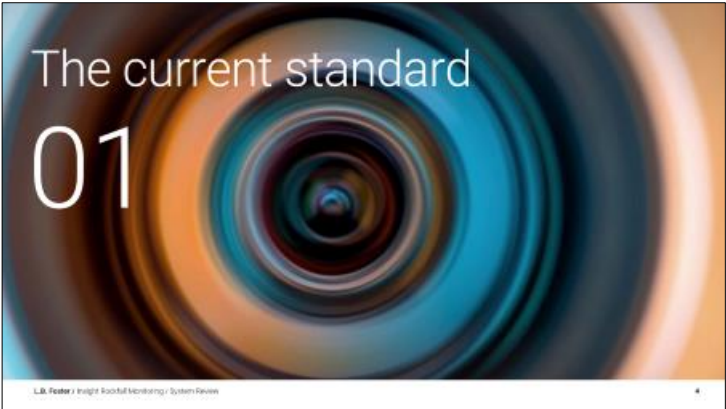


LB Foster®

Insight Rockfall Monitoring

System Review

Section contents





The current standard

01

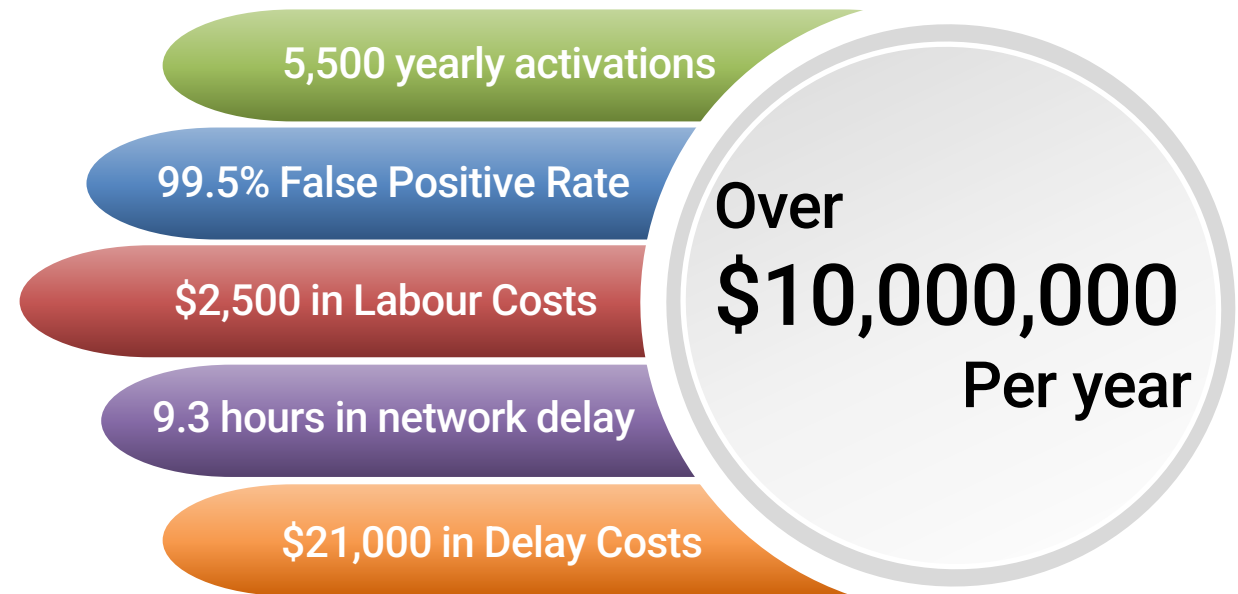
Protection From Rockfalls



The cost of doing business

Slide Fences are effective at detecting rockfalls or other obstacles but are costly to operate and maintain.

False positives and the associated delays are a significant cost driver for many railroad operators.

