



Specialists in...

Skid Resistance for Airports,
Highways and Helidecks

Working with the Rail Network

Weather Monitoring for Roads

Engineering for the Defence
Sector



Earthworks Monitoring System



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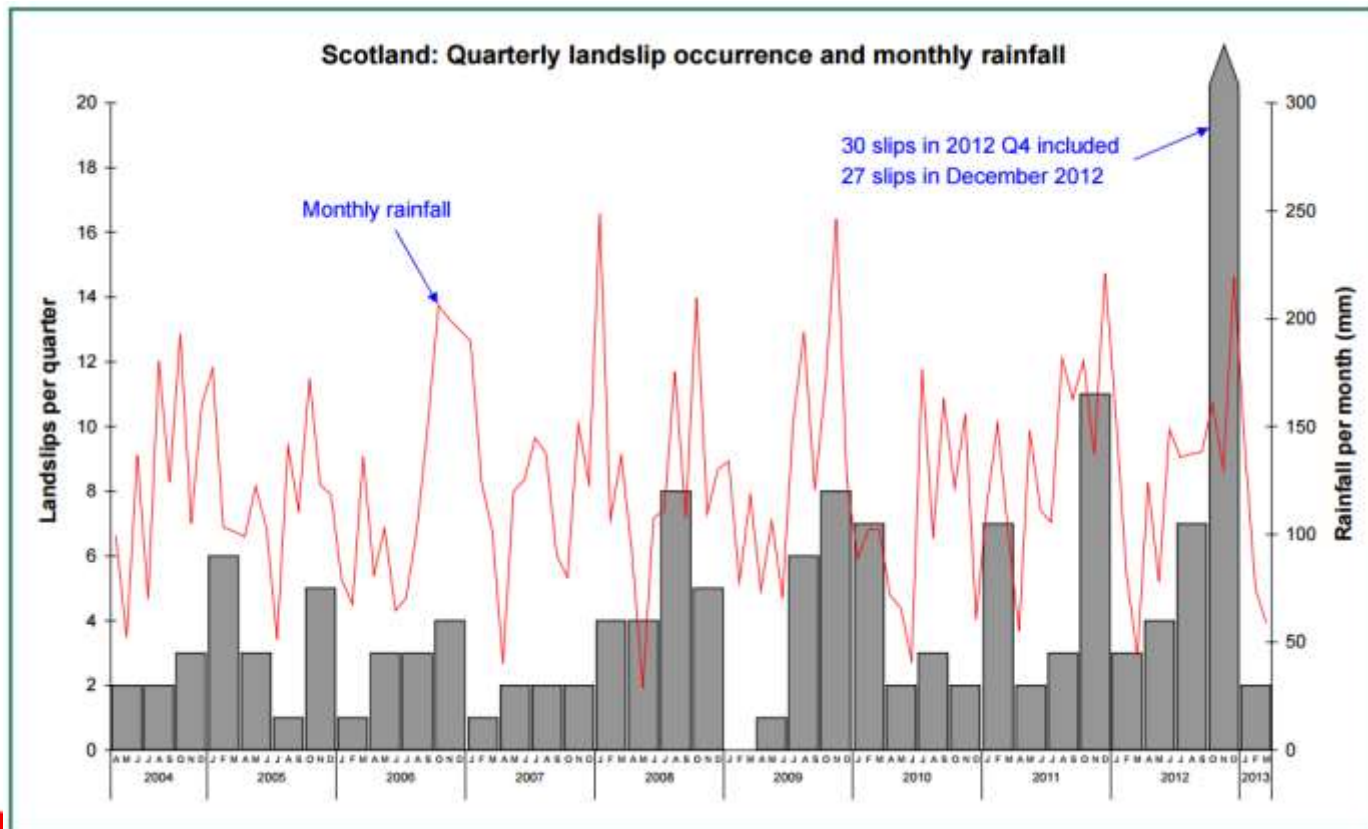




- **Network Rail have been managing earthworks effectively for many years.**
- **Critical sites monitored**
- **Regular site inspections**

