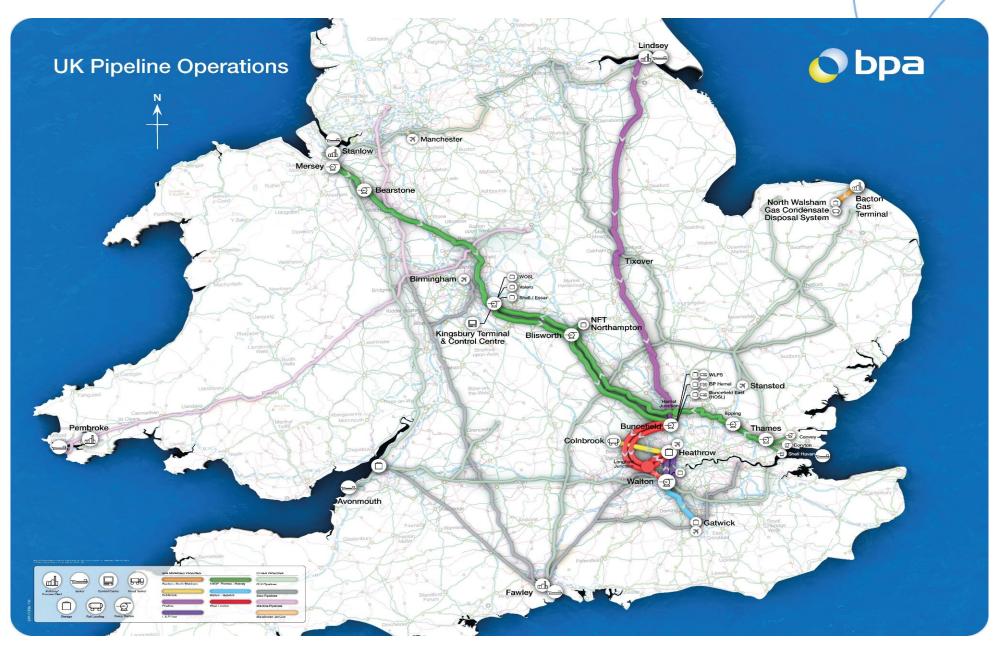


Clive Zanker









Ground conditions above cross country pipelines change, reducing protection to the pipeline

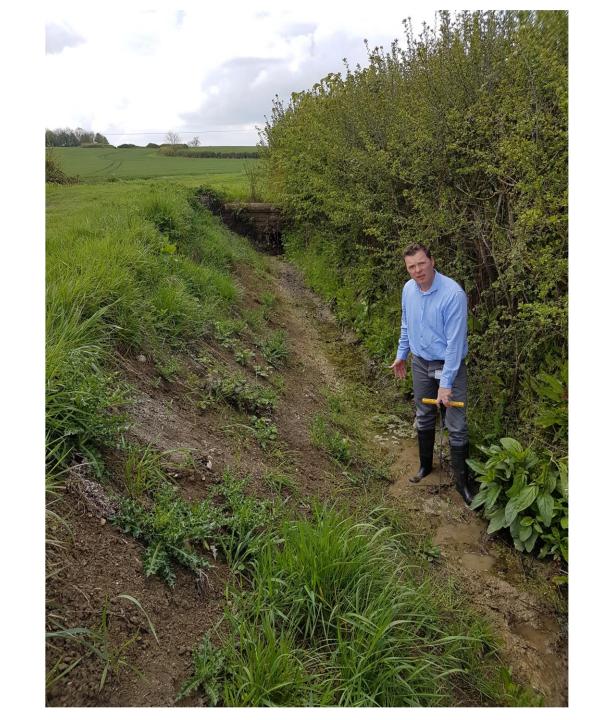
Original 0.9 metre depth of cover

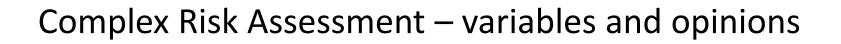
50+ years

1000km of cross country pipeline1000 separate land owners



Agricultural drainage ditch maintenance is significant in Depth of Cover reduction over BPA pipelines







