Safe Digging: Let's Make a Difference;

10th July 2024 – Exeter Racecourse

Coaching
Cultural
Solutions

Working for Infrastructure

Safe Digging: Let’s Make a Difference;

Paul Santer
CECA South West Regional Director

Peter Crosland
CECA National Civil Engineering Director

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Safe Digging: Let’s Make a Difference;

Peter Marsh
Head of Safety, Health &
Environmental (MIP)

babcock™

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SCOTTISH WATER VIDEO

BOB’S STORY

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KIER BEST PRACTICE
QuickSTATS

Richard Burdett-Gardiner
Director, Applied Digital Services

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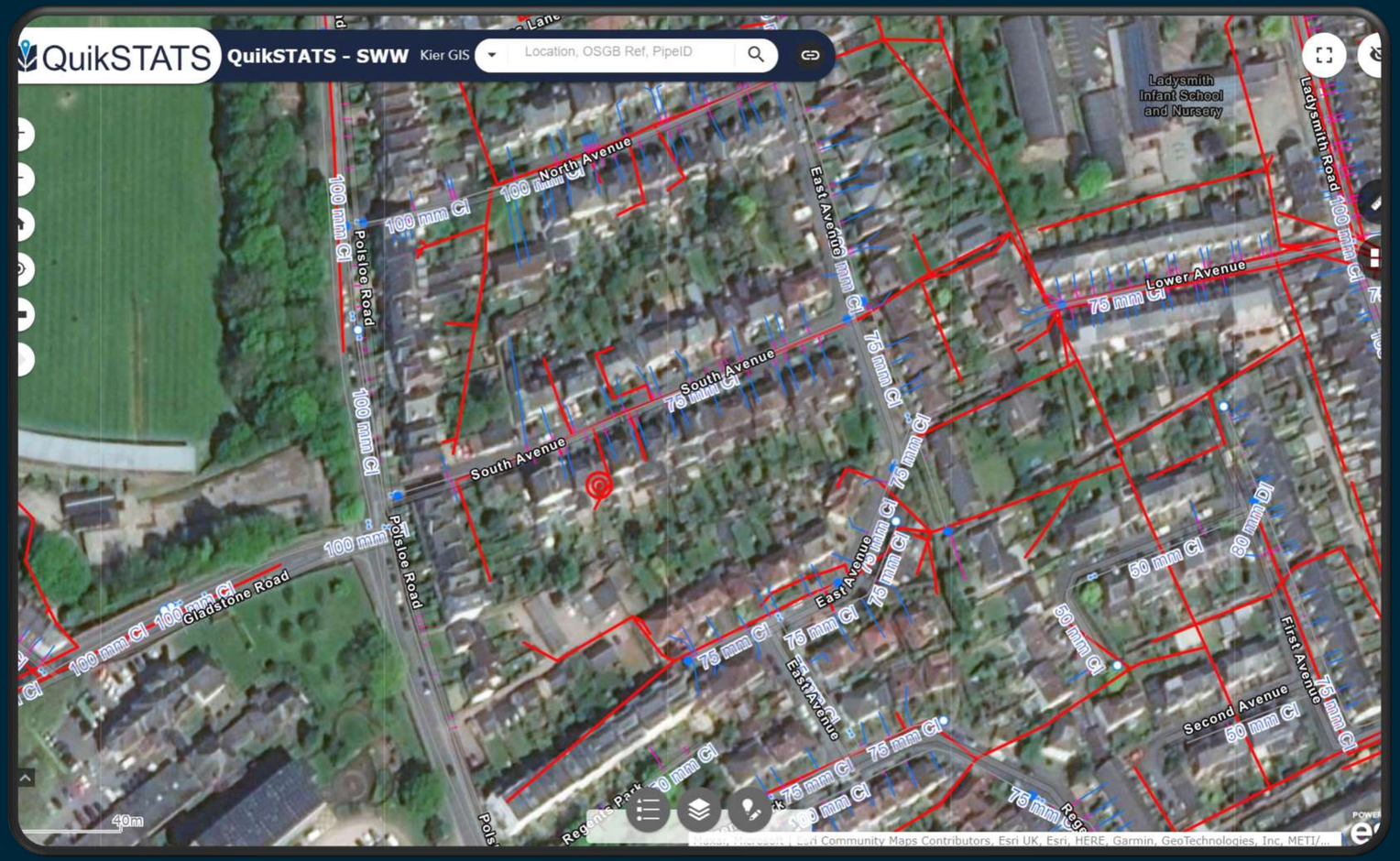
QuikSTATS

What is QuikSTATS?



QuikSTATS®

What is QuikSTATS?

Overview

QuikSTATS®

QuikSTATS safety improvements

- Breaking ground = Need STATS data
- Reduces Service Strikes (50% for SWW contract)
- Rapid risk reduction site-based intelligence 24/7
- Consistent, measurable, centralised delivery and approach
- 93% productivity benefit across contracts
- Many additional asset and intelligence layers can be added
- Real world, real life, safety impact: Intelligence in the hands of those that matter.
- API available

QuikSTATS partners

HS2

KIER

Transport for London

national highways

South West Water

Thames Water

Virgin media

CityFibre

openreach

Birmingham City Council

Shropshire Council

Northamptonshire County Council

SEVERN TRENT WATER

Somerset Council

love every drop anglianwater

QuikSTATS®

Awards

Linesearch before U dig

Best Planning Process Winner – 2024!

QuikSTATS®

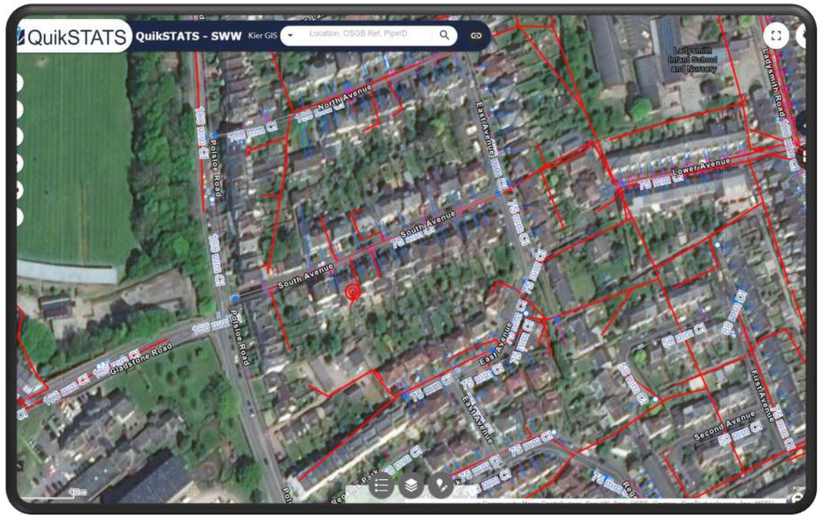
QuikSTATS overview

- Service is a bespoke delivery for each client.
- Procured service will run for the duration of your contract.
- Used inside the boundary of each contract area.
- Price based on volumetric bands (the more its used, the cheaper it gets).
- Can include many additional risk reduction layers
    - SSSI’s
    - User Observations
    - Client assets
    - Can be used as a planning tool

QuikSTATS®

What is QuikSTATS?

DEMO



Come to our QuikSTATS stand and see it live!

QuikSTATS®

THANK YOU

Any questions?

