10	Title:	Empirical Model for Predicting Subsidence Above Pillar Extraction Panels with Cover Depths		
	Ditton Geotechnical Services Pty Ltd			Between 50 and 150 m and Low to High SRP Zones & Measured Stage 1 Data		
	Scale:	NTS		Figure No:	6b	



Engineer:	S.Ditton	Client:	Donaldson Coal Pty Limited	
Drawn:	S.Ditton		ABL-002/1	
Date:	1.11.10	Title:	Barrier Pillar Subsidence Prediction Model based on the ACARP, 2003 and the Predicted Outcomes for the Proposed Stage 2 Abel SMP Mine Layout	
Ditton Geotechnical Services Pty Ltd		Scale:	NTS	Figure No: 7a



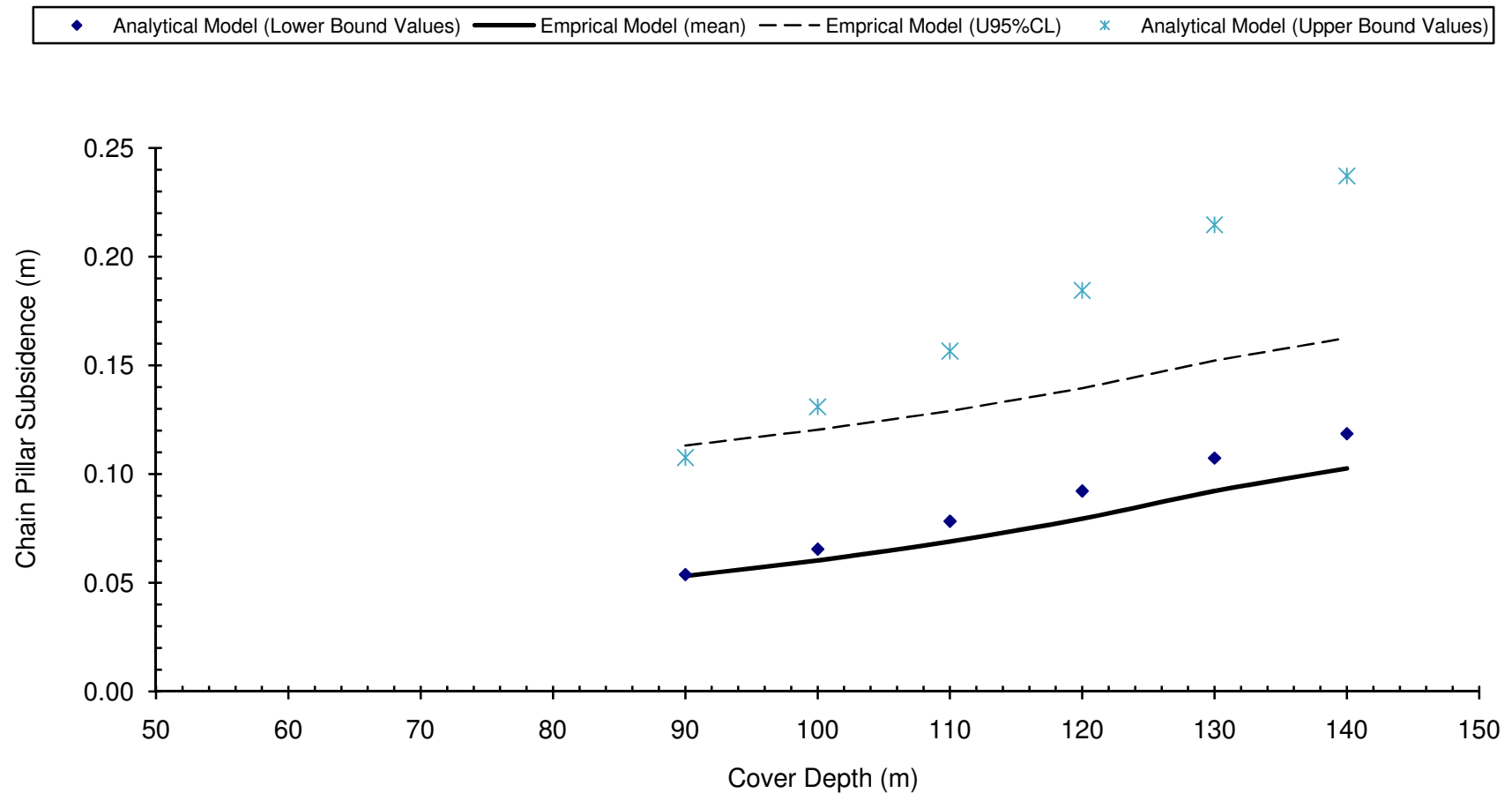
Engineer:	S.Ditton	Client:	Donaldson Coal Pty Limited	
Drawn:	S.Ditton		ABL-002/1	
Date:	1.11.10	Title:	Barrier Pillar Subsidence/Development Height v. Pillar Stress over Strength Model	
Ditton Geotechnical Services Pty Ltd			(derived from the Modified ACARP, 2003) & Outcomes for Stage 2 Abel SMP Mine Layout	
Scale:	NTS	Figure No:	7b	