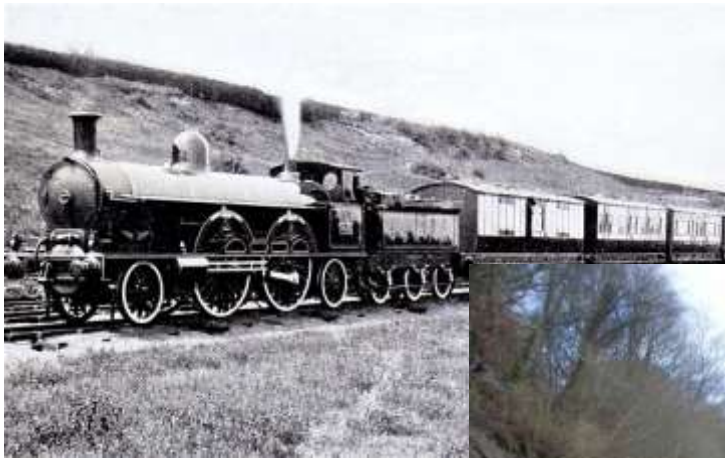


- In 2012/2013 100%+ increase in failures.



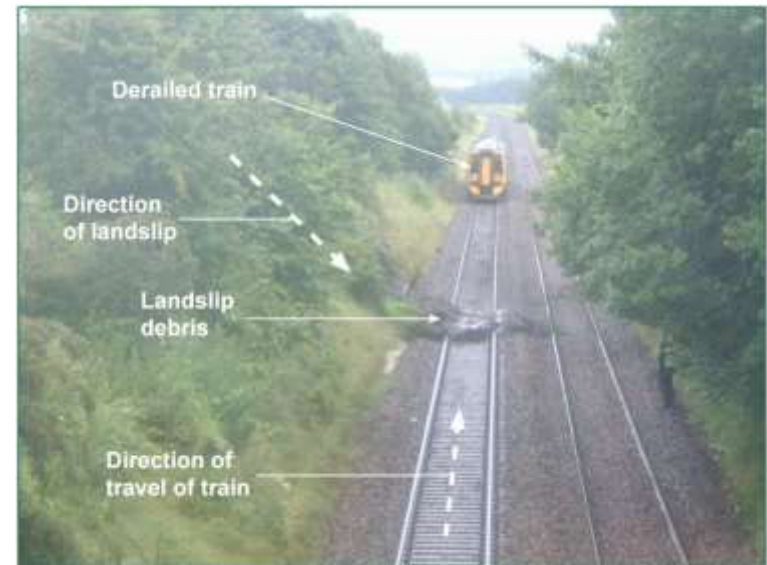


- **Triggers**
 - **150 Year old structures – no records**
 - **Historical poor drainage management**
 - **Heavy localised rain**





- It was happening to what were thought less critical earthworks.





Still Happening



- **Existing management process is not able to cope with current rate of failures.**
 - **Too few staff and expensive.**
 - **Not safe to deploy staff to monitor sites.**