Measurement of Depth

Land Use

Environmental conditions

Likelihood X Severity = Risk

Engineering solutions - deliverability robustness

Residual Risk

www.ukopa.co.uk

United Kingdom Onshore Pipeline Operators' Association **UKOPA**

About UKOPAV Home Home > News > Good Practice Guides

UKOPA/GP/001

UKOPA



UK ONSHORE PIPELINE OPERATORS' ASSOCIATION - INDUSTRY GOOD PRACTICE GUIDE

MANAGING PIPELINES WITH REDUCED DEPTH OF COVER

One of UKOPA's principal objectives is to communicate good practice to its members, buy wire...

members' meetings, through its working groups or through the annual technical seminar. UKOPA is also creaming Practice Guides' to support this work.

Aim = Cost Benefit; Sensitivity; Priority



Dynamic Risk Score reflecting likelihood of pipeline being damaged, how achievable a risk reduction is and a residual Risk Score

Assess foreseen activities above pipeline
Confidence in control of access to pipeline
History of communications with Land Owners & patrols
Timescales for legal and license permissions
Ability to adapt to evolving risks – iterative process
Practicality of physical protection or DoC restored
Ease of ongoing monitoring & management



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Timeline

2015 - 2018

Surveys of 29,127 data points (depth less than 0.9m)

2019

Validate the Risk Assessment - verification at 79 locations

Outcome

186 locations identified as High Risk Finance secured to reduce risk in 2020

2020/21: COVID_19



All High Risk locations Monitoring & Liaison established (positive contact: phone calls, letters, site visits)

Marker posts installed on high risk locations
Highest ranked locations: engineered protection installed

- Ploughed crop field vertical diversion
- Construction area concrete slab installed
- Water course concrete slab installed
- · Shallow cover in access way concrete slab installed
- 4 locations rectified by working with landowner to add additional cover back on top of the pipeline







NO DIG ZONE
DO NOT CROSS HERE

For more information call 0800 585 387

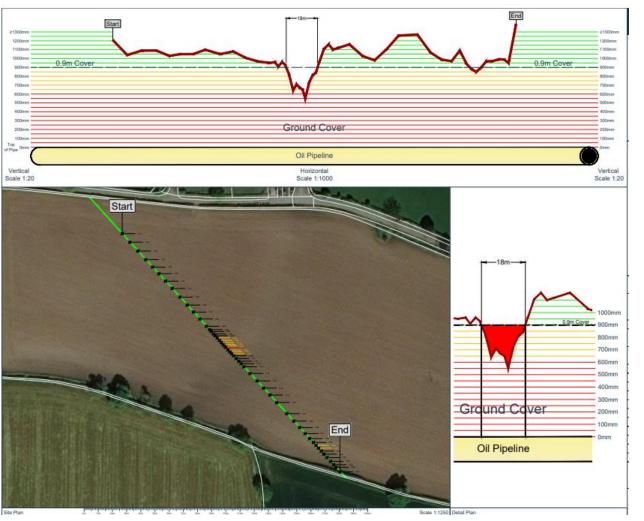






2020 Activity – Location No. 22 – Ploughed crop farmland

Pipeline diversion (vertical) resulting in pipeline being buried 0.9m across field





