

2025 Longwall & Underground Coal Mining Conference

# Engineering Smarter

Real-world AI applications in an engineering company



# About Waterline



## Our footprint

We are a multi-discipline Engineering Consultancy with offices in Brisbane and Mackay



## Where we work

We have been supporting clients in the Resources Industry **since 2011**



## Client problems

We support clients across:

1. Advisory Projects
2. Capital Projects
3. Operational Engineering

# Partnering with Australian Industry to provide safe and sustainable resources to the world

## DRIVEN

“Approach with enthusiasm”

Striving to deliver quality results with enthusiasm

We honour our commitments

## AUTHENTIC

“What you see is what you get”

We are true to ourselves and each other. I can be myself at Waterline

## EMPATHETIC

“Put yourself in their boots”

We appreciate the realities of being on site

We care about our clients, colleagues and the communities we live and work in

## SUPPORTIVE

“Got your back”

We share the load for our collective success. We are an extension to each others’ teams. We support each other in our work and personal lives

Who we are

# We understand mining operations and focus our support in three key areas:

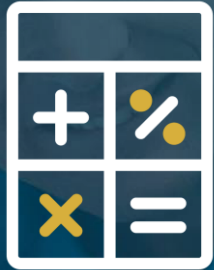
WE CURRENTLY SUPPORT MINES IN QLD, AND ARE GROWING OUR NSW BASE:





# USE CASE #3

Use case | Site drawing meta data extraction



Labour & time  
intensive process



Accurate, efficient  
& scalable

\* Data based on this client test / use case

**WATERLINE**

CIVIL + STRUCTURAL ⚙️ MECHANICAL ⚙️ ELECTRICAL ⚙️ DESIGN + DRAFTING ⚙️ CONTROL SYSTEMS ⚙️ OPERATIONAL SUPPORT

## Outcomes\*

**80%** Accuracy

**7** Mths saved  
in human  
effort

Solution delivers accurate  
engineering data, with a  
quick turnaround

**Idea generators:**



Randall  
Makin

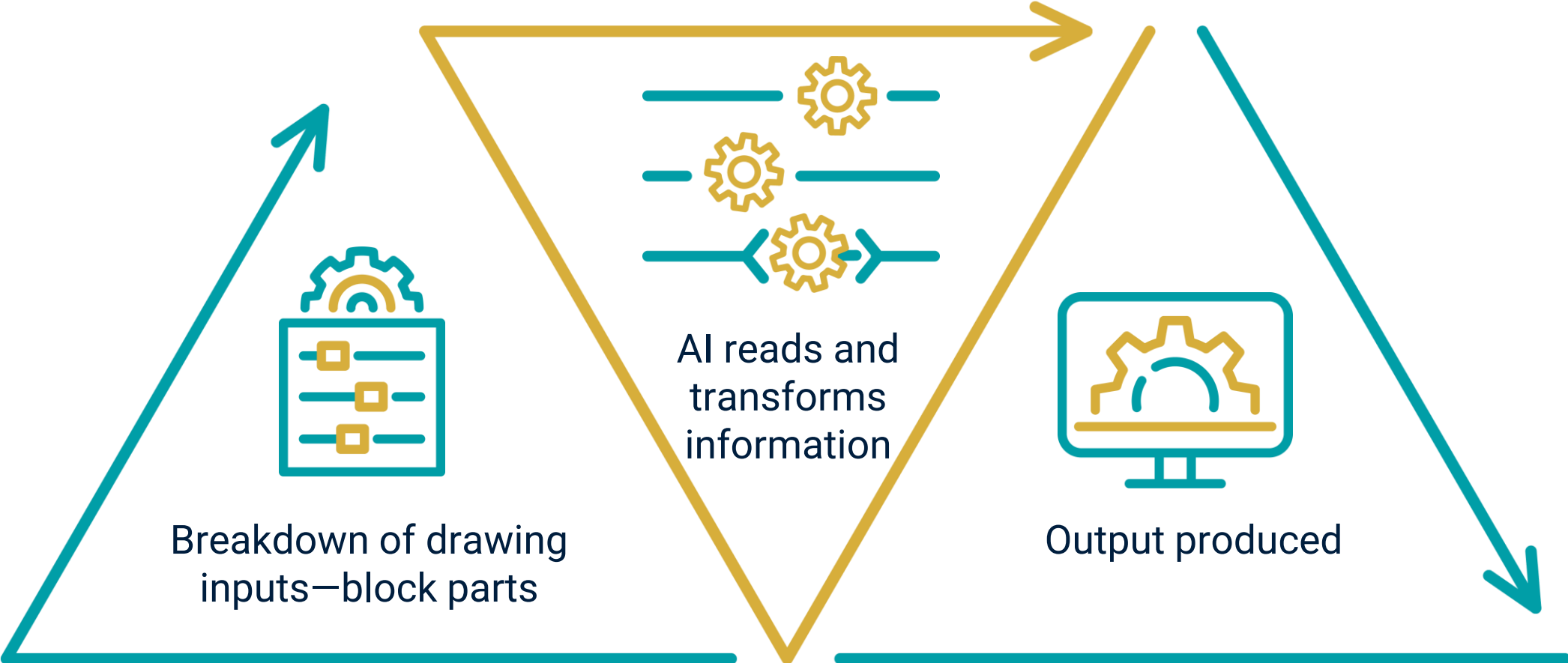


Justin  
Hennessy

COMMERCIAL-IN-CONFIDENCE

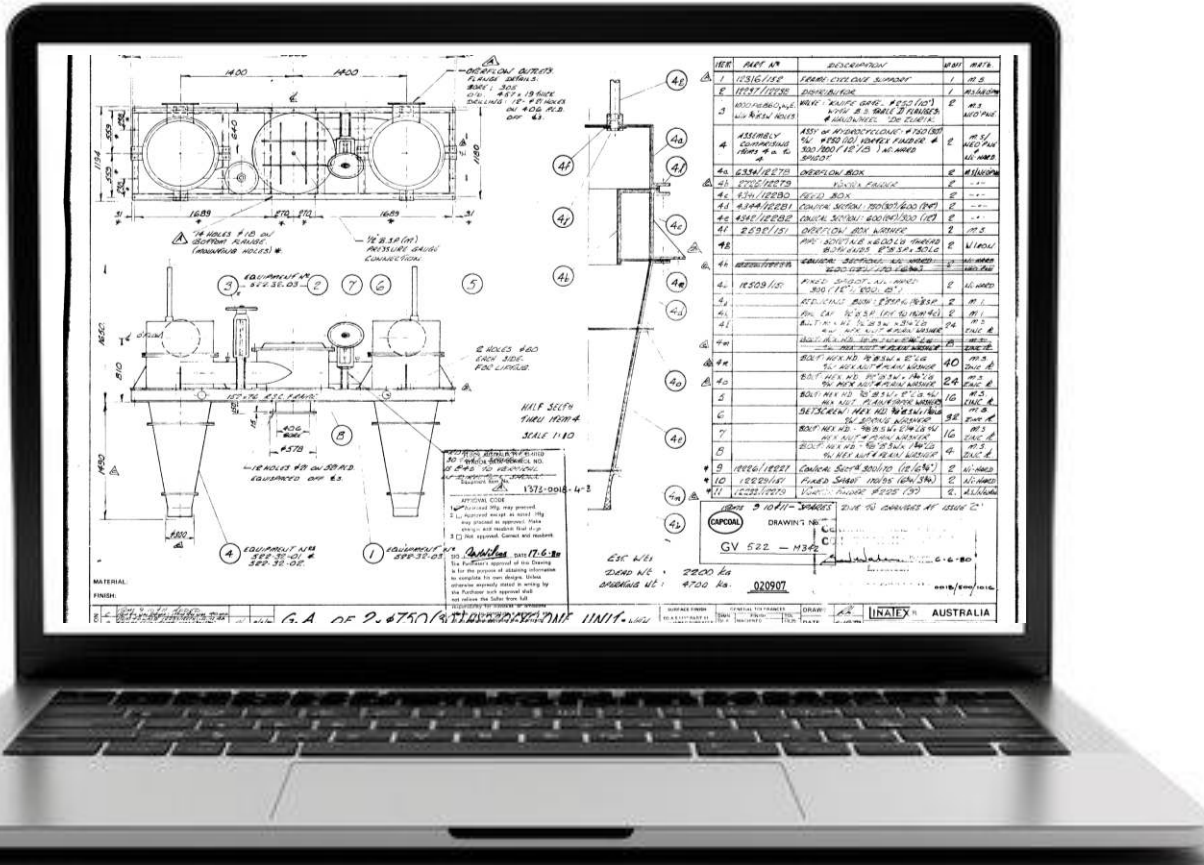


# Drawing meta data extraction | AI transformation process

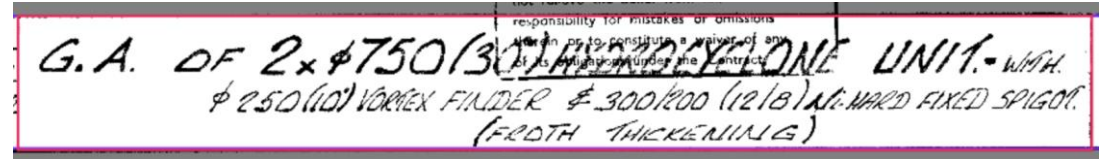


