



# Blasting Optimisation

Through GPS and MWD Drilling



# Introduction

- **Drill and blast technology**
- **GPS Drilling Benefits**
  - GPS machine control
  - Accuracy/efficiency
- **Blasting optimisation**
  - Design flexibility
  - MWD derived hardness
  - Proactive / leading indicator
- **Value add - Mine to Mill**
  - Correlation / collaboration
  - Benefits delivered (case study)
- **Project examples**
  - Infrastructure/construction



# Shifts in Technology

A black and white photograph of a surveyor in a hard hat and safety vest, standing on a rocky slope and operating a total station. The background shows a large-scale excavation or construction site with piles of earth and industrial structures.

Bench survey /  
Computer design

Vibration  
Modelling and  
Management

Electronic  
Initiation

Boretrak /  
Accuracy  
Verification

Smart  
Drilling Rigs



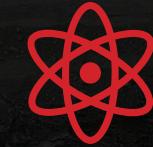
# GPS Drilling Benefits

Accuracy

Efficiency

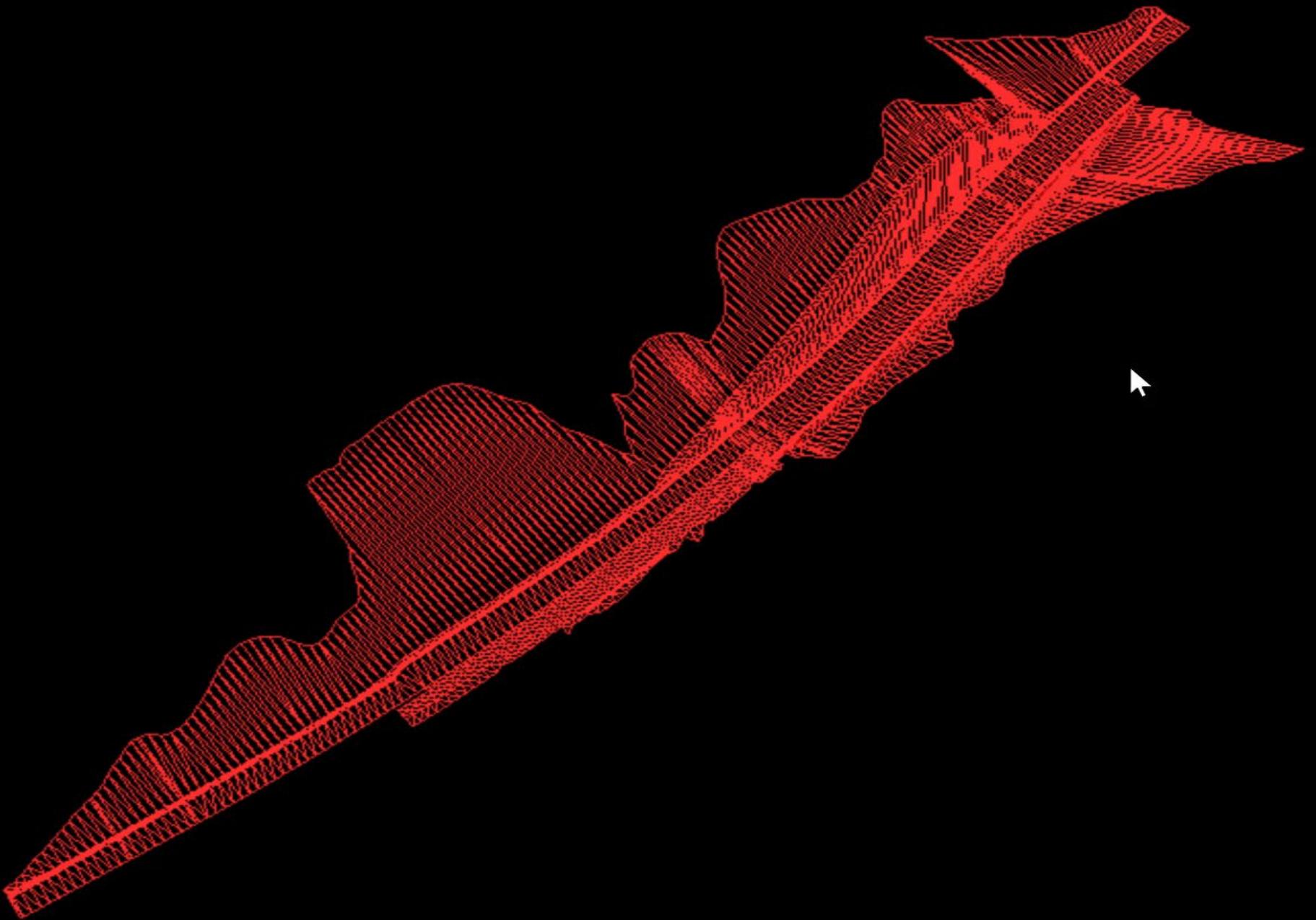
Flexibility  
in Design and  
Operations





