

Back to Basics Drill & Blast:

Where the Fundamentals Meet Productivity and Profit in Modern Quarry Blasting

Kyle Lang

Regional Manager (North) – RedBull Powder Company





Presentation Guide

- Introduction:
 - RedBull Powder Company
- Back to Basics:
 - What are they and why do it?
- Building on the Basics with GPS & MWD:
 - Case Study: Clevedon Quarry cost saving and resource optimisation
 - Case Study: Hunua Quarry blast optimisation
- Kaiwera Downs Wind Farm, Southland

About RedBull Powder



- Founded in 1997 by Peter Shapiro and Mike Henderson.
- One of the first to use electronic detonators above ground in the World.
- Purchase of TopRock Drilling in 2007.
- North Island explosive manufacturing plant commissioned in 2010 in the Waikato
- South Island explosive manufacturing plant commissioned in 2012 at Macraes.
- Now operates 15 drill rigs, 7 MPU's and have two manufacturing plants in NZ.



Back to Basics – Blast Planning

- Area ready ahead of time
- One visit for mark out
- Keeps drill going from one shot to the next
- Better blast designs – higher level of accuracy
- Forward planning for future pit development
- Easier scheduling and faster turn around of jobs

Back to Basics – Blast Planning

Weekly Planning Schedule															
Day	Customer/Location	PIC	Blast Number	Blast Documents	Blast Log Uploaded	Drill Docket	Risk Level	Drill	Drill Meters	Number of Holes	Loads Delivered	Explosive Volume	MPU	Blast Crew	Comments / Details
Monday, 13 July 2026	Omaha	Janlu	WGO043	✓	✓	✓	2	T19GH	983	72	1	6.77	TR93	SW,BP,RN,DV	pump and run to Brookby
	Omya	Harry	OMY152	✓		✓	4	T8IS	588	98	1	2.874	TR112	NT,MN,GT	
	Omya	Harry	OMY153	✓		✓	4	T8IS	323	53		1.608	TR112	NT,MN,GT	KB,CW m/o wawa after
	Supreme	Dave	SUP069			✓	1		364	28	1	2.85	TR99	DN,SJ,	RH/RV m/o Tahuna
	Brookby Trench Shot	Kyle	KB429	✓	✓	✓	4			30	1	0.367	TR93	SW,HB	truck grab on way back from Omaha
Tuesday, 14 July 2026	Portland	Janlu	PO398	✓	✓	✓	2	T18RB	1208	70	1	17.22	TR93/73	SW,HW,BP,RN,DV	Team and truck o/n for Wilsonville & Otaika
	Kawhia- AP Quarries	Dave	APK005						546	84	1	2.881	TR112	NT,MN,CW	
	Mangatuna North	Ryan	FHM042				1	T5JF	305	22	1	1.95	TR99	DN,SJ,	
GT,HC Apointment am															
Leave HK, GR															
Wednesday, 15 July 2026	Wilsonville	Janlu	GWW258	✓	✓		2	T18RB	477	99	1	1.92	TR93	SW,RN,BP	pump and run to Otaika
	Otaika	Dan	GWO073	✓	✓	✓	1	T18RB	521	35	1	3.435	TR93	SW,KL,BP	
	Broobky Blue Shot	Harvey	KB428	✓	✓	✓	2	T19GH	1176	95	1	7.133	TR112	NT,MN,JC,GT	
															HC m/o Gleesons. CD b/t Hunua seed holes
Leave HK, GR													TR99	DN	Travel home
Thursday, 16 July 2026	Poplar Lane	Ryan	PLQ664				2	T5JF	1237	80	1	6.509	TR93	SW,MN,CW,GT	
	Hunua	Harvey	SH584	✓		✓	2	T17BA	1735	99	2	13.052	TR112/99	NT,DN,DV,RN,BP,JC	Winstones filming day
															JB m/o Flat Top
Leave HK, GR. SJ DG Hamilton															mark out Graymont Tauhei
Friday, 17 July 2026	Graymont	Callum	GMO112				2		358	25		2.7	TR99	DN,MN,GT	
Millbrook mag inspection															
Leave HK, GR, NT, SW, HW,RH															North Mag det deliveries, HC bt Gleeson
Saturday, 18 July 2026															
									9821	890	13	71.269			

Back to Basics – Blast Planning

[illegible]

Back to Basics – Bench Preparation

- Quality Surface Preparation:
 - Safer for drilling and blast crew
 - Quicker drilling due to less broken material on top
 - Less hole blockages
 - Not paying for blasting the same material twice





Back to Basics – **Bench Preparation**

- Clean faces:
 - More accurate design by being able to survey the face
 - Better relief
 - Less ground vibration, less back break, more bulking in the muck pile, less toe and oversize
 - Better fragmentation