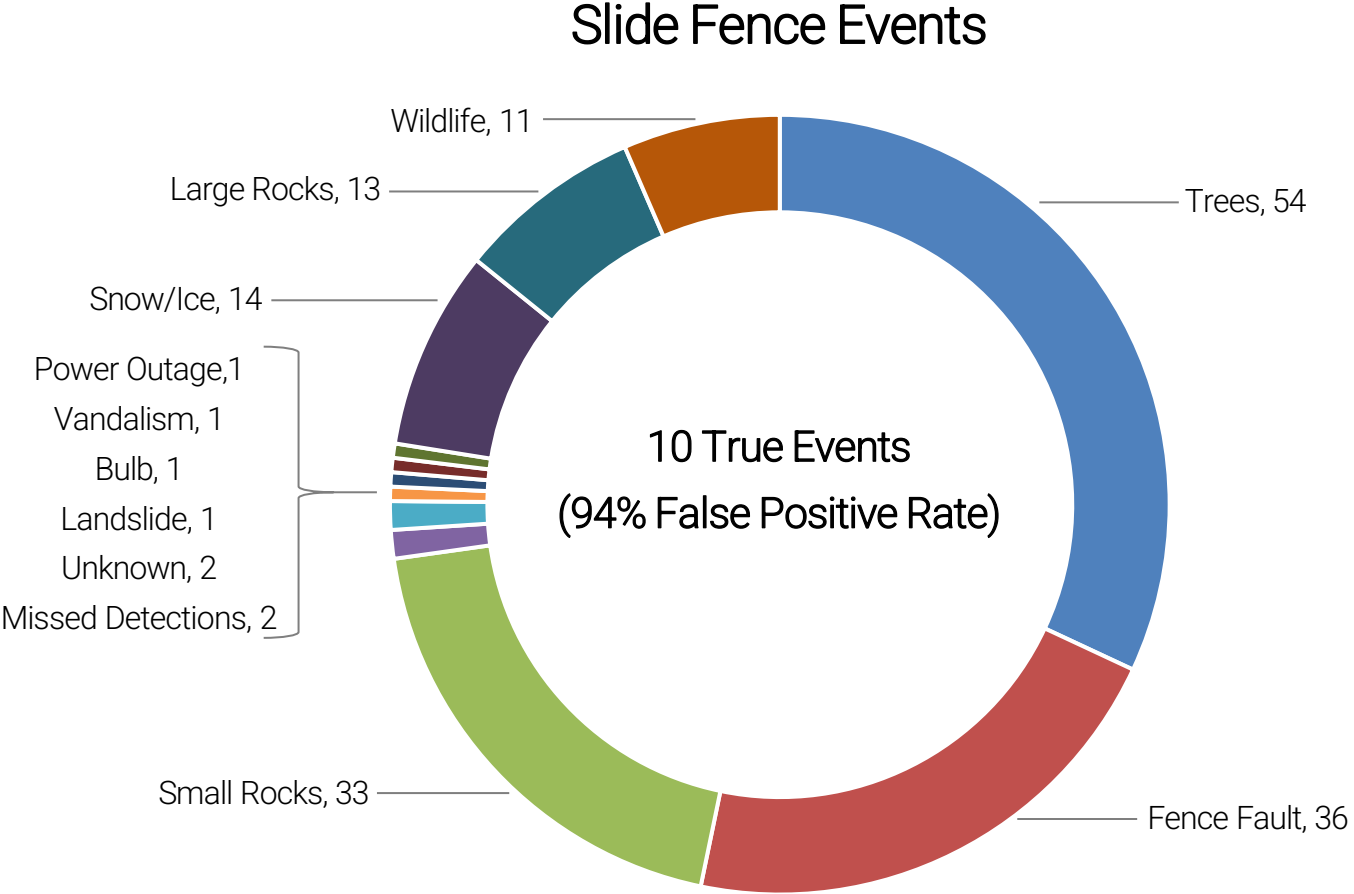


Data are from analysis of CN's BC South Region, 2021

The cost of doing business

Opportunity Cost at Network Capacity

Cost Category	Hourly Cost
Intermodal Lading (per car-hour)	\$1,172
Bulk/Manifest Lading (per car-hour)	\$523



Data are from analysis of CSX Network, 2021

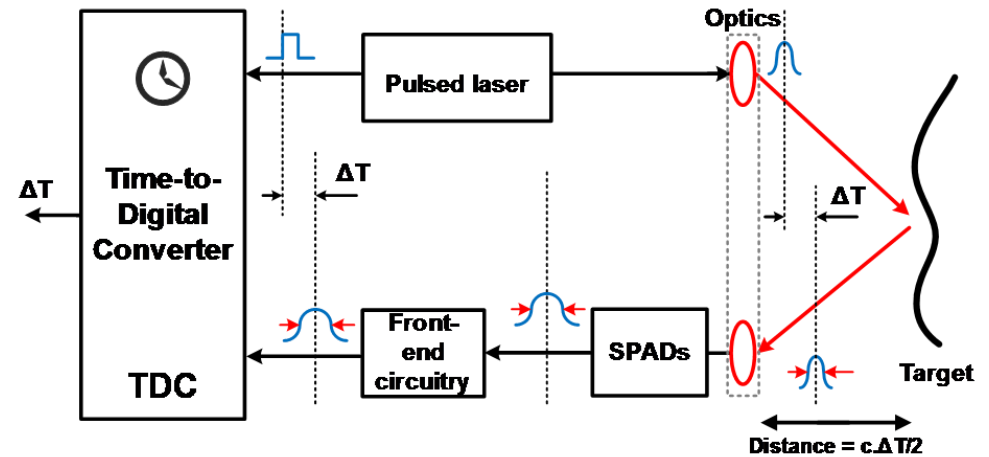
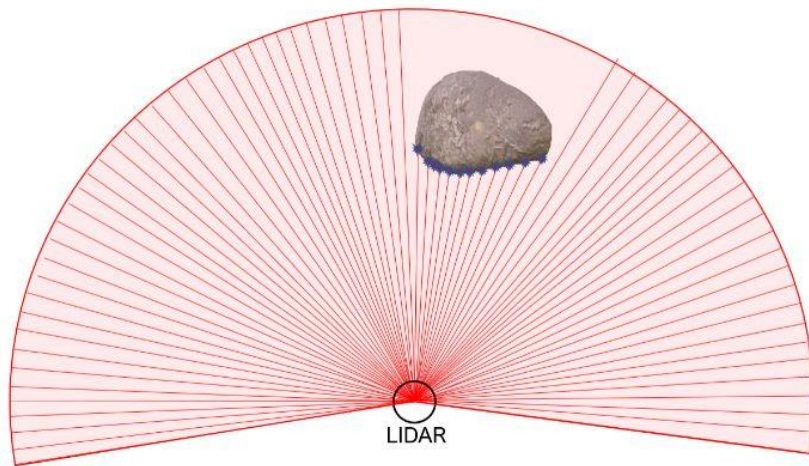
Our Solution

02

Insight LiDAR

Light Detection and Ranging (LiDAR) uses near-infrared pulsed laser technology to accurately map a two-dimensional profile.

