CEDR SYMPOSIUM
COPENHAGEN

SOLAR NOISE BARRIER FEASIBILITY STUDIES

GILES PARKER
SOUND BARRIER SOLUTIONS LTD

SoundBarrierSolutions

SOLAR NOISE BARRIERS

The objective is to find the best combined noise mitigating and solar power generating system such that the ongoing revenue from generated power would contribute substantially to the cost of the noise barrier schemes. Not only would this be attractive to transport agencies but also to local government planning, large-scale housing developers and the wider community.

UK installed more solar power than any other European country in 2014

UK solar power installations plummet after government cuts

UK i ... any
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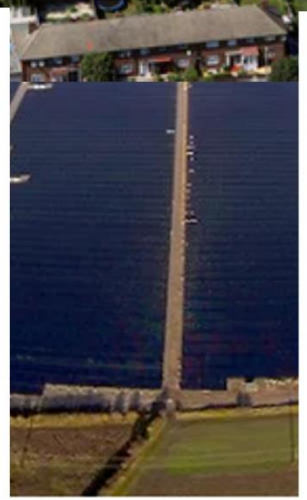
The government's efforts to kill off the solar industry and lead us to fracking hell

30 Aug 2015



Revealed: Many more solar firms face closure if government cuts go ahead

19 Oct 2015 259


SWINDON
A419
M4
Thamesdown Dr
Haydon Wick
South Marston Industrial Estate
South Marston
Stratton
Sparcells
Peatmoor
Cheney Manor Industrial Estate
Gorse Hill
Beech Ave
Punehurst Rd
Cricklade Rd
Lydiard Millicent
Shaw Forest Park
Nine Elms
Middleleaze
Shaw
Oasis Leisure Centre
The Prinnels
Eastleaze
Westmead
Westlea
Lydiard Park
Swindon
Drove Rd
Dorcan
Wanborough Rd
Freshbrook
Toothill
Lawns Park
Great Copse
Coate Water
Broome Manor Golf Complex