# CURRENT PROCESS

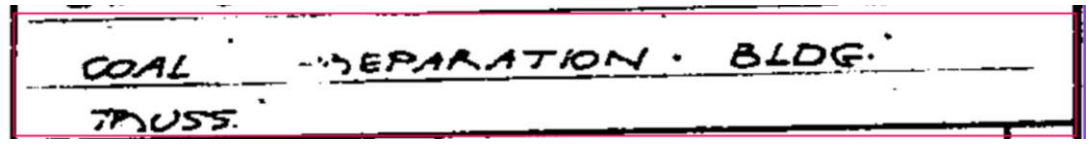
Manual process



# WITH AI SOLUTION

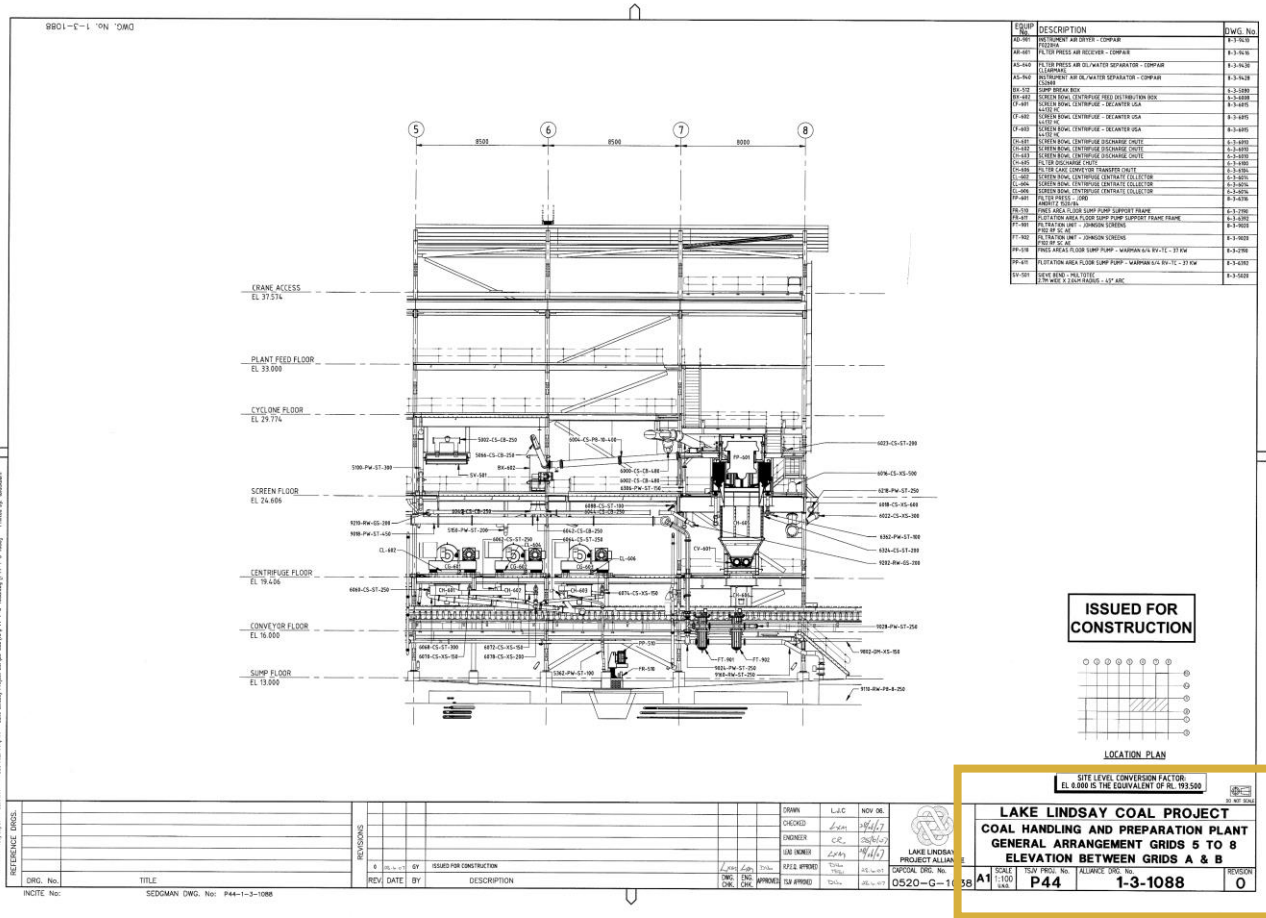


The Large Language Model extracted:  
 G.A. OF 2 × Ø750/(30) AEROFLOTATION UNIT WITH  
 Ø250/(10") VORTEX FINDER & Ø300/200 (12/8") M.WARD  
 FIXED SPIGOT (FROTH THICKENING) **90% accurate**