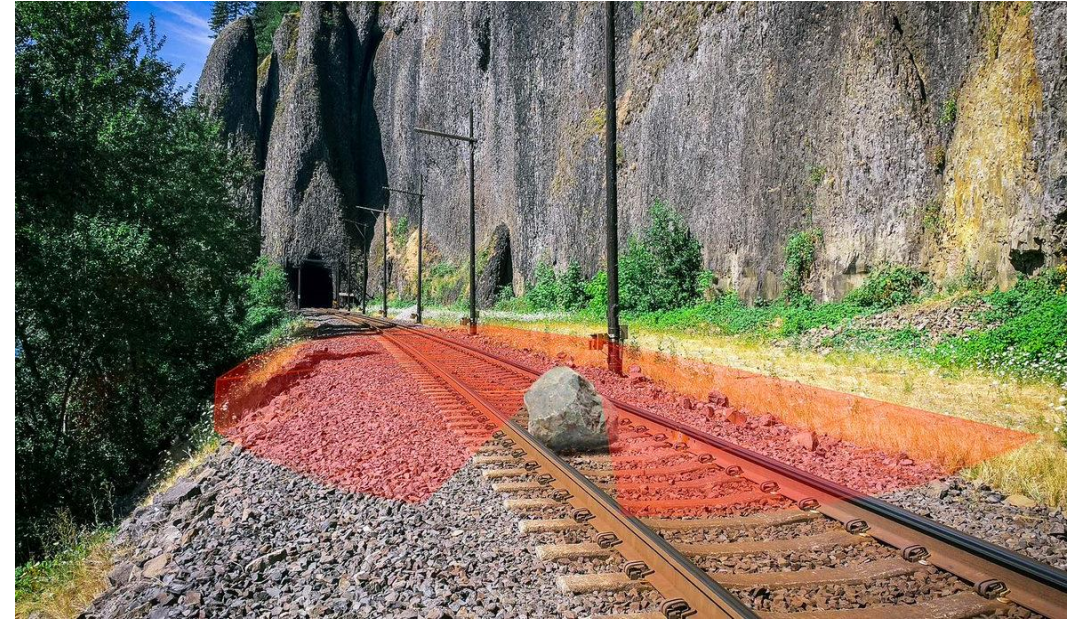
- > Active sensing (20 hZ frequency)
- > Precise object position, size, speed, & direction
- > Immune to inclement weather



Insight Rockfall

Utilizes Insight LiDAR to monitor and alert for rockfalls, landslides, and other obstacles that present a hazard to trains.

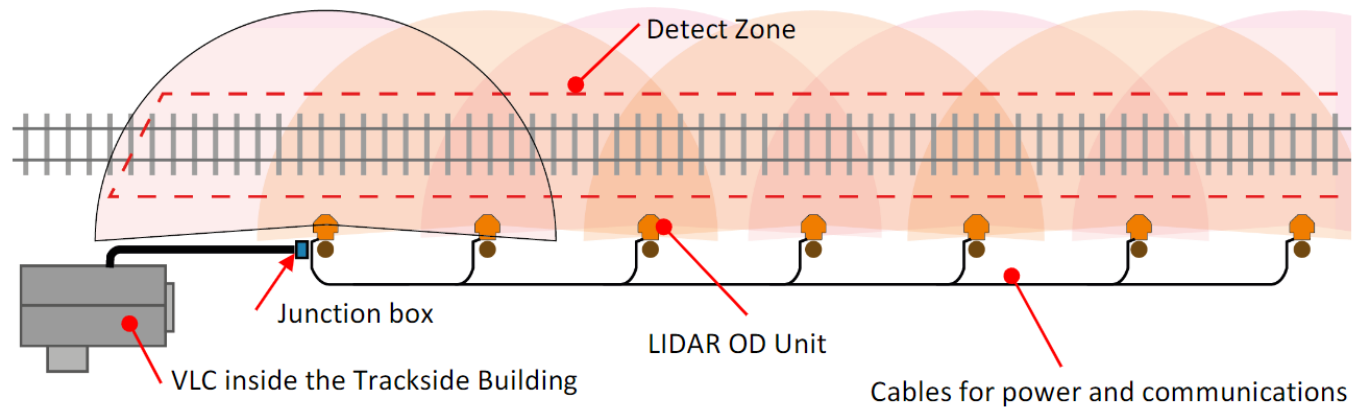
Designed as an upgrade and direct replacement to slide fence technology.