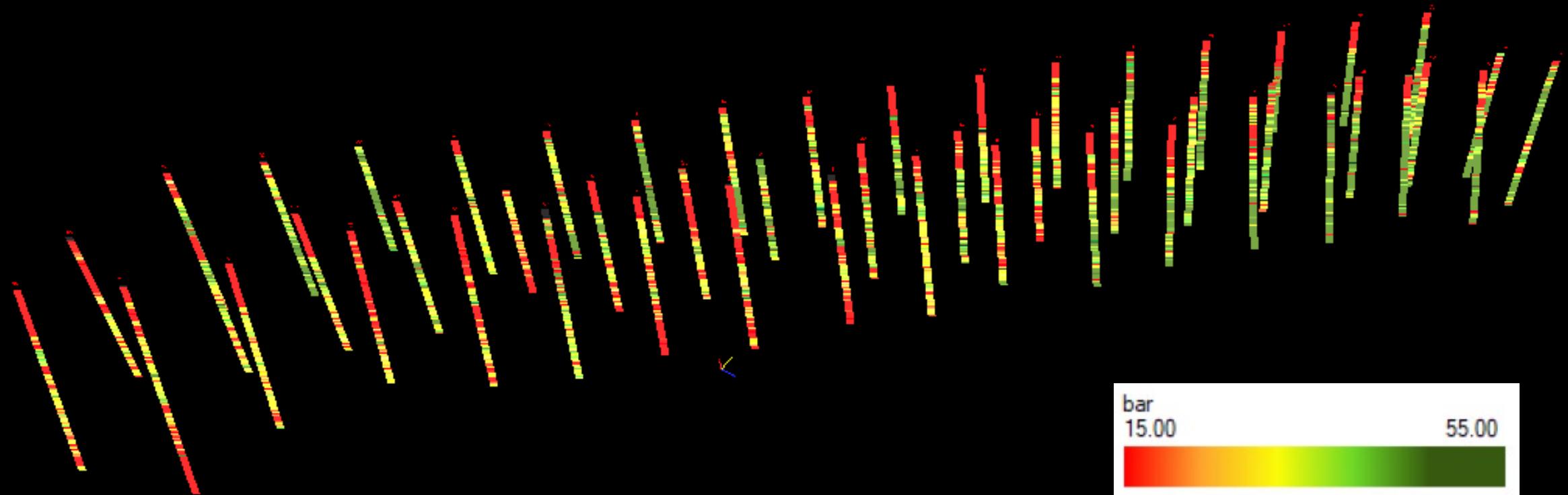
# Functionality





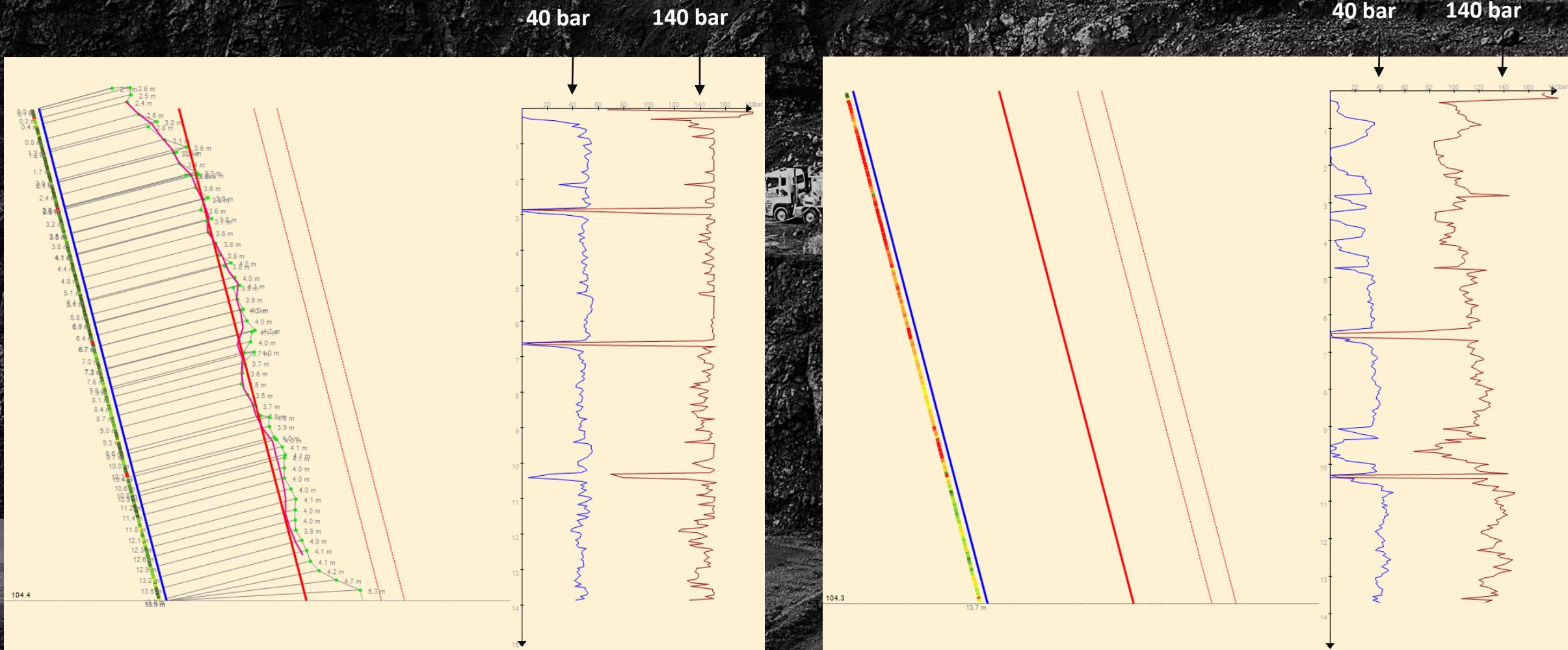


# MWD Colourisation



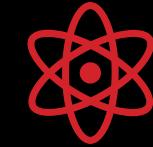


# MWD Derived Hardness

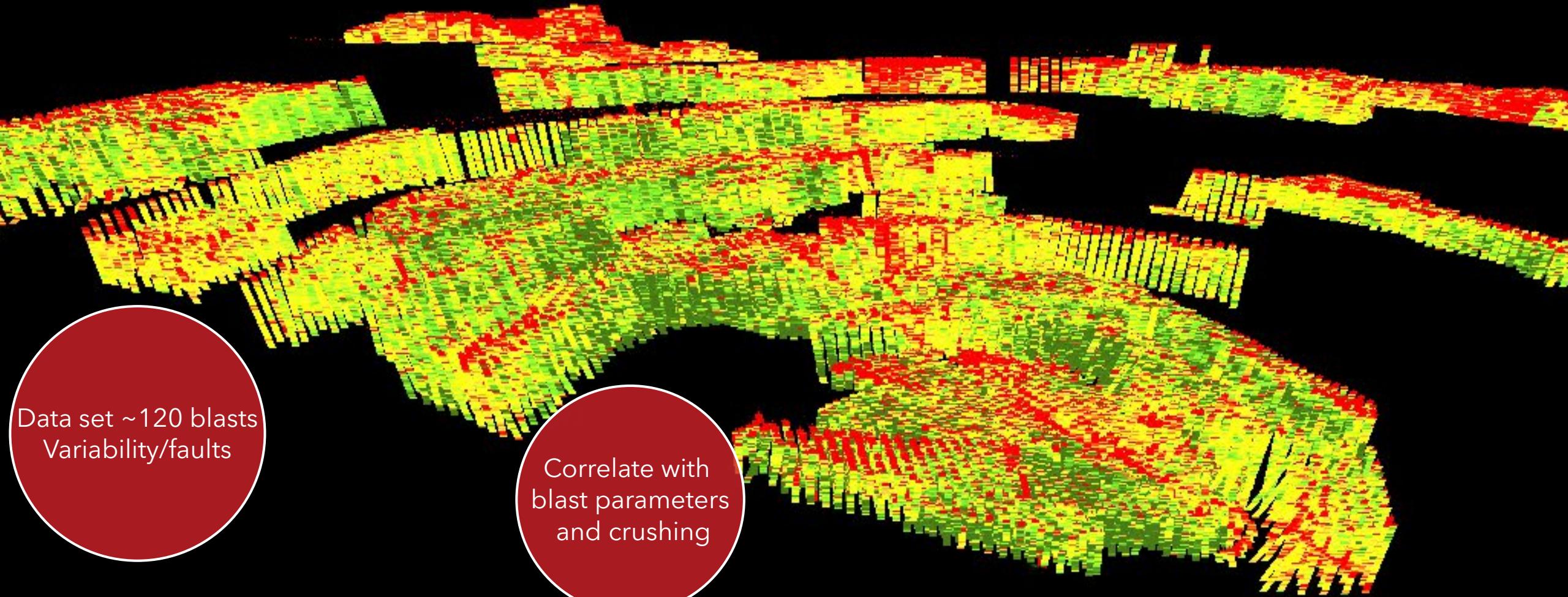


# Proactive / leading indicator





# Blasting Optimisation





# Mine to Mill – Benefits