

ECED June 2019

**Demolition of iconic (ikonicky)
structures at Sellafield**

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Beta Gamma Remediation**



Sellafield Ltd

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Stack Demolition**





Sellafield

Headlines



- > £2Bn annual spend
- 7 Nuclear reactors
- 3 Reprocessing plants
- Thorp reprocessing plant has completed it's mission
- Magnox reprocessing plant closes 2020
- Transformation plan in place

Remediation Value Stream



- Remediation c. £150m annual spend
- c. £40m/yr projects
- 5 key drivers:
 - Risk reduction (nuclear)
 - Risk reduction (conventional)
 - Land clearance for major projects
 - Reduction in care & maintenance cost
 - Skyline change – to demonstrate progress!



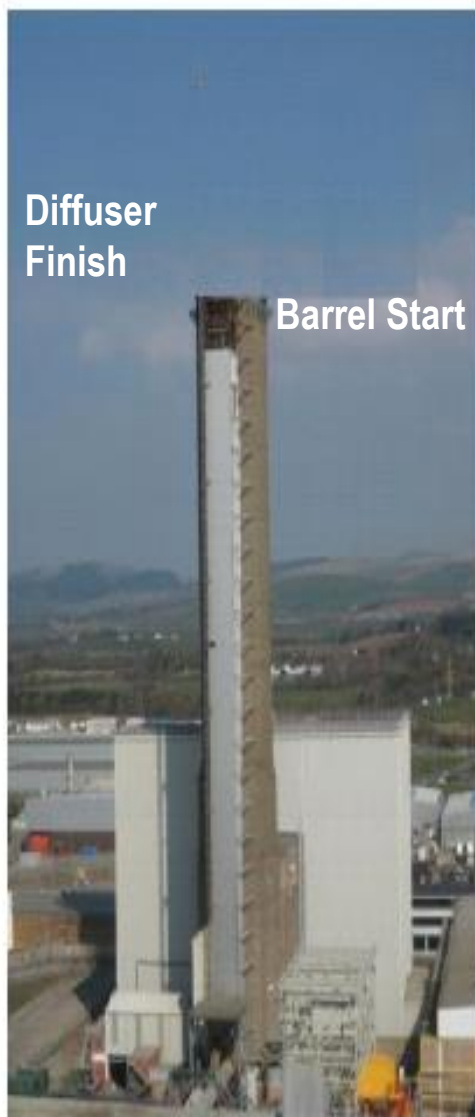
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Pile 1 Chimney Demolition

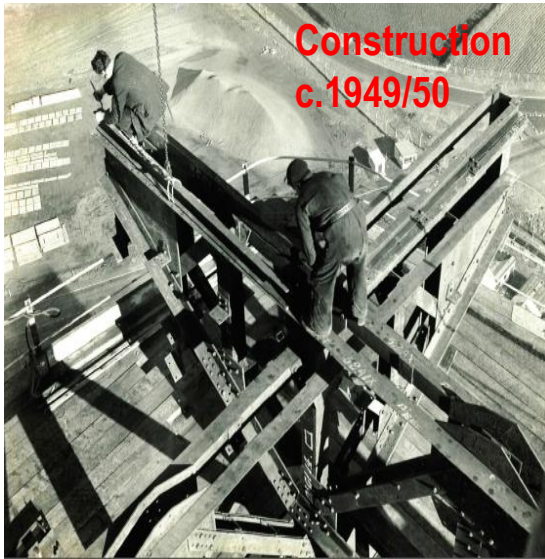
Pile 1 Chimney



Summary



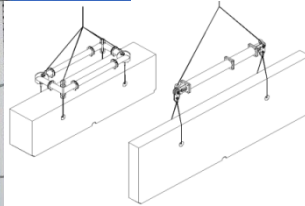
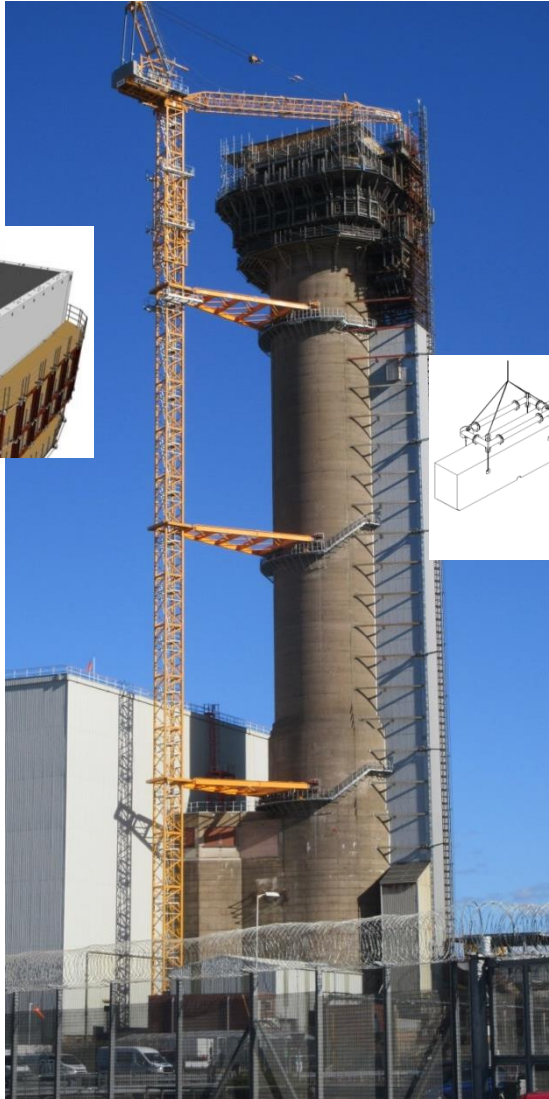
Pile 1 Chimney Demolition Challenges



- Built over 60 years ago to standards below current requirements
- Increased contamination from 1957 fire
- Large quantity of concrete to remove from circa 120 metres
- Close to ageing legacy buildings