Insight Rockfall

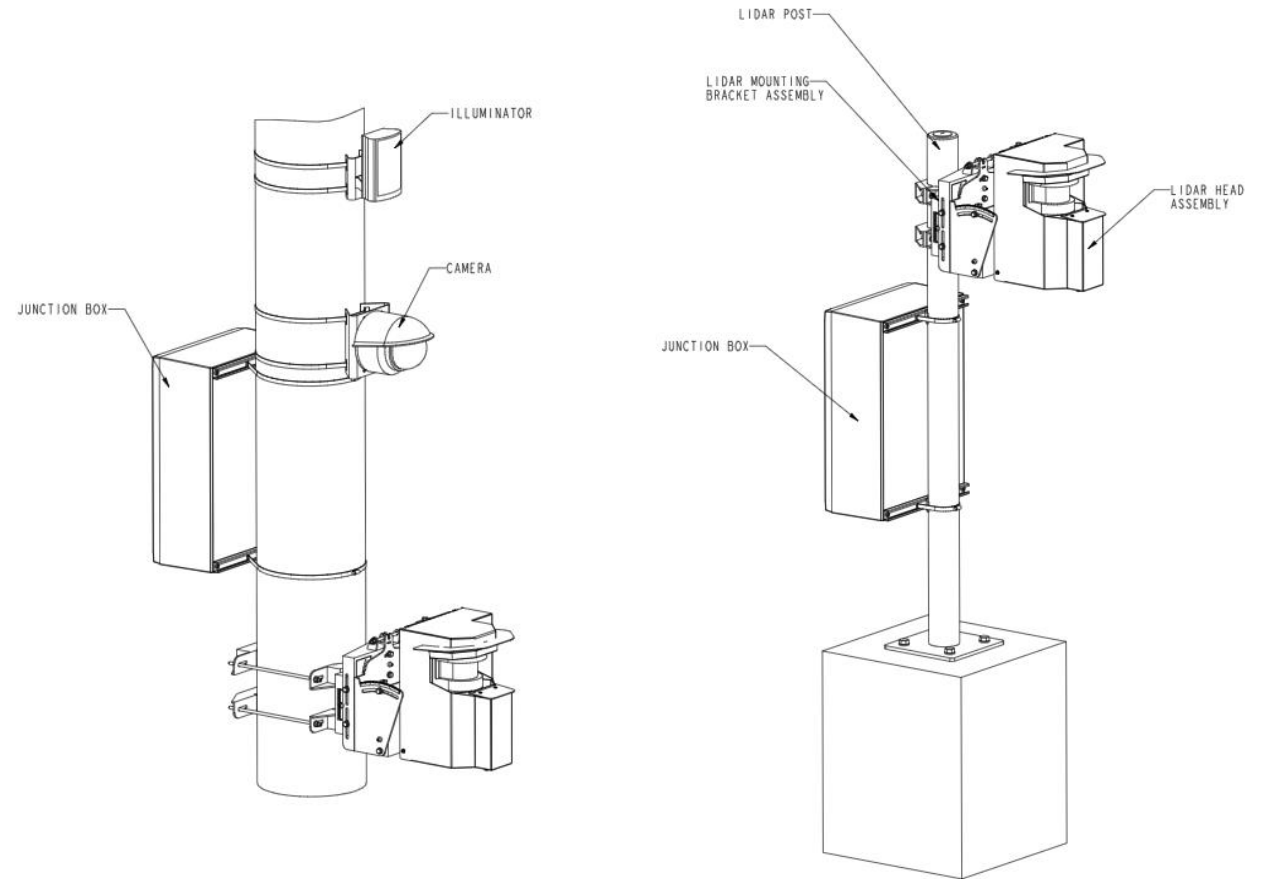
LiDAR are installed in series along track to create an overlapping monitoring area.

Within the monitoring area a detect zone is defined. If an obstacle rests within this zone, an alarm is triggered.



Major Components

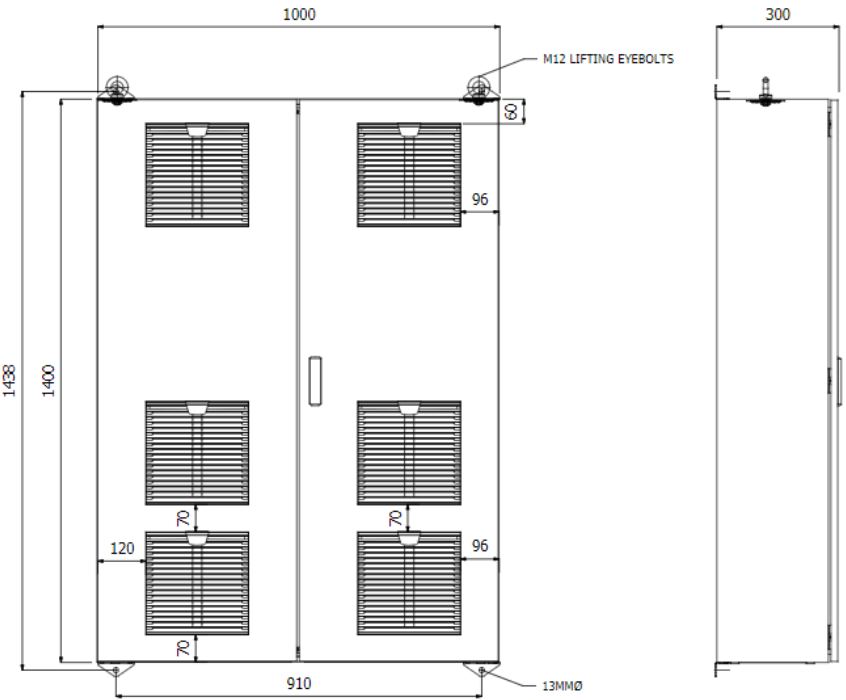
- > LiDAR head assembly
- > LiDAR mounting post
- > LiDAR mounting bracket
- > Junction box
- > Post mounting hardware
- > Camera & Illuminator