Delivered

A black and white photograph of a mining operation. In the foreground, a large dump truck is shown from a side-on perspective, its bed filled with dark, granular material. Behind it, several large piles of the same material are stacked on the ground. The background shows more of the open-pit mine environment with rocky terrain.

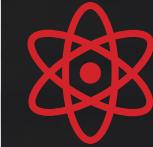
New plant -  
High fines/waste  
product  
Low throughout

Basic blasting  
No survey  
Nonel

Fines loss &  
Oversize  
reduced to  
1/3 of  
baseline

Collaborative  
approach

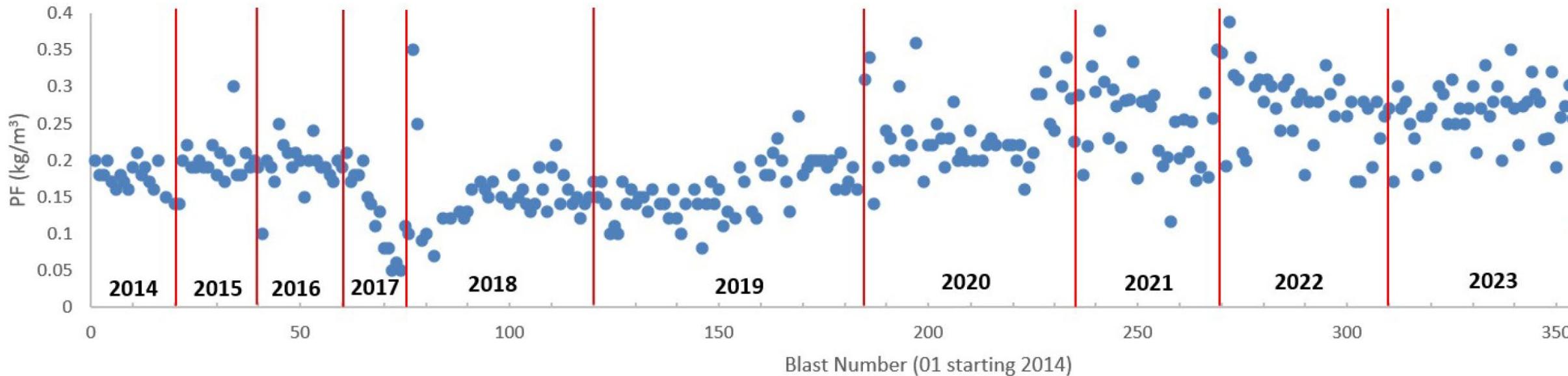
Throughput up 45%+  
(15% directly attributed  
to D&B)