Back to Basics – Bigger Blasts

- Reduces the amount of bench prep
 - Reduced machine and operator time
- Less transport, maximises bulk delivery and crew time – reduces upstream costs
- Less disruption to quarry operations
- Allows RedBull to operate more efficiently
 - Payment terms to accommodate cashflow.
 - Offering lower cost/BCM for larger blasts

Back to Basics – **Summary of the Benefits**

- Reduced cost without blasting previously blasted rock
- Reduced load and haul costs from easier digging
- Reduced secondary breaking
- Better crusher throughput due to improved fragmentation
- Muckpile shape or position
- Less disruption and lower costs with large blasts



Expanding on the Basics with GPS & MWD (Measure While Drilling)

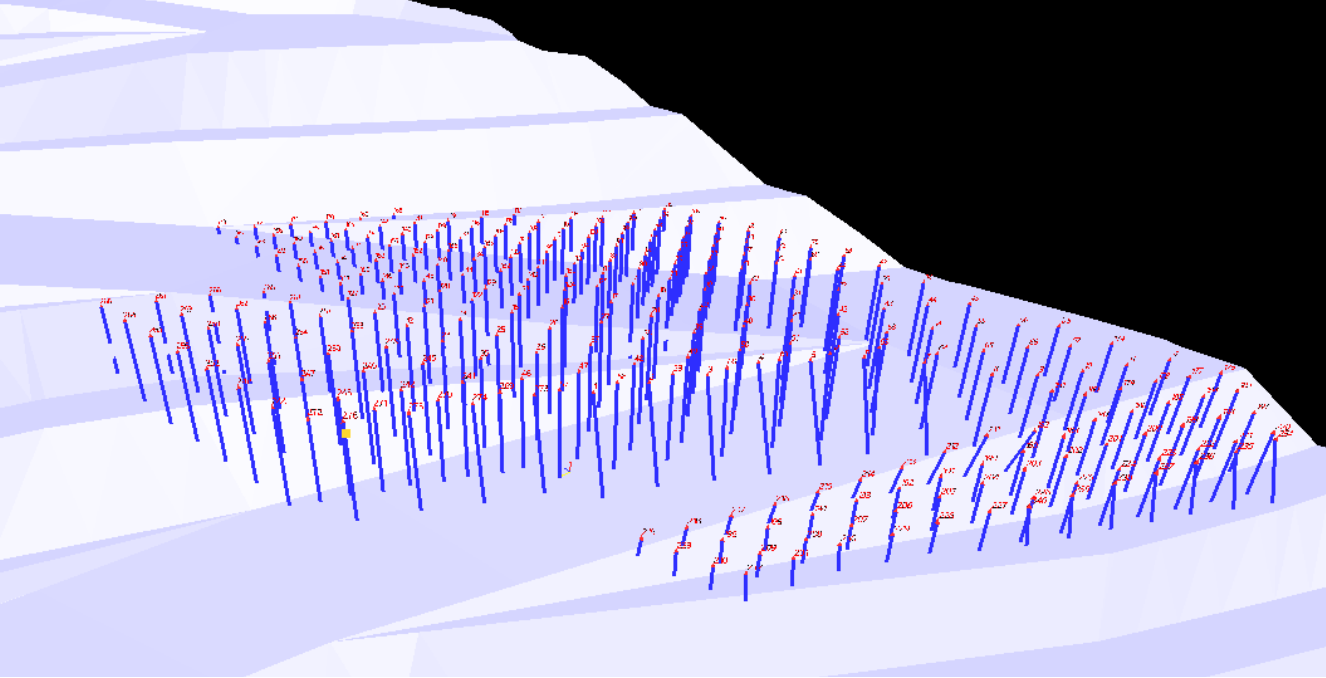
- Higher level of accuracy and execution of blast designs
- Accurately captures rock hardness values
- Used to optimise blast designs
- Better product quality and higher yield of target products

Clevedon Quarry

Stevenson Aggregates

- Development quarry with a mix of soft and hard rock
- MWD Utilisation
- Blasted a larger area in one go
- Consistent fragmentation through variable rock hardness
- Better quality rock products
- Test drilling to decide pattern selection
- GPS drilling to pit model