Burderop Wood
Wroughton
Liddington
Pack Hill
Purley Rd
Hay Ln
Washpool
B4534
B4553
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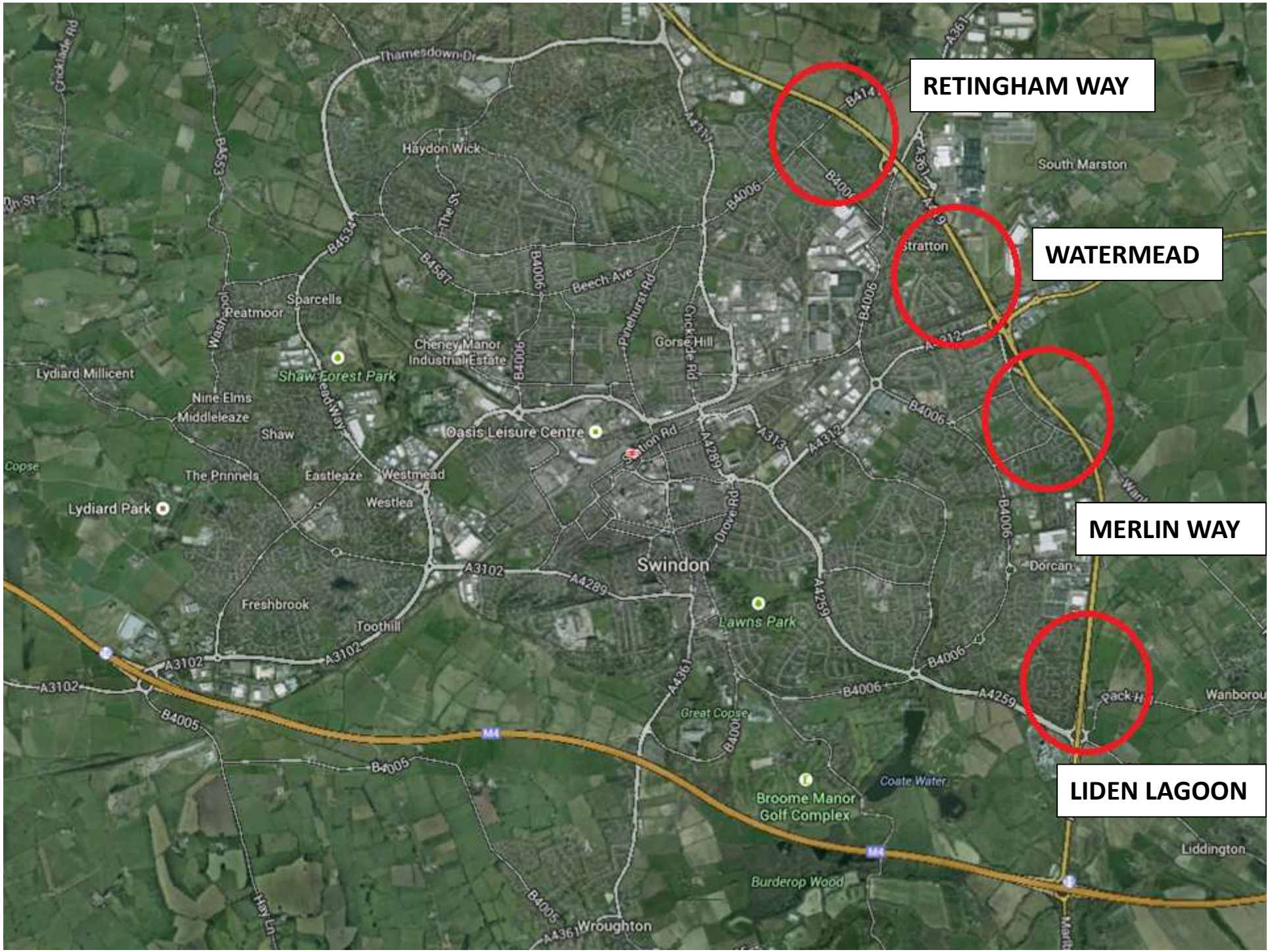
RETINGHAM WAY
WATERMEAD
MERLIN WAY
LIDEN LAGOON
Thamesdown Dr
Haydon Wick
South Marston
Stratton
Beech Ave
Sparcells
Peatmoor
Cheney Manor Industrial Estate
Gorse Hill
Shaw Forest Park
Lydiard Millicent
Nine Elms
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Wanborough
M4
A3102
A4289
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A4361
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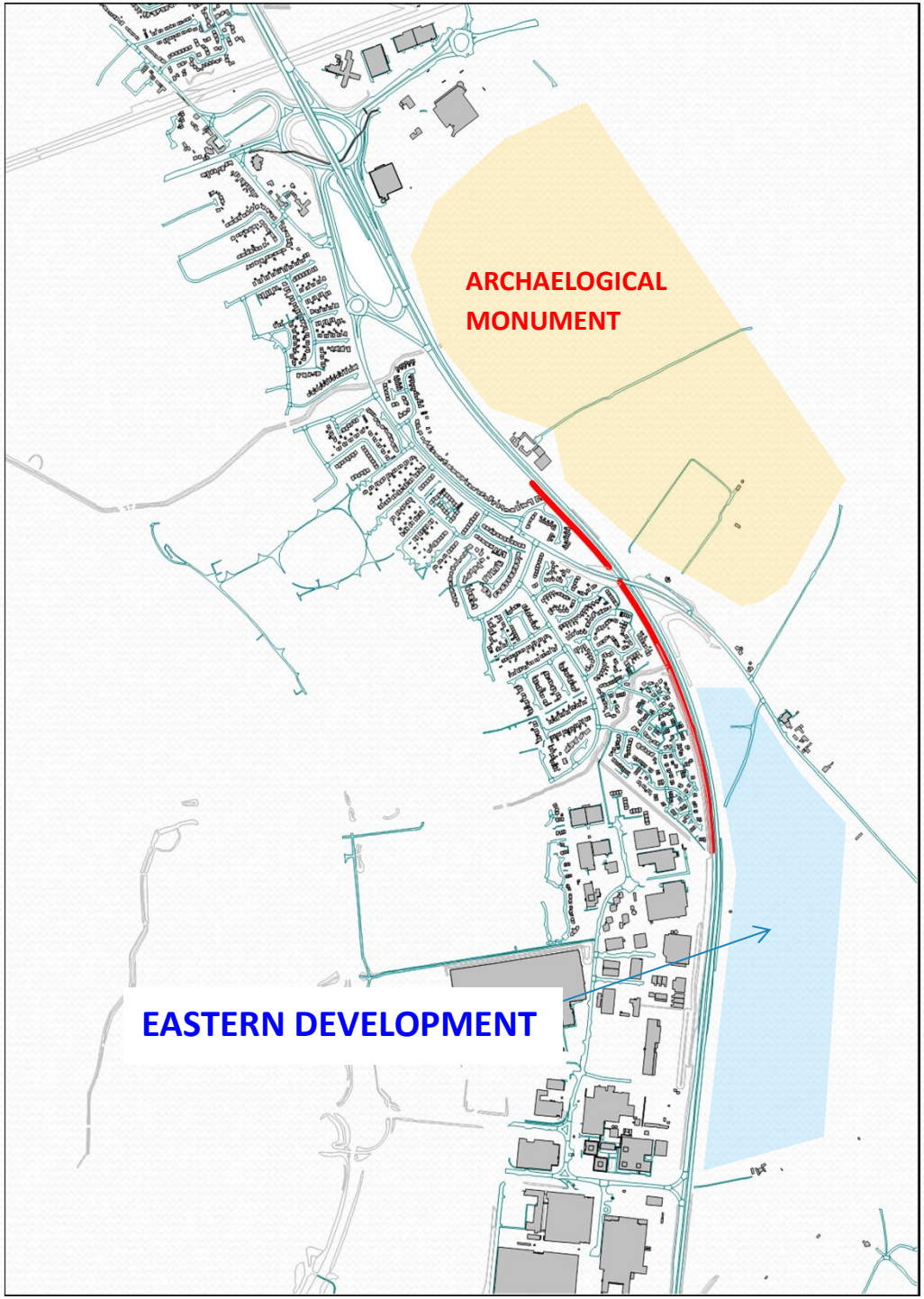
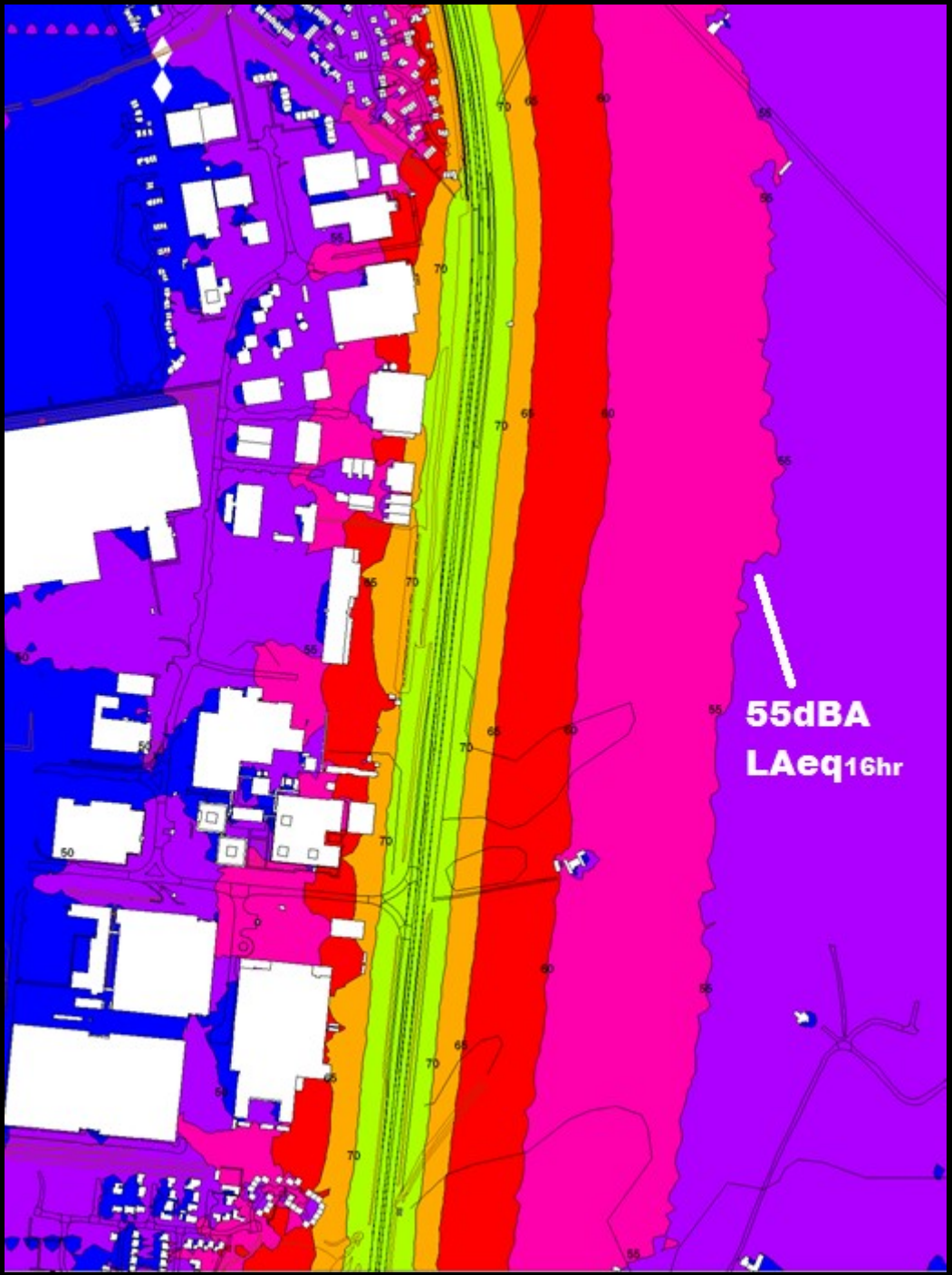
B4014
Drove Rd
Cricklade Rd
Pinehurst Rd
Hay Ln