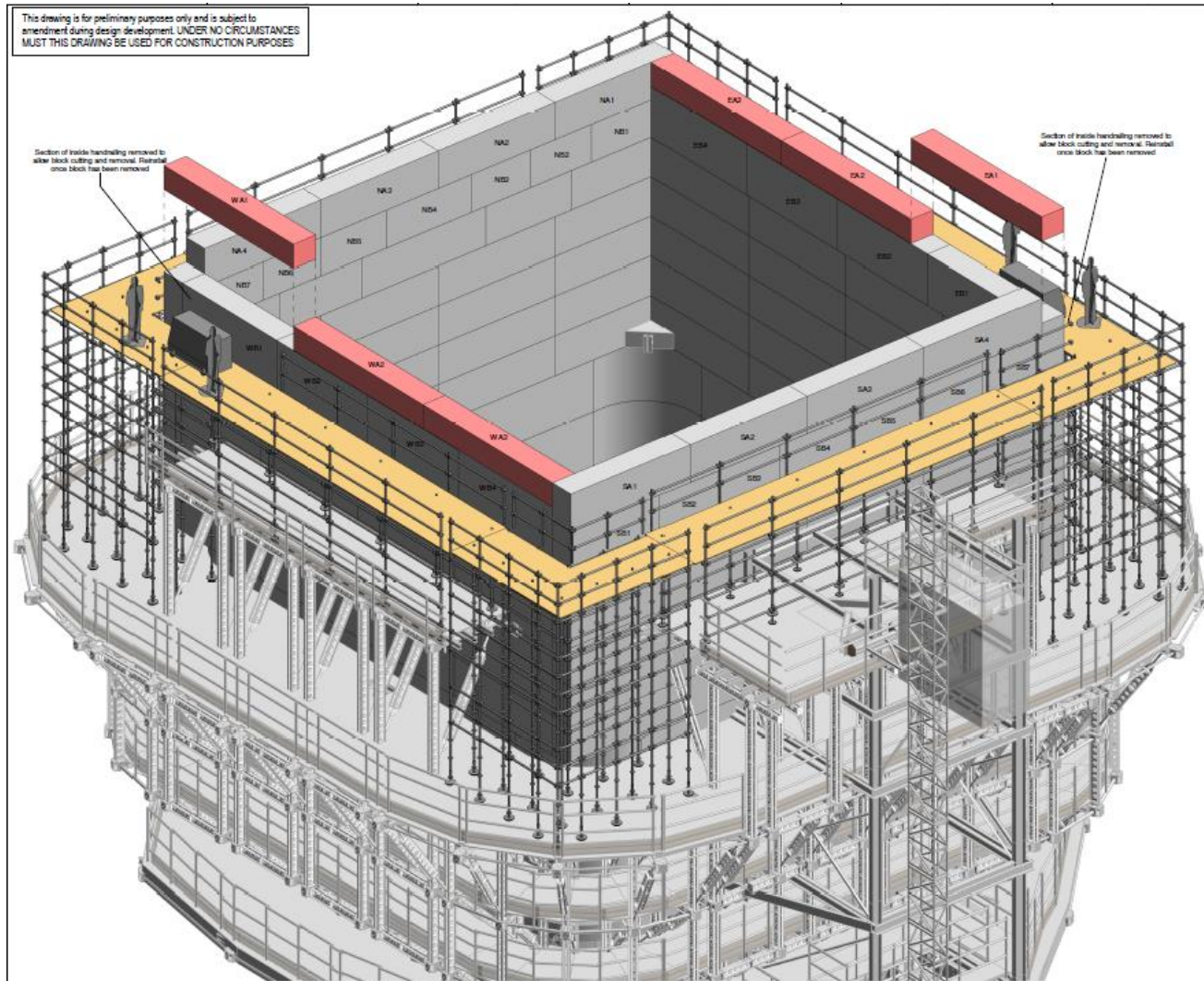


Pile 1 Chimney Demolition



- Pile 1 Chimney Filter Gallery demolition completed.
- Over 700te of concrete, brick and steel disposed of
- 158m tall tower crane installed to lower concrete blocks to ground
- 3500 tonnes of structural steel and concrete to be demolished.
- Removal of structure in block form using diamond wire cutting
- Project timeline Dec 2016 to June 2028

Block Removal





Blocks 46 & 47 ready for final cut



Rows A-C removed c. 330te concrete & 3m height





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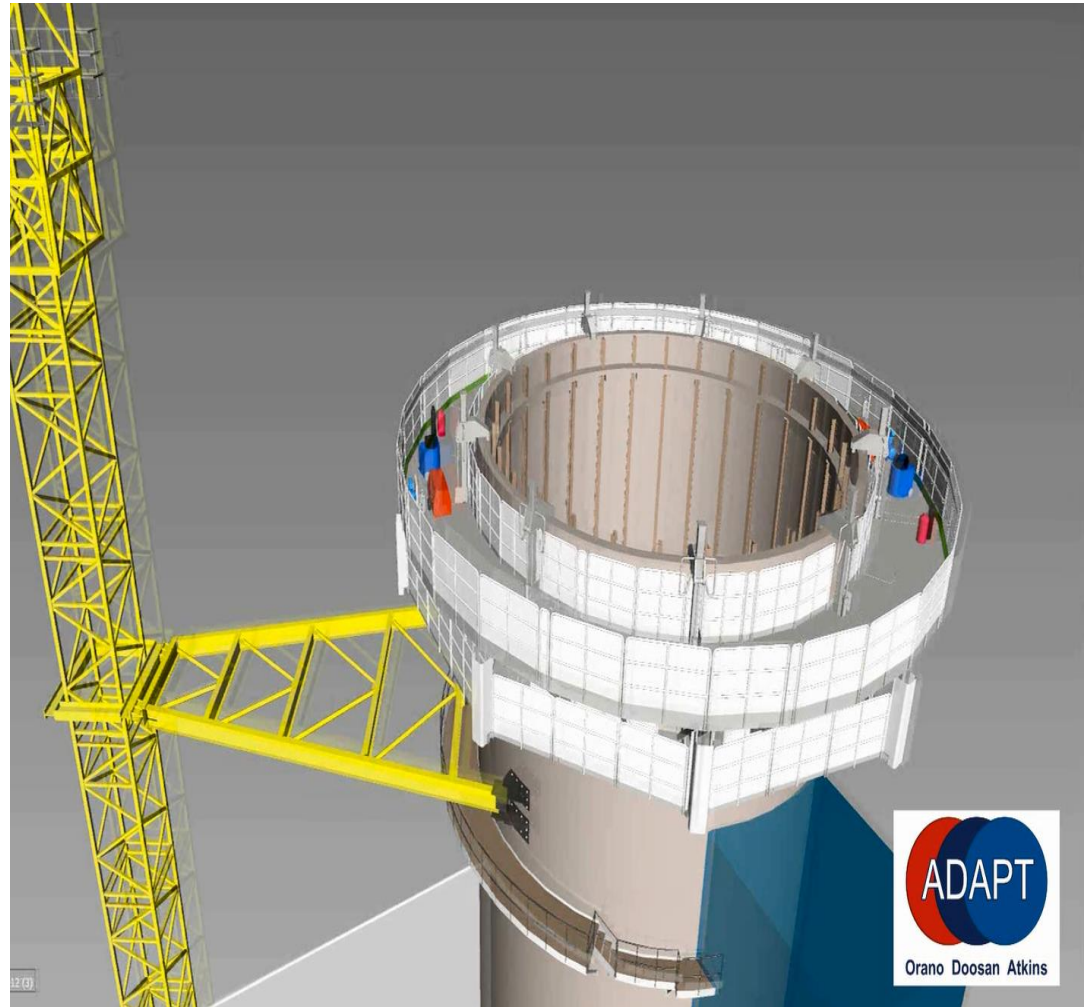
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Barrel demolition concept

- Driver is skyline change and care & maintenance cost, not risk reduction
- Use crane to construct platform
- Detailed Design ongoing
- Planned direct award to incumbent DDP partner





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First Generation Reprocessing Plant



First Generation Reprocessing Plant (FGRP) Stack



- First Generation Reprocessing Plant (FGRP) Stack was constructed and commissioned in the early 1950's



- The FGRP Stack was an authorised gaseous aerial discharge outlet for a number of operational and decommissioning buildings



- Standing 120m above ground the stack consisted of a reinforced concrete wind shield with stainless steel flue liner.



- The stack structure did not meet modern structural standards.



- Consequence of a stack collapse was potential damage to a number of Nuclear Facilities.



- Key enablers for the demolition of the stack was the completion of the SAV project



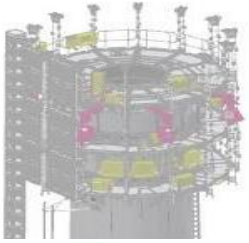
Stack Demolition - 2 Part Solution

Part 1 - SAV



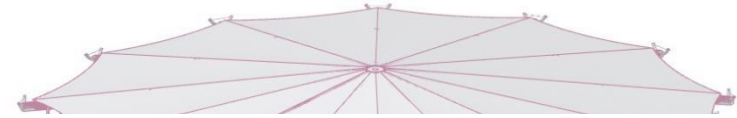
- Part 1 - The key enabler for Stack Demolition is the transfer of operations to a new ventilation discharge stack facility and associated systems
- The SAV Facility took over ventilation operations in Aug 2016





Stack Demolition - 2 Part Solution

Part 2 - SCP



Nuvia LTD - main contractors & demolition experts.



Delta International – Sub Contractors – Steeplejack Experts and SCP operators.



Alimak – site access specialists



- A 3 tier Self Climbing Platform (SCP) is to be utilised to ascend to the top of the Stack.



- The SCP is supported by 3 friction bands (2 off restraining bands 1 off lifting band) which holds it in position on the stack.

