

SiteHive



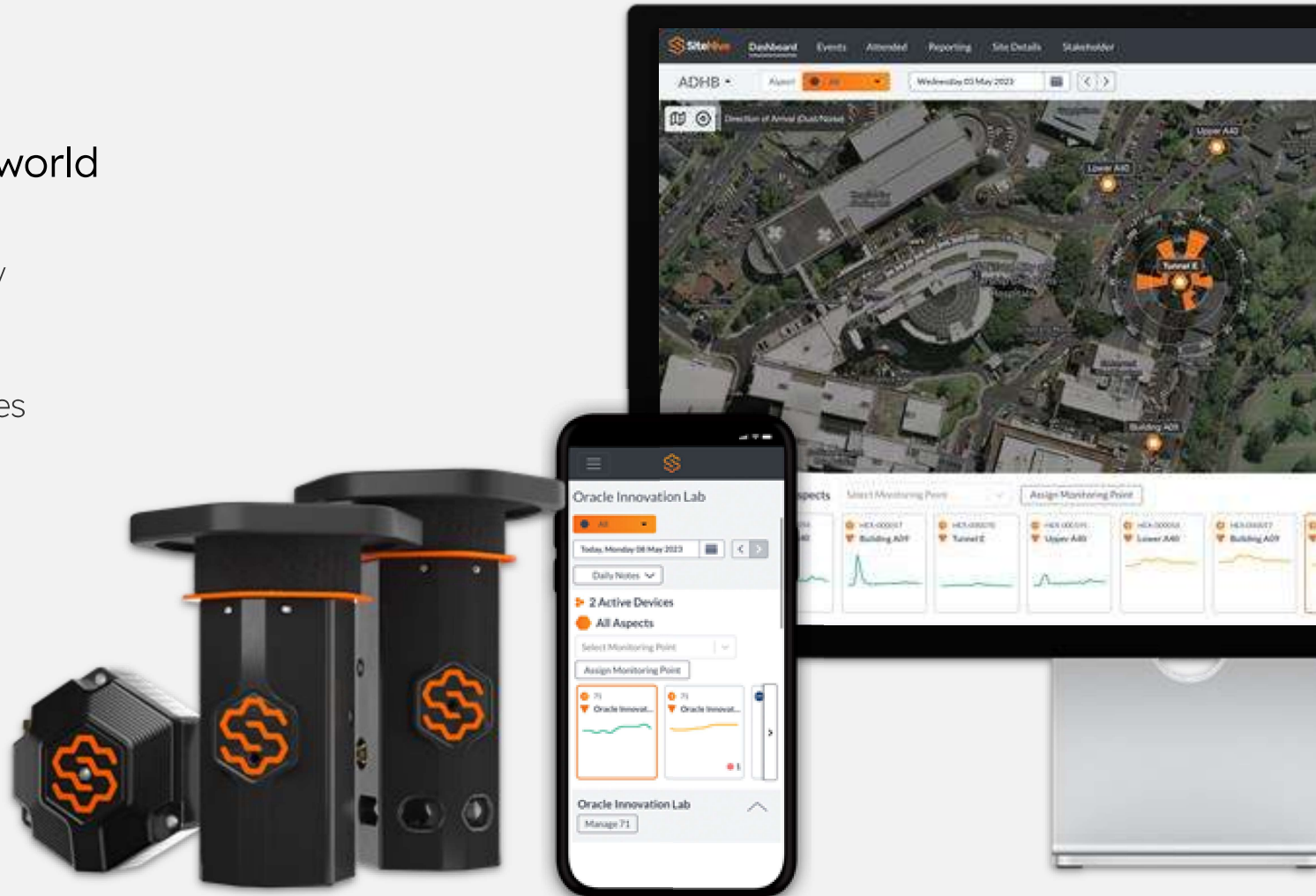
Innovative Low-cost AI
Digital Technology for
Port Noise Management
PIANC - August 2024



SiteHive

Real-time environmental management for today's world

- Founded in 2019, in Sydney
- **SiteHive Enviro** software
- **SiteHive Hexanode** devices
- Website: sitehive.co



Well established in construction

- >400 projects supported
- >500 devices deployed
- Trusted by industry

**JOHN
HOLLAND**

**M'CONNELL
DOWELL**

Built.