Major Components

> Control panel (power & communications)

> Transformer with enclosure



TRANSFORMER
(mounted inside enclosure)

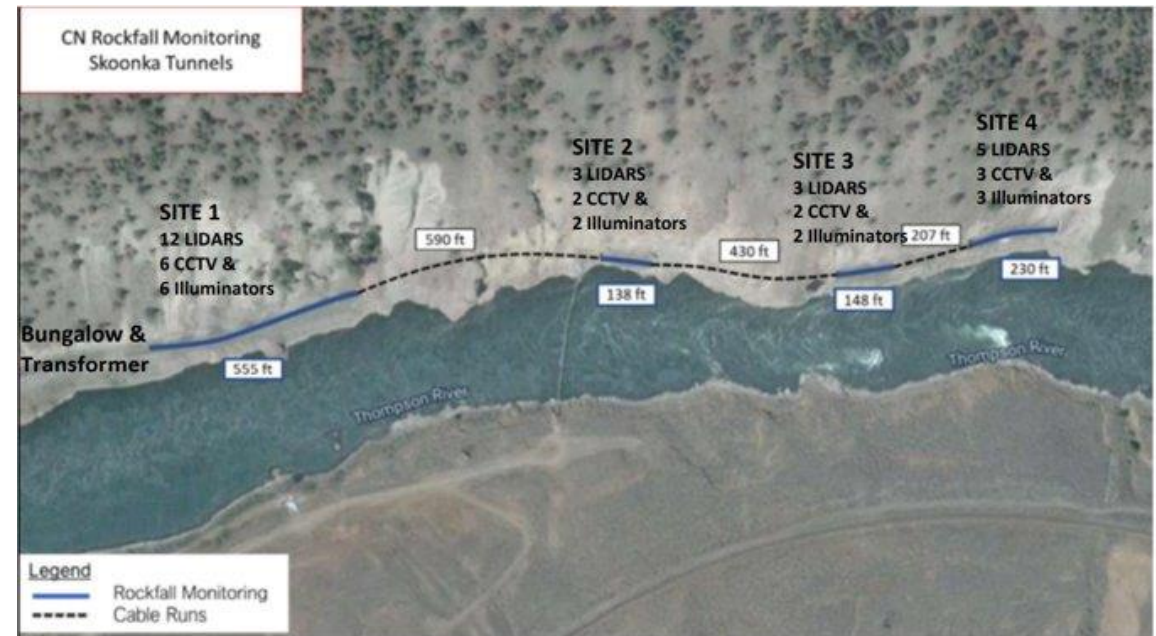
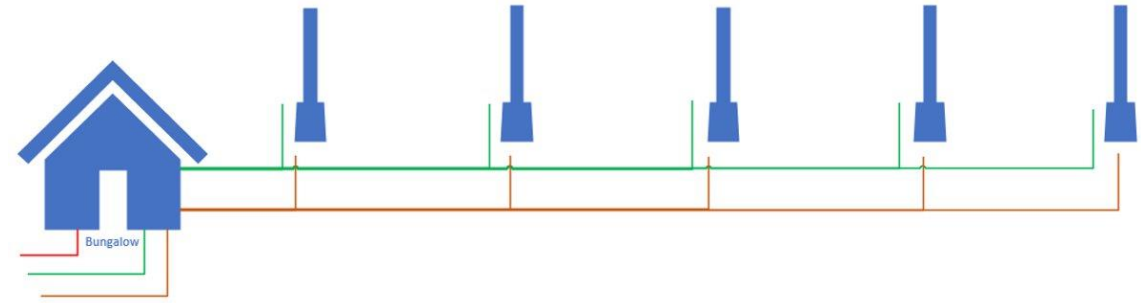


TRANSFORMER ENCLOSURE
4 x Slots for Floor Mounting

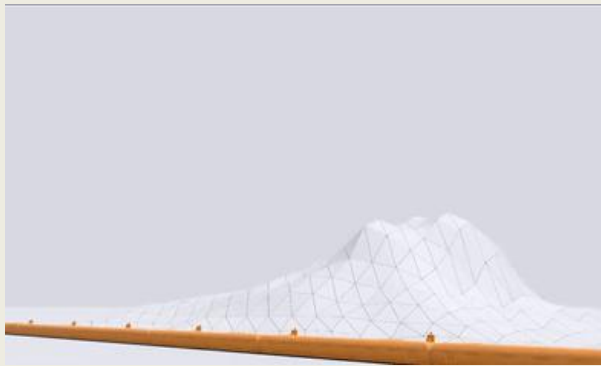
Major Components

Each series of LiDAR have hard-wired power & communications to a nearby bungalow.