ARCHAELOGICAL
MONUMENT
EASTERN DEVELOPMENT

2028



2028

4M FREE-STANDING SOLAR BARRIER

(OUTSIDE HE LAND)

4M FREE-STANDING SOLAR BARRIER

(OUTSIDE HE LAND)

ESTIMATED BENEFITS

SOLAR BARRIER TYPE	Highway Land	Height (m)	Length (m)	Annual £ SOLAR (per linm)	Annual £ SOLAR	Increase of Devel Land (sqm)
ABS + T-PIECE	Within	3.0	2,000.0	£35	£ 70,000	275,000
SOLAR BUND	Outside	4.5	2,000.0	£70	£ 140,000	180,000
FREE STANDING	Outside	4.0	2,000.0	£70	£ 140,000	230,000

- **This assumes an annual revenue of £35 per linm (at the time!)**
- **The annual revenue rate doubles to £70 per linm (at the time!) for the Bund/Free Standing designs.**

ESTIMATED COSTS

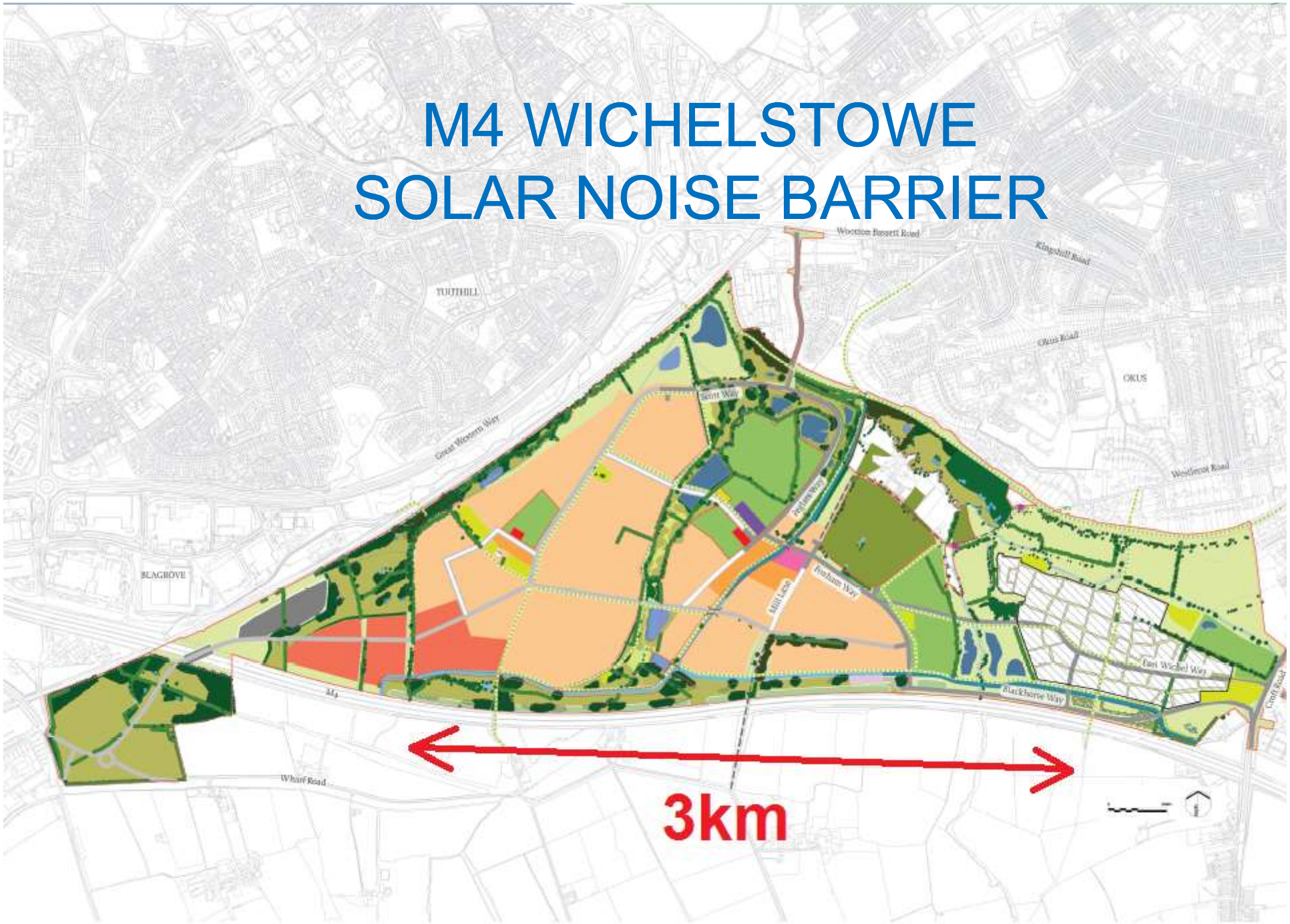
SOLAR BARRIER TYPE	Highway Land	Height (m)	Length (m)	SOLAR Noise Barrier Budget Cost (per linm)	Total Ballpark Cost
SOLAR BUND	Outside	4.5	2,000.0	£1,300	£ 2,600,000
FREE-STANDING	Outside	4.0	2,000.0	£1,300	£ 2,600,000