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COSTAIN BEST PRACTICE

Lee Cartwright
Head of HSEQ

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COSTAIN

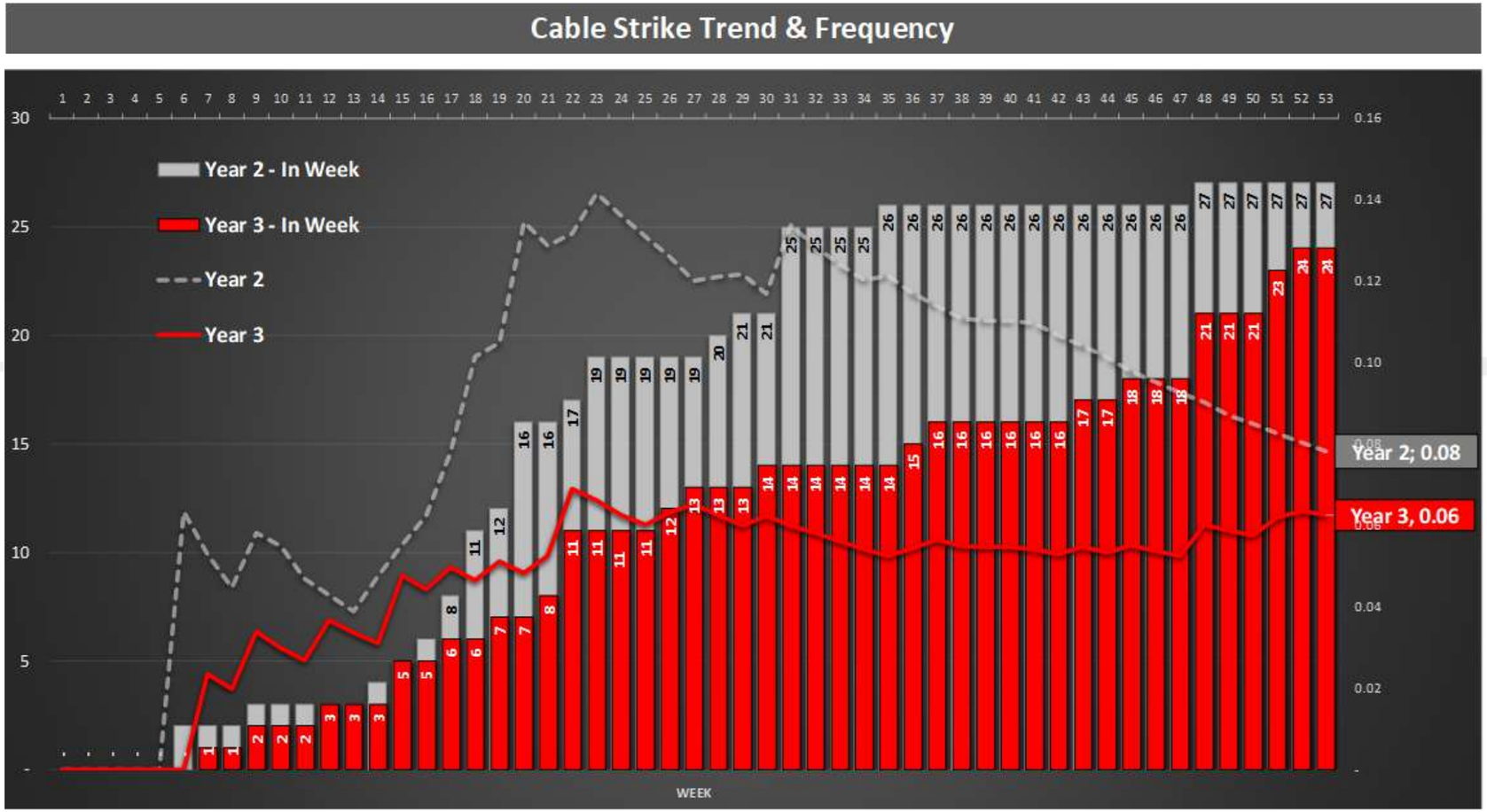
Underground Services

Lee Cartwright

Head of HSEQ

Costain

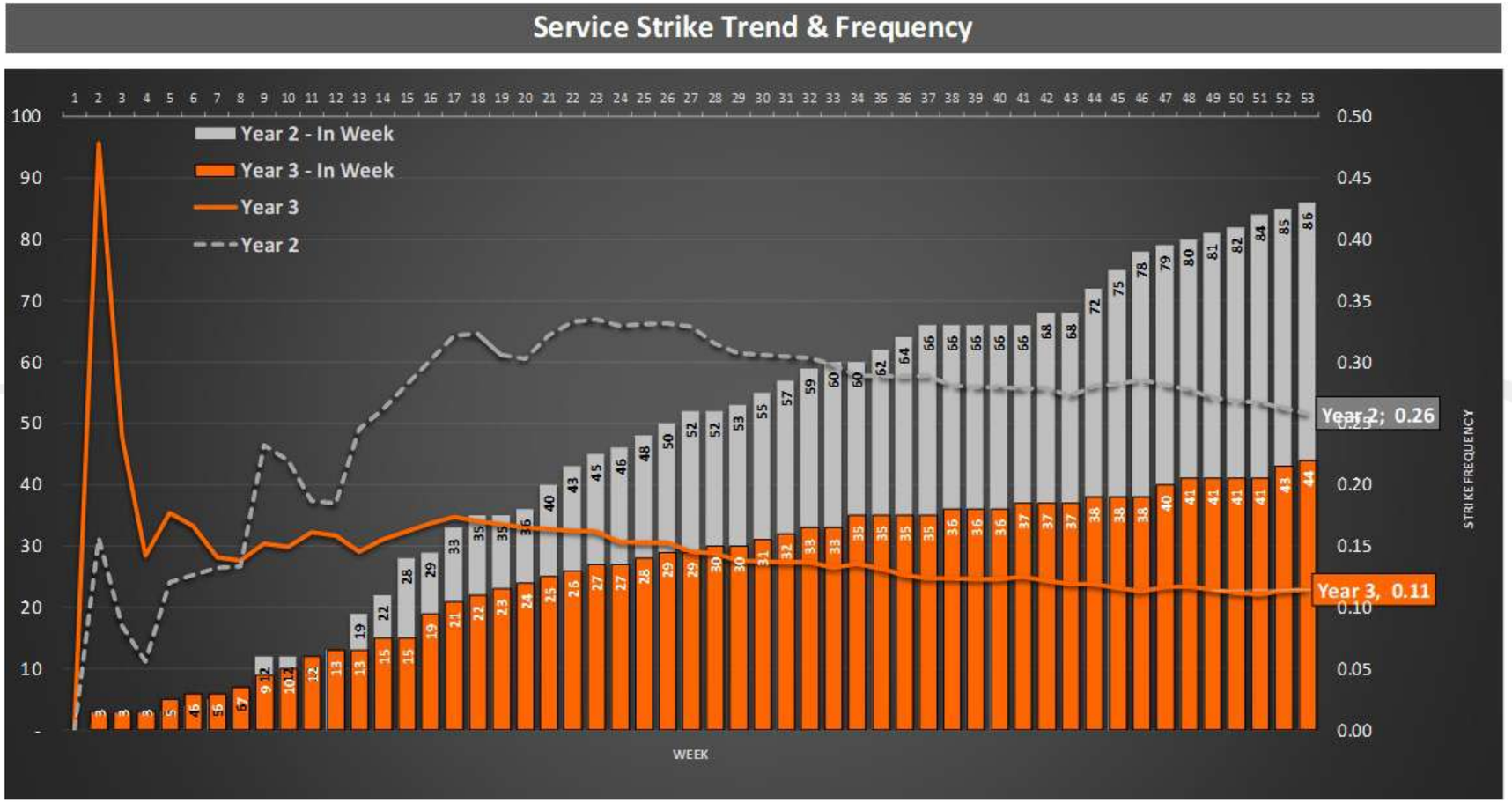
Electric Service Strikes April 23 - March 2024



	Year 3			Year 2		
Weeks	1-52			1-53		
LDP	No.	Abn.	Freq.	No.	Abn.	Freq.
CSP	2	48,457	0.04	-	10,693	-
Forefront	13	119,083	0.11	5	53,870	0.09
Gastech	-	27,616	-	1	20,891	0.05
Gasco	-	-	-	4	62,779	0.06
Strattons	1	42,370	0.02	-	5,399	-
JA Rattigan	-	751	-	6	26,055	0.23
Medway	2	31,543	0.06	-	18,436	-
Prestige	3	37,388	0.08	6	42,640	0.14
SQS	1	12,973	0.08	3	23,148	0.13
Southern	-	27,878	-	-	-	-
Terrafirma	2	35,942	0.06	-	837	-
CMO Total	24	383,999	0.06	26	264,748	0.10

Cable Strikes	24	26
Abandonment	383,999	264,748
Strike Freq.	0.06	0.10

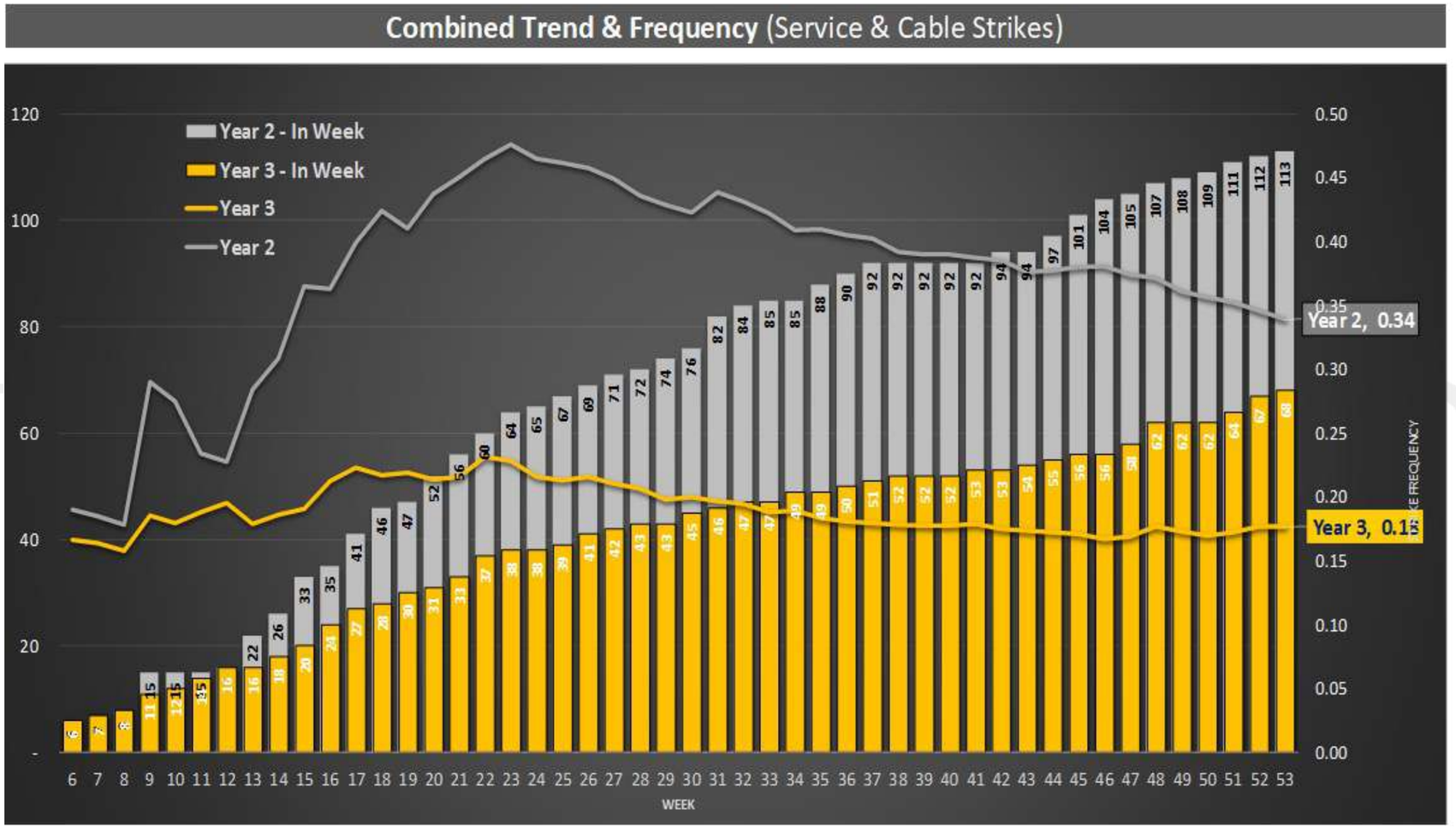
Other Service Strikes April 23 - March 2024



	Year 3			Year 2		
Weeks	1-52			1-53		
LDP	No.	Abn.	Freq.	No.	Abn.	Freq.
CSP	1	48,457	0.02	1	10,693	0.09
Forefront	25	119,083	0.21	21	53,870	0.39
Gastech	2	27,616	0.07	2	20,891	0.10
Gasco	-	-	-	25	62,779	0.40
Strattons	2	42,370	0.05	-	5,399	-
JA Rattigan	-	751	-	2	26,055	0.08
Medway	-	31,543	-	2	18,436	0.11
Prestige	6	37,388	0.16	11	42,640	0.26
SQS	2	12,973	0.15	11	23,148	0.48
Southern	-	27,878	-	-	-	-
Terrafirma	6	35,942	0.17	-	837	-
CMO Total	44	383,999	0.11	75	264,748	0.28

Service Strikes	44	75
Abandonment	383,999	264,748
Strike Freq.	0.11	0.28

Combined Service Strikes April 23 - March 2024



	Year 3			Year 2		
Weeks	1-52			1-53		
LDP	No.	Abn.	Freq.	No.	Abn.	Freq.
CSP	3	48,457	0.06	1	10,693	0.09
Forefront	38	238,166	0.16	26	53,870	0.48
Gastech	2	55,231	0.04	3	20,891	0.14
Gasco	-	-	-	30	62,779	0.48
Strattons	3	84,739	0.04	-	5,399	-
JA Rattigan	-	1,502	-	8	26,055	0.31
Medway	2	63,086	0.03	2	18,436	0.11
Prestige	9	74,776	0.12	17	42,640	0.40
SQS	3	25,946	0.12	14	23,148	0.60
Southern	-	55,756	-	-	-	-
Terrafirma	8	71,883	0.11	-	837	-
CMO Total	68	383,999	0.18	101	264,748	0.38

Service Strikes	68	101
Abandonment	383,999	264,748
Strike Freq.	0.18	0.38

Improvement

Based on the current data, we have managed to achieve a 40% reduction in underground electric cable strikes in comparison to the same period last year.

On other services excluding HV/LV there was a 60% reduction in comparison to the same period on all other services.

Combining underground service damages, there was a 52% reduction in Year 4 compared to Year 3.

This is in conjunction with delivering an extra 119K more abandonment. This signifies a continuing step in the right direction of where we need to be in relation to the avoidance of underground services.

Continual Improvement

To achieve a positive reduction in service strikes we implemented a plan that involved the involvement of everyone involved within the contract including the client, Cadent.