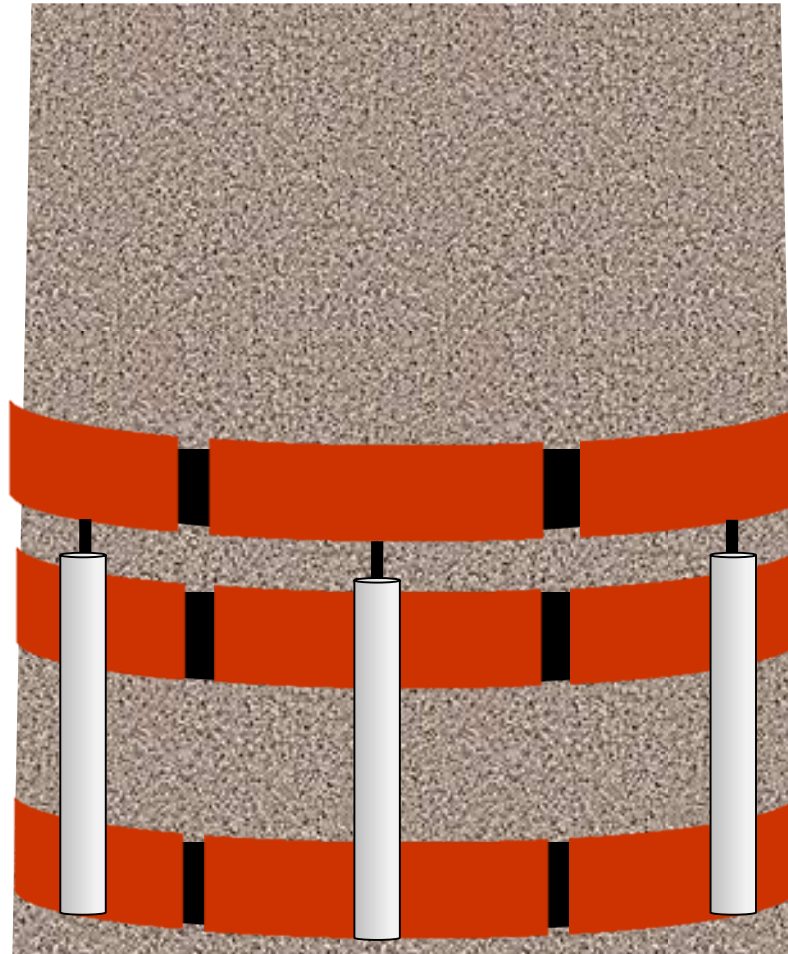


SCP Climbing methodology

Lifting Band

Upper Restraining
Band
URB

Lower Restraining
Band
LRB



Lifting band
Tightened to
Loosened ready for
stack face
next move

URB tightened

Lifting band
lifted to
U&LRB lifted
required height
with the SCP
URB tightened

URB loosened

LRB loosened

Stack Demolition – timeline

- SCP ascent completed December 17
- Demolition in progress
- 7 day cycle
 - Drilling 2 days
 - Bursting
 - Decontam
 - Plasma cutting
 - Prep day
 - Move day
- **Category A Hazard Retirement Point (47m) June 2018 - COMPLETED**
- Demolition Forecast Complete Nov 2019
- Project Closure Forecast Complete Apr 2020



Demolition



- Approximately 640 tonnes of Very Low Level, Non Hazardous waste concrete will be removed from the stack and disposed off within the Sellafield boundary (CLESA)
- Approximately 25 tonnes of stainless steel waste will be removed from the flue. Radiological monitoring will be carried out when steel becomes accessible and waste disposed appropriately

