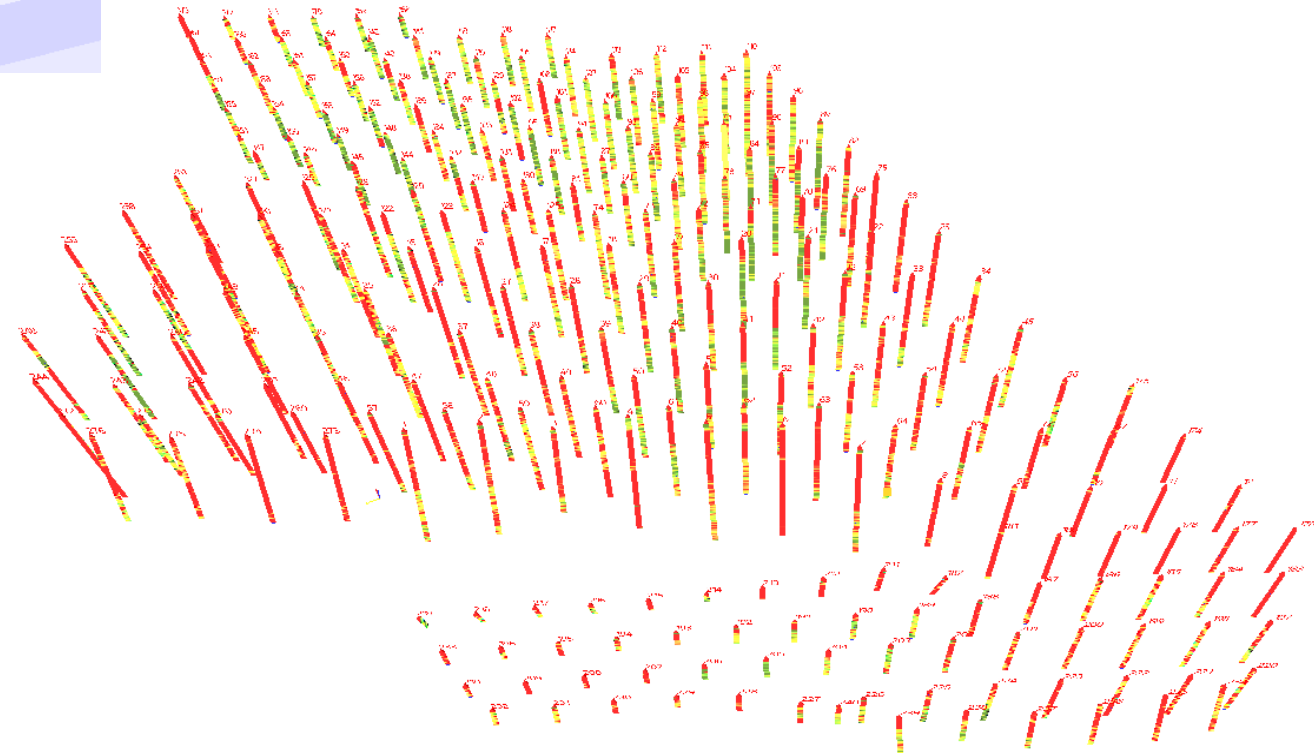




SCQ021 Blast design overlaying the Clevedon Pit Model

Measure While Drilling data viewed in 3D

Red = Soft Green = Hard

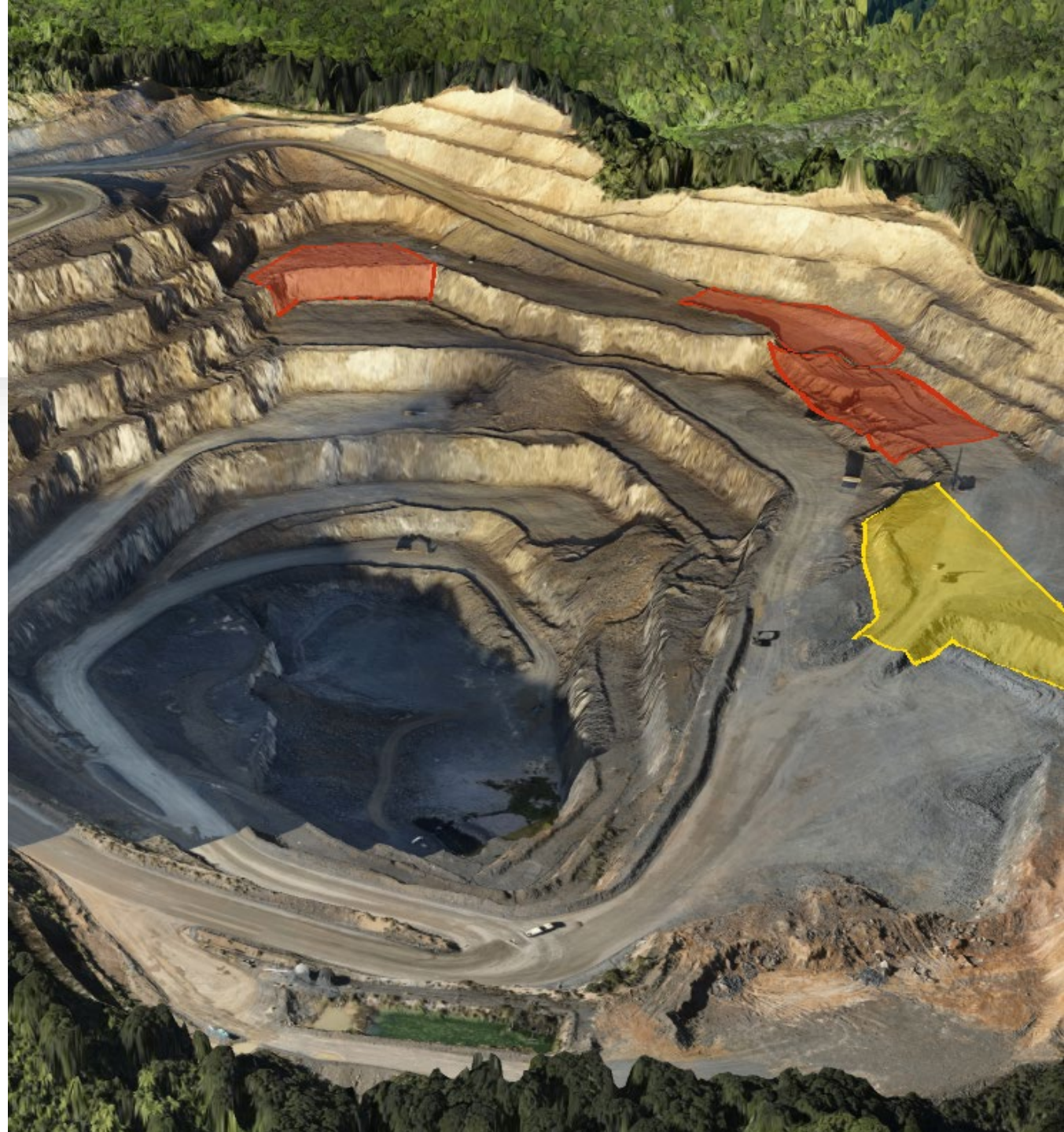




Hunua Quarry

Winstone Aggregates

- Operational overview
 - Over 1 Million BCM blasted per year
 - Over 580 blasts in Symonds Hill Pit to date
- Getting the basics right and making improvements on blasting over time
 - Site specific challenges:
 - Vibration
 - Variable rock hardness
 - Operational pressure