Some of these are listed below;

- The use of the Antecedent, Behavioural, Consequences (ABC) model for all electric strikes to enhance the report by looking at the behaviours leading up to , during and after the incident occurred.
- The continual development of an interactive, up-to-date database of all underground service strikes. This then enabled us to look at any trends and put measures into place to eliminate the issue. An example of this was the depth of when the damages occur, we noticed there were a lot around the depth where the secondary scan should have been undertaken and reiterated the need for this to be undertaken.
- Continue with the Underground Services Avoidance Group within the CMO
- USAG standard and Charter created and to be signed. A training course to be created and delivered to the LDP's nominated Trainers.
- Utilise the Costain process of their recent "Step Back" process to look at how we can apply the same principles to the avoidance of underground services, especially Electric cables.
- Formulate and chair a working group with all of the Vacuum Excavator companies involved with the work to create a minimum standard of working.

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REFRESHMENT BREAK

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CDM DIFFERENTLY

Peter Crosland
CECA National Civil Engineering Director

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CDM DIFFERENTLY

Peter Crosland

National Civil Engineering Director, CECA
Secretariat CECA HS&W Group
Chair CONIAC Tackling Ill Health Working Group
Co-Chair ICE Safety, Health & Wellbeing Leadership Group
Member HCLG

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CDM DIFFERENTLY

'The purposes of CDM 2015 is to maintain or enhance worker protection'

HSE June 2014

- Has this happened?
- If it's happened – how?
- If not, why not?

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CDM DIFFERENTLY

What do we mean by 'CDM Differently?

Construction risk, including H&S aspects, must;-

- be managed primarily by construction professionals
- utilise a collaborative and integrated approach
- encourage project teams to focus on specific challenges rather than generic concepts of 'risk'.

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CDM DIFFERENTLY

'Successful risk management is not about ticking boxes or calculating numbers . And it is not about doing things to avoid sanctions. The primary goal is not to avoid a fine or criminal record , but to stop people being made unwell or being hurt or killed by their work.

Managing risk means managing people and every one of them is different. That's not easy to factor in to the numerical system driven approach to risk management.'

Judith Hackitt HSE Chair –responding to a question about how unlikely an accident had to be before the questioner could stop worrying about ending up in court. (August 2012)

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CDM DIFFERENTLY

What do we mean by 'CDM Differently?

Consequences / Likelihood	Insignificant	Minor	Moderate	Major	Catastrophic
Rare	1	2	3	4	5
Unlikely	2	4	6	8	10
Possible	3	6	9	12	15
Likely	4	8	12	16	20
Almost Certain	5	10	15	20	25

Key:

1-4	Very Low (Green)
5-11	Low (Yellow)
12-16	Medium (Orange)
17-25	High (Red)

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CDM DIFFERENTLY – Design Risk Management - DRM

https://www.ice.org.uk/media/usuhymf3/drm-guidance-version-2-march-2020.pdf

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CDM DIFFERENTLY – Design Risk Management (DRM)

The ICE Design Risk Management (DRM) toolkit was developed to help designers, particularly those taking on the principal designer (PD) function, to:

- Help their clients develop their management arrangements for addressing the significant risks associated with their projects
- Ensure that sufficient pre-construction information is provided to designers to enable them to mitigate risks in the pre-construction phase
- Systematically identify the project-specific aspects of the development requiring risk management at the strategic planning stage
- Communicate clearly and effectively the measures taken during design to reduce risk to a tolerable level
- Promote a collaborative approach to risk mitigation

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CDM 20 – 20 vision
Changing the culture

https://www.cdmdifferently.com/

CDM strategy brief (DRM1)

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Why a ‘CDM’ Strategy brief?

To enable the Principal Designer function to be discharged effectively :-

- Involve the client at the earliest stage in understanding their duty to make suitable arrangements for managing the project so health, safety and welfare is secured
- Pull together key information in a simple, easy to read format that can be developed collaboratively by the project team.
- Enables new team members to ‘get up to speed’ on project risk quickly and consistently
- Identify significant risk issues where design coordination is required

Why a ‘CDM’ Strategy brief?

Client function :-

- To demonstrate management arrangements in place
- To set out the Client’s expectations for health, safety
- To decide procurement route to ensure collaboration
- To establish Health & Safety File requirements at start

CDM Differently - Strategy brief

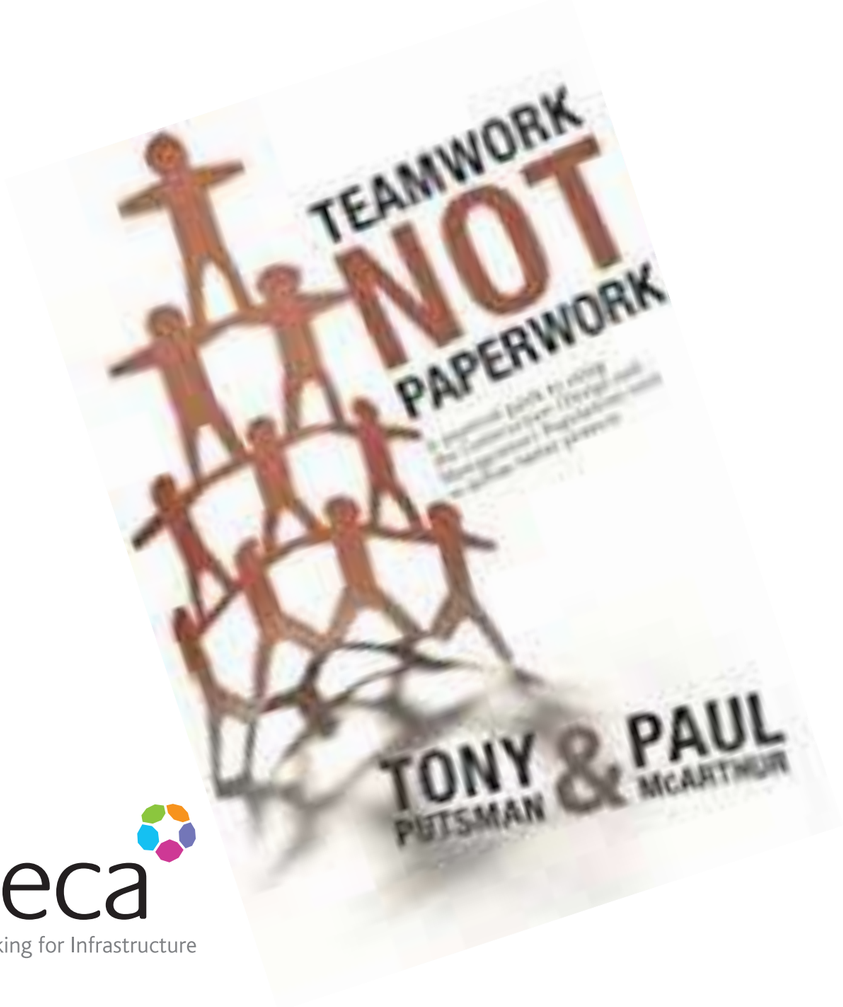
The first stage in developing a clear plan for managing the significant risk issues associated with successful project delivery:

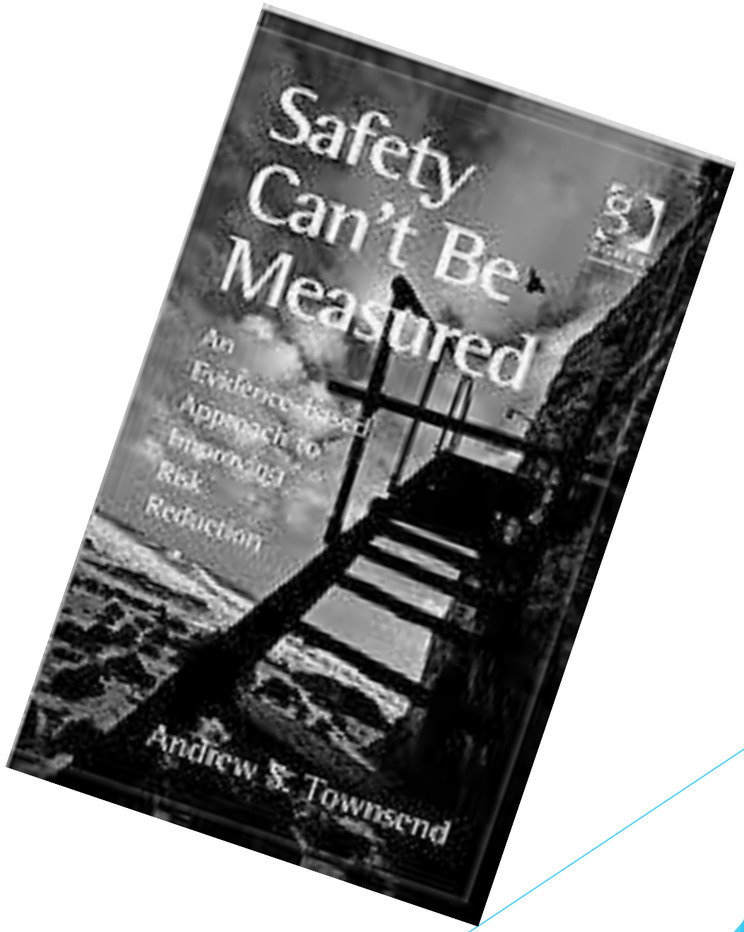
- Project description
- Client H&S brief
- Project timescales
- Significant risks
- Pre-construction information
- Project leadership
- Procurement strategy
- Communication strategy