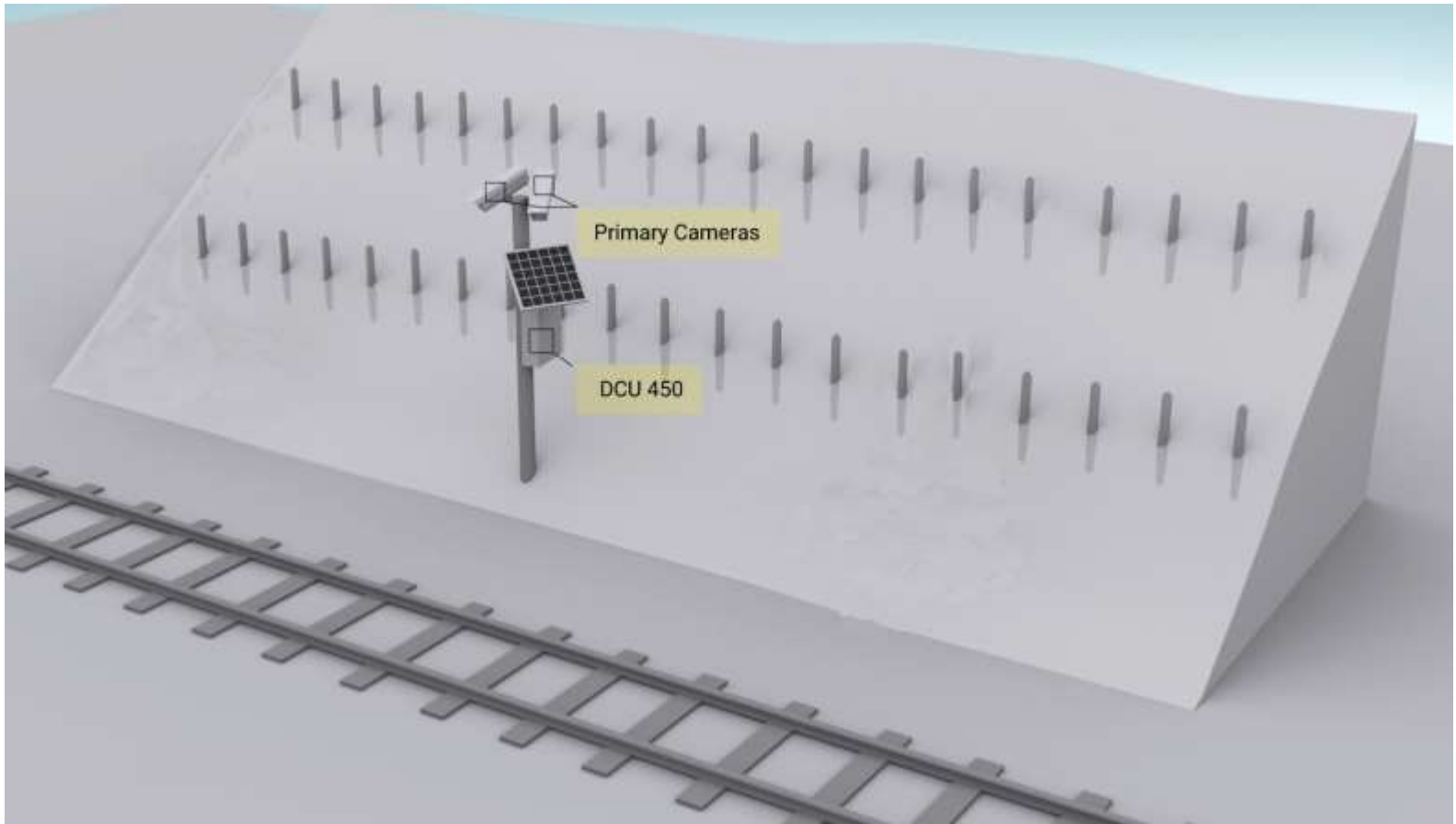




- **Network Rail wanted an automatic monitoring system which had to be**
 - **Reliable**
 - **Robust**
 - **Solar/Battery**
 - **Wireless**
 - **Low Cost**
 - **Simple to install**
 - **Maintenance free**

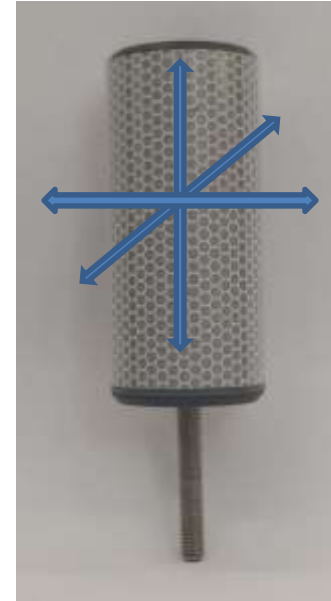


Earthworks





- **Sensors**
 - **3 axis tilt sensor**
 - **IQRF Wireless**
 - **5 Year battery life**
 - **No calibration required**
 - **No Alignment required**





- **Logger**
 - **Solar powered**
 - **Day/Night Camera**
 - **Covert/Non Covert IR**





Earthworks





- **Management System**

Findlay Irvine Asset Monitoring SITES HISTORIC CONTACT CONFIGURATION FIADMIN LOG OFF

Area Overview / Site Overview / Apperley Junc. 202.1265D Site Details

Site has returned to normal after an alarm without being acknowledged. Conn Status: Online Site Status: Unack Return Main Battery: 11.38 Volts