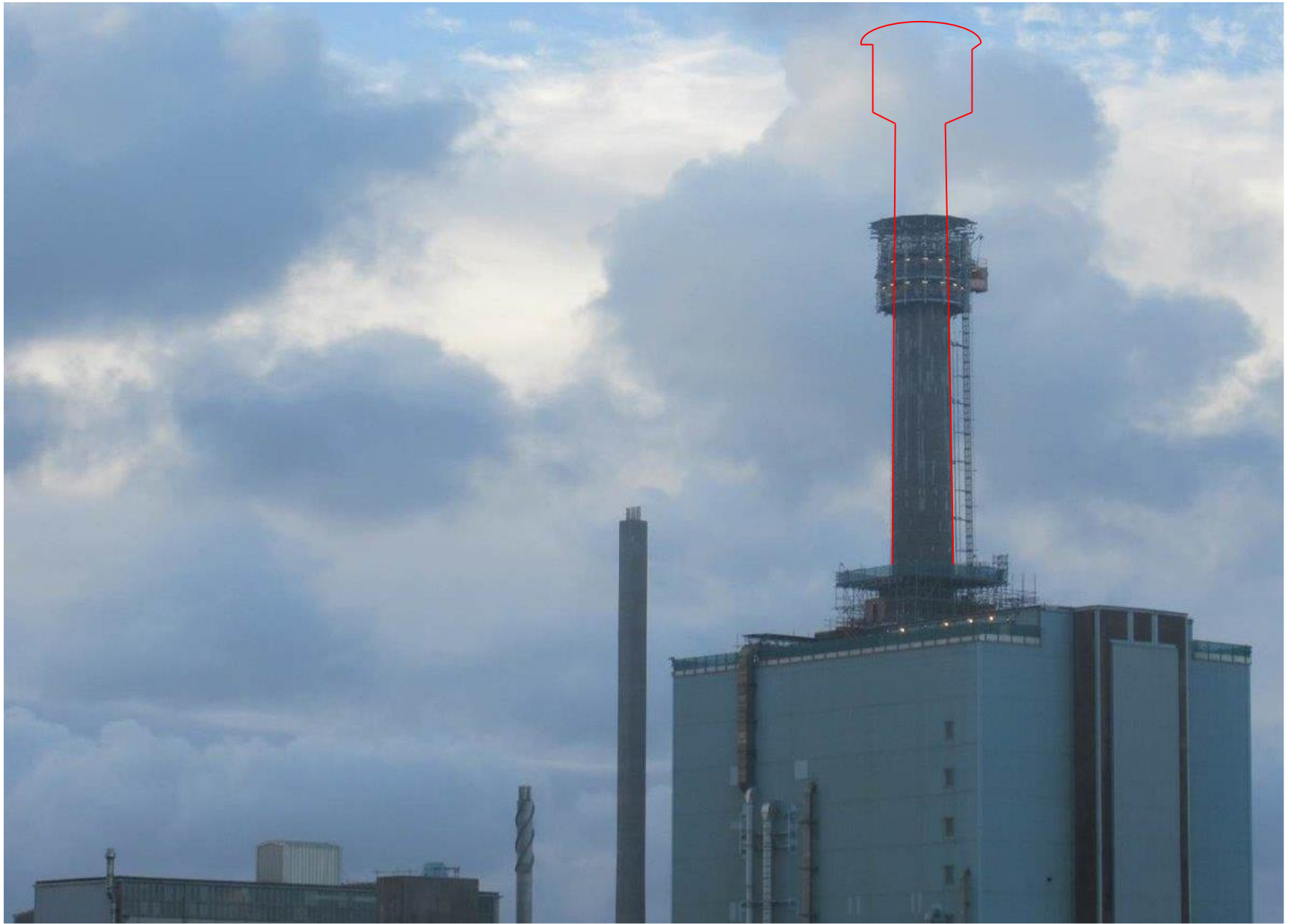




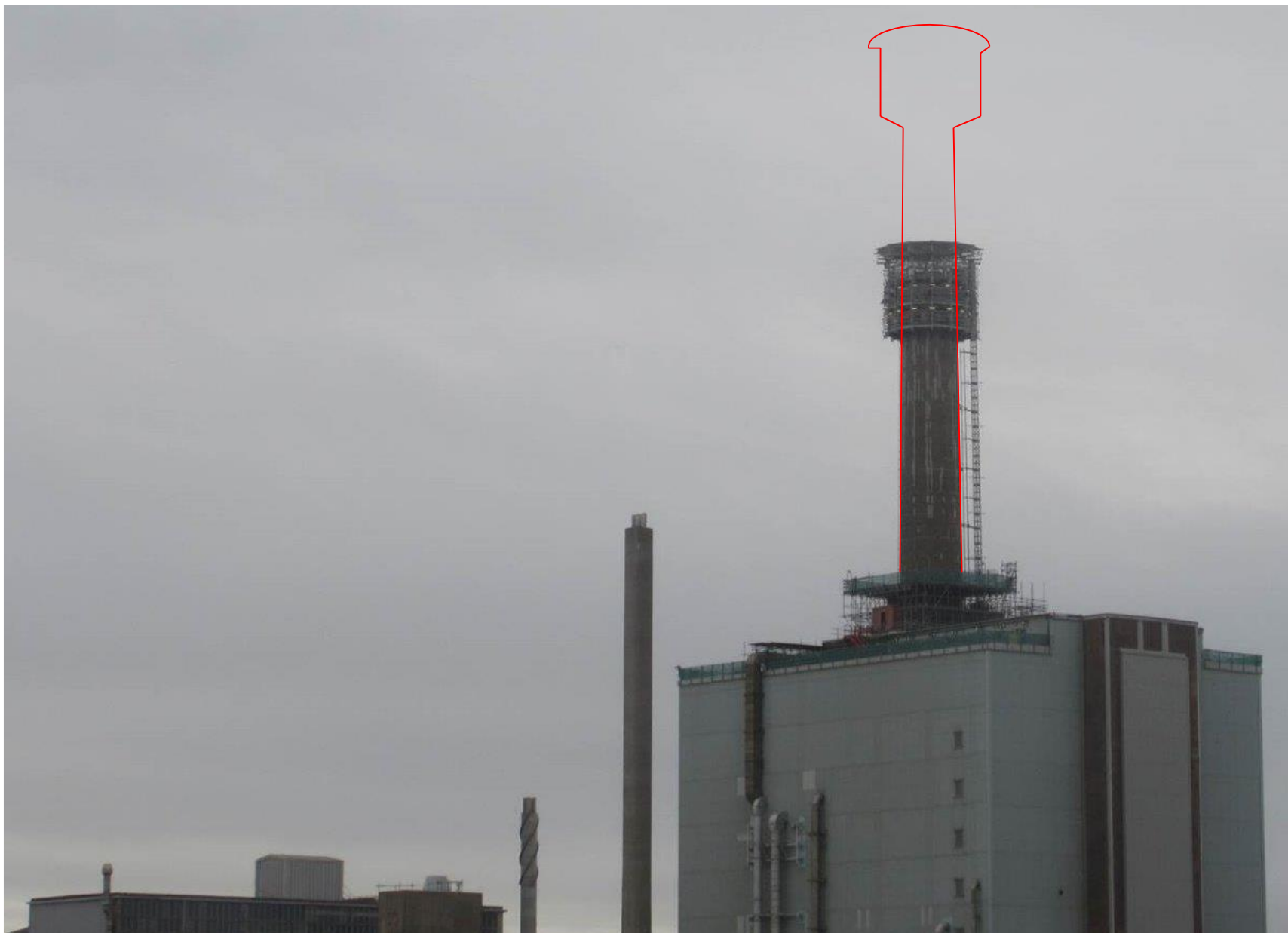


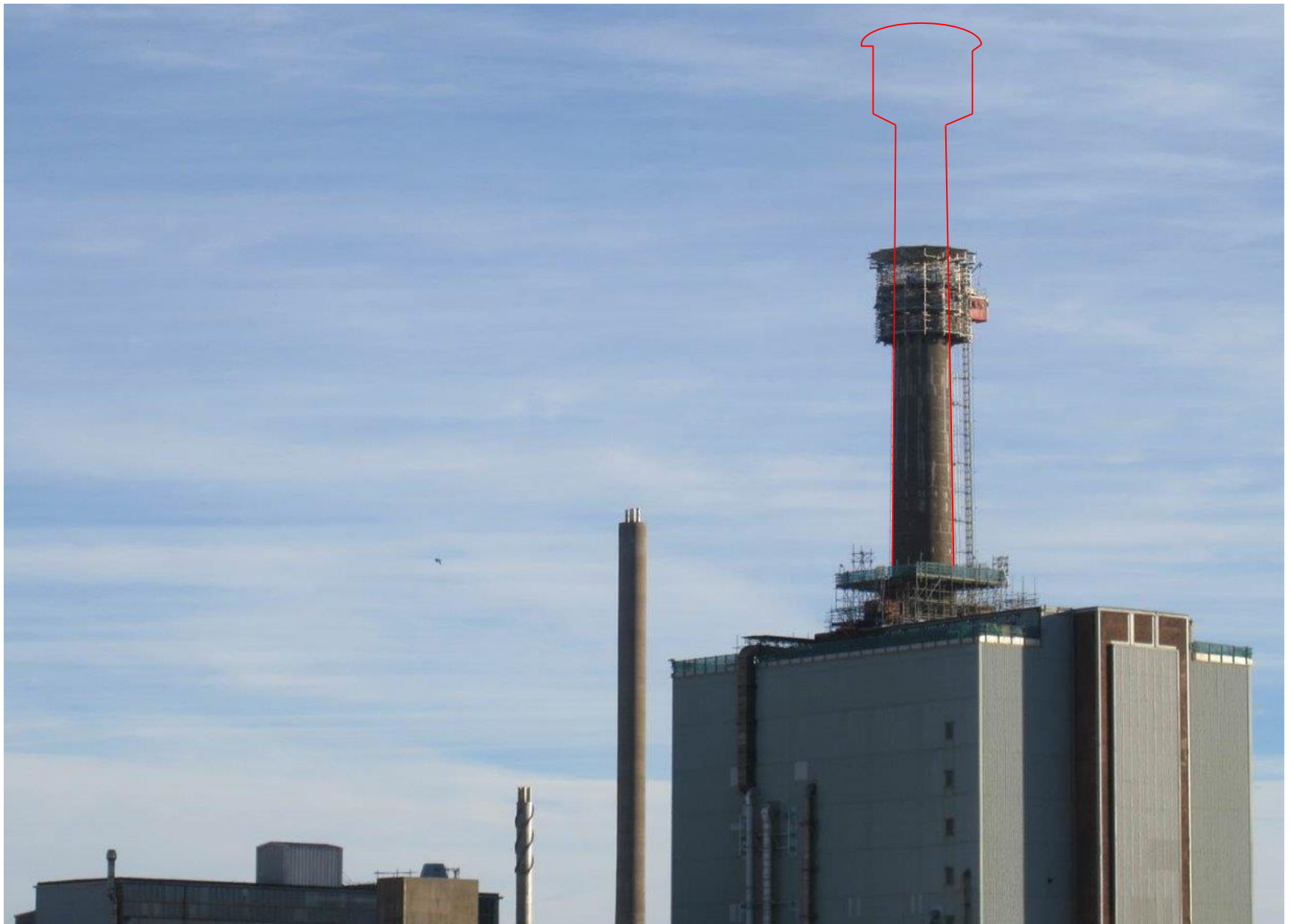