Safe Digging: Let's Make a Difference

CDM DIFFERENTLY

Teamwork not Paperwork





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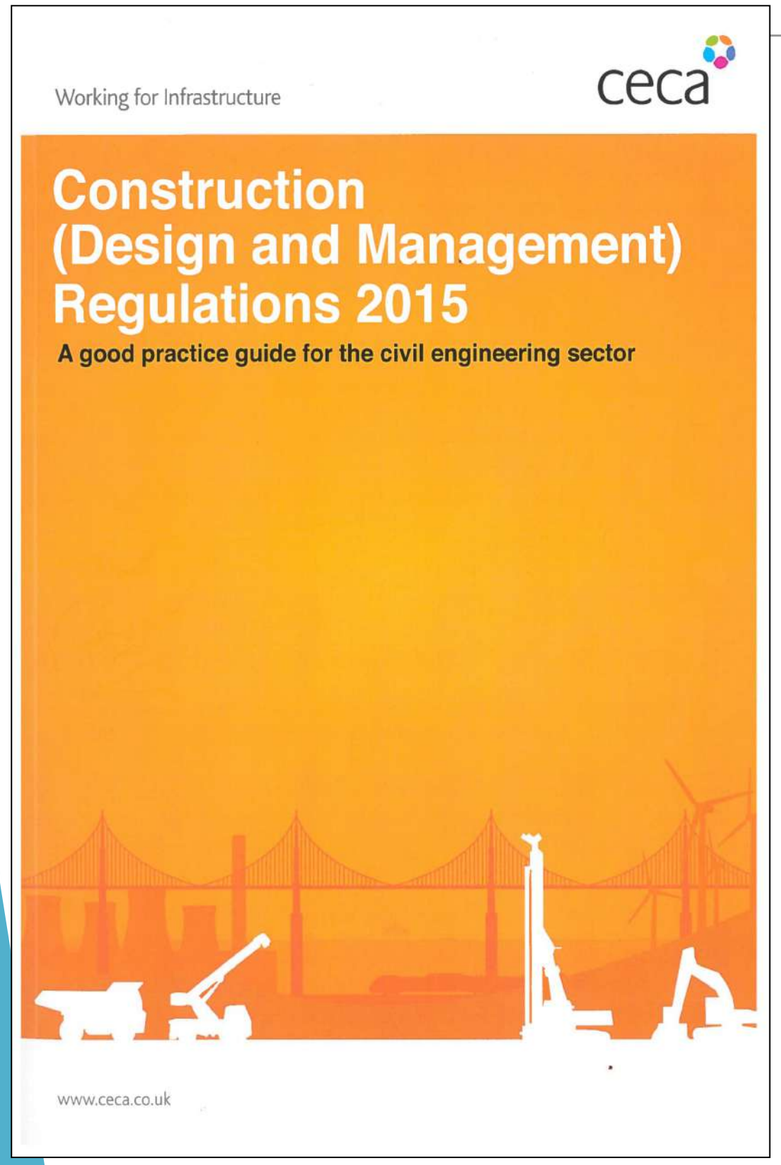
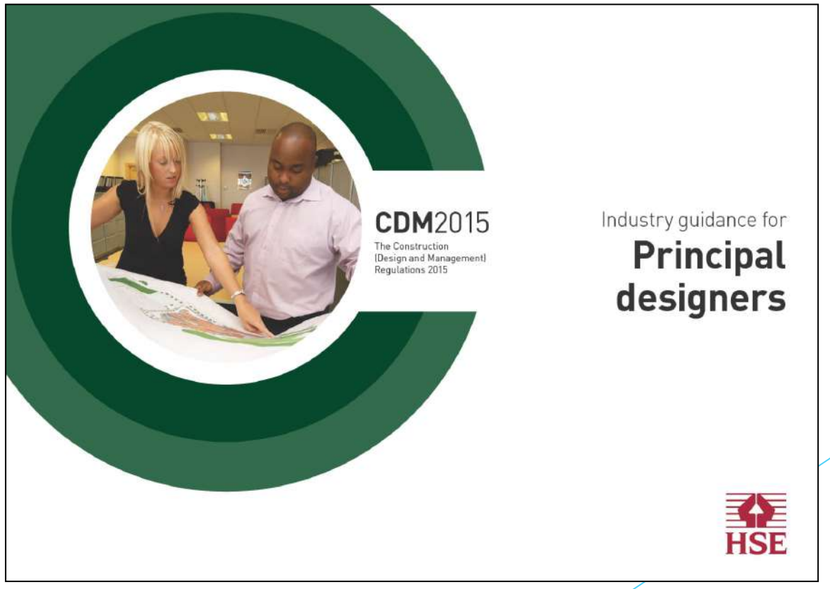


ice
Institution of Civil Engineers
training



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CDM DIFFERENTLY

Queensland Urban Utilities, Australia

Doing Safety Differently

VIDEO https://youtu.be/eqwBA4nj5CY

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PRESENTATIONS &
DEMONSTRATIONS

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PART 1
MJ CHURCH & TRIMBLE

MJ Church - Stuart Harry – Head of Engineering
& Ben Hodsoll, Group Health Safety & Environmental Manager

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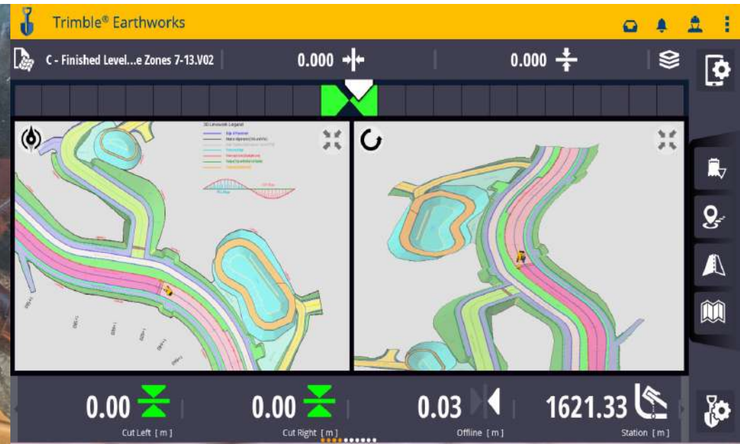
Trimble Site Vision & Vi-Doc for Utility Avoidance

Ben Hodsoll (Group HSE Manager)
Stuart Harry (Head of Engineering)



Agenda

1

2

3

4

Introduction

Ben Hodsoll

Trimble Site Vision for Utility Avoidance

Overview on how SV is used via MJC standard procedure (Ben Hodsoll)

Vi-doc Lidar for Existing and As Built Asset Capture

Overview on Vi-Doc System and its uses (Stuart Harry)

3DMC Avoidance Zones

Overview of avoidance zones within Trimble Earthworks (Stuart Harry)

Any Questions?.

Happy to answer any questions you may have.

Ben Hodsoll – Group HSE Manager

QUALIFICATIONS

- MSc Occupational Health & Safety;
- NEBOSH: Construction, Environmental Management, Fire Safety;
- Chartered member IOSH

PROJECT EXPERIENCE

- Major projects
- Earthworks
- RC Frames
- Façade Retention
- Fit Out
- Demolition
- Highways
- Asbestos Removal

M.J.CHURCH

Group HSE Manager

wsp

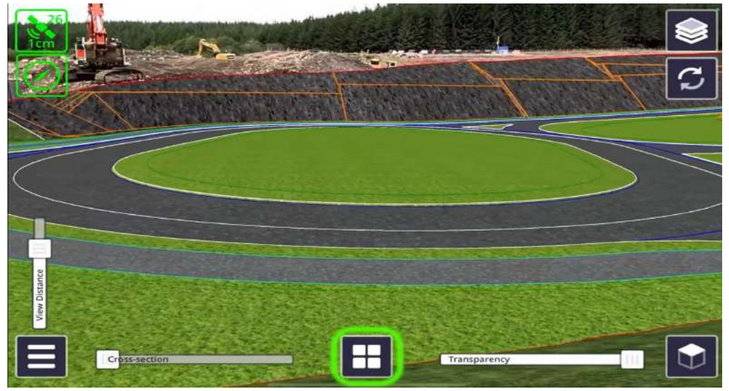
HSE Programme Lead, FIFA World Cup 2022

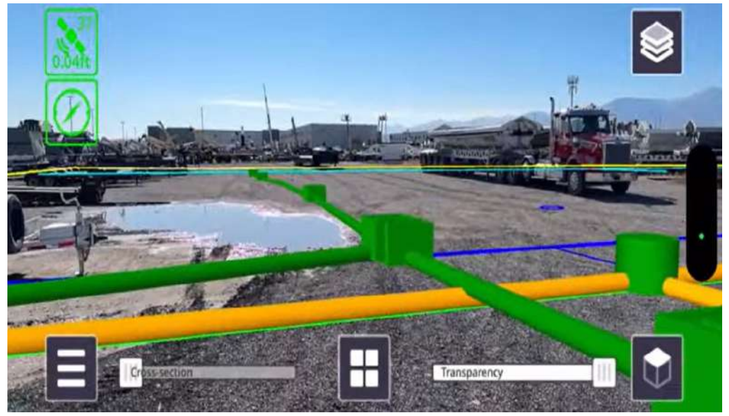
CAREYS

Project HSE Manager

1 – Trimble Site Vision for Utility Avoidance

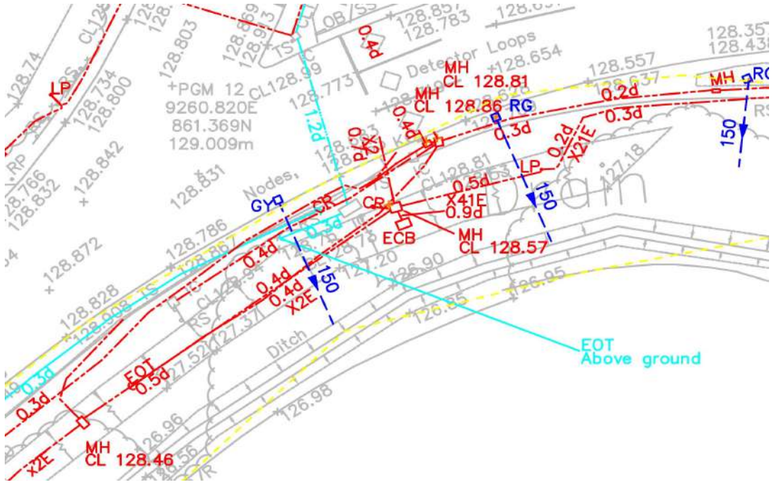
Trimble SiteVision is a user-friendly outdoor augmented reality system, which brings data to life for a clear visualisation.

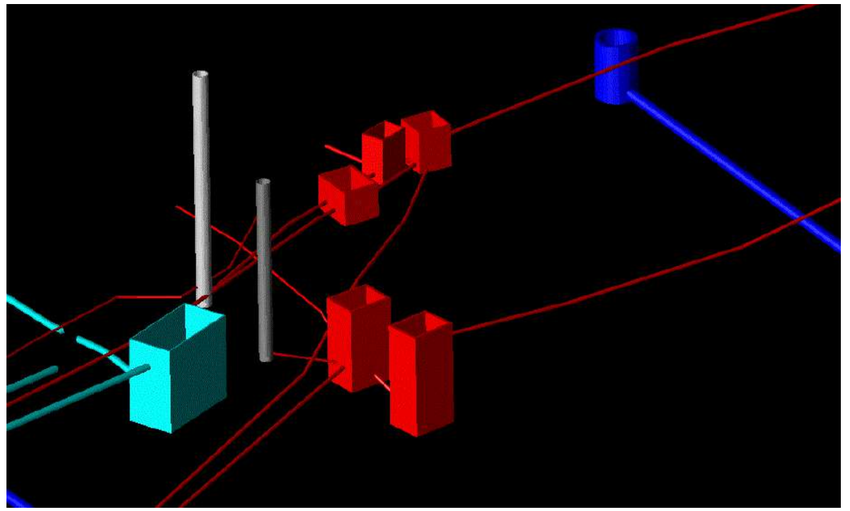




Data Collection and Modelling

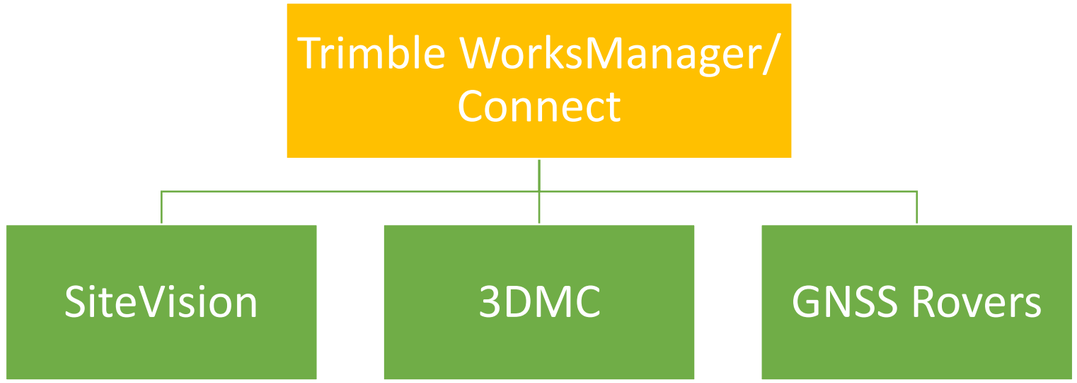
- MJC Procedure is to undertake GPR survey for new sites;
- Interrogate GPR survey and elevate to 3D, true positions of services;
- Services modelled in full 3D as solid objects, gives a better sense of their presence.