LAING O'ROURKE

**CPB
CONTRACTORS**

**Fulton
Hogan**

**GAMUDA
Australia**

MULTIPLEX

WINSLOW

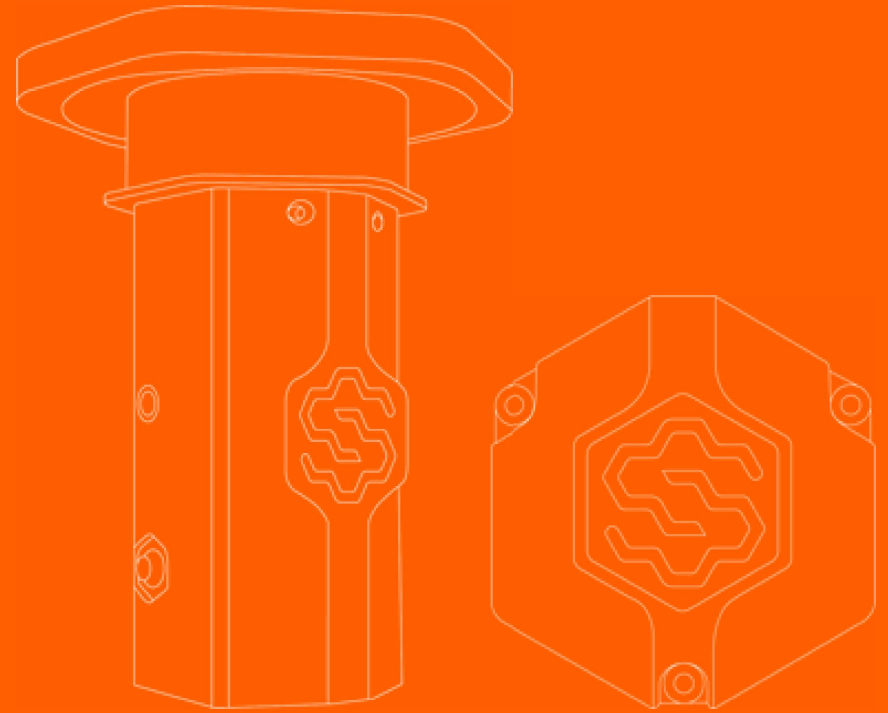
 SiteHive



SiteHive for ports



Portability



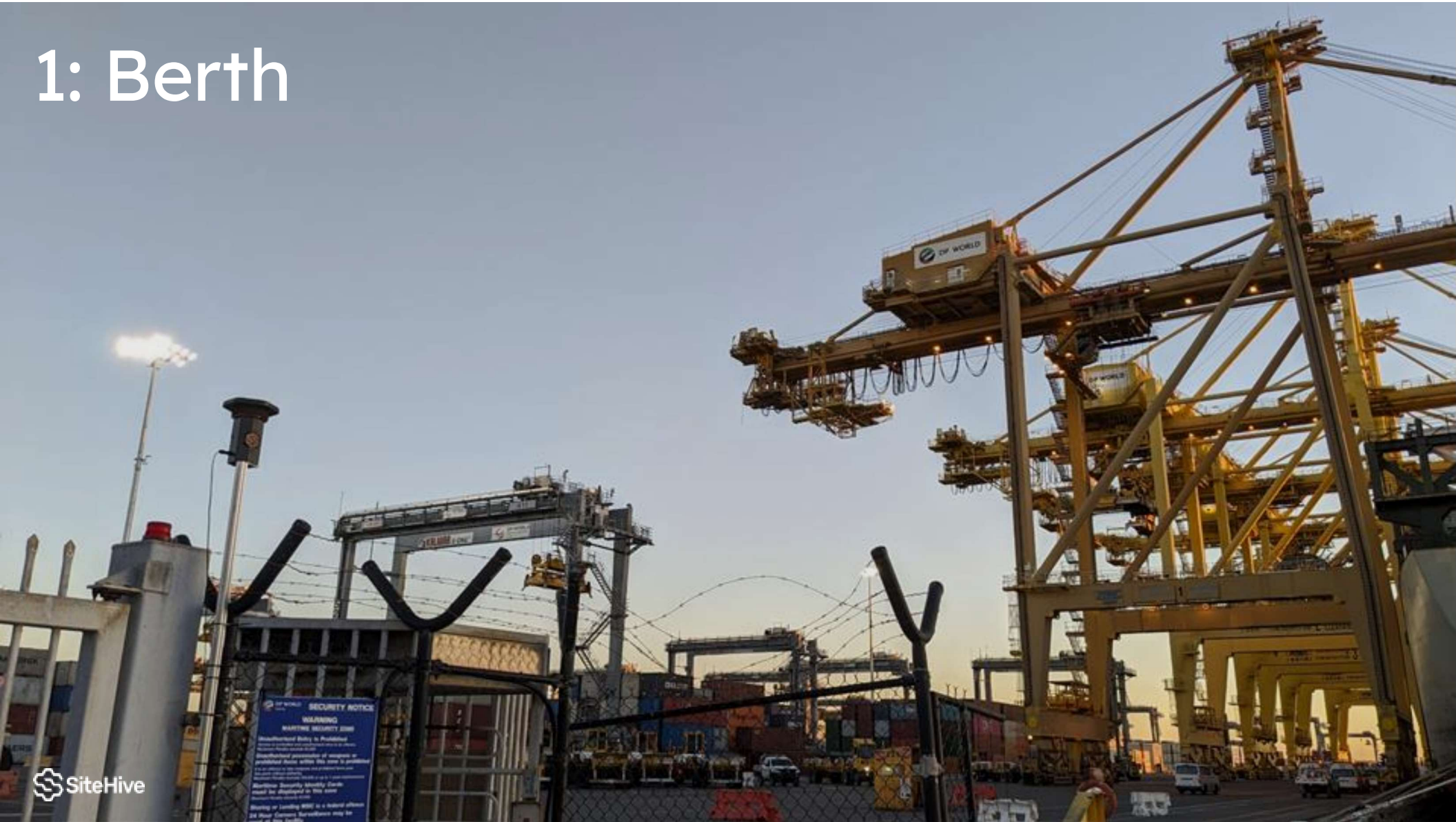
The trial was undertaken at 3 different locations.