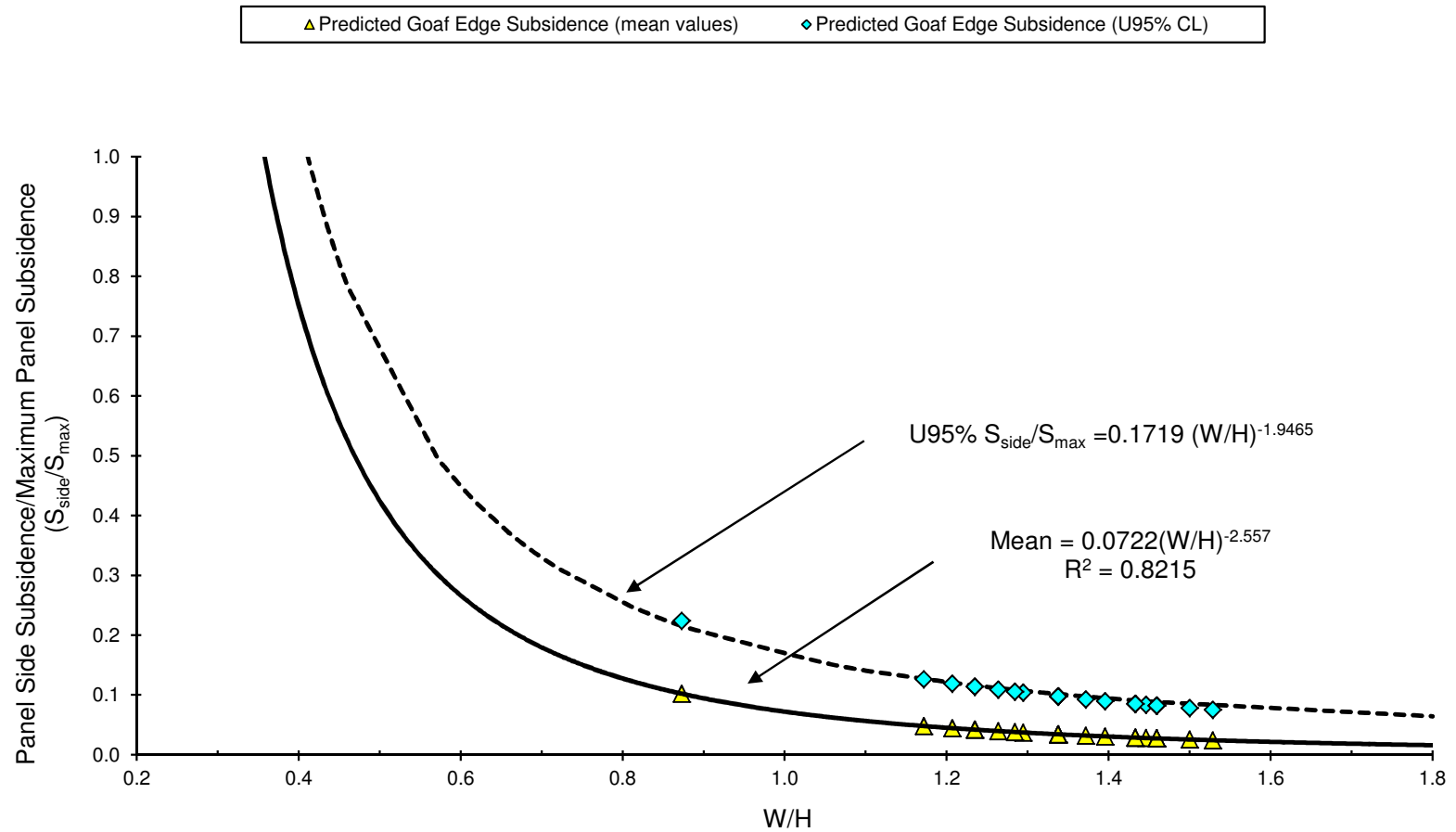
Source: **ACARP, 2005** (refer to text)