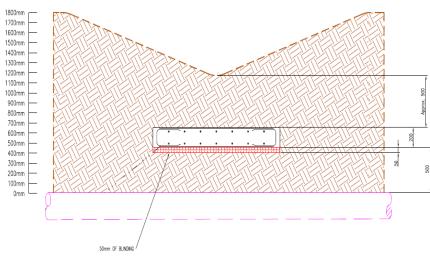


2020 Activity – Location 204 shallow pipe

Before



Concrete slab installed

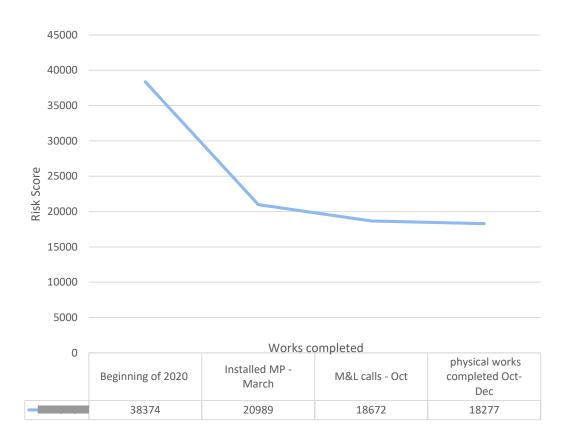


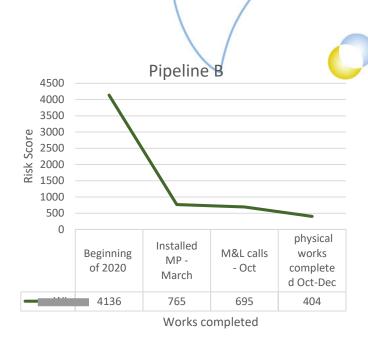
After

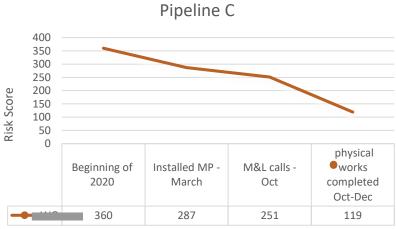


Risk Reduction through 2020

Pipeline A







Works completed





54 locations

17 Monitoring and Liaison locations fenced & signage

37 Physical engineered solutions

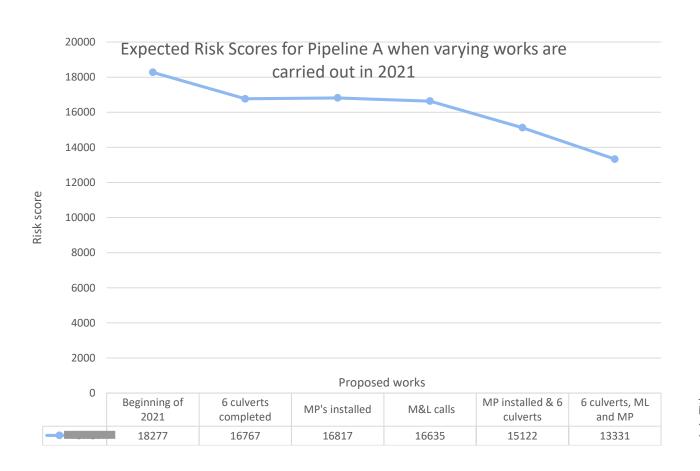
(6 highest risk ranked locations: Culvert Installation)

Continue to Monitor and Liaise with 102 landowners

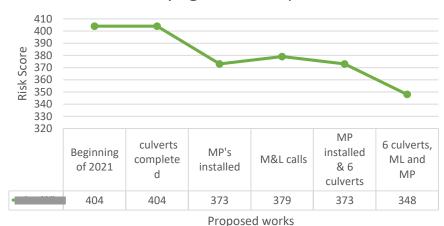
Install 63 marker posts on all Medium Risk locations

2022 Intended Strategy: Impact on the risk score by implementing various options



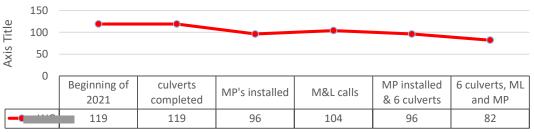


Expected risk scores for the Pipeline B when varying works take place in 2021



Troposed Works

Expected risk scores for pipeline C when varying works take place in 2021



Axis Title





Compromise



Depth: 100mm

• Length of Issue: 5 metres

Use – Designated River

Possible permanent solutions

Culvert - Not permitted by EA

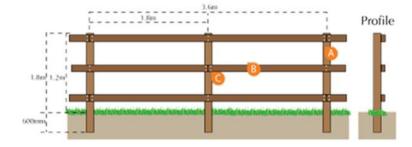
Concrete slab – Not sufficient depth

Encasing – would create blockage

Concrete canvas – limited physical protection from machine

Diversion – Costly

Compromise – Fencing & Continued monitoring and liaison



Lessons:



Learn about land use and likelihood for damage

Support continual land owner & contractor liaison

Continually Risk Assess – there is no set format

Use engineering solutions where practical

Remember the fundamental purpose is to avoid damage