SiteHive Hexanode devices are small, portable, and can be mounted in a variety of situations.

Custom stand with 10w solar panel & lithium battery runs indefinitely, and weighs <5kg.



1: Berth



2: Brotherson House roof



3: Brotherson House car park



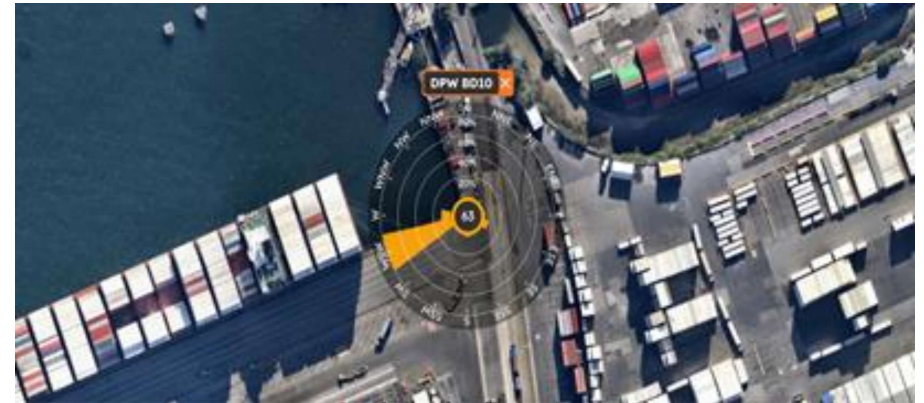
Directionality



Directionality

SiteHive Hexanodes use multiple microphones to determine direction of arrival of sound

Average LAeq for the selected time period is shown, along with dominant direction of sound



Ship in berth



Ship unloading

Directionality

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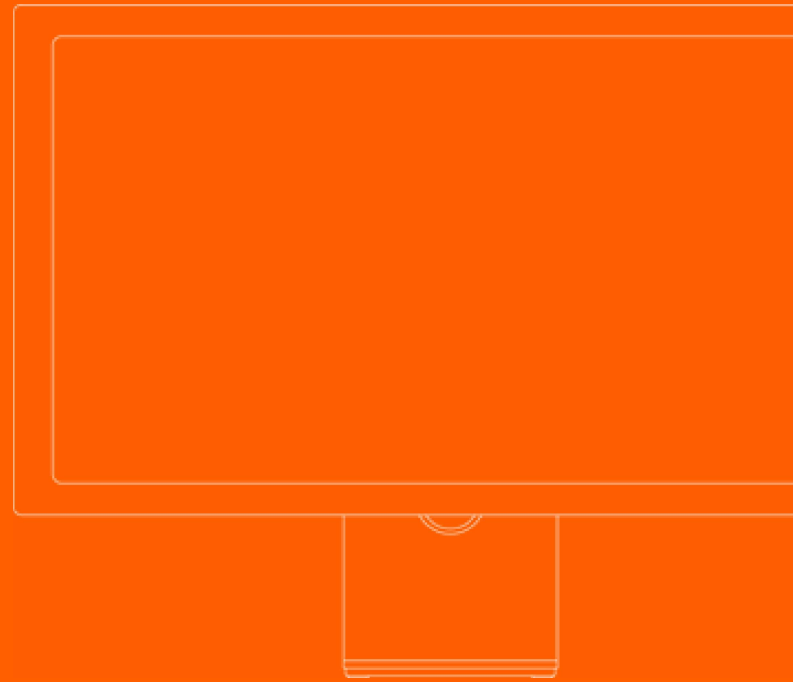


Single ship in berth



Multiple ships in berth

Rich contextual data



Your eyes and ears across your site, 24/7

SiteHive Hexanodes capture directional images, and audio files.