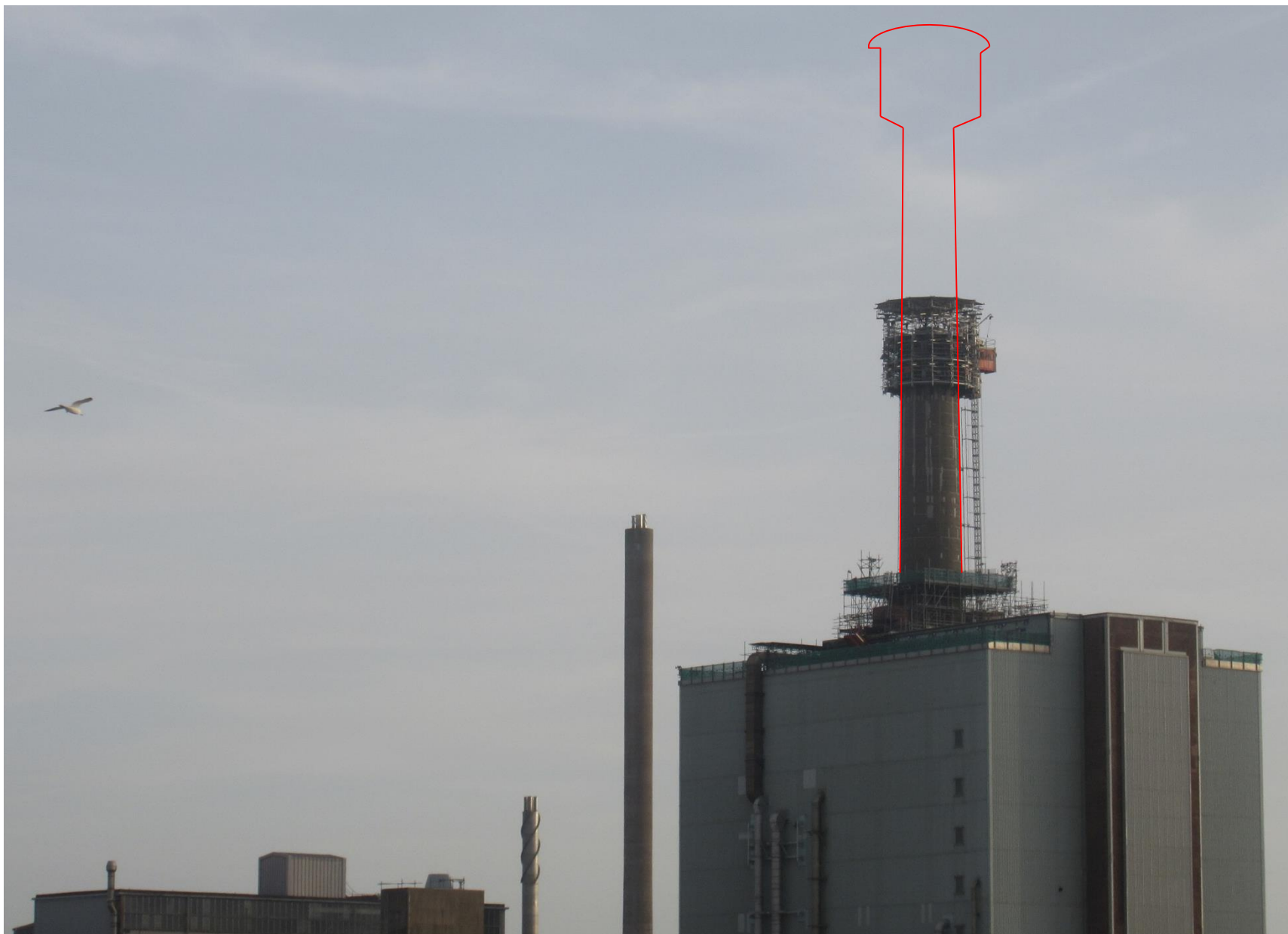






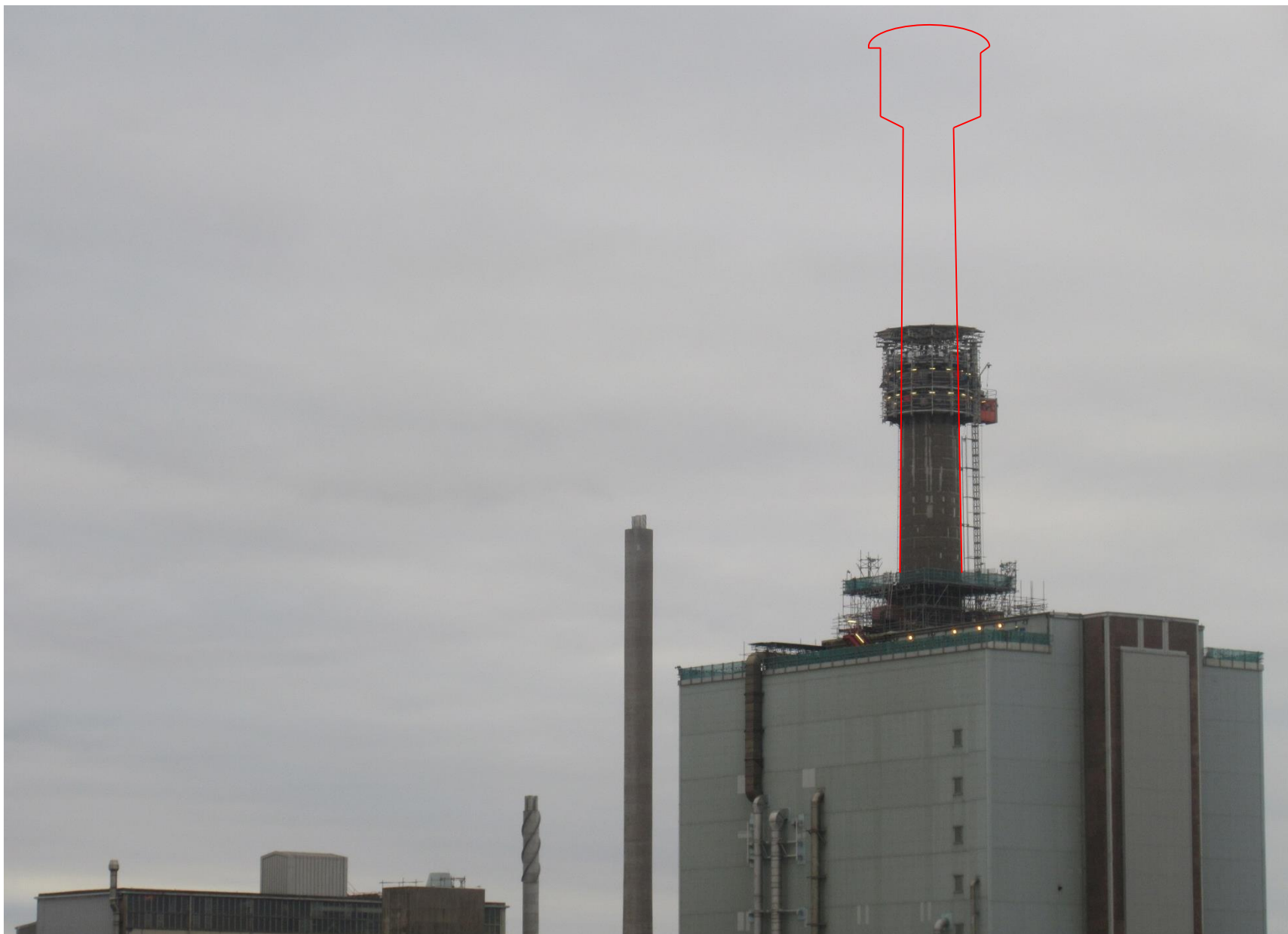


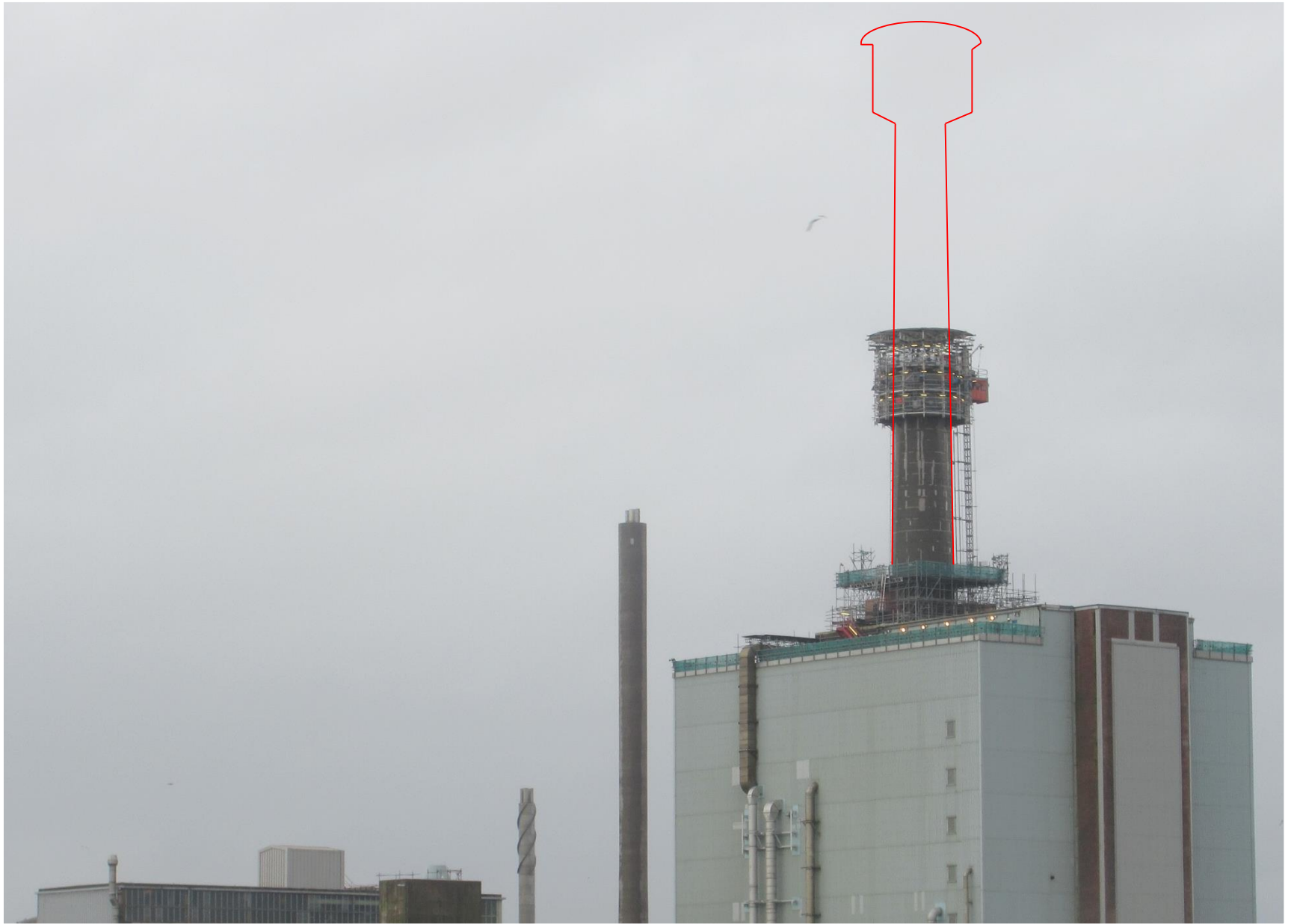