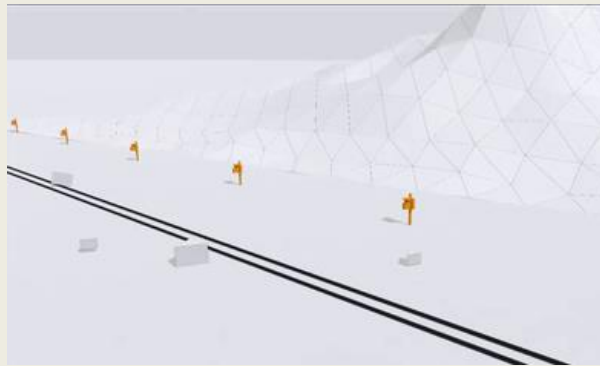
A single bungalow can power & control several separated sites in close proximity.



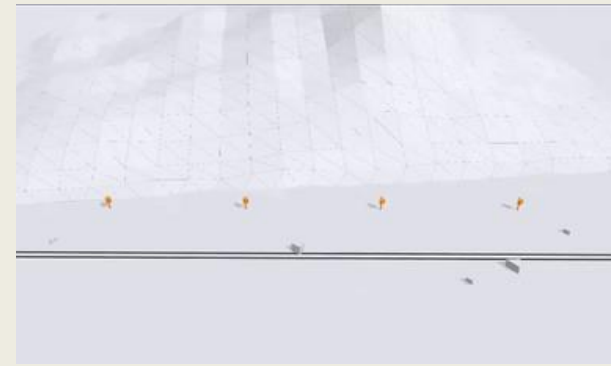
System Features



Active Monitoring, 24/7



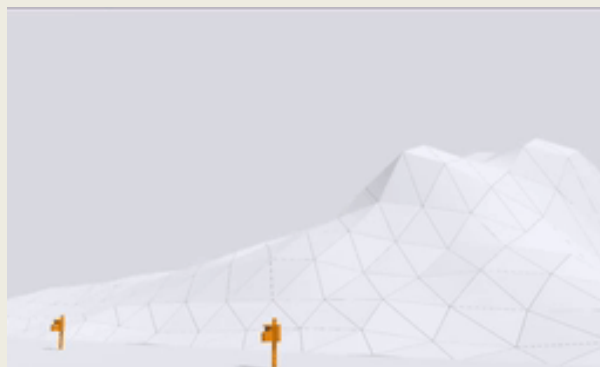
Precise Object Size & Location



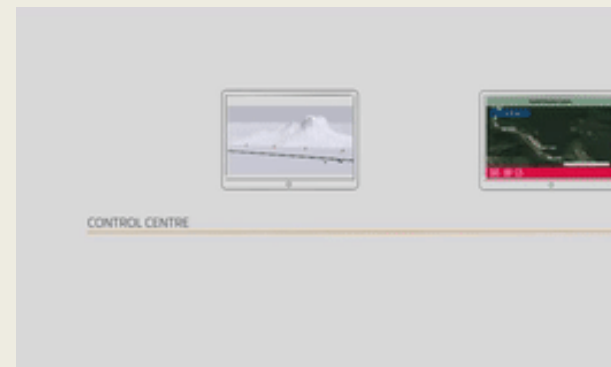
Custom Detection Zone



Transient Object Removal



Rugged Protective Housing



Automatic Alerts

System Output & Alerting



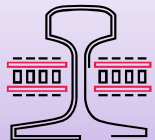
Alerts are available 24/7 on L.B. Foster's online portal