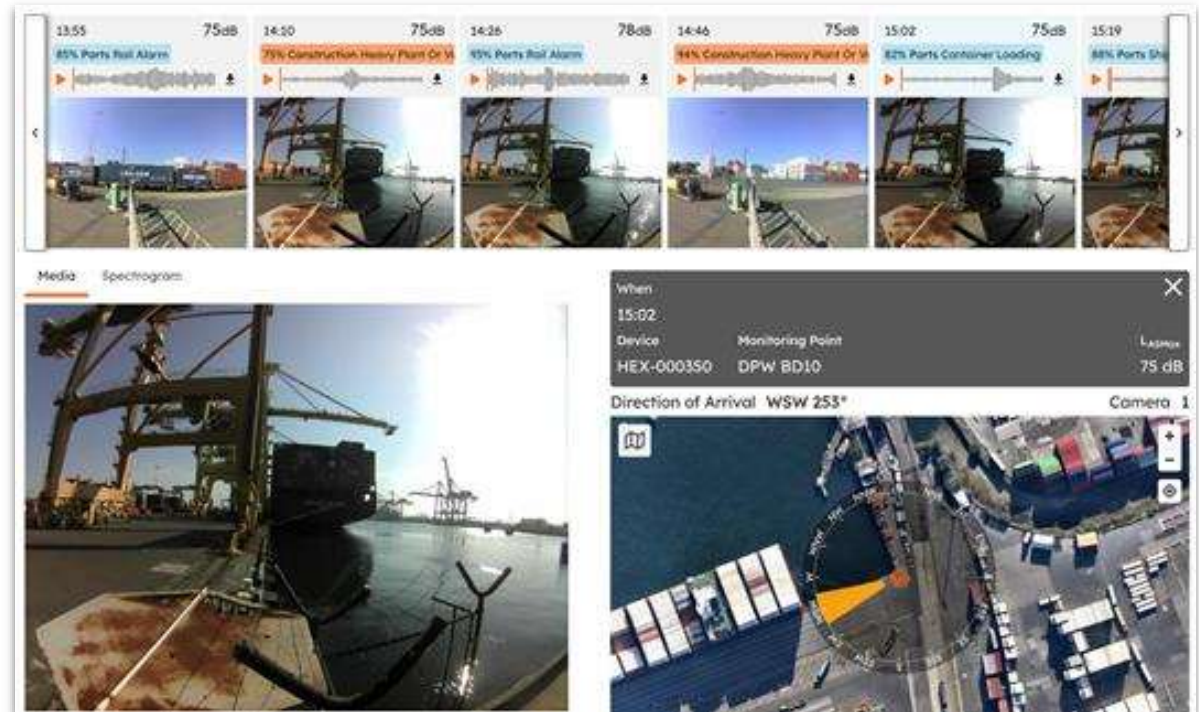
Accessible from wherever you are with SiteHive Enviro Pro software.



