ATTACHMENT A1
BLAST DAMAGE ASSESSMENT OF PIT WALLS

Pells Sullivan Meynink Pty Ltd | **Standard Operating Procedures**

BLAST DAMAGE ASSESSMENT – Hornsby Quarry – Northern Pit Slope

This system provides a basis for the qualitative geotechnical assessment of blast damage to pit walls. The assessment is based on commonly observed features. Highlighted features are present in the wall.

Number	Classification	Typical Features Observed
1.	None	• blast holes visible • scars of excavation or shovel both evident on face • presplit holes readily evident on face • no displacement on joints • generally no further excavation possible
2.	Slight	• blast holes visible • horizontal cracking evident immediately below • bench crest • minor displacement of upper blocks • radial cracks evident in blast or presplit holes
3.	Moderate	• major subhorizontal cracking evident immediately below bench crest • displacement of up to 50 mm evident across some joints • in closely jointed rocks the upper rock mass is extensively loosened • most joints open 1 to 10 mm • some loss of bench crest 1 to 3m
4.	Severe	• no blast holes visible • blast induces crushing or fines evident • rock mass extensively loosened • rock blocks dislocated or reoriented • extensive break back of berm crest, generally greater than the 2m • most joints open 5 to 20 mm

OVERALL ASSESSMENT: MODERATE TO SEVERE

BLAST DAMAGE ASSESSMENT – Hornsby Quarry – Eastern Pit Slope

This system provides a basis for the qualitative geotechnical assessment of blast damage to pit walls. The assessment is based on commonly observed features. Highlighted features are present in the wall.

Number	Classification	Typical Features Observed
1.	None	• blast holes visible • scars of excavation or shovel both evident on face • presplit holes readily evident on face • no displacement on joints • generally no further excavation possible
2.	Slight	• blast holes visible • horizontal cracking evident immediately below • bench crest • minor displacement of upper blocks • radial cracks evident in blast or presplit holes
3.	Moderate	• major subhorizontal cracking evident immediately below bench crest • displacement of up to 50 mm evident across some joints • in closely jointed rocks the upper rock mass is extensively loosened • most joints open 1 to 10 mm • some loss of bench crest 1 to 3m
4.	Severe	• no blast holes visible • blast induces crushing or fines evident • rock mass extensively loosened • rock blocks dislocated or reoriented • extensive break back of berm crest, generally greater than the 2m • most joints open 5 to 20 mm

OVERALL ASSESSMENT: MODERATE TO SEVERE

BLAST DAMAGE ASSESSMENT – Hornsby Quarry – Southern Pit Slope

This system provides a basis for the qualitative geotechnical assessment of blast damage to pit walls. The assessment is based on commonly observed features. Highlighted features are present in the wall.

Number	Classification	Typical Features Observed
1.	None	• blast holes visible • scars of excavation or shovel both evident on face • presplit holes readily evident on face • no displacement on joints • generally no further excavation possible
2.	Slight	• blast holes visible • horizontal cracking evident immediately below • bench crest • minor displacement of upper blocks • radial cracks evident in blast or presplit holes
3.	Moderate	• major subhorizontal cracking evident immediately below bench crest • displacement of up to 50 mm evident across some joints • in closely jointed rocks the upper rock mass is extensively loosened • most joints open 1 to 10 mm • some loss of bench crest 1 to 3m
4.	Severe	• no blast holes visible • blast induces crushing or fines evident • rock mass extensively loosened • rock blocks dislocated or reoriented • extensive break back of berm crest, generally greater than the 2m • most joints open 5 to 20 mm

OVERALL ASSESSMENT: MODERATE TO SEVERE

BLAST DAMAGE ASSESSMENT – Hornsby Quarry – Western Pit Slope

This system provides a basis for the qualitative geotechnical assessment of blast damage to pit walls. The assessment is based on commonly observed features. Highlighted features are present in the wall.

Number	Classification	Typical Features Observed
1.	None	• blast holes visible • scars of excavation or shovel both evident on face • presplit holes readily evident on face • no displacement on joints • generally no further excavation possible
2.	Slight	• blast holes visible • horizontal cracking evident immediately below • bench crest • minor displacement of upper blocks • radial cracks evident in blast or presplit holes
3.	Moderate	• major subhorizontal cracking evident immediately below bench crest • displacement of up to 50 mm evident across some joints • in closely jointed rocks the upper rock mass is extensively loosened • most joints open 1 to 10 mm • some loss of bench crest 1 to 3m
4.	Severe	• no blast holes visible • blast induces crushing or fines evident • rock mass extensively loosened • rock blocks dislocated or reoriented • extensive break back of berm crest, generally greater than the 2m • most joints open 5 to 20 mm

OVERALL ASSESSMENT: MODERATE TO SEVERE