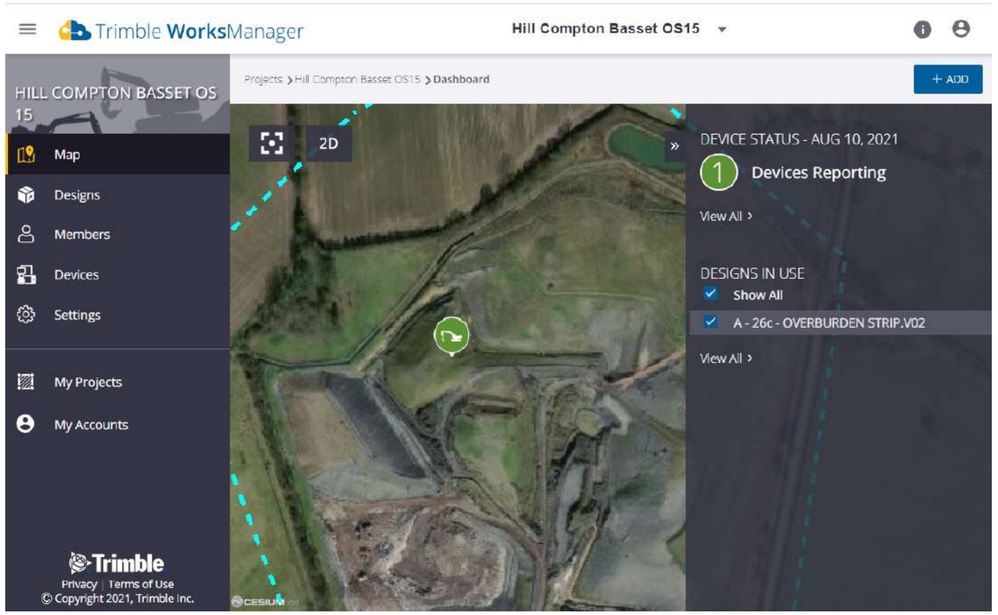


Cloud Base Design Management

- Trimble Works Manager is used to manage avoidance models on all sites;
- All Machines have the latest avoidance model, no ambiguity!;
- Allows a rapid response to design changes and discovered services;
- Data is synced across all platforms.

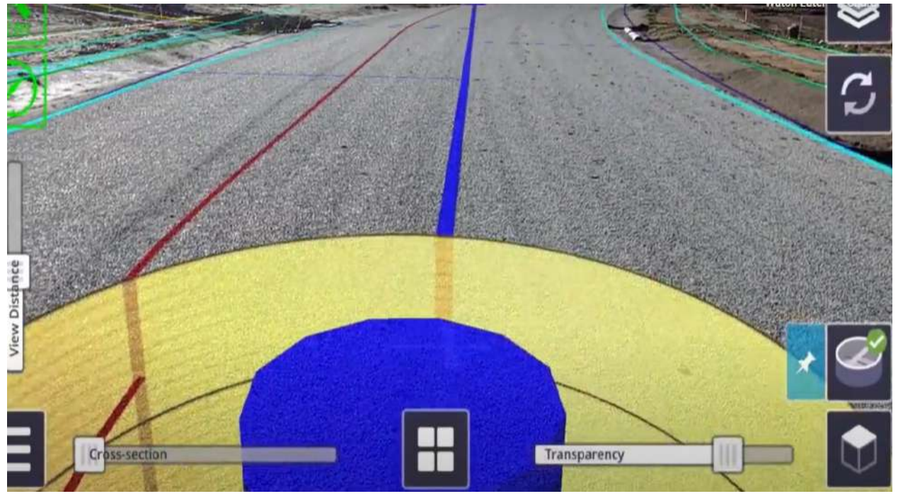


Trimble WorksManager

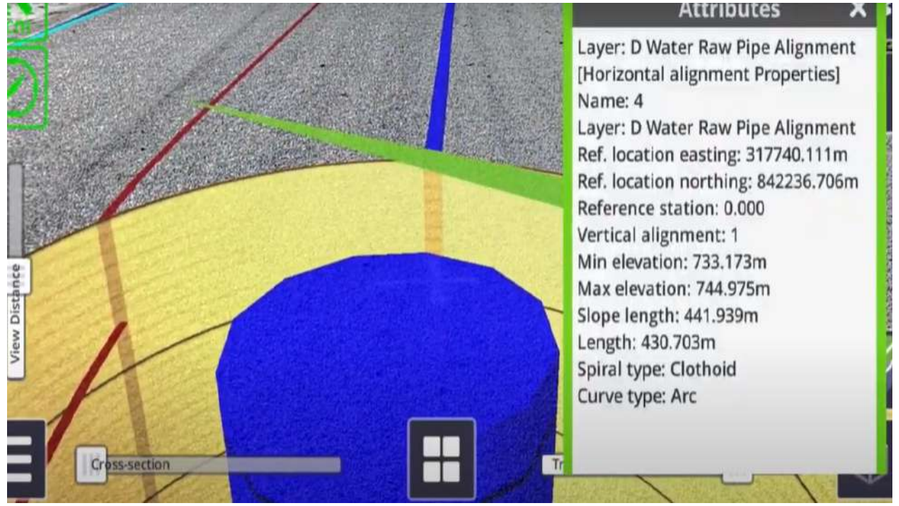


Trimble Site Vision for Utility Avoidance

View – Stage 1

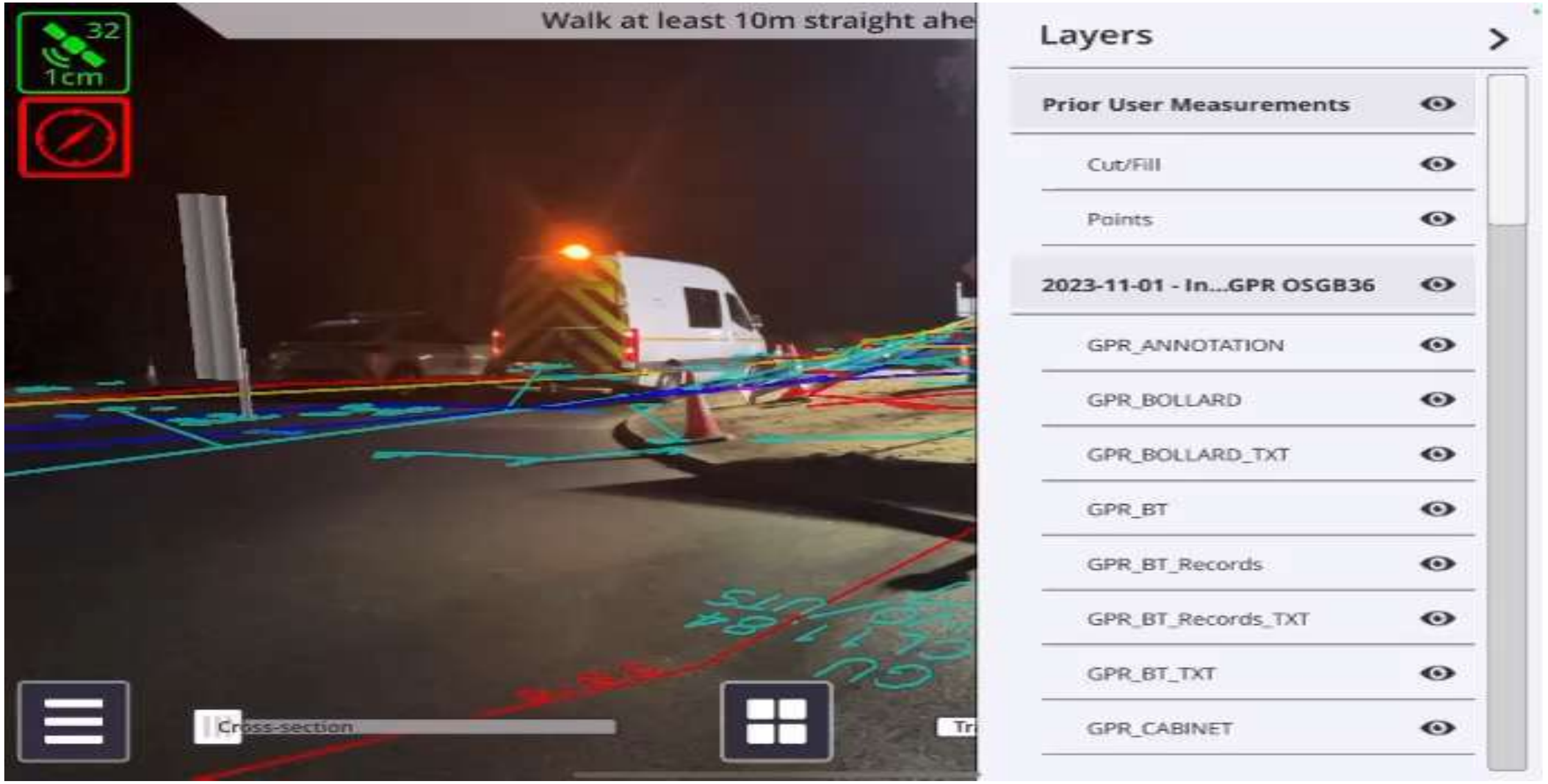


View – Stage 2



View – Stage 3

Technology in use



Closing Thoughts

Outputs

- Pokémon GO for construction, using Googles AR developers platform;
- Universal language;
- Low cost to entry compared to a GNSS rover;
- More accessible than 2D PDF plans;
- Uses a high precision GNSS antenna and correction stream to position models within 30mm;
- Connected to the internet so avoidance models can be quickly updated.
- Greater employee engagement, consultation and awareness to the presence of utilities;
- Ability to give visual interpretation to the presence of utilities and an indication to approximate location;
- A great briefing tool to be conducted on the workface as part of daily or pre-task briefings;
- A tool to be used to complement a permit to dig procedure, however not replace it as a primary control;
- When integrated in machine controls, avoidance zones can add an additional layer of control.

Learning

- Site Vision must not be perceived as a primary control, it is to complement existing procedures and industry guidance;
- The information and presentation is only as good as what you put into it;
- Just like utility drawings, if this is not maintained and updated it will no longer add value;
- Pre-construction planning is key, specifically arranging GPR scanning, and data analysis.

1 – Vi-Doc Lidar for Existing &

As Built Asset Data Capture

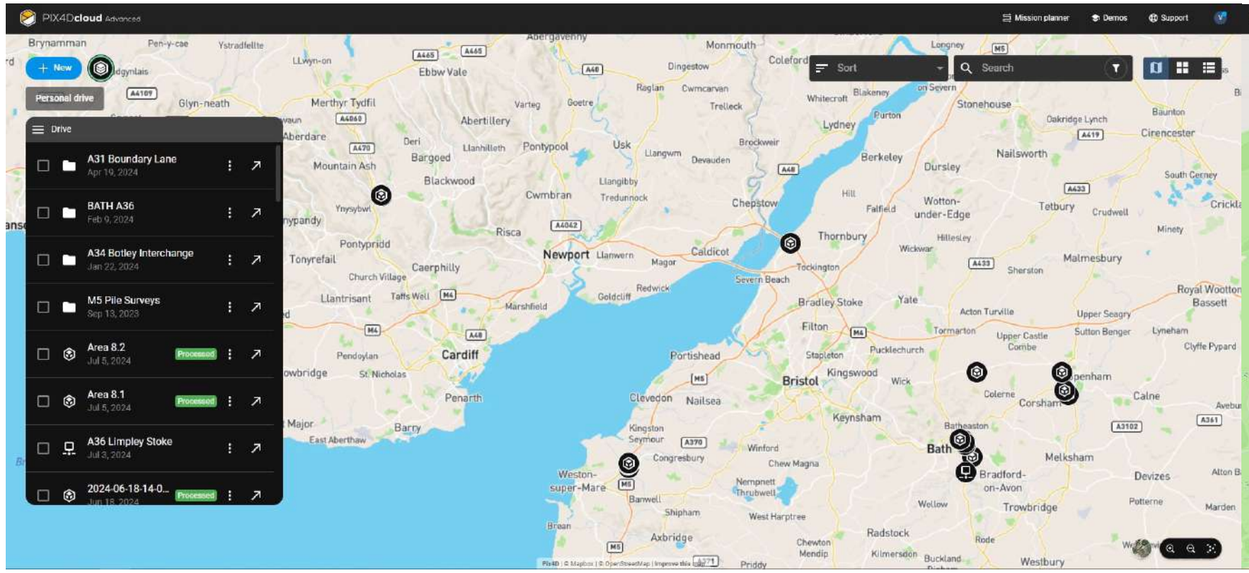
- What is Vi-Doc.
- What do we use it for.
- How is the data collected on site and by who.
- How is the data processed.
- How is the data used and analysed.
- How does the data feed into our quality systems.
- Who can use the data and what for.