EAST/WEST BARRIERS COST / BENEFITS

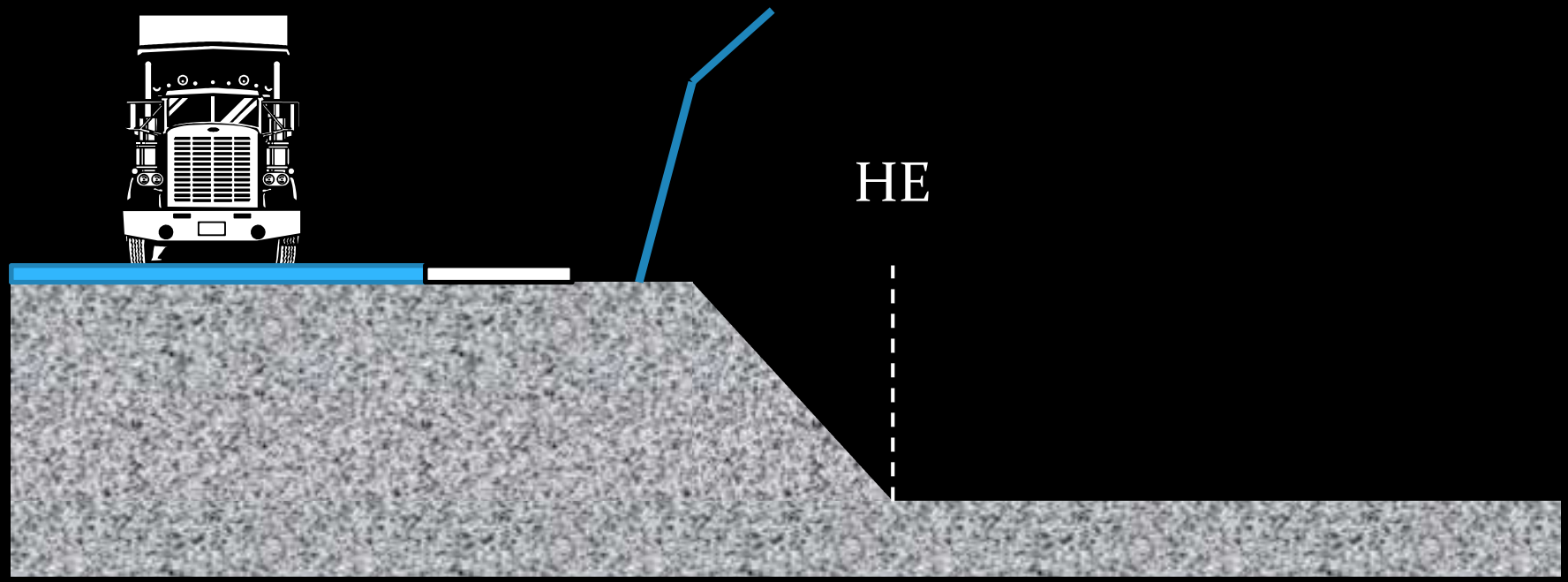
SOLAR BARRIER TYPE	Total Ballpark Cost
EASTERN SOLAR BARRIER	£ 2,600,000
WESTERN BARRIERS	£ 800,000
TOTAL CAPITAL COST	£ 3,400,000
TOTAL REVENUE (25YRS) (£140K per year)	£ 3,500,000