# Targeted Powder Factor



Study Site Powder Factor by Blast (2014-current)



Credit: Kyle Lang



# Data Driven Loading





# Different Geologies, Site Specific Correlation







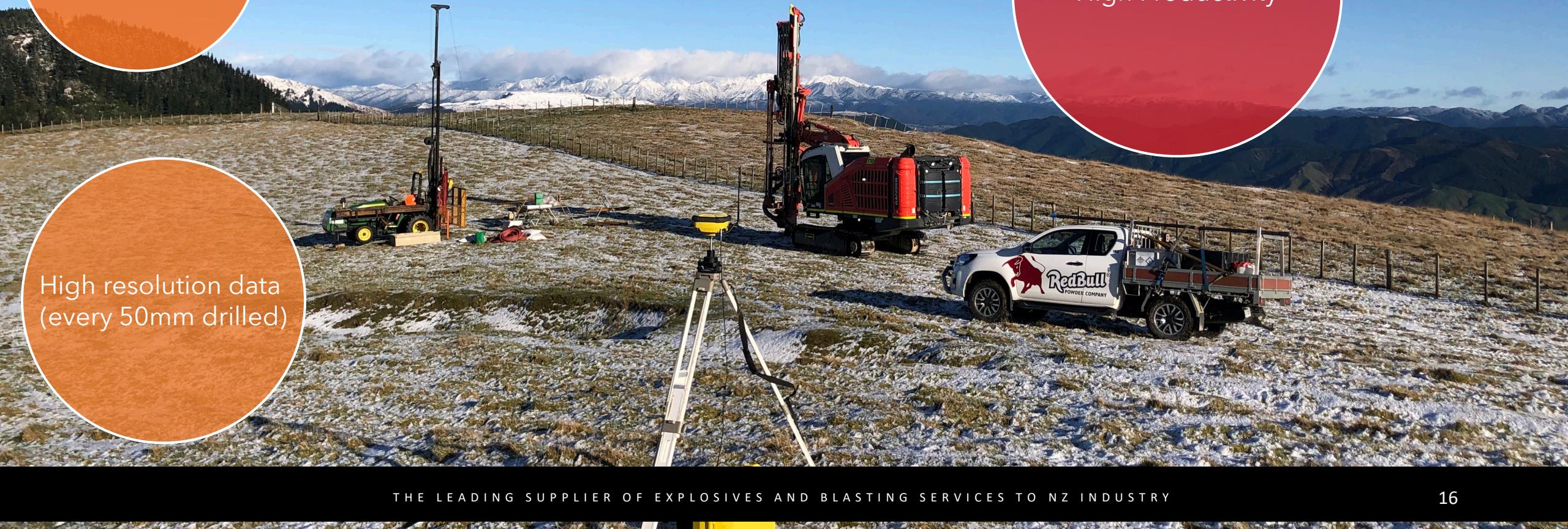