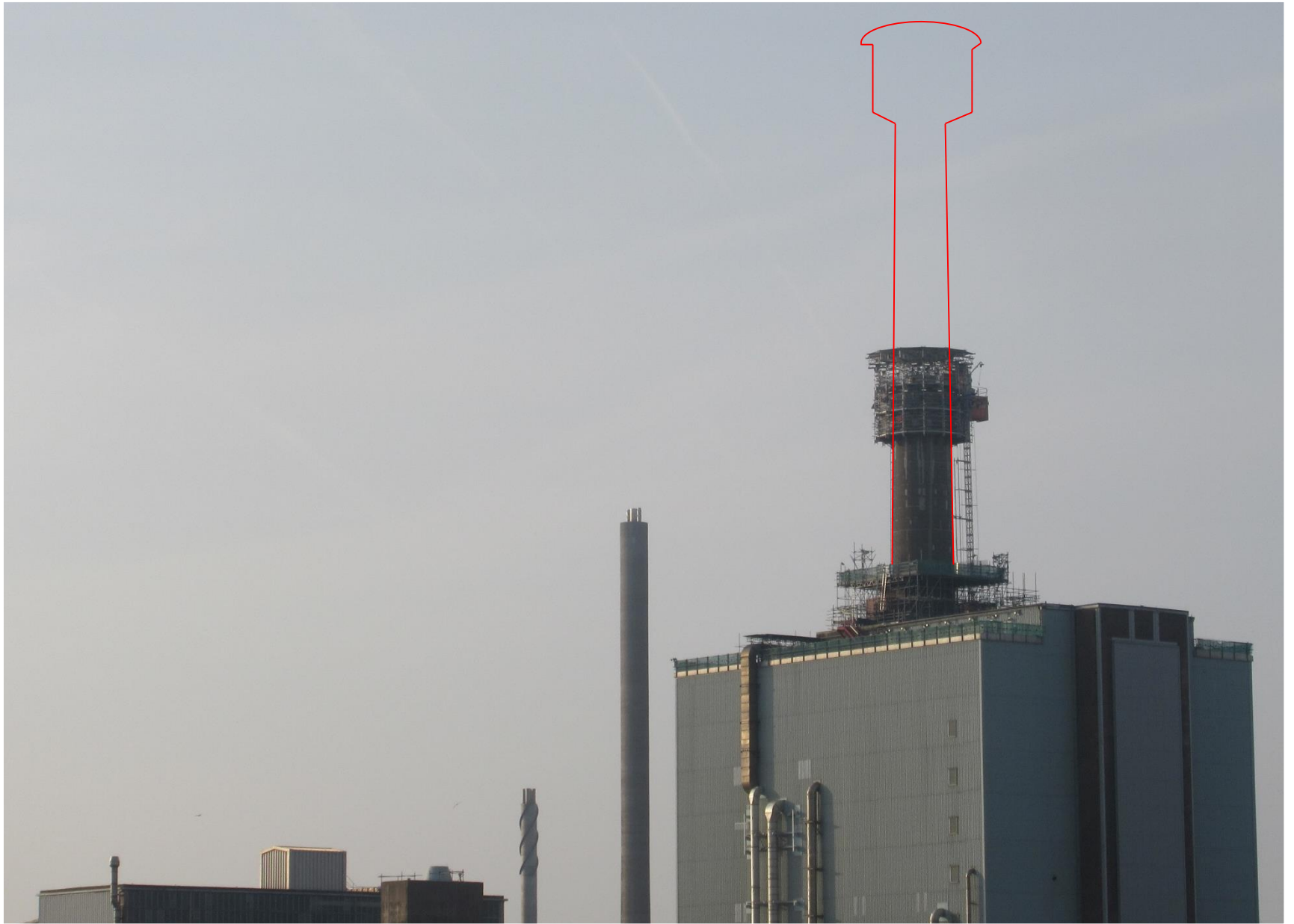


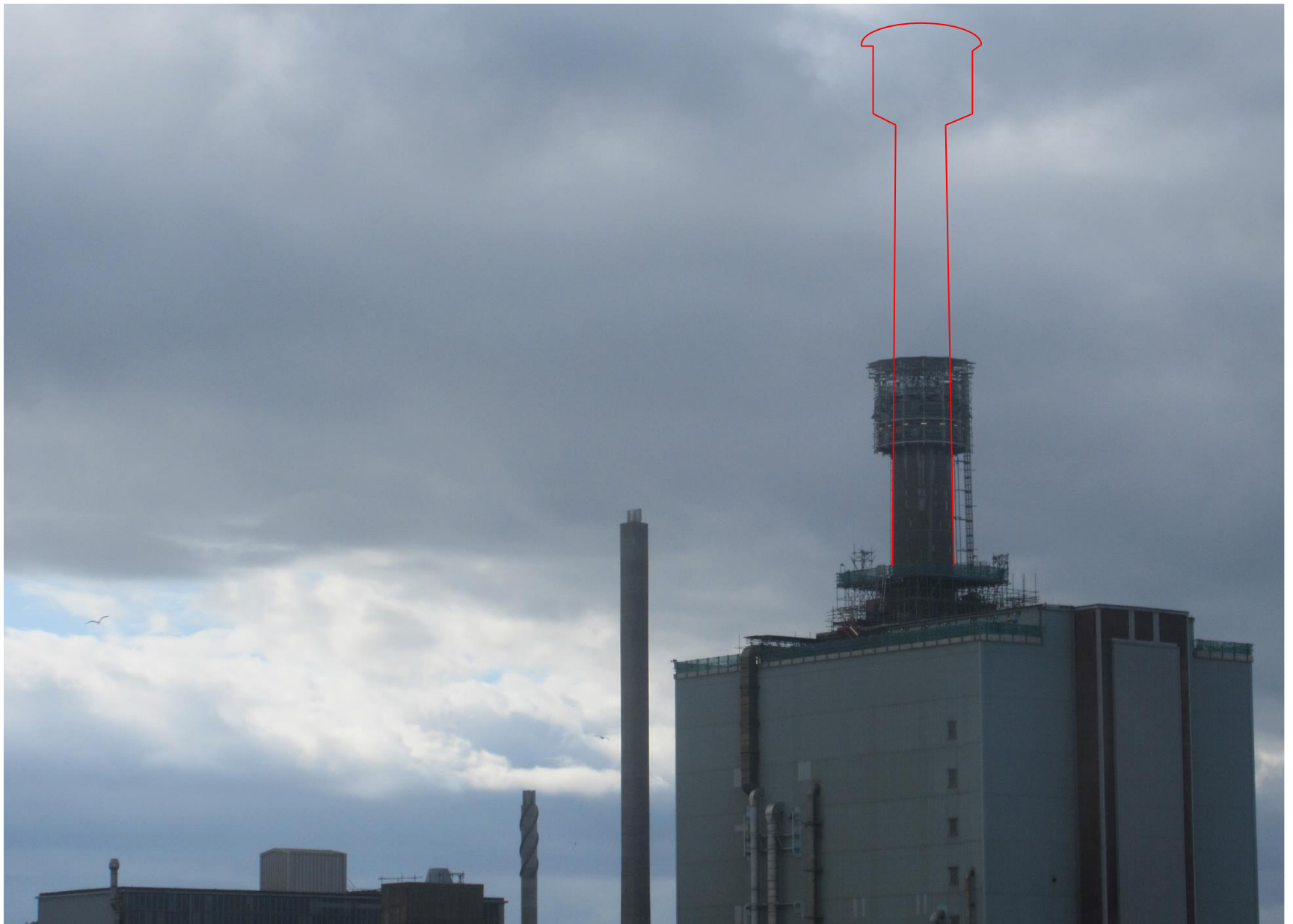


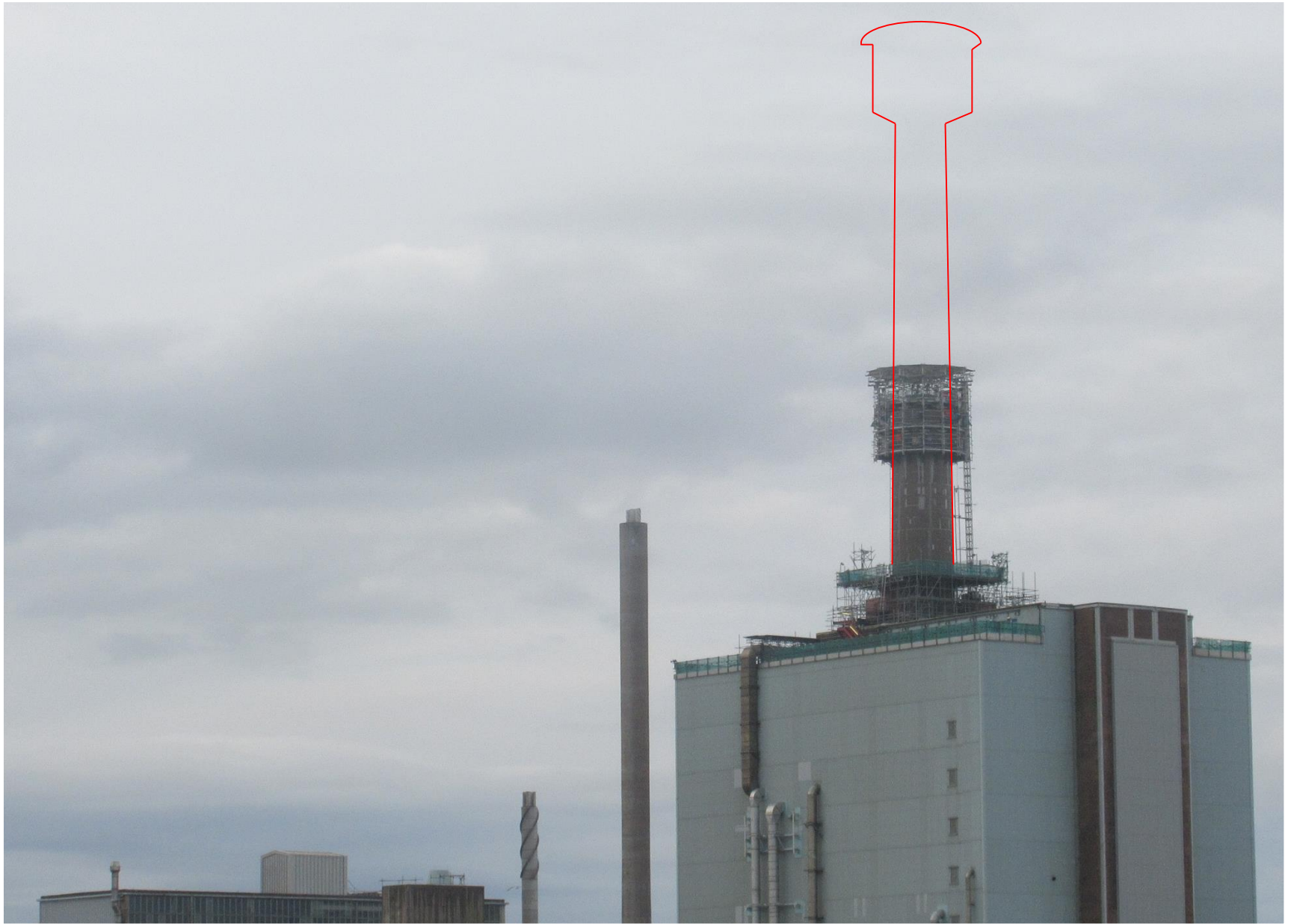