- **700 Residential Properties Benefit from Noise Mitigation**
- **~ 230,000 sqm - Freed up for Residential Development**

M4 WICHELSTOWE
SOLAR NOISE BARRIER




EAST WICHEL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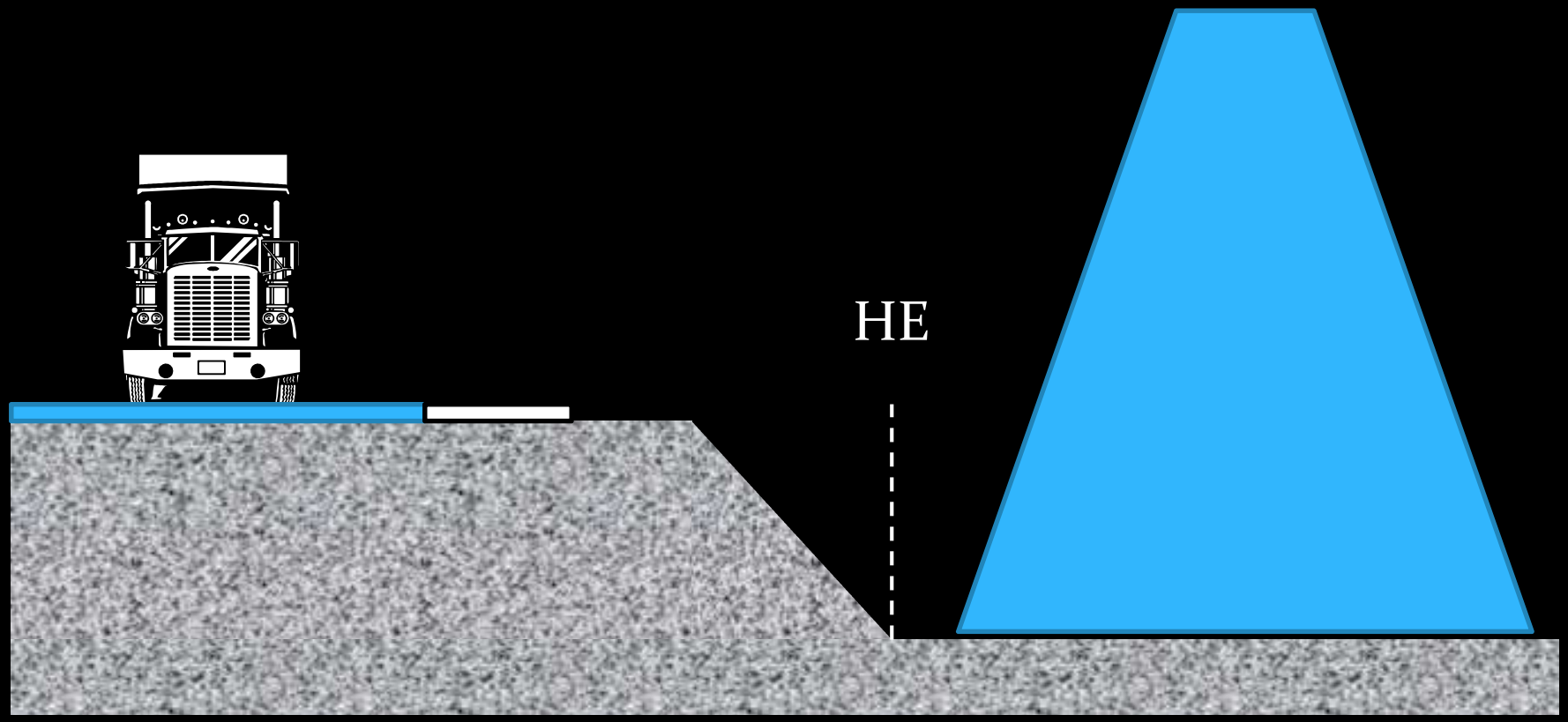
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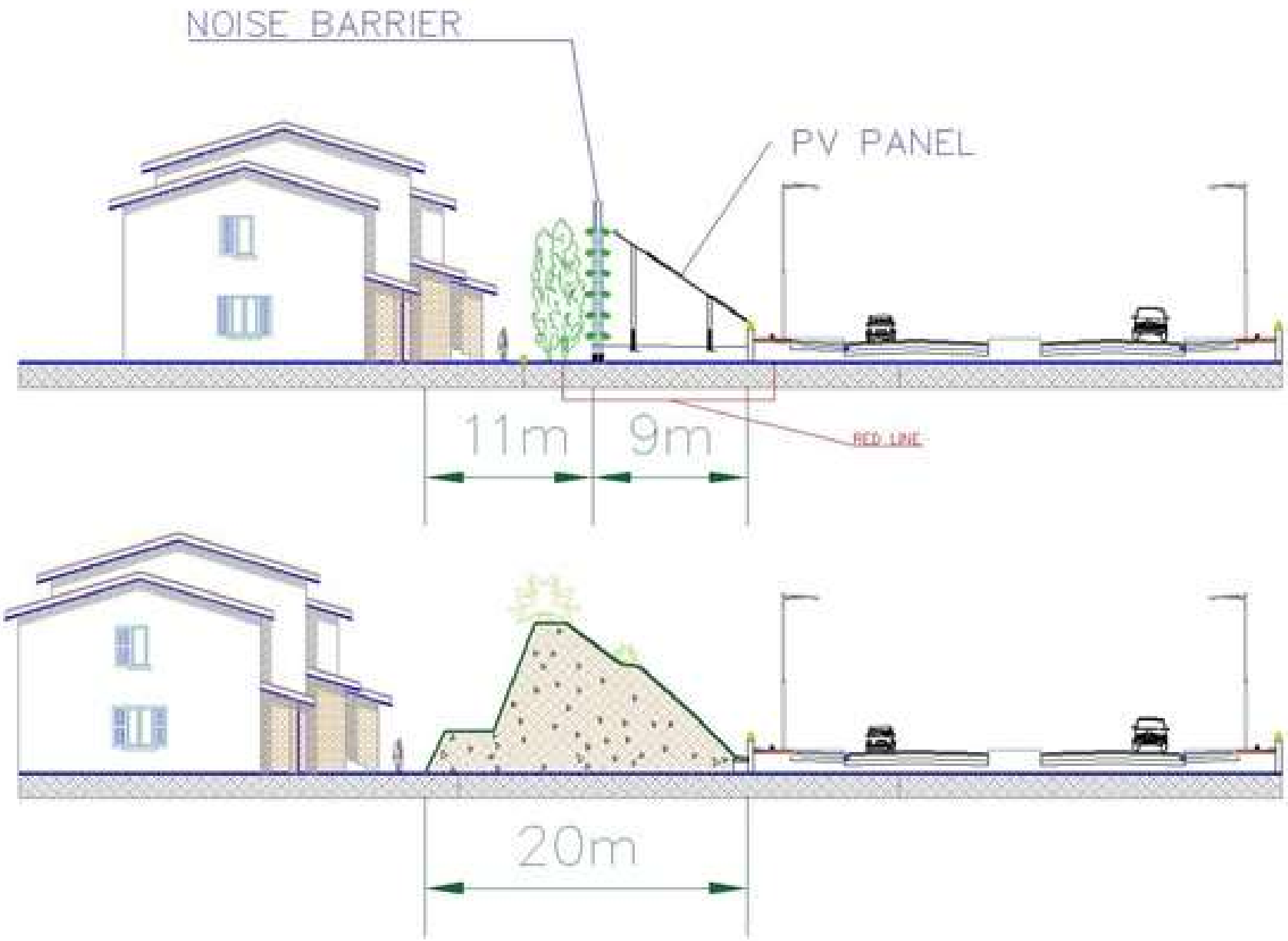