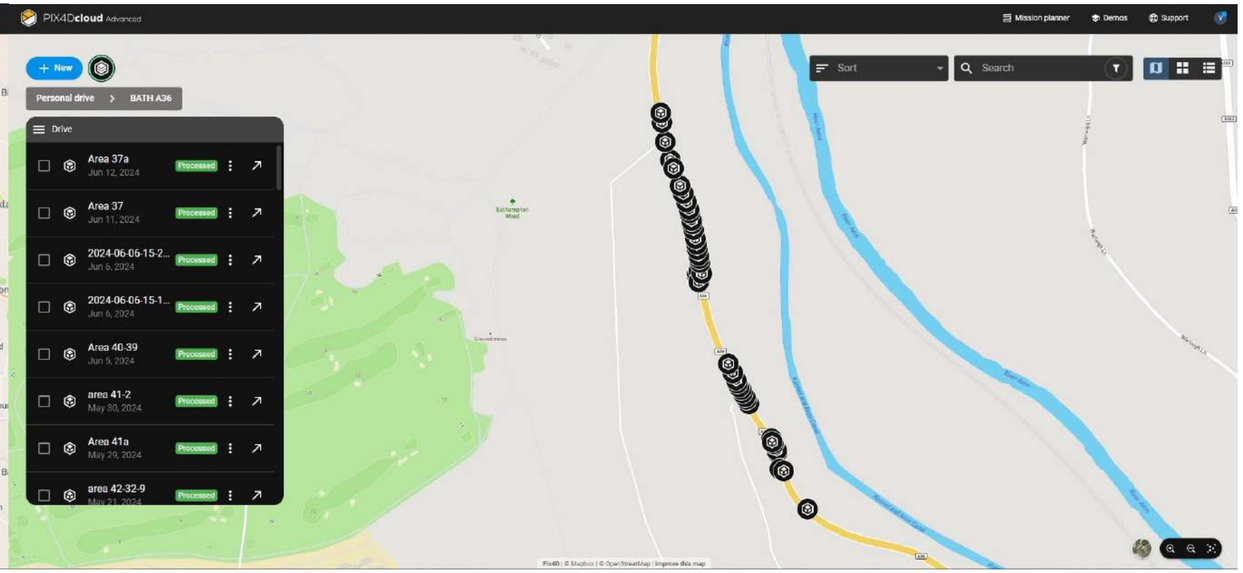
PIX4Dcatch

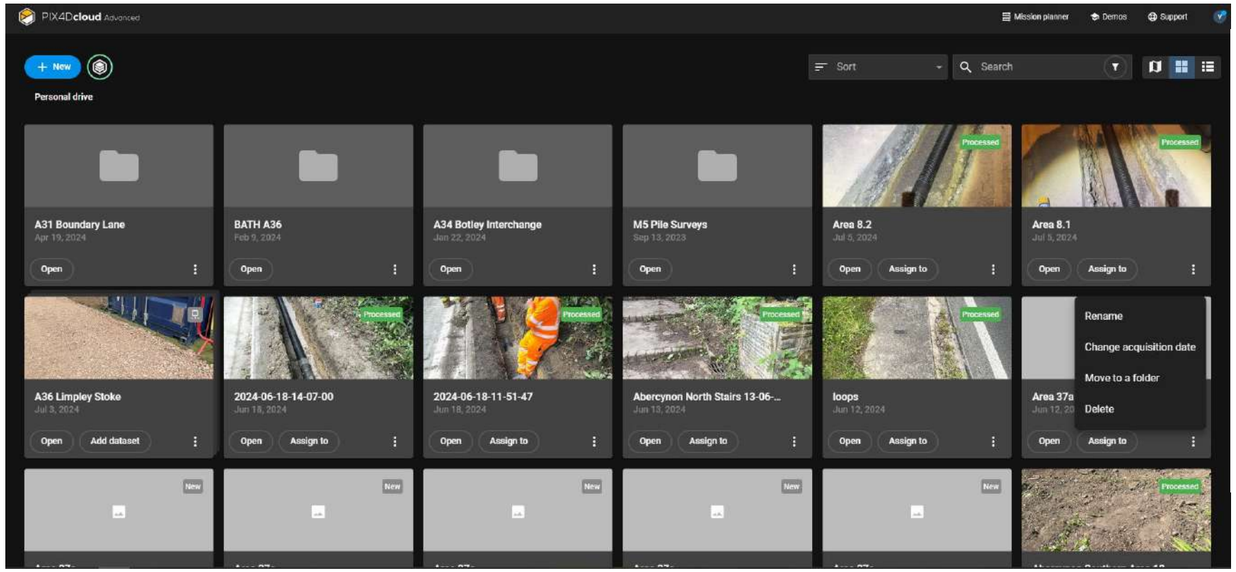
PIX4Dcloud

2 – Vi-Doc Lidar Data Capture

3 – Data Processing





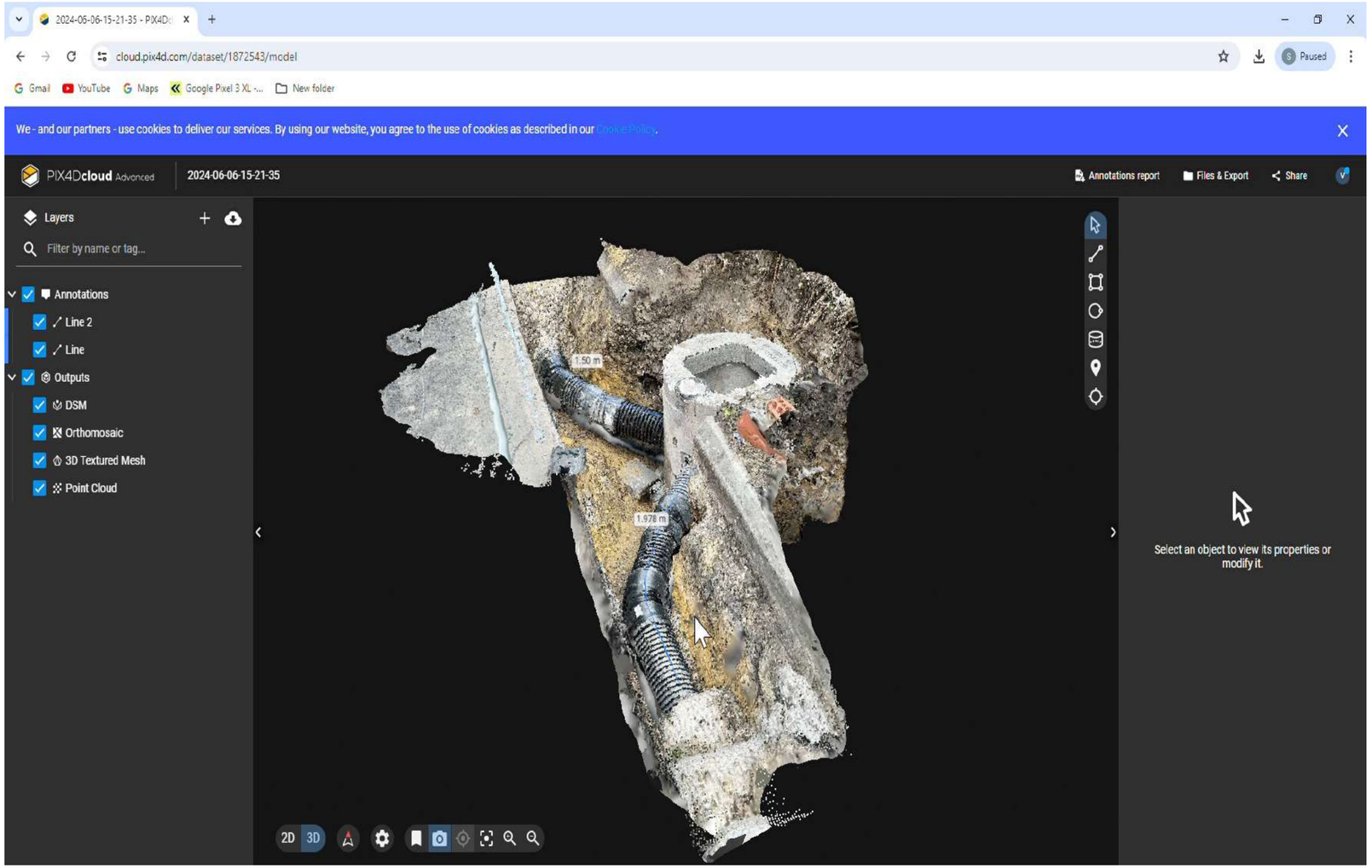


Credit history

See how many credits you have used in the past

Transaction date	User	Description	Resource	Project group	Withdrawal	Deposit	Balance
Jul 5, 2024, 7:07:07 PM	Vidoc MJChurch	Cloud...	Area 8.2		-2		1055
Jul 5, 2024, 6:59:17 PM	Vidoc MJChurch	Cloud...	Area 8.1		-1		1057
Jul 3, 2024, 11:50:38 AM	Vidoc MJChurch	Cloud...	Limpley_Stoke_Compound_030724	ProjectGroup: 289461 - A36 Limpley Stoke - bim - None	-70		1058
Jun 19, 2024, 7:25:34 AM	Vidoc MJChurch	Cloud...	2024-06-18-14-07-00		-2		1128
Jun 19, 2024, 7:22:26 AM	Vidoc MJChurch	Cloud...	2024-06-18-11-51-47		-1		1130
Jun 13, 2024, 8:14:37 AM	Vidoc MJChurch	Cloud...	Abercynon North Stairs 13-06-34		-12		1131
Jun 12, 2024, 8:42:21 AM	Vidoc MJChurch	Cloud...	loops		-17		1143
Jun 12, 2024, 7:22:26 AM	Vidoc MJChurch	Cloud...	Area 37a		-1		1160
Jun 12, 2024, 6:20:24 AM	Vidoc MJChurch	Cloud...	Area 37		-8		1161

4 – Data Use and Analysis



5 – Data Integration With Quality Systems

- Use within Permit to dig and planning works.
- Use for daily site briefings as a visual aid.
- Use in site inductions for real time views of works areas.
- Use in materials and works verification and sign off documents.
- Date and time stamped data to track against project program.
- Use in TQ and RFI documents to clients and designers.