Media



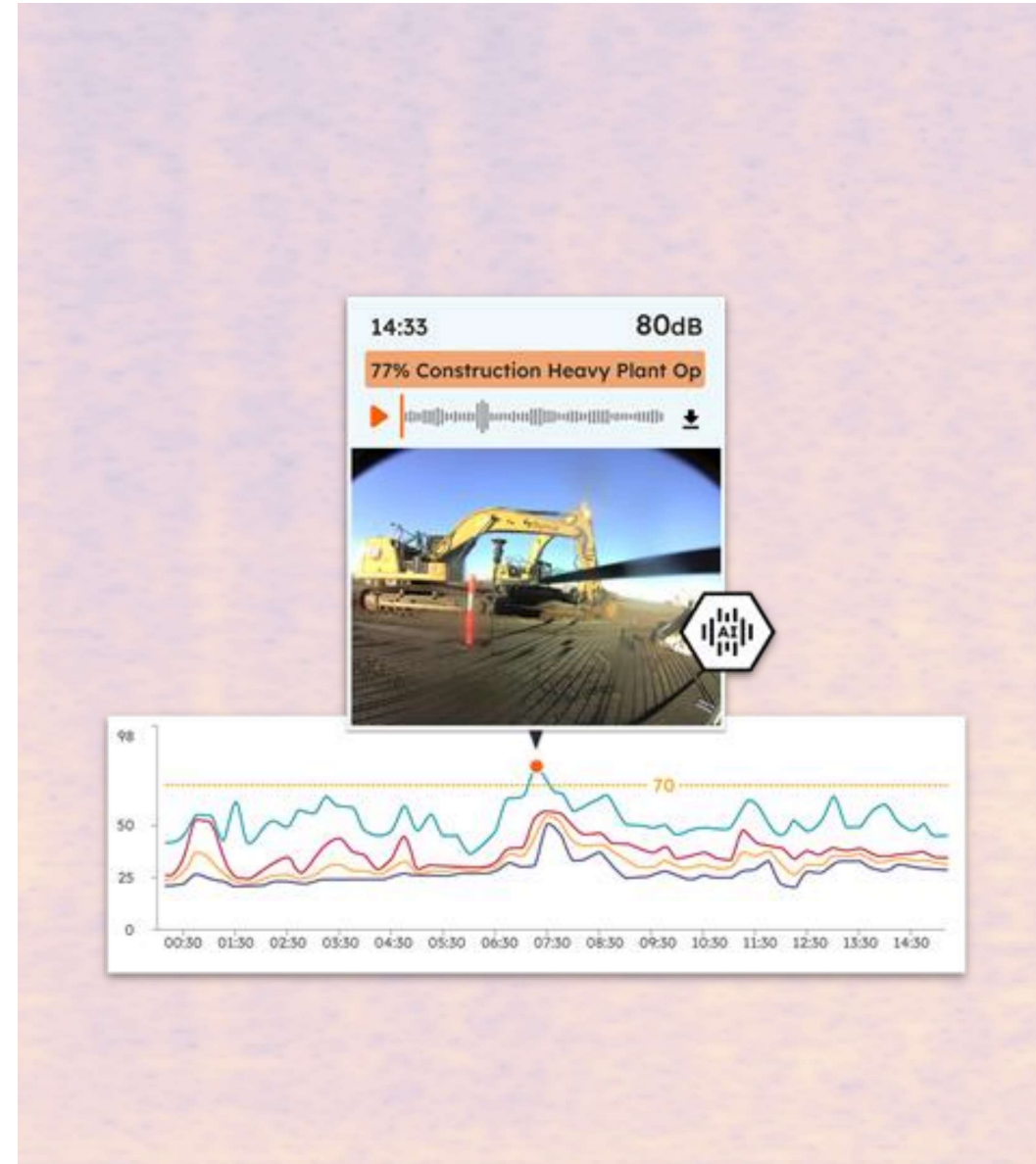
Audio Classifier



SiteHive Audio Classifier

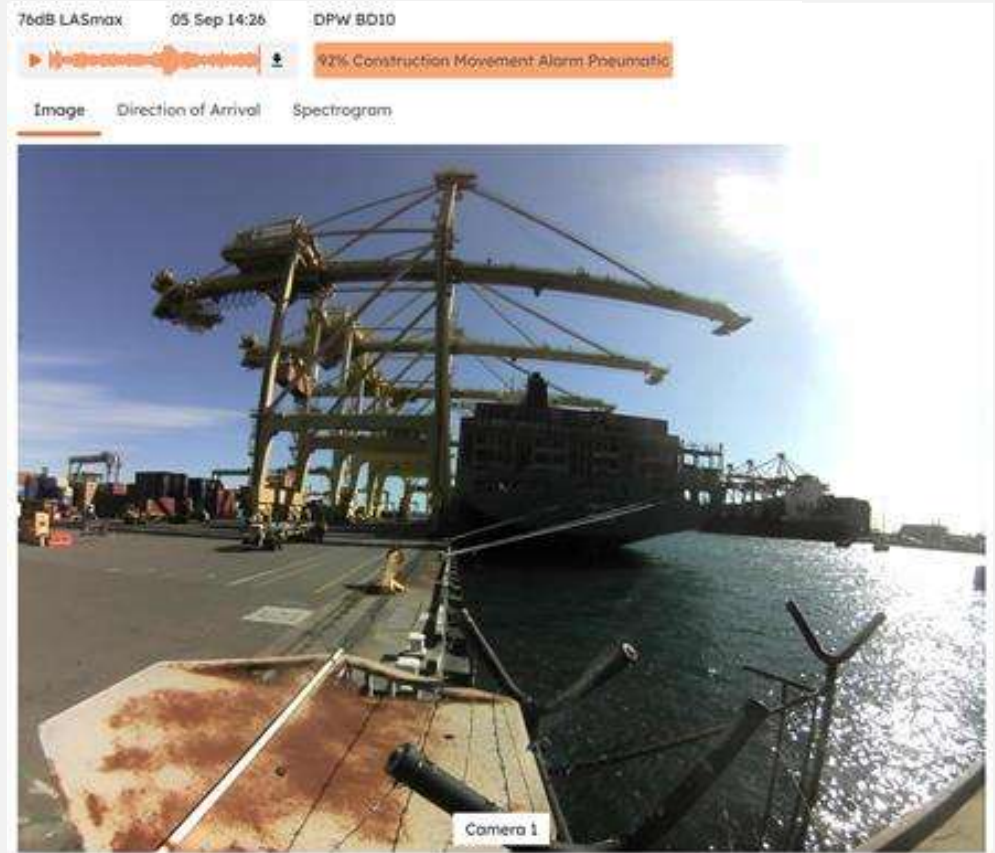
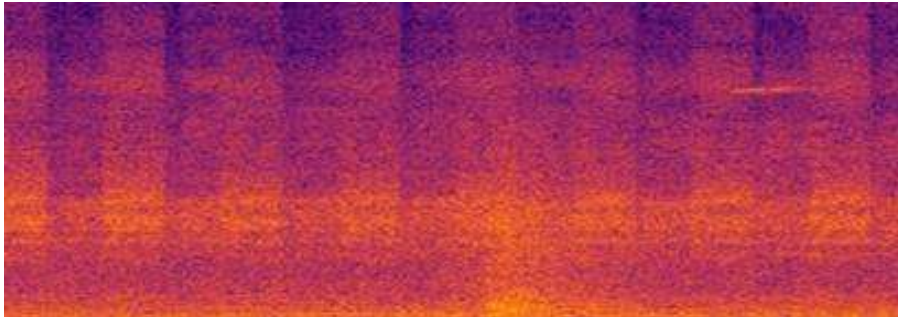
A new AI-powered technology to boost your productivity.