- Continuous improvement with Planning, MWD (variable patterns) and big blasts

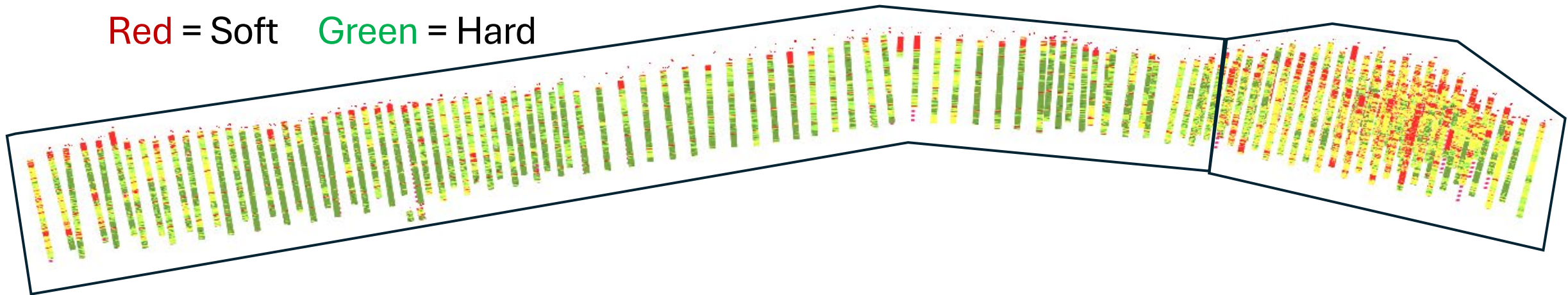




SH509 Blast Design
overlaying the survey

Measure While Drilling data viewed in 3D

Red = Soft Green = Hard





Kaiwera Downs Windfarm

- Project overview
 - 36 Wind Turbines
 - Blasting conducted for Road Cuts, Pads and the Wind Turbine Foundations
 - 90 blasts were carried out over a 15 month period
 - 14,000 holes were drilled
 - Over 250T explosives used
 - Blasted 350,000 cubic meters of material





Q & A