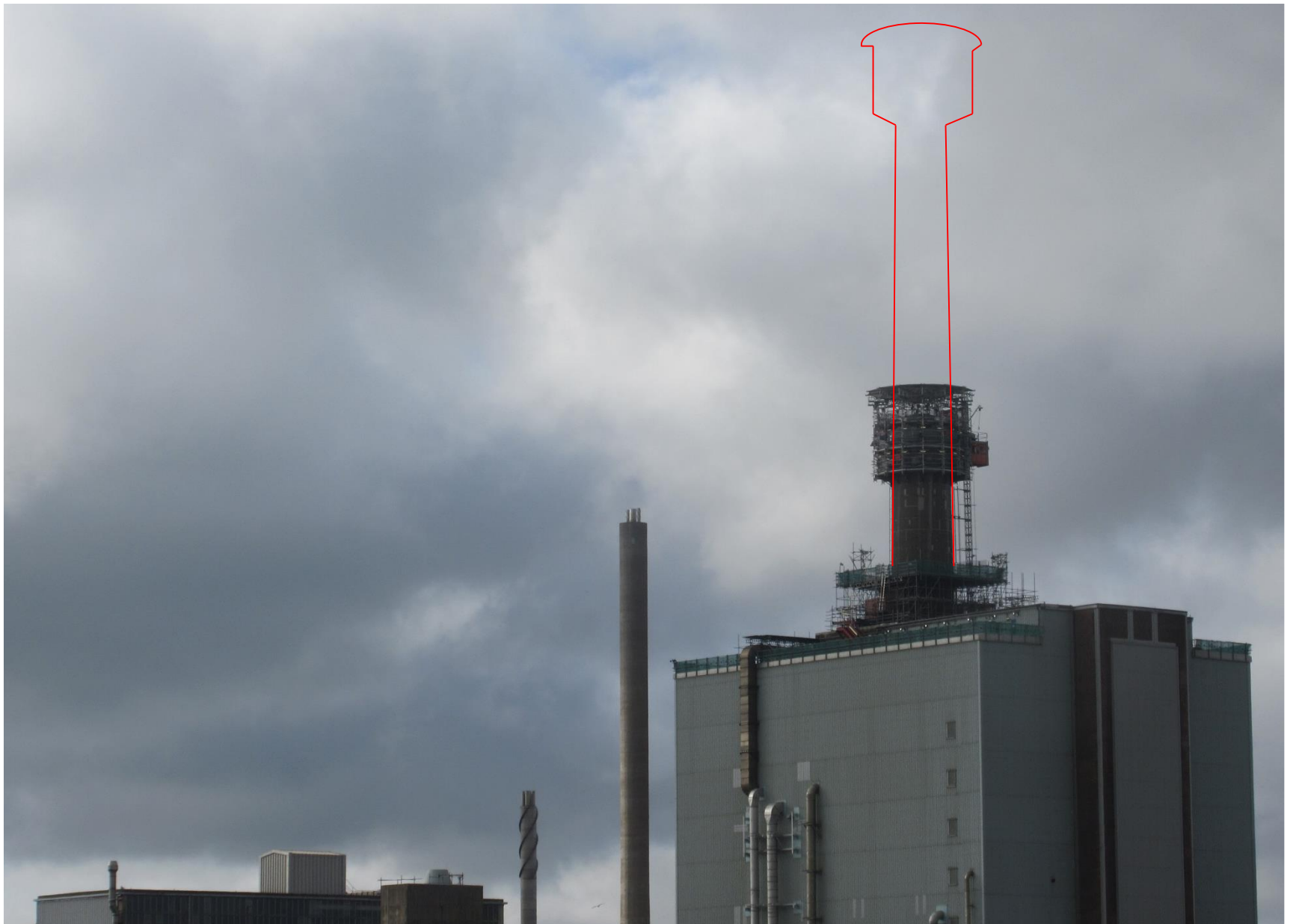






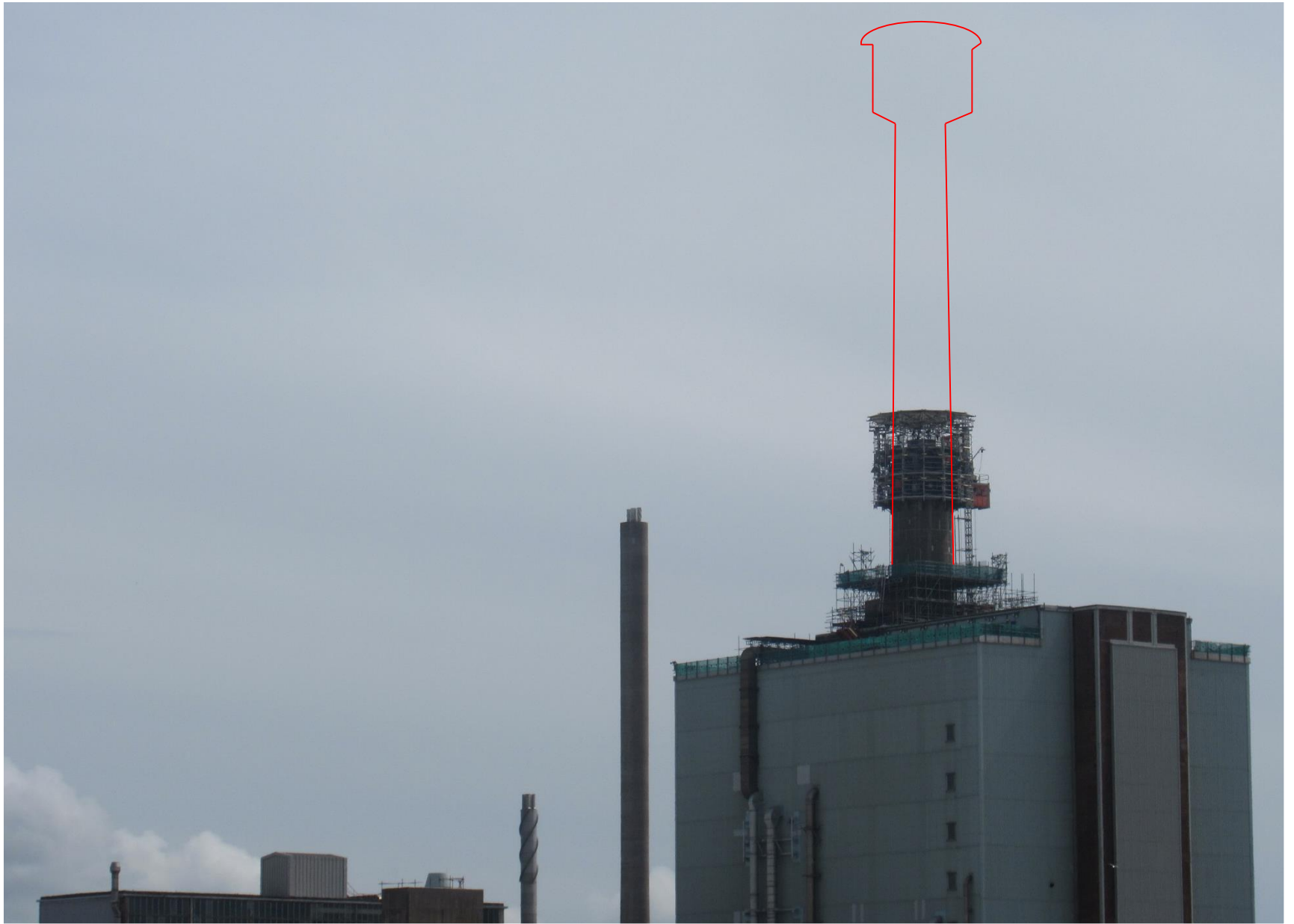