7 – Who Uses the Data and What for

- Commercial team for material verification / progress / costing.
- Site Engineering team for as built’s and setting out.
- Site Management team for information / inductions / visuals.
- Client’s designer for design tweaks / realignment / clash rectification
- Client for works verification against payment applications.
- Local authority's and stats providers for updating asset records.
- Marketing team as it looks great!!.

Trimble Earthworks Avoidance Zones

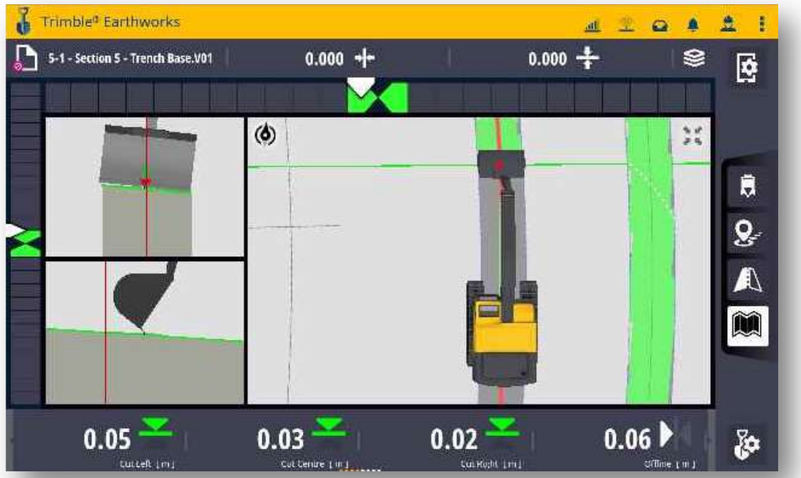
- What are avoidance zones?.
- How are they created?.
- How are they used on site?.
- What are the benefits?.

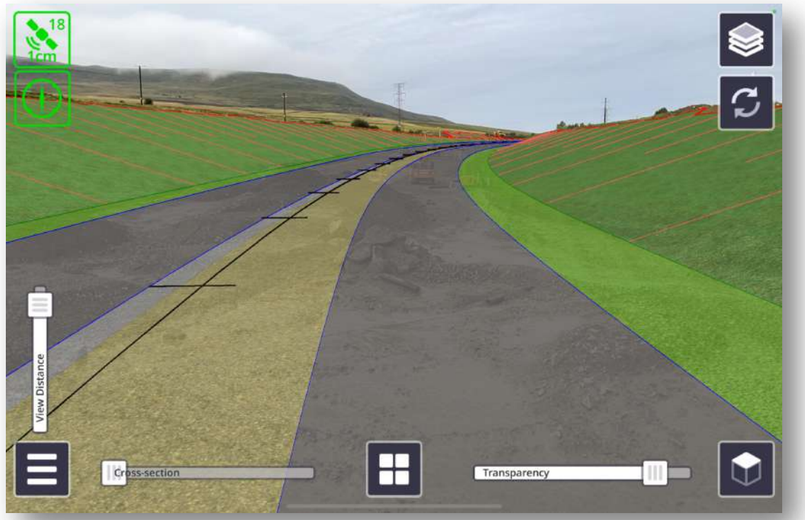
1 – What are Avoidance Zones

2 – How are Avoidance Zones Created

3 – How are Avoidance Zones Used on Site and benefits of use

- Visual representation of associated hazards with customised buffer zones.
- Audible warning when approaching the hazard.
- Enhanced warning when within tolerance set from hazard.
- Added security for the operator, supervisors, site labour etc.
- An additional tool in the armoury, when coupled with permits and briefings, site statistics analysis etc.





Safe Digging: Let's Make a Difference;

PART 2
LEICA & PLANTFORCE

Leica – Adam Baker – Head of Engineering
Plantforce/INVU
Plantforce - Matt Milkins, Digital Lead
Alex Willis & Allen Murdoch
INVU – Bradley Phelps & Jason Redgrave

ceca
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HEXAGON

Adam Baker

Regional Sales Manager

Leica Digital 3D Avoidance Zones

HEXAGON

empowering an autonomous future

The Facts

Hazards the industry faces on site aren't always visible. In the UK we face:

1.5mil+
KM OF UNDERGROUND PIPES/CABLES

60,000
ACCIDENTAL STRIKES PER YEAR

£4.4mil
FINE FOR STRIKING UTILITIES

£2.4bn
ANNUAL COST TO ECONOMY

700+
DATA ASSET OWNERS ON NUAR

14,000
across the UK every day

065

HEXAGON

HEXAGON

SMART CHANGE

For the life of infrastructure

Safety Awareness Solutions

Increase workers safety and visibility for entire site

- Digital Avoidance Zones, Above and Below Ground
- Prevent machine-to-people, machine-to machine, and machine-to-objects collisions.
- Integrate personal alert solutions to raise worker awareness and help prevent accidents on site.
- Personal tag for workers with integrated panic alert to notify machine operators.
- Integrated with MC1 machine control.

HEXAGON

Leica PA80

The Leica iCON PA80 integrates with MC1 to automatically alert the operator on screen. This will increase awareness and immediate response regardless if the operator is in a dozer, excavator or any other heavy equipment using the MC1 machine control system. Leveraging the MC1 cloud enablement, incidents can also be logged and distributed to enable visualisation, analytics or reporting within a contractor’s existing safety management processes.

HEXAGON

Please come and join us for a live demo at lunch, where we will be happy to answer any questions

HEXAGON

InVu

The Next Generation
Human Form Recognition

People detection,
Not object detection

Online
incursion logs

360º
Camera

External and internal
audible alarm system

Fully configurable system
to site requirements

Visual
internal alerts

In cab display

- 4k touch screen interface
- Multiple Camera view option
- Incursion video recording