- SiteHive Audio Classifier identifies what is causing noise so you don't have to;
- Trained during the trial on port specific sounds;
- Leveraging existing construction sounds proved useful;
- Demonstrated the ability to quickly learn and confidently predict ports specific sounds



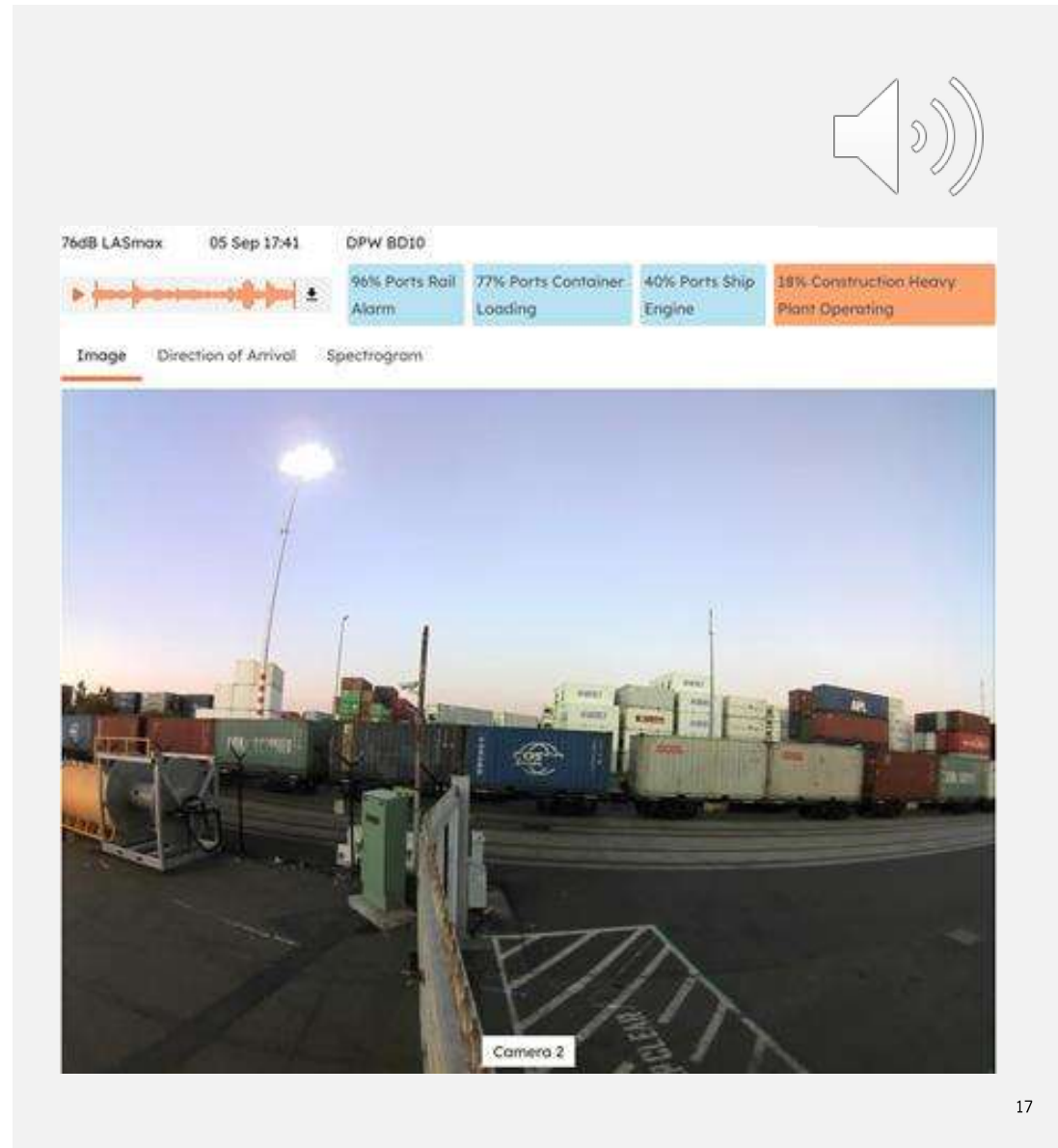
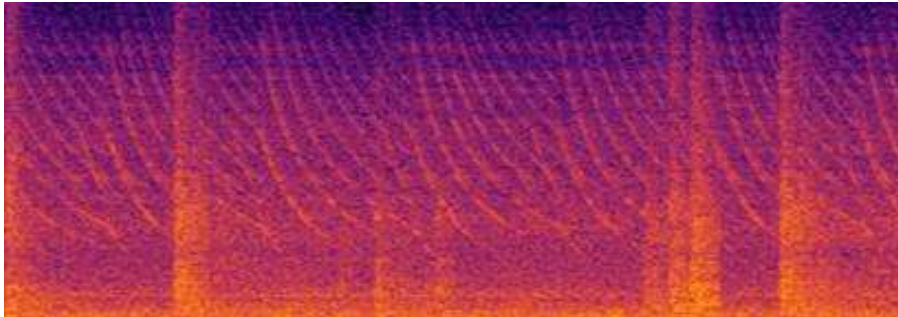
SiteHive Audio Classifier