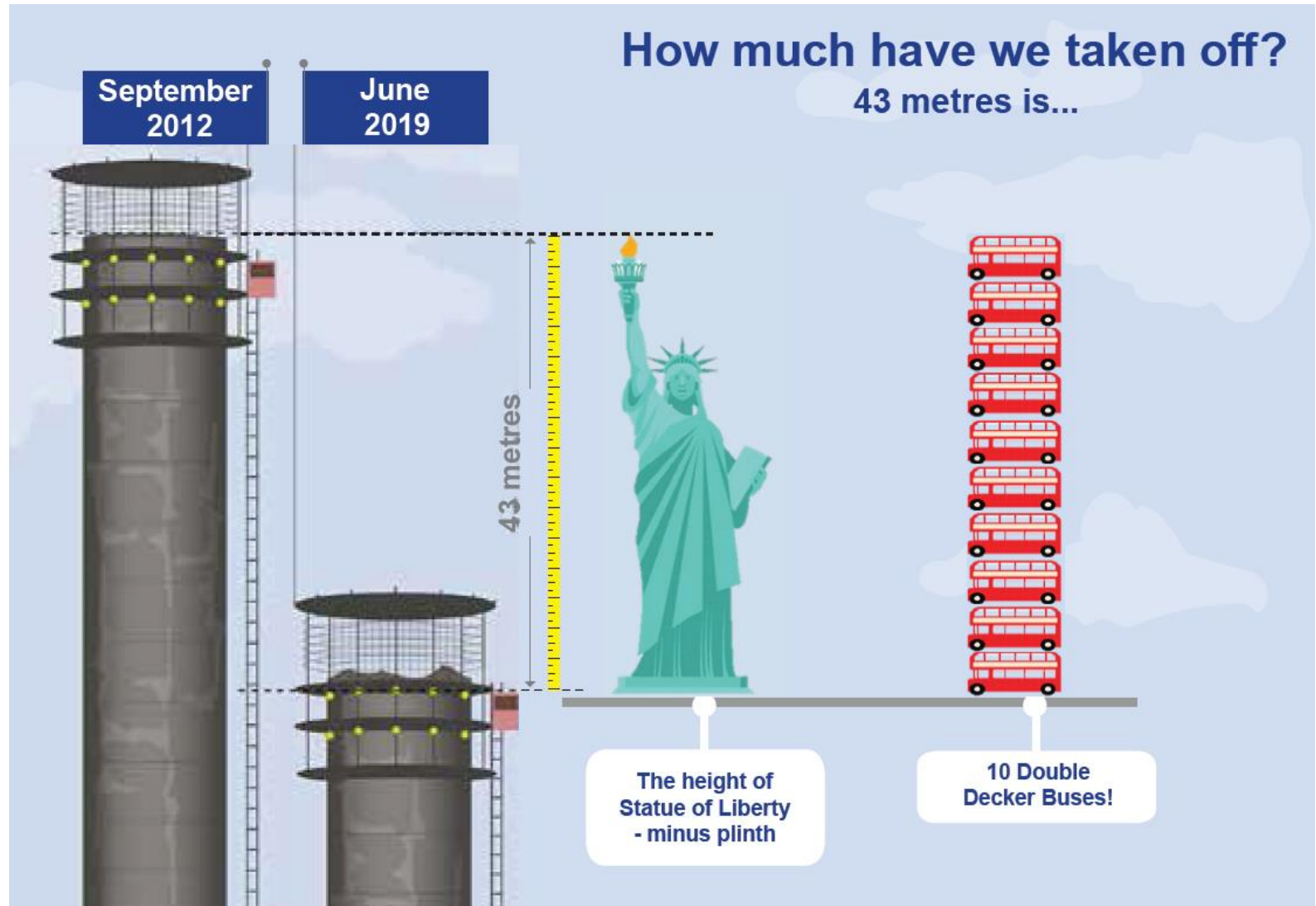






Current status

- The stack height has been reduced by 43 metres



Thank you & any questions?