Product Benefits

Configurable
exclusion zones

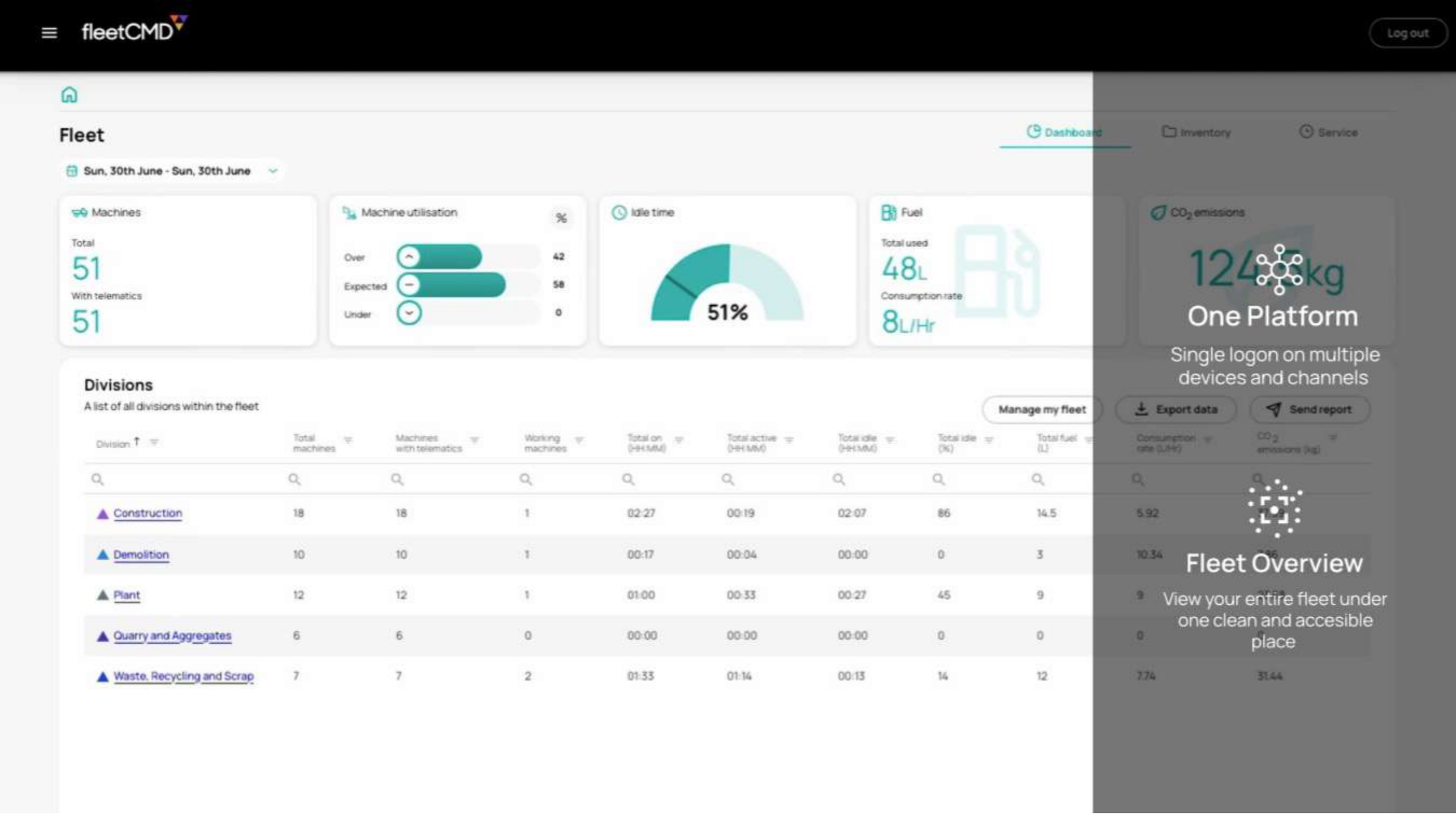
fleetCMD

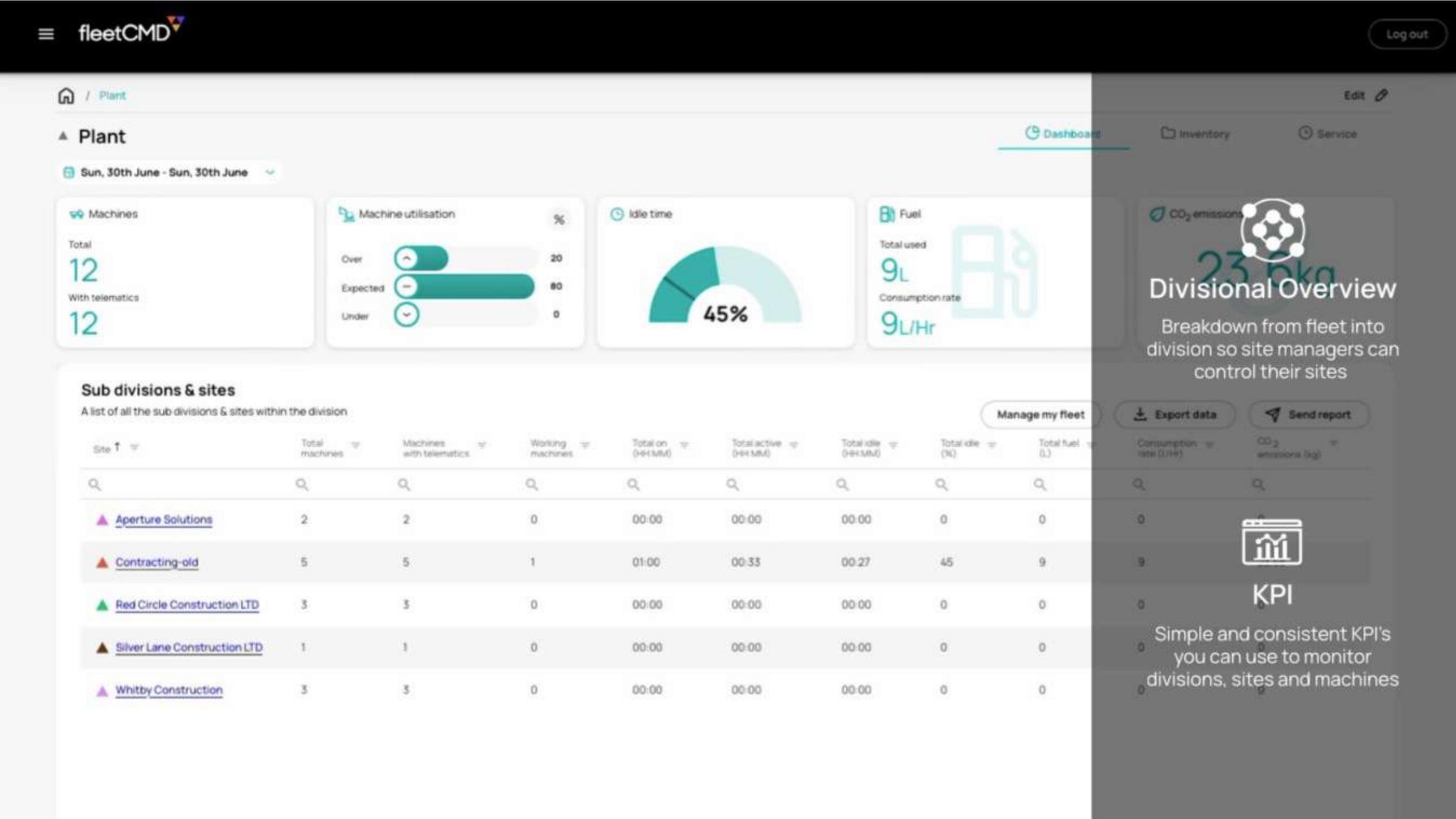
Powered by smartCMD

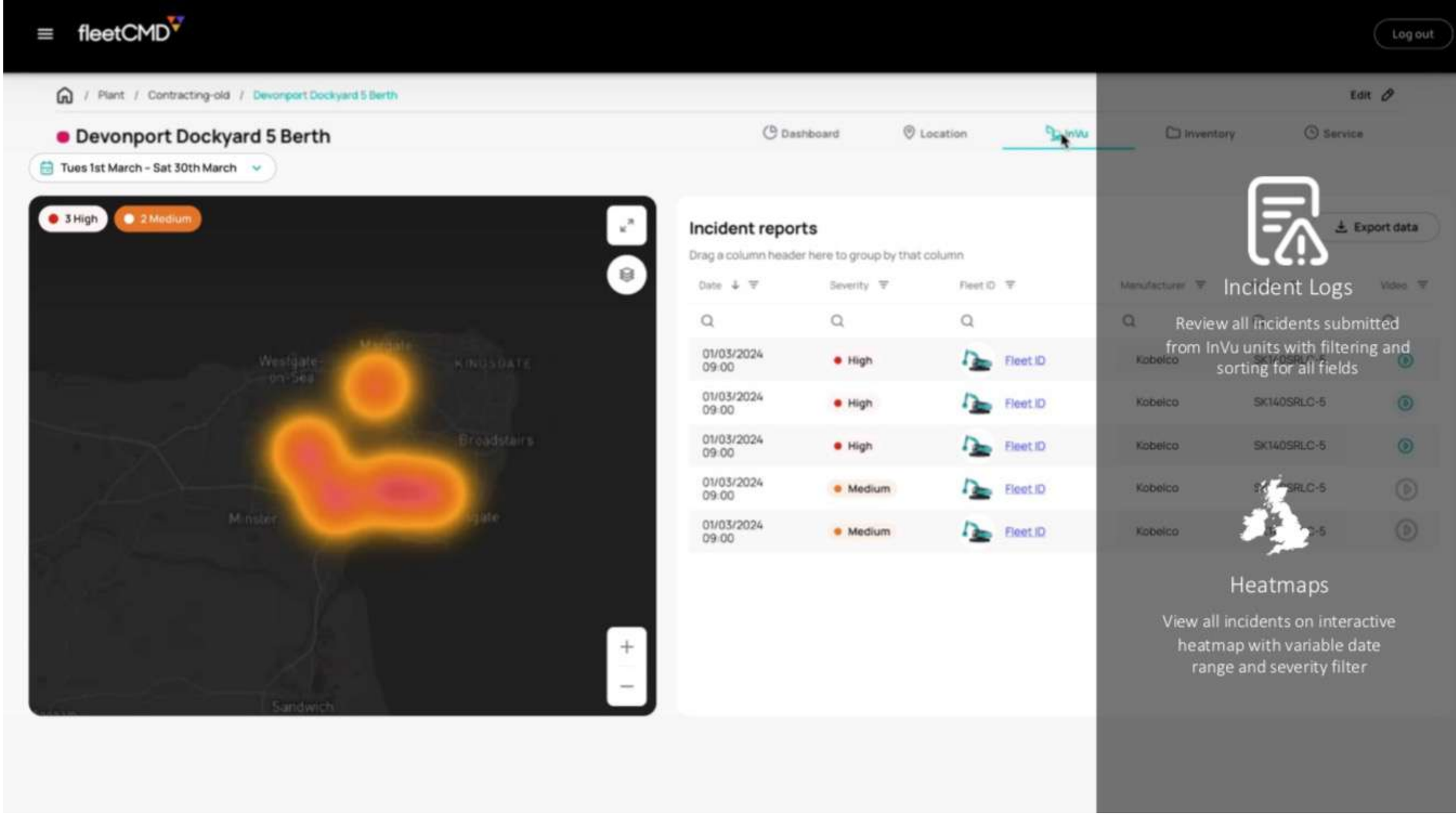
Data-driven software to manage your fleet more efficiently

InVu

Human form recognition camera system, feeding into fleetCMD


fleetCMD
Log out
Fleet
Dashboard
Inventory
Service
Sun, 30th June - Sun, 30th June
Machines
Total
51
With telematics
51
Machine utilisation
%
Over
42
Expected
58
Under
0
Idle time
51%
Fuel
Total used
48L
Consumption rate
8L/Hr
CO2 emissions
124.5kg
Divisions
A list of all divisions within the fleet
Manage my fleet
Export data
Send report
Division
Total machines
Machines with telematics
Working machines
Total on (HH:MM)
Total active (HH:MM)
Total idle (HH:MM)
Total idle (%)
Total fuel (L)
Consumption rate (L/Hr)
CO2 emissions (kg)
Construction 18 18 1 02:27 00:19 02:07 86 14.5 5.92
Demolition 10 10 1 00:17 00:04 00:00 0 3 10.34
Plant 12 12 1 01:00 00:33 00:27 45 9 9
Quarry and Aggregates 6 6 0 00:00 00:00 00:00 0 0 0
Waste, Recycling and Scrap 7 7 2 01:33 01:14 00:13 14 12 7.74 31.44
One Platform
Single logon on multiple devices and channels
Fleet Overview
View your entire fleet under one clean and accesible place


fleetCMD
Log out
/ Plant
Edit
Plant
Dashboard
Inventory
Service
Sun, 30th June - Sun, 30th June
Machines
Total
12
With telematics
12
Machine utilisation
%
Over
20
Expected
80
Under
0
Idle time
45%
Fuel
Total used
9L
Consumption rate
9L/Hr
Sub divisions & sites
A list of all the sub divisions & sites within the division
Manage my fleet
Export data
Send report
Site
Total machines
Machines with telematics
Working machines
Total on (HH:MM)
Total active (HH:MM)
Total idle (HH:MM)
Total idle (%)
Total fuel (L)
Consumption rate (L/Hr)
CO2 emissions (kg)
Aperture Solutions 2 2 0 00:00 00:00 00:00 0 0 0
Contracting-old 5 5 1 01:00 00:33 00:27 45 9 9
Red Circle Construction LTD 3 3 0 00:00 00:00 00:00 0 0 0
Silver Lane Construction LTD 1 1 0 00:00 00:00 00:00 0 0 0
Whitby Construction 3 3 0 00:00 00:00 00:00 0 0 0
Divisional Overview
Breakdown from fleet into division so site managers can control their sites
KPI
Simple and consistent KPI's you can use to monitor divisions, sites and machines


fleetCMD
Log out
Plant / Contracting-old / Devonport Dockyard 5 Berth
Edit
Devonport Dockyard 5 Berth
Dashboard
Location
InVu
Inventory
Service
Tues 1st March - Sat 30th March
3 High
2 Medium
Westgate-on-Sea
Margate
KINGSDATE
Broadstairs
Sandwich
Incident reports
Drag a column header here to group by that column
Date
Severity
Fleet ID
01/03/2024 09:00
High
Fleet ID
01/03/2024 09:00
High
Fleet ID
01/03/2024 09:00
High
Fleet ID
01/03/2024 09:00
Medium
Fleet ID
01/03/2024 09:00
Medium
Fleet ID
Export data
Manufacturer
Video
Kobelco
SK140SRLC-5
Kobelco
SK140SRLC-5
Kobelco
Kobelco
Incident Logs
Review all incidents submitted from InVu units with filtering and sorting for all fields
Heatmaps
View all incidents on interactive heatmap with variable date range and severity filter

fleetCMD

Log

InVu Report

Mon, 1st January - Thu, 29th Febru...

Drag a column header here to group by that column

Fleet ID	InVu serial no.	Manufacturer				Date	Incidents	Video
LS15006022	40A	Kobelco				22/01/2024, 13:13		
LS15006022	40A	Kobelco				19/01/2024, 10:0		
LS15006022	40A	Kobelco				19/01/2024, 10:02		
LS15006022	40A	Kobelco				22/01/2024, 13:09		
LS15006022	40A	Kobelco				19/01/2024, 14:24		
LS15006022	40A	Kobelco				22/01/2024, 12:54		
LS15006022	40A	Kobelco	SK140SRLC-7	Quarry	N/A		Medium	19/01/2024, 12:11
LS15006022	40A	Kobelco	SK140SRLC-7	Quarry	N/A		Medium	22/01/2024, 13:1
LS15006022	40A	Kobelco	SK140SRLC-7	Quarry	N/A		Medium	19/01/2024, 14:16
LS15006022	40A	Kobelco	SK140SRLC-7	Quarry	N/A		Medium	22/01/2024, 13:16

Video

Review all 4 camera footage related to high severity incidents

Reporting

Create one off, or schedule reports emailed to any recipient

Built by safety experts

ABD SOLUTIONS

35+
years' experience in advanced vehicle autonomy and simulation

1,000+
driverless robot solutions supplied globally

25+
of the world's top vehicle manufacturers use their solutions

$500m
of approximate market capitalisation within this publicly listed, global business

Developed with industry experts

MOLSON

Est. 1996
UK's largest independent supplier of plant equipment

360º
product range from market leading brands

13
locations strategically positioned throughout the UK

300+
staff across the UK from sales to service and beyond

In partnership with

Safe Digging: Let’s Make a Difference;

PART 3
MAMMOTH MTS & VAC-EX

Vac-Ex - Lee Shackleton – Commercial Director
Vac-Ex - Leighton Shackleton – Sales Manager

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