NOISE BARRIER
PV PANEL
11m
9m
RED LINE
20m

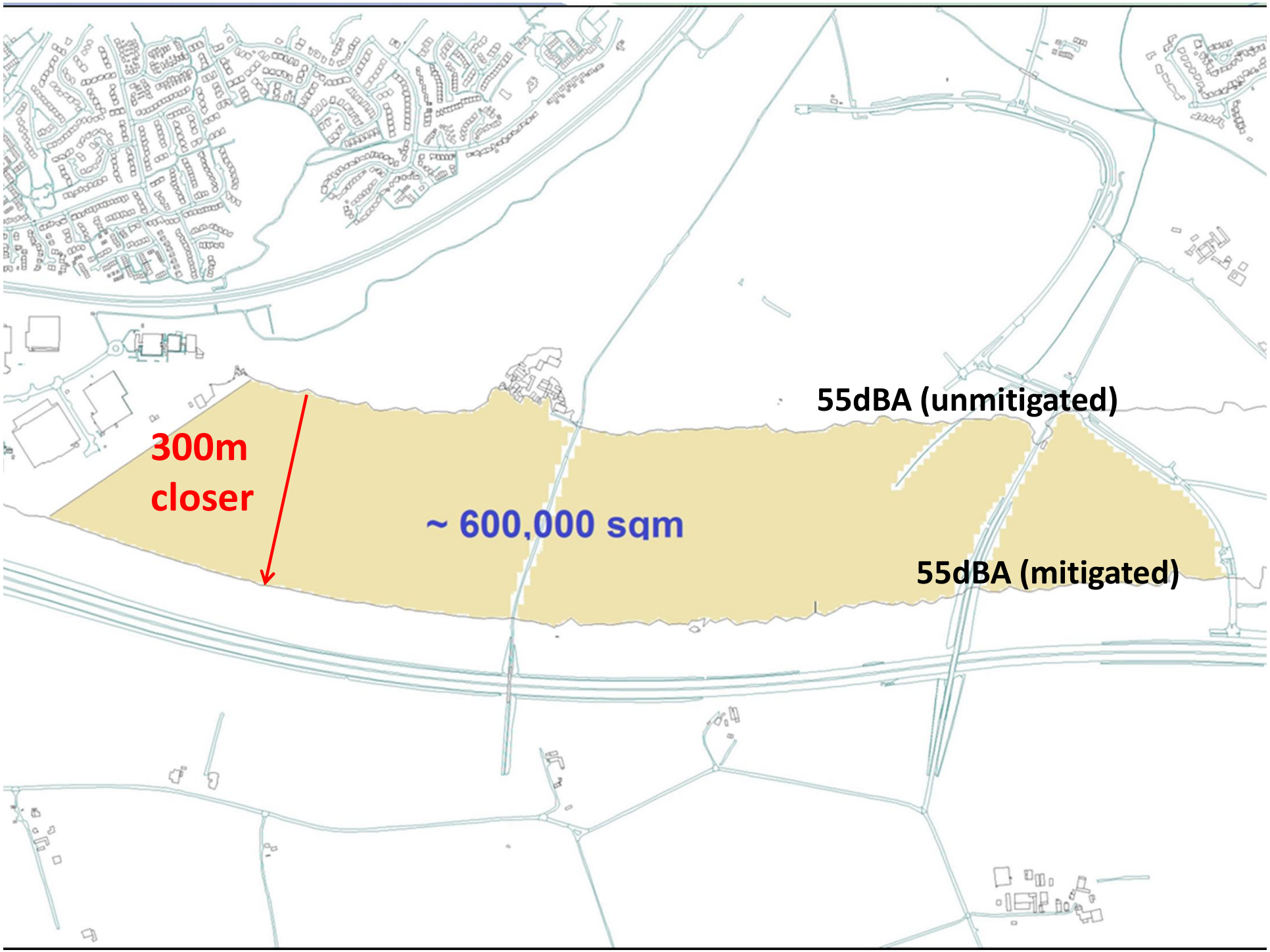
M4 WICHELSTOWE
3KM SOLAR NOISE BARRIER …….

CAPITAL COST

- NOISE BARRIER ~ £1.6M
- SOLAR ~ £3.0M
- TOTAL COST ~ £5.4M (plus 20%)

SOLAR REVENUE

- ~ £260K pa (at the time!)
- ~ 20 YRS = £5.2M


55dBA (unmitigated)
300m
closer
~ 600,000 sqm
55dBA (mitigated)

ESTIMATED LAND VALUATION

- Land Value based on property density and average house sale £200k ~ **£800/sqm**
- 600,000 sqm extra ~ **£480 Million**

FINANCIAL INCENTIVE FOR GOOD DESIGN

- If moving the 55dBA contour 300m closer releases a potential £480 Million in developed land
- £1.6 Million in developed land is released for every 1 metre gained through good mitigation design