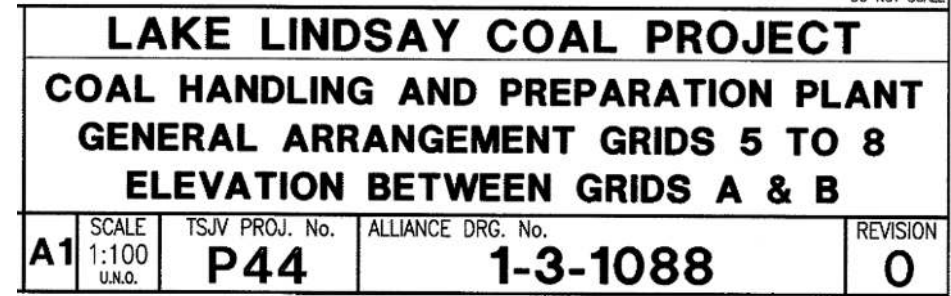


The Large Language Model extracted:  
 COAL SEPARATION BLDG. TRUSS

# ORIGINAL DRAWING



# WITH AI SOLUTION

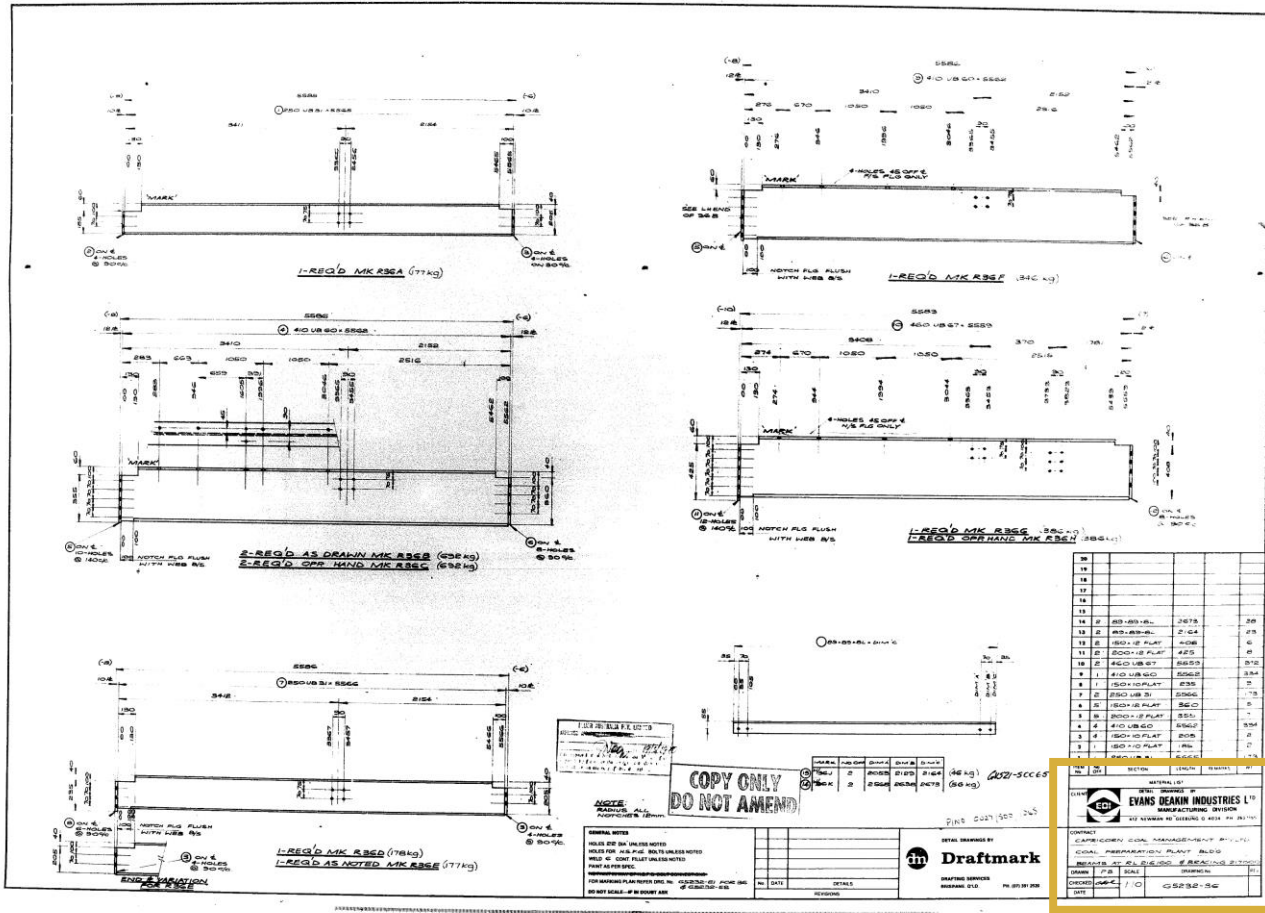


The Large Language Model extracted:

COAL HANDLING AND PREPARATION PLANT GENERAL ARRANGEMENT GRIDS 5 TO 8 ELEVATION BETWEEN GRIDS A & B

# Drawing meta data extraction | Output @80% accuracy

## ORIGINAL DRAWING

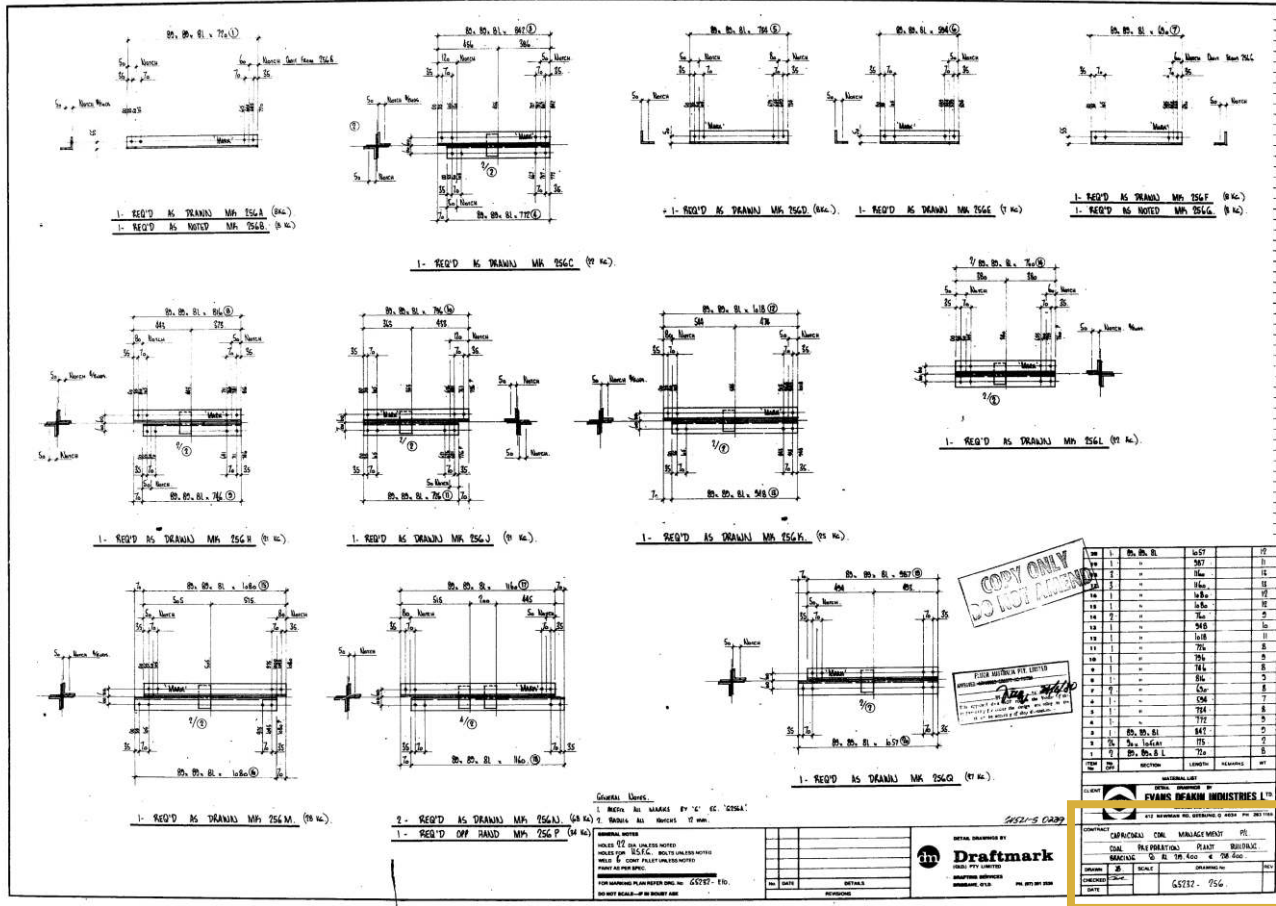


## WITH AI SOLUTION

CONTRACT				
CAPRICORN COAL MANAGEMENT PTY LTD				
COAL PREPARATION PLANT BLD'G				
BEAMS AT RL 216100 & BRACING 217000				
DRAWN	PB	SCALE	DRAWING No	REV
CHECKED	<i>CPB</i>	1/10	G5232-36	
DATE				

The Large Language Model extracted:  
COAL PREPARATION PLANT BLD'G

# ORIGINAL DRAWING



# WITH AI SOLUTION

CONTRACT				
CAPRICORN COAL MANAGEMENT P/L.				
COAL PREPARATION PLANT BUILDING.				
BRACING @ RL 219.400 & 218.400.				
DRAWN	B.	SCALE	DRAWING No	REV
CHECKED	<i>[Signature]</i>		65232- 256.	
DATE				

The Large Language Model extracted:

CAPRICORN COAL MANAGEMENT  
PTY. COAL PREPARATION PLANT  
BUILDINGS GRATING @ RL 179.400  
& RL 180.400



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**CASE STUDY  
BOOK DOWNLOAD**



**WATERLINE  
WEBSITE**



Written report—200+ pages  
Podcast—68 mins



Written report—500+ pages  
Podcast—14 mins

**QLD COAL  
MINING BOARD  
OF INQUIRY**