Location 1: Berth
Movement alarms



SiteHive Audio Classifier

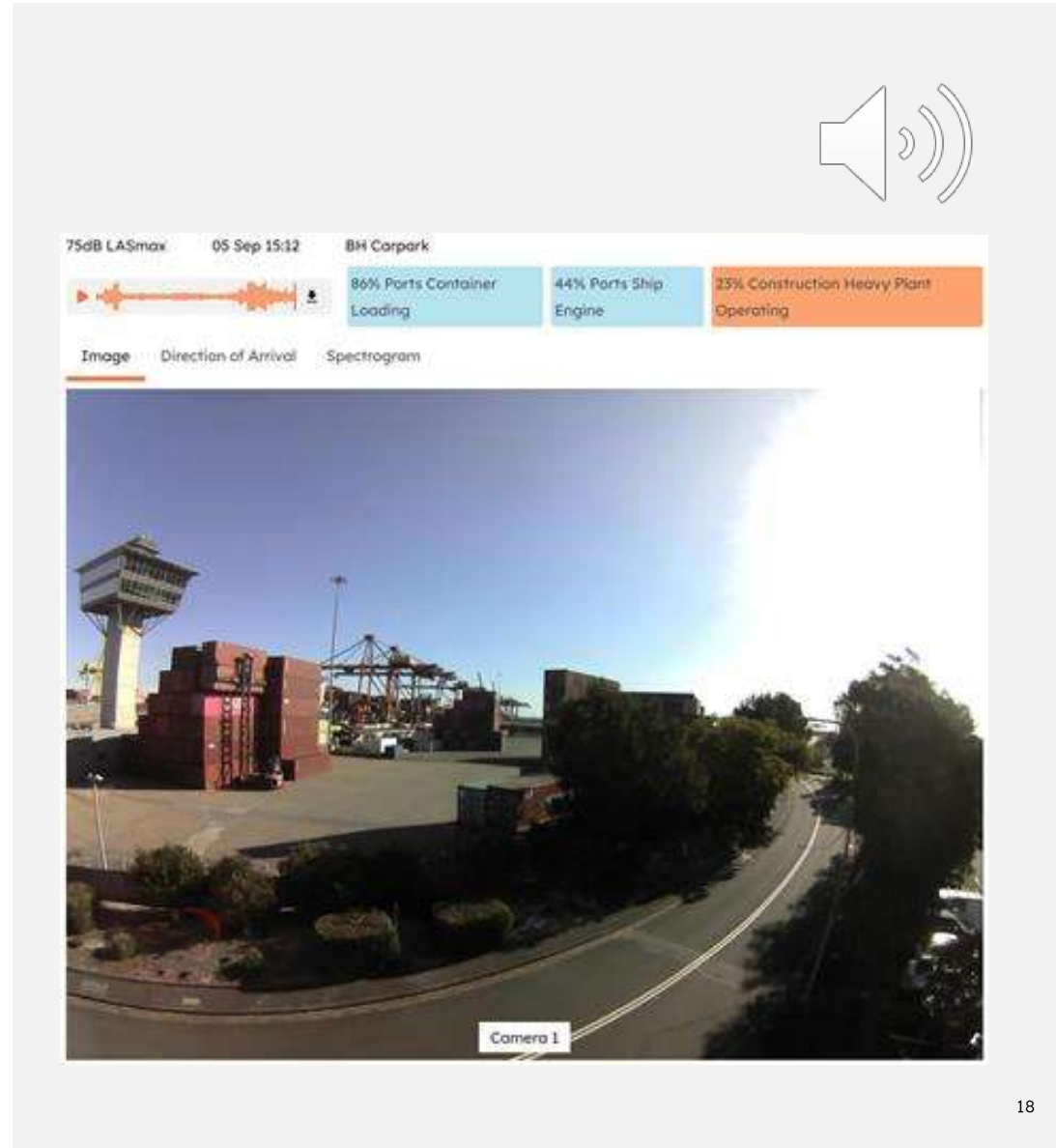
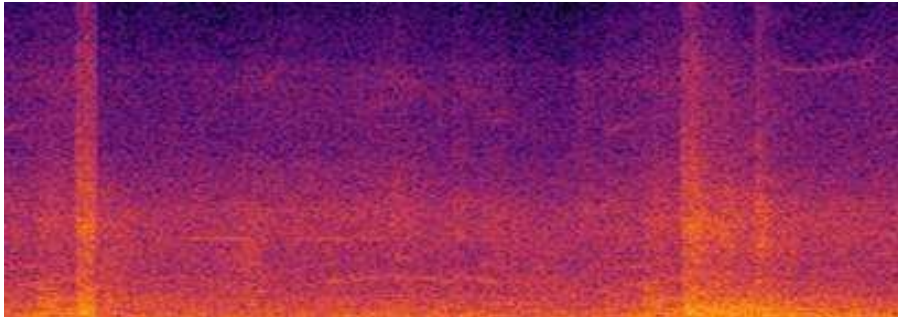
Location 1: Berth
Rail alarm and ships
in the background