Send alerts directly to dispatchers or control centers



Communicate with incoming trains via PTC

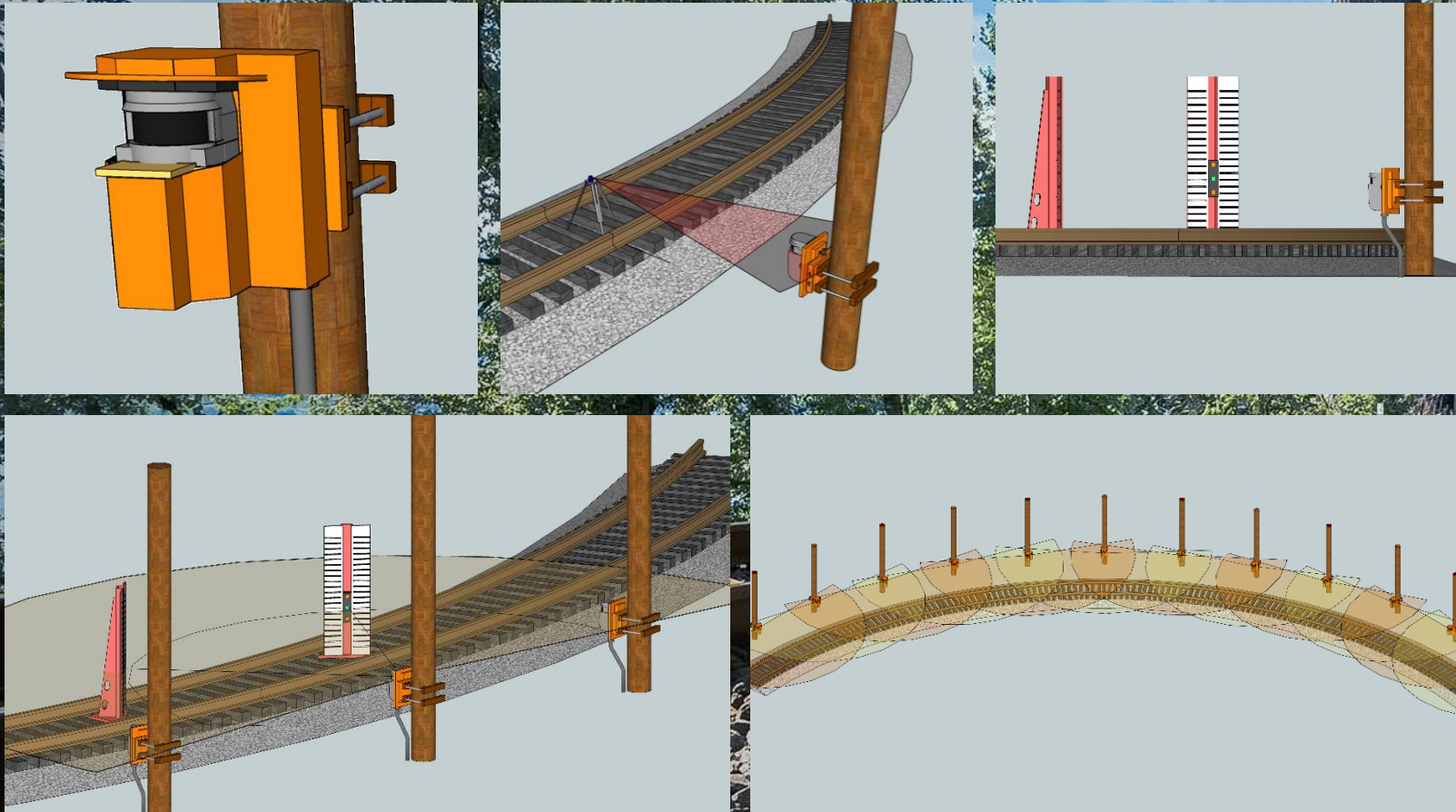


Send alerts directly to track circuitry via PSO or similar

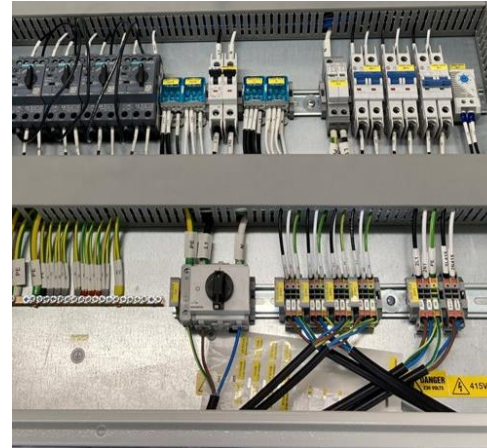
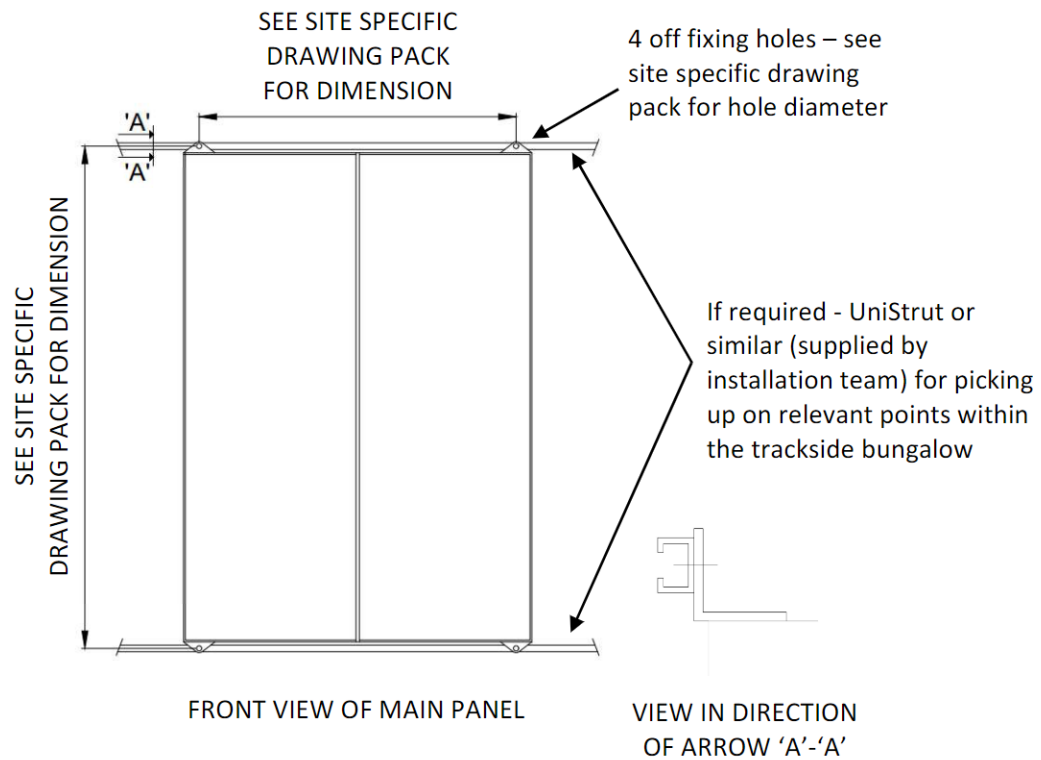
Installation & Maintenance