Sensors 04/02/2016 15:21:19

2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39

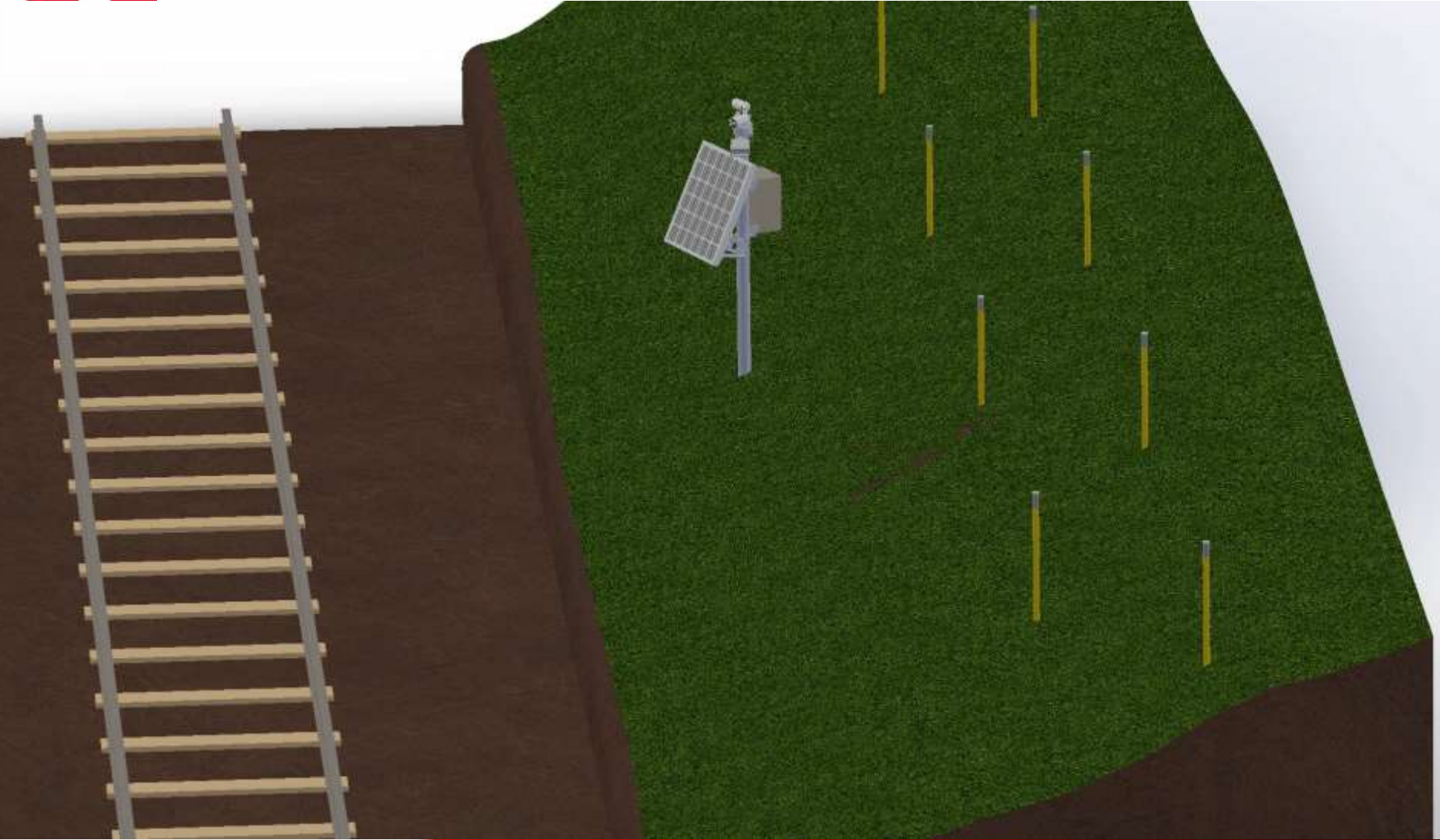
ILK1 202miles 1220yards ILK1 202miles 1320yards

Tilt Value: Reading Frequency: 1 hour

Camera Images

1.Low Mileage 29/03/2016 15:57:00	DAY	NIGHT	2.High Mileage 29/03/2016 16:00:00	DAY	NIGHT