A screenshot of the SiteHive audio classifier interface. At the top, it displays '76dB LASmax', '05 Sep 17:41', and 'DPW BD10'. Below this is a waveform and a classification bar with four categories: '96% Ports Rail Alarm' (blue), '77% Ports Container Loading' (light blue), '40% Ports Ship Engine' (light blue), and '18% Construction Heavy Plant Operating' (orange). Below the classification bar are three tabs: 'Image', 'Direction of Arrival', and 'Spectrogram'. The main area shows a video feed from 'Camera 2' of a port area with many shipping containers and a tall light pole. A 'Camera 2' label is visible in the bottom right corner of the video feed.

SiteHive Audio Classifier

Location 2: Container park


Able to see and hear containers being loaded



75dB LASmax 05 Sep 15:12 BH Carpark

86% Ports Container Loading 44% Ports Ship Engine 23% Construction Heavy Plant Operating

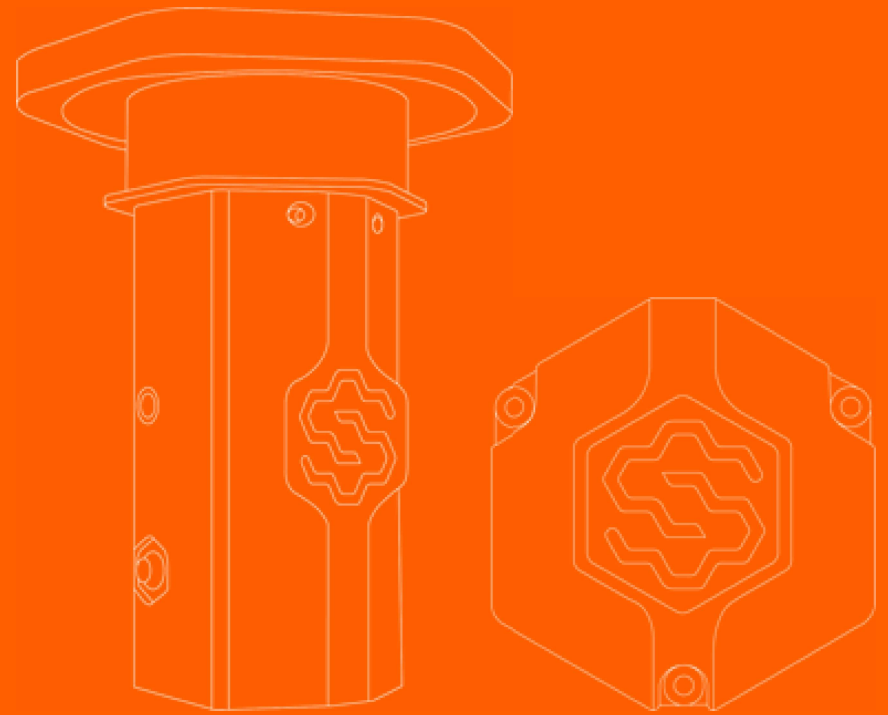
Image Direction of Arrival Spectrogram



Camera 1

The interface displays a live camera feed from 'Camera 1' showing a container park. In the background, there is a tall control tower and several cranes. The foreground shows a paved area with stacks of containers and some greenery. The interface also includes a speaker icon in the top right corner and a progress bar at the top left.

Reducing costs



Reducing costs

Studies with construction contractors have shown a cost reduction of **50% over a 3 year project**, vs undertaking the same scope with a consultant.

Cost savings come from **rental costs, no servicing costs, and productivity gains** by saving Enviros days of time per month.

SiteHive does not provide consulting advisory services



Reducing costs

“

The SiteHive solution has been estimated to reduce the cost of managing environmental impact by 50% or more, providing an efficient, economical solution to a traditionally manual process.

”

[Laing O'Rourke](#)



To conclude

- 🔗 Innovative real-time environmental management technology;
- 🔗 Proven in the construction industry;
- 🔗 Enabling quick and confident decisions in real-time;
- 🔗 Rich contextual information;
- 🔗 Accessible from wherever you are;
- 🔗 Lower costs;
- 🔗 Enabling to proactively manage environmental impact for communities and stakeholders.