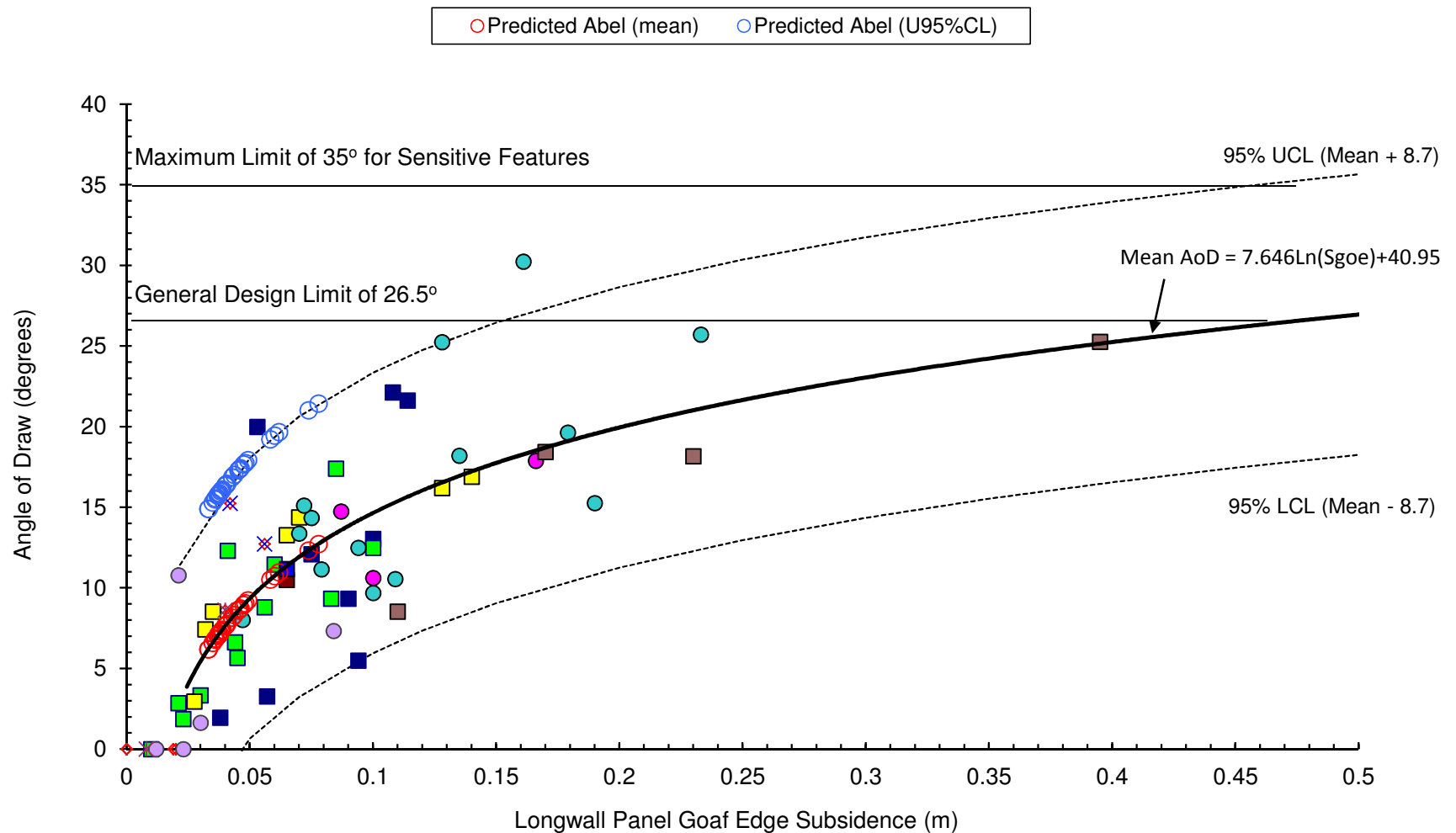
Engineer:	S.Ditton	Client:	Donaldson Coal Pty Limited		
Drawn:	S.Ditton		ABL-002/1		
Date:	1.11.10	Title:	In-situ Pillar Stress v. Strain Response for a Range of Pillar Width/Height Ratios		
Ditton Geotechnical Services Pty Ltd		Scale:	NTS	Figure No:	7c