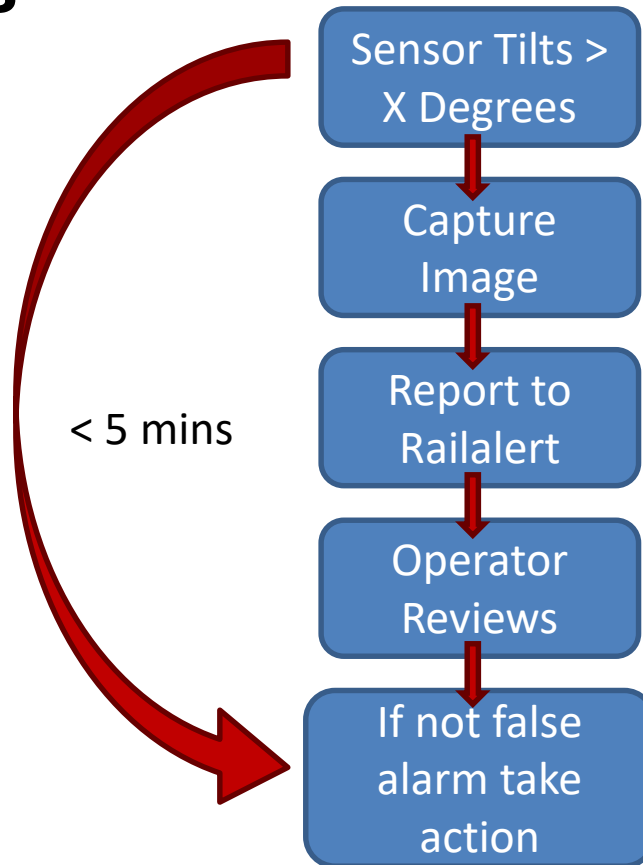
Image Upload Frequency: 1 hour 2 hours 3 hours 6 hours 12 hours



FINDLAY IRVINE



- **Process**





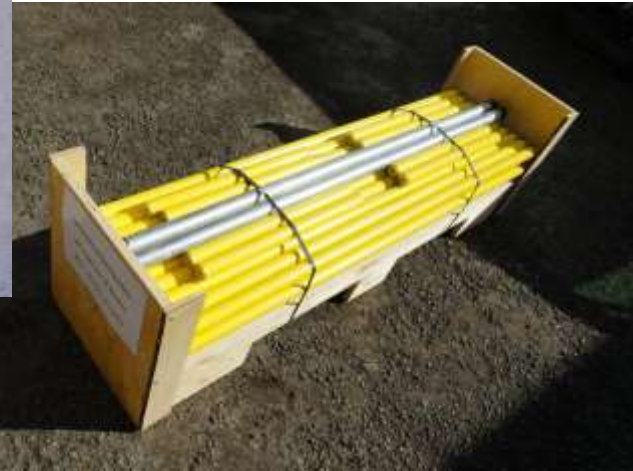
Installation

- **Installation must be simple**
 - **Non Technical**
 - **At Night**
- **Sensor No On Site**
 - **Alignment**
 - **Calibration**



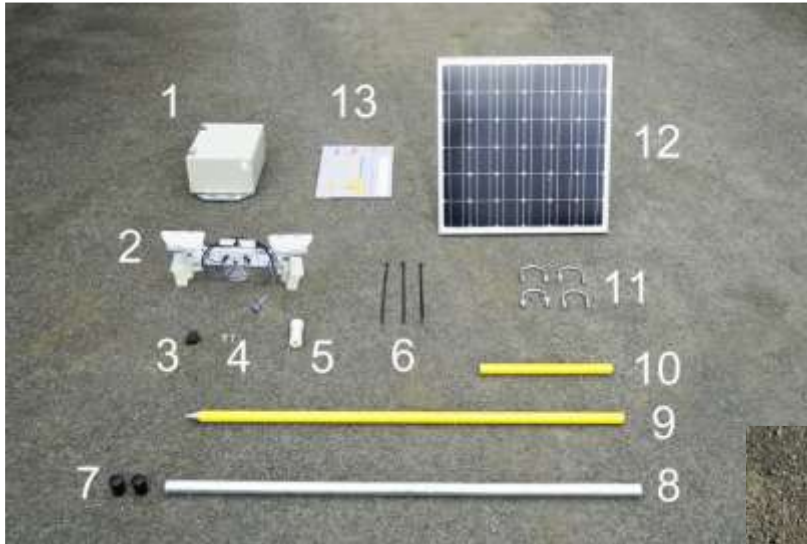


Delivery





Kit of Parts





Earthworks

- **180 Locations**
- **7000 Sensors**
- **Live**





Findlay Irvine Systems Measure & Manage