03

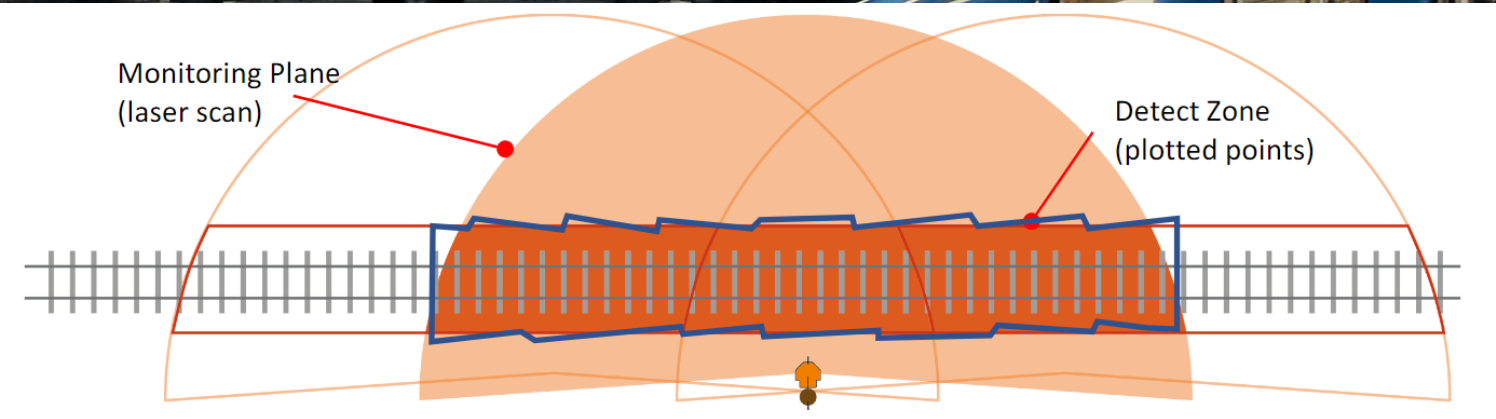
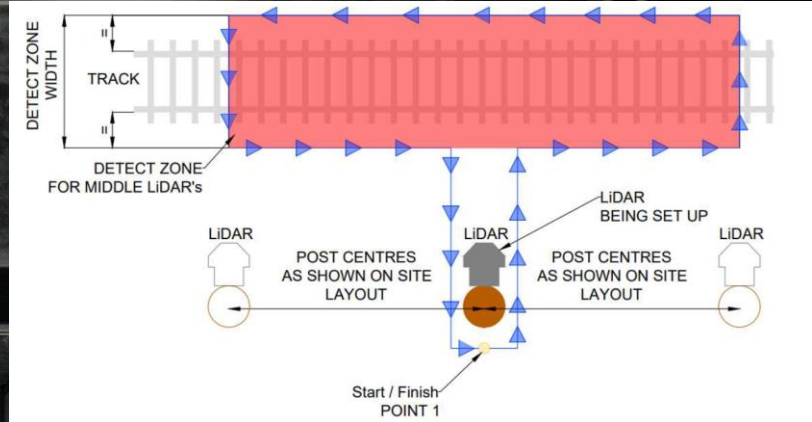
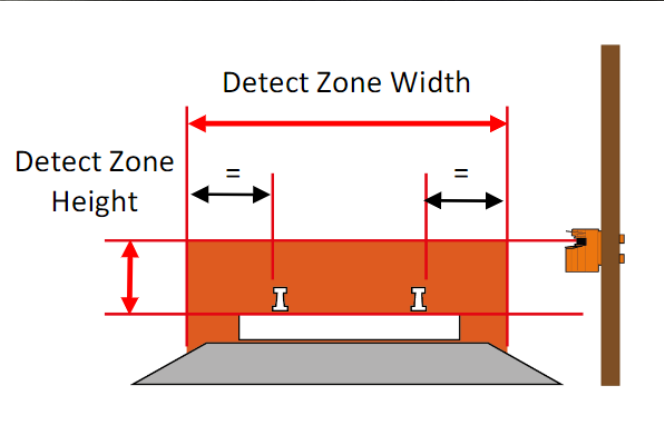
Installation



Installation



Commissioning



Maintenance

As needed

- > Clean the lenses using distilled water (typically every 6 -12 months, depending on environment)

6 month visual inspection

- > Check for damage to cables
- > Confirm shutter operation
- > Check for infestation, vegetation, snow, etc.
- > Check condition of seals, vents, & fans

12 month inspection

- > Check main panel voltages for voltage drops
- > Check for damage to posts
- > Check for movement of equipment



Thank you