# Construction Drilling



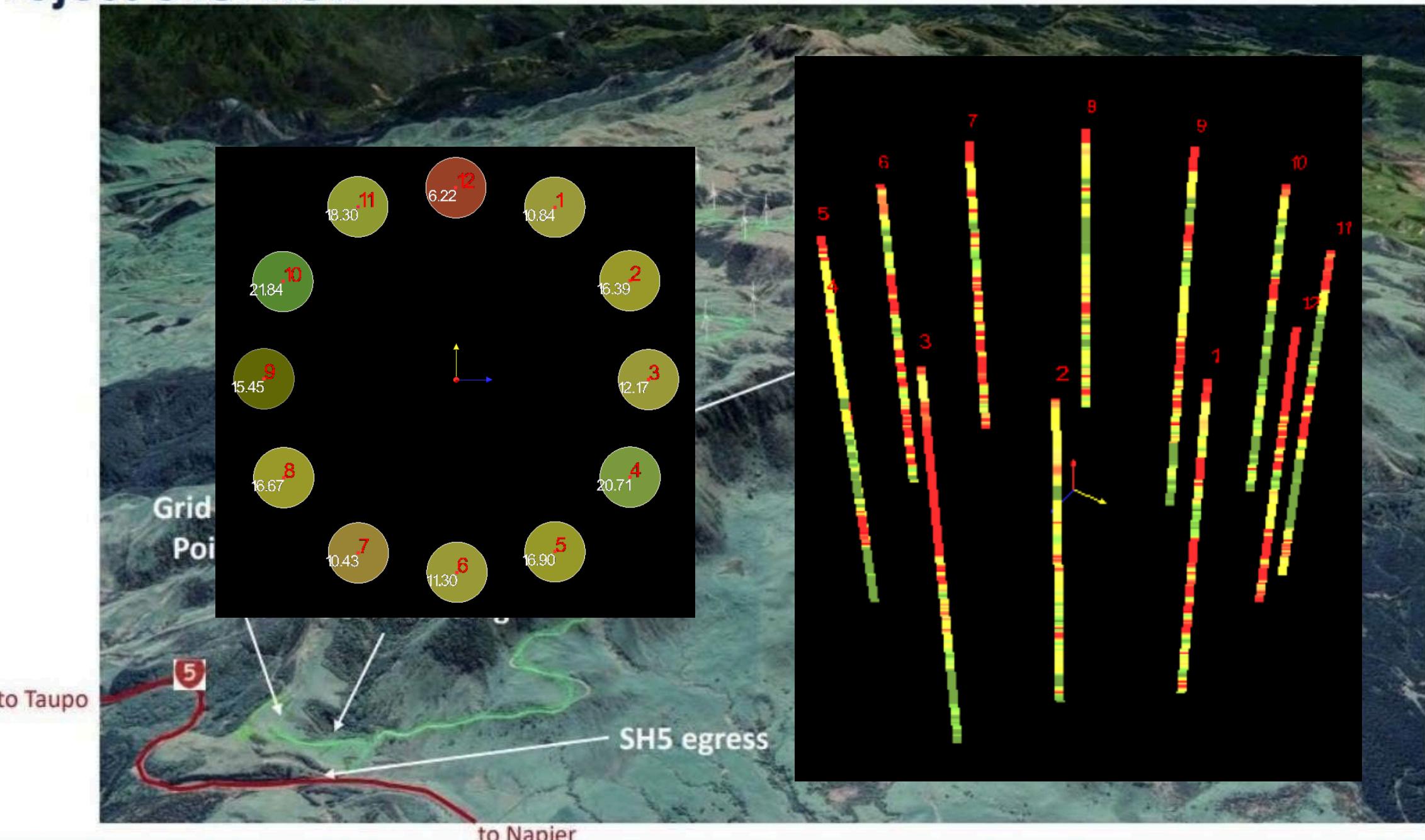
Determining Rock  
Depths

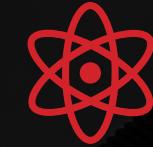
High resolution data  
(every 50mm drilled)

High Productivity



# Project overview





Thank you