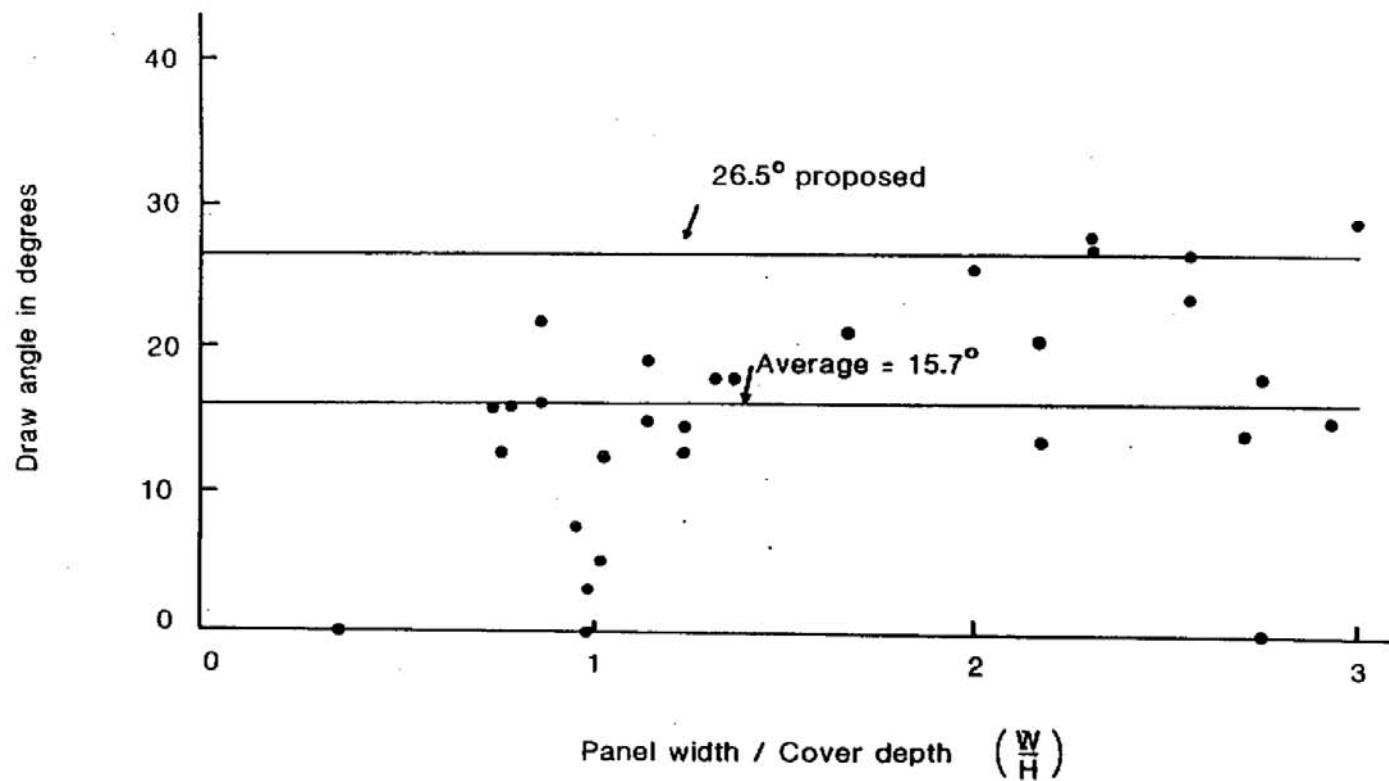
	Engineer:	S.Ditton	Client:	Donaldson Coal Pty Limited			
	Drawn:	S.Ditton		ABL-002/1			
	Date:	1.11.10	Title:	Empirical v. Analytical Barrier Pillar Subsidence Prediction Model Outcomes			
	Ditton Geotechnical			for Pillar Extraction Panels 14 to 26			
	Services Pty Ltd		Scale:	NTS		Figure No:	7d



Engineer:	S.Ditton	Client:	Donaldson Coal Pty Limited	
Drawn:	S.Ditton		ABL-002/1	
Date:	1.11.10	Title:	Empirical Model for Goaf Edge Subsidence Prediction Above Longwall Panels in the Newcastle Coalfield with Predicted Outcomes for the Proposed Abel SMP Mine Layout	
Ditton Geotechnical Services Pty Ltd		Scale:	NTS	Figure No: 8



Engineer:	S.Ditton	Client:	Donaldson Coal Pty Limited
Drawn:	S.Ditton		ABL-002/1
Date:	1.11.10	Title:	Empirical Model for Predicting the Angle of Draw from Longwall Panel Limits in the Newcastle Coalfield (ACARP, 2003) and Proposed Abel SMP Mine Outcomes
Ditton Geotechnical Services Pty Ltd		Scale:	NTS
			Figure No: 9a



DgS



Engineer: S.Ditton

Drawn: S.Ditton

Date: 1.11.10

Ditton Geotechnical
Services Pty Ltd

Client:

Donaldson Coal Pty Limited

ABL-002/1

Title:

Empirical Model for Predicting the Angle of Draw from High Pillar Extraction Panel Limits
in the Newcastle Coalfield (Holla, 1987)

Scale:

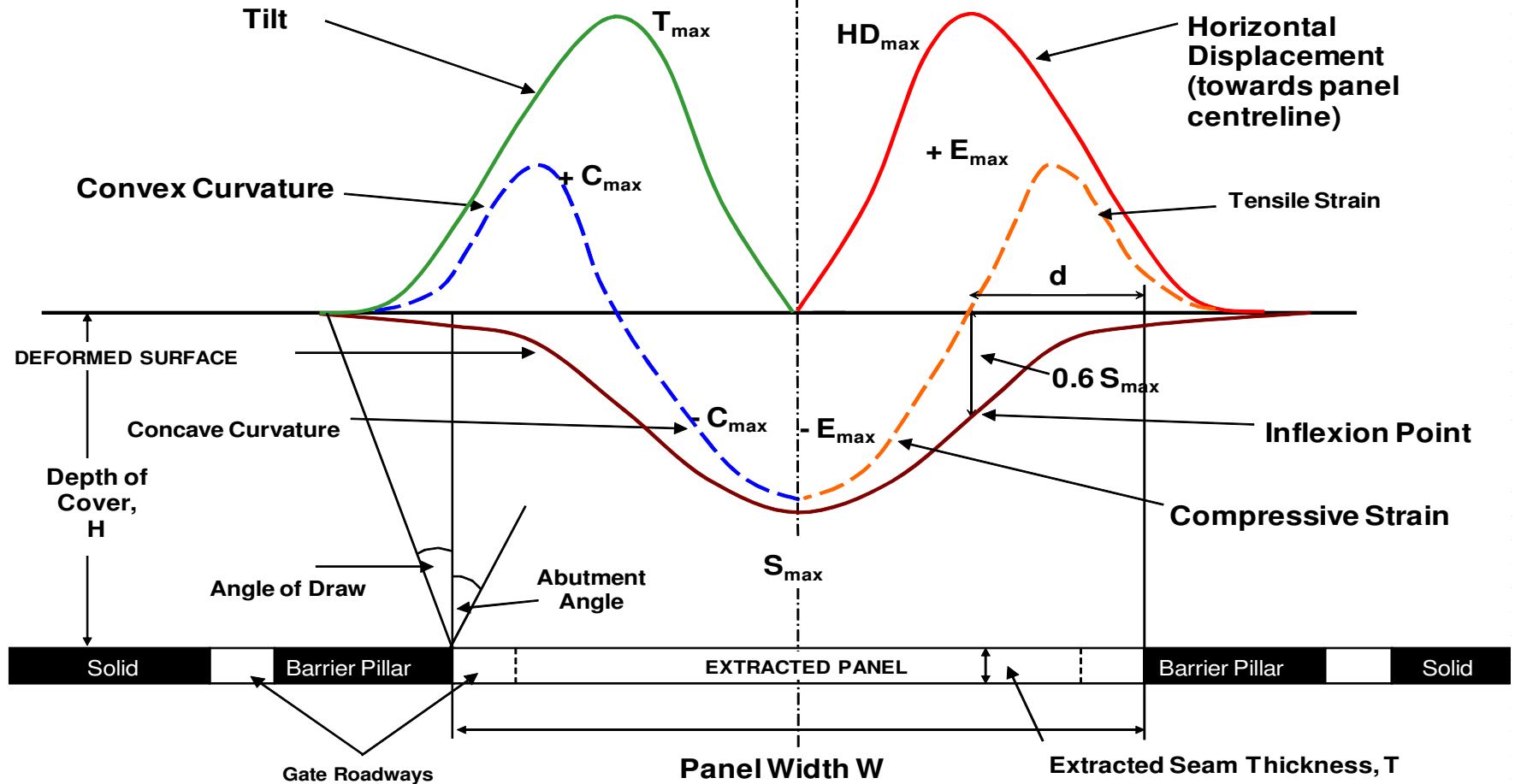
NTS

Figure No:

9b

VERTICAL DISPLACEMENT PARAMETER PROFILES

HORIZONTAL DISPLACEMENT PARAMETER PROFILES



DgS



Engineer: S.Ditton

Drawn: S.Ditton

Date: 1.11.10

Ditton Geotechnical
Services Pty Ltd

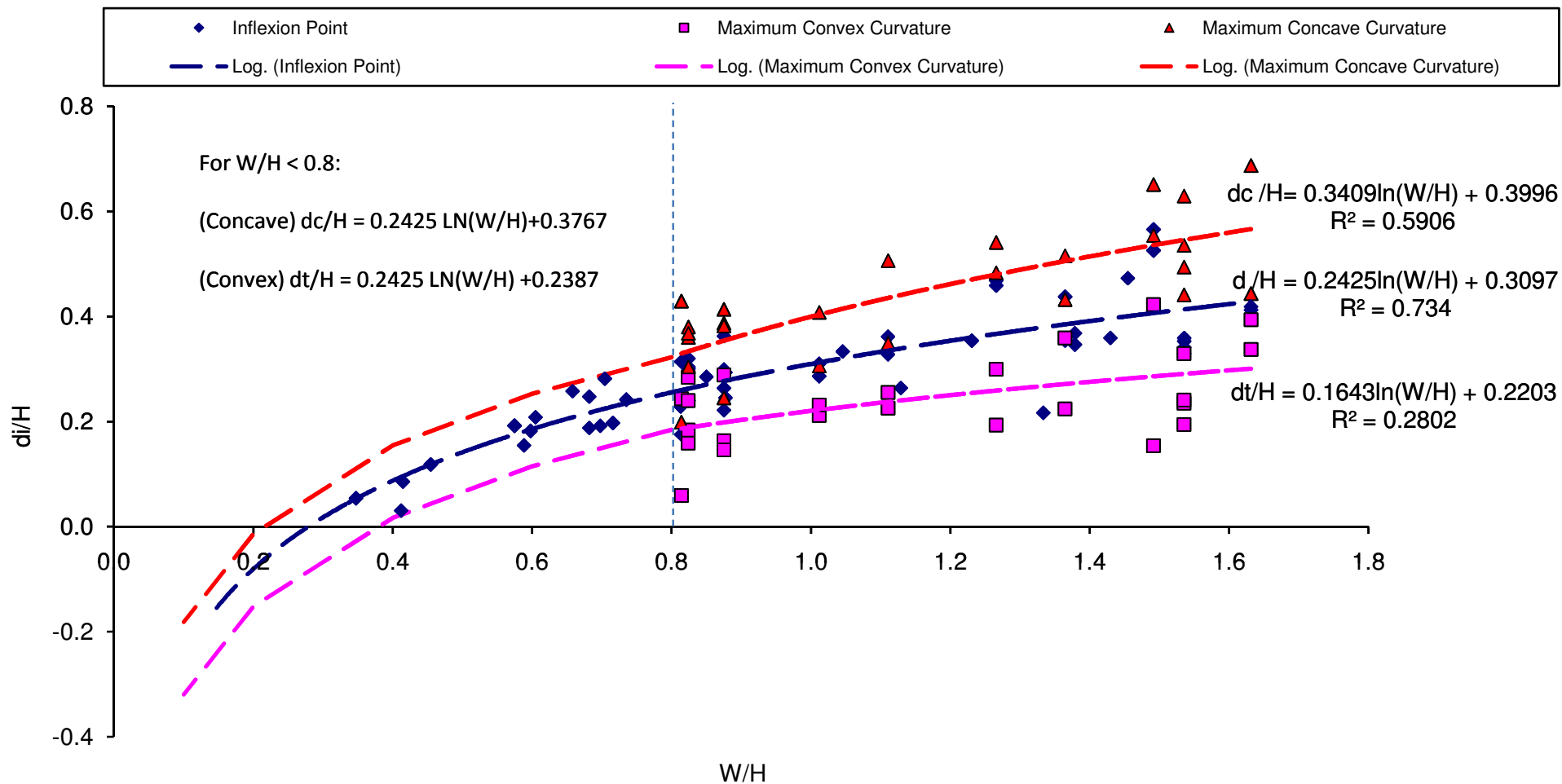
Client: Donaldson Coal Pty Limited


ABL-002/1

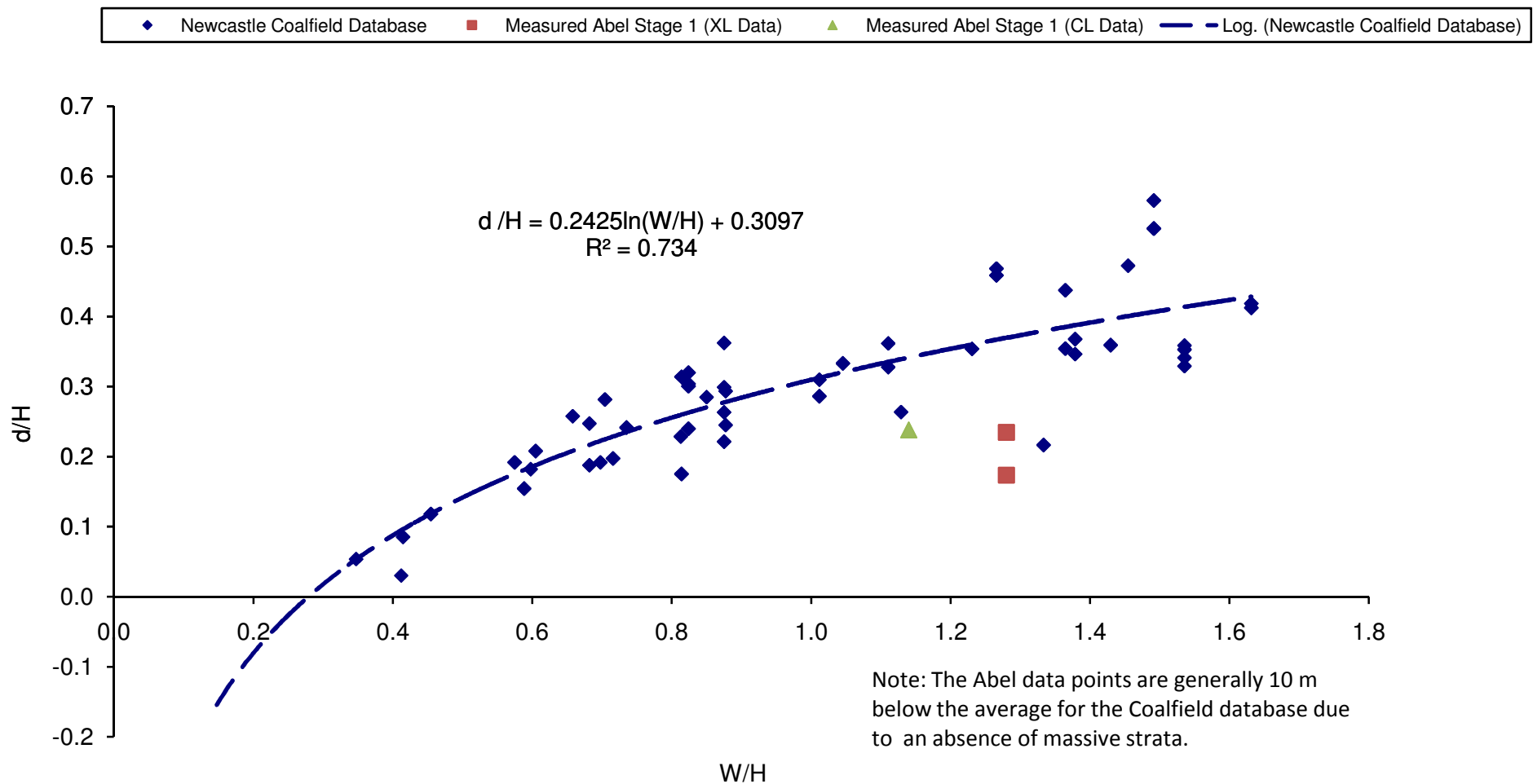
Title: Mine Subsidence Trough Deformation Parameters
(adapted from Holla, 1987)


Scale: NTS

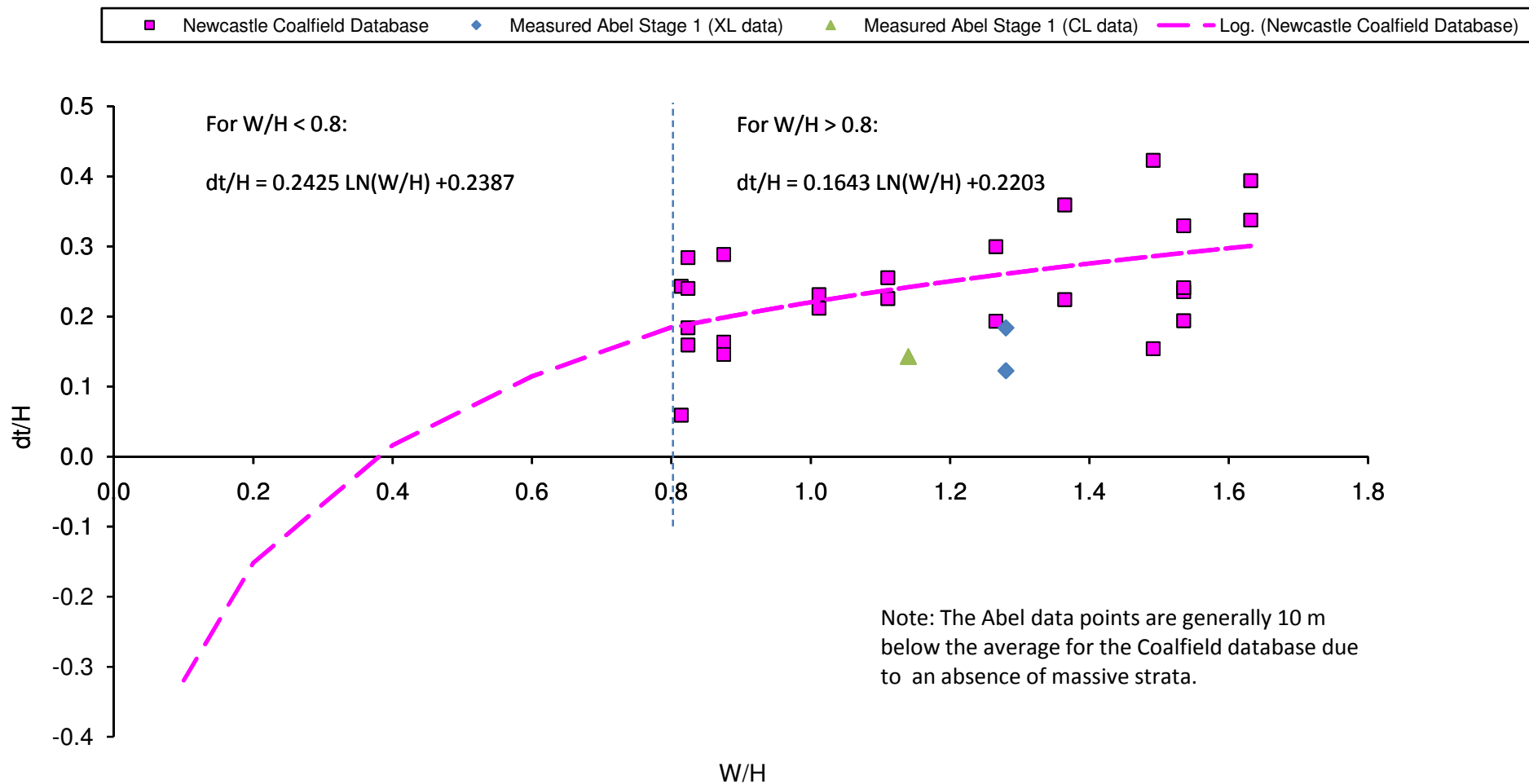
Figure No: 10a




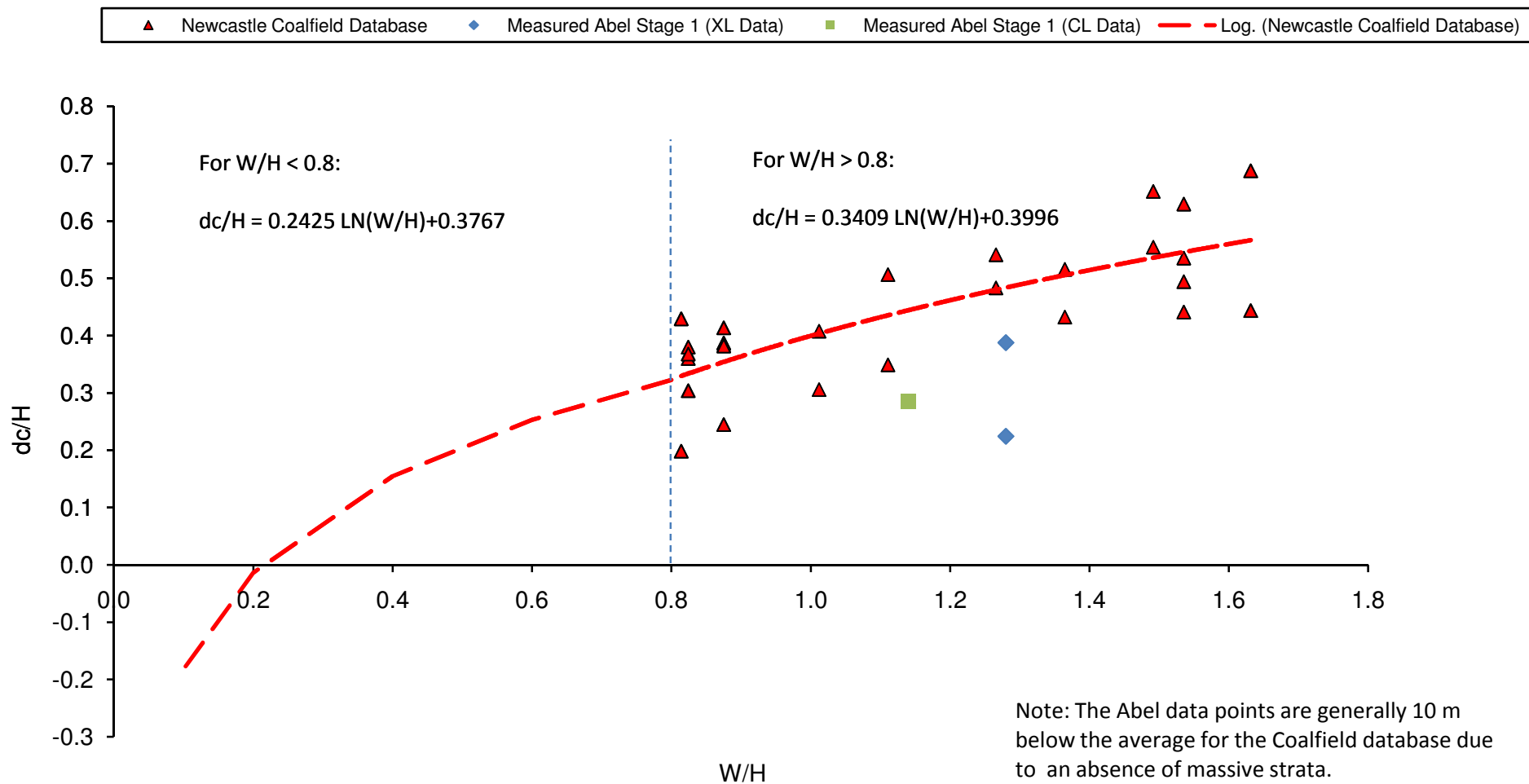
	Engineer:	S.Ditton	Client:	Donaldson Coal Pty Limited			
	Drawn:	S.Ditton		ABL-002/1			
	Date:	1.11.10	Title:	Empirical Model for Predicting the Location of Inflexion Point, Maximum Tensile and			
	Ditton Geotechnical			Compressive Strain Peaks due to Longwall Panel Subsidence in the Newcastle Coalfield			
	Services Pty Ltd		Scale:	NTS		Figure No:	10b




	Engineer:	S.Ditton	Client:	Donaldson Coal Pty Limited			
	Drawn:	S.Ditton		ABL-002/1			
	Date:	1.11.10	Title:	Empirical Newcastle Database Model for Predicting the Location of Inflexion Point v.			
	Ditton Geotechnical			Measured Values for Stage 1 Panels at the Abel Mine			
	Services Pty Ltd		Scale:	NTS		Figure No:	10c



	Engineer:	S.Ditton	Client:	Donaldson Coal Pty Limited		
	Drawn:	S.Ditton		ABL-002/1		
	Date:	1.11.10	Title:	Empirical Newcastle Coalfield Database Model for Predicting the Location of Tensile Strain Peaks v. Measured Values for Stage 1 Panels at the Abel Mine		
	Ditton Geotechnical Services Pty Ltd			Scale:	NTS	Figure No:



	Engineer:	S.Ditton	Client:	Donaldson Coal Pty Limited		
	Drawn:	S.Ditton		ABL-002/1		
	Date:	1.11.10	Title:	Empirical Newcastle Coalfield Model for Predicting the Location of Compressive Strain Peaks v. Measured Values for Stage 1 Panels at the Abel Mine		
	Ditton Geotechnical Services Pty Ltd			Scale:	NTS	Figure No: