JOB NO:	REDACTED FOR CONFIDENTIALITY
PROJECT:	REDACTED FOR CONFIDENTIALITY
CLIENT:	REDACTED FOR CONFIDENTIALITY

SOLAR SURVEYS

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TITLE: ROOF CONDITION REPORT

REVISION	PURPOSE OF ISSUE	DATE	ORIGINATOR	CHECKER	APPROVAL
1	ISSUED FOR REVIEW	13.10.2024	NH	SGR	HGR
0	ISSUED FOR REVIEW	11.09.2024	NH	SGR	HGR

REVISION RECORD

WHERE applicable Current revisions are identified on the relevant page(s) by a vertical line in the right-hand margin adjacent to where the revision was made. All previous revision identification is removed.

REV.	DATE	REVISION DETAILS
0	11/09/2024	Issued to client
1	13/10/2024	Issued to client

SOLAR SURVEYS

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INTRODUCTION

[redacted] REDACTED FOR CONFIDENTIALITY [redacted] ASSESSMENT FOR THE ROOFS AT [redacted], UNITED KINGDOM FOR INDUSTRIAL USE. INDUS[redacted] REDACTED FOR CONFIDENTIALITY [redacted] REDACTED FOR CONFIDENTIALITY [redacted]ED KINGDOM.
THE SCOPE OF THE SERVICES PERTAINED IN THIS DOCUMENT IS A DETAILED ASSESSMENT FOR THE ROOF CONDITION OF THE INDUSTRIAL BUILDING WITHIN THE SITE BOUNDARY TO ASCERTAIN SUITABILITY IN RELATION OF INSTALLATION OF PV PANELS.

THIS REPORT CONTAINS COMMENTARY AND HIGHLIGHTS ON ANY DEFECTS INSPECTED VISUALLY VIA DRONE. A DRONE SURVEY FOR THE SITE HAS BEEN CARRIED OUT AND A FULL SITE AERIAL RECONNAISSANCE HAS TAKEN PLACE WHICH FORMS THE BASIS OF THIS REPORT.

STRUCTURAL SURVEYS FOR THE SAME SITE HAVE BEEN CARRIED OUT AT THE SAME DATE, FINDINGS, AND REPORTING OF SUCH ARE CONTAINED IN A SEPARATE DOCUMENT ISSUED FOR STRUCTURAL SUITABILITY. THIS REPORT COVERS ONLY THE ROOF CONDITION OF THE SITE AND MUST BE READ IN CONJUNCTION WITH THE STRUCTURAL SURVEY REPORT DOCUMENT FOR [redacted] REDACTED FOR CONFIDENTIALITY [redacted] UNITED KINGDOM.

THE REPORT INCLUDES SKETCHES AND PLANS WHERE APPROPRIATE, AND A SELECTION OF IMAGES TAKEN DURING THE INSPECTION. IF YOU HAVE ANY QUESTIONS ABOUT THE SURVEY OR THIS REPORT, PLEASE DO NOT HESITATE TO CONTACT US.
THE FIGURE BELOW SHOWS THE SITE LAYOUT.

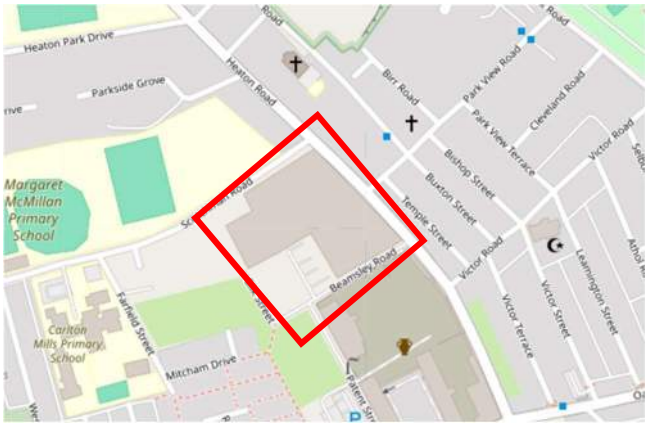


FIG. 1 – SITE LOCATION PLAN

FIG. 2 – BUILDING LAYOUT

METHODOLOGY & EXCLUSIONS

- A DESKTOP STUDY HAS TAKEN PLACE PRIOR TO THE SITE VISIT, THIS EXERCISE INCLUDES A REVIEW OF ANY CLIENT INFORMATION, INFORMATION EXTRACTED FROM ONLINE SOURCES, SEARCH FOR HISTORICAL MAPS, DATED REVIEW FROM GOOGLE EARTH MAPS AND RECORDS OF LISTED BUILDINGS.
- LOCATION REVIEW AND RISK ASSESSMENT HAS BEEN CARRIED OUT PRIOR TO THE VISIT.
- INSURANCES, OPERATOR, AND FLYER ID'S HAVE BEEN VERIFIED FOR THE USE OF DRONES ON SITE.
- AREAS WITH LIMITED ACCESS HAVE BEEN VISUALLY INSPECTED WITH THE HELP OF A DRONE AND IMAGES HAVE BEEN TAKEN WHERE DRONE HAS BEEN DEEMED SAFE TO USE WITHOUT DISTURBING WILDLIFE AND COMPLYING WITH WEATHER CONDITIONS AS WELL AS SAFE DISTANCES TO OBSTACLES AND PUBLIC.
- A QUADROTOR DRONE HAS BEEN USED WHICH HAS THE CAPABILITY OF TAKING 8K PHOTOGRAPHY TO INSPECT ALL ROOF AREAS.
- DUE TO THE AGE AND MATERIAL OF THESE ROOFS IT IS DEEMED UNSAFE TO CARRY OUT WALKAROUNDS WITHOUT SUFFICIENT PROPPING WHERE REQUIRED AND SAFE ACCESS PROVISION.

SITE DETAILS AND NOTES

DATE OF THE INSPECTION

09/09/2024
13/10/2024 *(DATE OF SECOND INSPECTION)*

ADDRESS OF THE BUILDING INSPECTED.

REDACTED FOR CONFIDENTIALITY United Kingdom

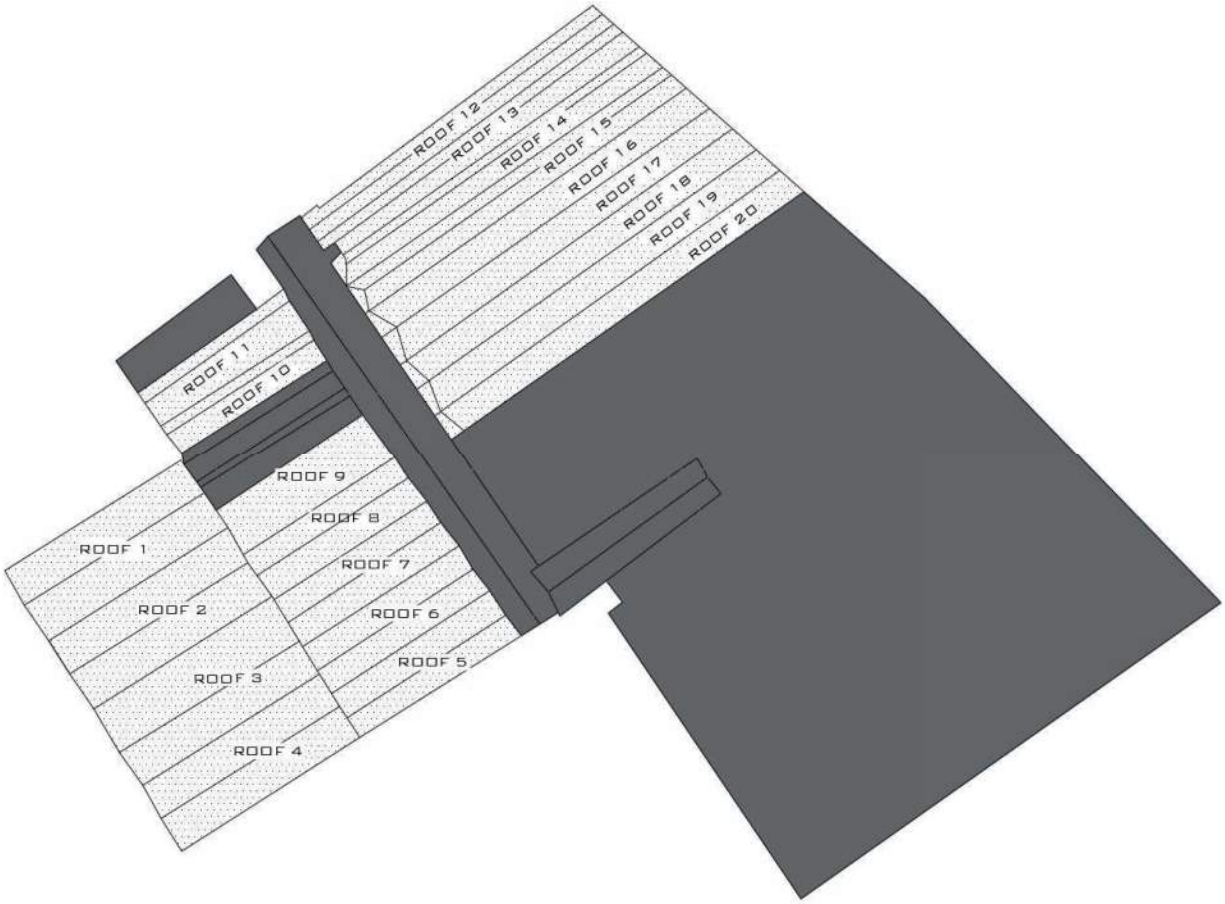
STATUS OF BUILDING

INDUSTRIAL USE

NOTES:

AN 8K CAPABLE QUADCOPTER DRONE HAS BEEN DEPLOYED AND FLOWN OVER THE BUILDING AT VARIOUS HEIGHTS TO CAPTURE A SERIES OF IMAGES. OUR CONDITION REPORT IS BASED ON VISUAL OBSERVATIONS ON THE DAY OF THE INSPECTION, AND DESKTOP STUDY OF THE IMAGES CAPTURED BY DRONE. THE BUILDINGS WERE OCCUPIED DURING THE INSPECTION.

AREA OF SCOPE



OBSERVATIONS

Roof 1:

Figure 1: Aerial perspective of roof 1

CONSTRUCTION:

The roof construction of the building is mostly fibre cement/ asbestos sheets with GRP roof lights on concrete purlins and precast concrete frame. The structure is duo-pitch in nature. Fibre cement is a composite material, made up of portland cement, sand cellulose fibres which are used to reinforce the material and improve its durability. Fibre cement roof sheets are common and in line with the use case of storage/industrial buildings. Whereas the roof sheets are durable and low maintenance with age the strength of the roof sheets degrade very quickly and are to be treated as fragile roofs. These roofs due to the time frame of manufacturing usually contained asbestos as no information is available it is to be treated that asbestos is present.

SCRUTINIZATION:

The main roof covering appears to be in fair condition with defects noted as below:

- Apex flashing against gable is damaged and loose on roof.
- General staining throughout the roof and vegetation growth in troughs of roof sheeting.
- GRP roof lights have been repaired indicating previous failure/ damage existing roof lights may require remediation in the future.
- Gutters are obstructed with debris and vegetation.
- Weather degradation has been observed throughout.
- General debris on roof including wooden planks etc.

CONCLUSION:

- The fibre cement sheets are to remain intact and no intrusive work is to be carried out by personnel on site other than as specified by mounting designer. Mounting design should be presented to structural engineer for approval before being implemented.
- Weathered sheets are performing adequately and no significant defects in performance have been found. No significant deflections have been noted throughout any of the building roof fabric.
- Vegetation growth is to be treated and removed throughout as this is likely to cause significant performance issues and will lead to expensive replacement of sheets in the long term. Cleaning using a soft-bristle brush or sponge, apply the cleaner to the cladding surface, working in small sections from top to bottom. Washing of panels to be undertaking by a specialist roof cleaning company.

- rain water goods, apex flashings and other metal flashings show signs of damage. replacement of these are best practice for the prolonged life of the roof any damaged flashing must be replaced.
- all fixings to sheets etc to be fully inspected and replaced where any defect/corrosion is observed at the time of pv installation. however, no significant defect to fixings have been observed at present.
- general debris on roof should be removed such as large items e.g. planks etc have been observed these gather water and other vegetative mater over time and have a detrimental effect on the roof.

Roof 2:

figure 2: aerial perspective of roof 2

construction:

The roof construction of the building is mostly fibre cement/ asbestos sheets with grp roof lights on concrete purlins and precast concrete frame. the structure is Duo-pitch in nature. fibre cement is a composite material, made up of Portland cement, sand cellulose fibres which are used to reinforce the material and improve its durability. fibre cement roof sheets are common and in line with the use case of storage/industrial buildings. whereas the roof sheets are durable and low maintenance with age the strength of the roof sheets degrade very quickly and are to be treated as fragile roofs. These roofs due to the time frame of manufacturing usually contained asbestos as no information is available it is to be treated that asbestos is present.

scrutinization:

the main roof covering appears to be in fair condition with defects noted as below:

- flashing against gable is damaged and loose on roof.
- general staining throughout the roof and vegetation growth in troughs of roof sheeting.
- grp roof lights have been repaired indicating previous failure/ damage existing roof lights may require remediation in the future.
- gutters are obstructed with debris and vegetation.
- weather degradation has been observed throughout.
- Loose/ missing bricks are found at the brick work to the gable parapet.
- general debris on roof including wooden planks etc.

conclusion:

- the fibre cement sheets are to remain intact and no intrusive work is to be carried out by personnel on site other than as specified by mounting designer. mounting design should be presented to structural engineer for approval before being implemented.
- weathered sheets are performing adequately and no significant defects in performance have been found. no significant deflections have been noted throughout any of the building roof fabric.
- vegetation growth is to be treated and removed throughout as this is likely to cause significant performance issues and will lead to expensive replacement of sheets in the long term. cleaning using a soft-bristle brush or sponge, apply the cleaner to the cladding surface, working in small sections from top to bottom. washing of panels to be undertaking by a specialist roof cleaning company.

- rain water goods, apex flashings and other metal flashings show signs of damage. replacement of these are best practice for the prolonged life of the roof any damaged flashing must be replaced.
- all fixings to sheets etc to be fully inspected and replaced where any defect/corrosion is observed at the time of pv installation. however, no significant defect to fixings have been observed at present.
- general debris on roof should be removed such as large items e.g. planks etc have been observed these gather water and other vegetative mater over time and have a detrimental effect on the roof.
- Loose/ missing bricks should be replaced like for like.

Roof 3:

figure 3: aerial perspective of roof 3

construction:

The roof construction of the building is mostly fibre cement/ asbestos sheets with grp roof lights on concrete purlins and precast concrete frame. the structure is Duo-pitch in nature. fibre cement is a composite material, made up of Portland cement, sand cellulose fibres which are used to reinforce the material and improve its durability. fibre cement roof sheets are common and in line with the use case of storage/industrial buildings. whereas the roof sheets are durable and low maintenance with age the strength of the roof sheets degrade very quickly and are to be treated as fragile roofs. These roofs due to the time frame of manufacturing usually contained asbestos as no information is available it is to be treated that asbestos is present.

scrutinization:

the main roof covering appears to be in fair condition with defects noted as below:

- flashing against gable is damaged and loose on roof.
- general staining throughout the roof and vegetation growth in troughs of roof sheeting.
- grp roof lights have been repaired indicating previous failure/ damage existing roof lights may require remediation in the future.
- gutters are obstructed with debris and vegetation.
- weather degradation has been observed throughout.
- Loose/ missing bricks are found at the brick work to the gable parapet.
- general debris on roof including wooden planks etc.
- chimney shows signs of corrosion which may lead to further deterioration.

conclusion:

- the fibre cement sheets are to remain intact and no intrusive work is to be carried out by personnel on site other than as specified by mounting designer. mounting design should be presented to structural engineer for approval before being implemented.
- weathered sheets are performing adequately and no significant defects in performance have been found. no significant deflections have been noted throughout any of the building roof fabric.
- vegetation growth is to be treated and removed throughout as this is likely to cause significant performance issues and will lead to expensive replacement of sheets in the long term. cleaning using a soft-bristle brush or sponge, apply the cleaner to the cladding surface, working in small sections from top to bottom. washing of panels to be undertaking by a specialist roof cleaning company.

- rain water goods, apex flashings and other metal flashings show signs of damage. replacement of these are best practice for the prolonged life of the roof any damaged flashing must be replaced.
- all fixings to sheets etc to be fully inspected and replaced where any defect/corrosion is observed at the time of pv installation. however, no significant defect to fixings have been observed at present.
- general debris on roof should be removed such as large items e.g. planks etc have been observed these gather water and other vegetative mater over time and have a detrimental effect on the roof.
- Loose/ missing bricks should be replaced like for like.
- Chimney should be inspected and replaced if required.

Roof 4:

figure 4: aerial perspective of roof 4

construction:

The roof construction of the building is mostly fibre cement/ asbestos sheets with grp roof lights on concrete purlins and precast concrete frame. the structure is Duo-pitch in nature. fibre cement is a composite material, made up of Portland cement, sand cellulose fibres which are used to reinforce the material and improve its durability. fibre cement roof sheets are common and in line with the use case of storage/industrial buildings. whereas the roof sheets are durable and low maintenance with age the strength of the roof sheets degrade very quickly and are to be treated as fragile roofs. These roofs due to the time frame of manufacturing usually contained asbestos as no information is available it is to be treated that asbestos is present.

scrutinization:

the main roof covering appears to be in fair condition with defects noted as below:

- flashing against gable is damaged and loose on roof.
- general staining throughout the roof and vegetation growth in troughs of roof sheeting.
- grp roof lights have been repaired indicating previous failure/ damage existing roof lights may require remediation in the future.
- gutters are obstructed with debris and vegetation.
- weather degradation has been observed throughout.
- Loose/ missing bricks are found at the brick work to the gable parapet.
- Loose/ missing cope stones are found at the gable parapet edge.
- general debris on roof including wooden planks etc.

conclusion:

- the fibre cement sheets are to remain intact and no intrusive work is to be carried out by personnel on site other than as specified by mounting designer. mounting design should be presented to structural engineer for approval before being implemented.
- weathered sheets are performing adequately and no significant defects in performance have been found. no significant deflections have been noted throughout any of the building roof fabric.
- vegetation growth is to be treated and removed throughout as this is likely to cause significant performance issues and will lead to expensive replacement of sheets in the long term. cleaning using a soft-bristle brush or sponge, apply the cleaner to the cladding surface, working in small sections from top to bottom. washing of panels to be undertaking by a specialist roof cleaning company.

- rain water goods, apex flashings and other metal flashings show signs of damage. replacement of these are best practice for the prolonged life of the roof any damaged flashing must be replaced.
- all fixings to sheets etc to be fully inspected and replaced where any defect/corrosion is observed at the time of pv installation. however, no significant defect to fixings have been observed at present.
- general debris on roof should be removed such as large items e.g. planks etc have been observed these gather water and other vegetative mater over time and have a detrimental effect on the roof.
- Loose/ missing bricks should be replaced like for like.
- Loose/ missing copestone should be replaced like for like.

Roof 5:

Figure 5: aerial perspective of roof 5

Construction:

The roof construction of the building is mostly fibre cement/ asbestos sheets with GRP roof lights on timber purlins and timber trusses. The structure is duo-pitch in nature. Fibre cement is a composite material, made up of portland cement, sand cellulose fibres which are used to reinforce the material and improve its durability. Fibre cement roof sheets are common and in line with the use case of storage/industrial buildings. Whereas the roof sheets are durable and low maintenance with age the strength of the roof sheets degrade very quickly and are to be treated as fragile roofs. These roofs due to the time frame of manufacturing usually contained asbestos as no information is available it is to be treated that asbestos is present.

Scrutinization:

The main roof covering appears to be in fair condition with defects noted as below:

- Flashing against gable is damaged and loose on roof.
- General staining throughout the roof and vegetation growth in troughs of roof sheeting.
- GRP roof lights have been repaired indicating previous failure/ damage existing roof lights may require remediation in the future.
- Gutters are obstructed with debris and vegetation.
- Weather degradation has been observed throughout.
- General debris on roof including broken pieces for rain water goods.

Conclusion:

- The fibre cement sheets are to remain intact and no intrusive work is to be carried out by personnel on site other than as specified by mounting designer. Mounting design should be presented to structural engineer for approval before being implemented.
- Weathered sheets are performing adequately and no significant defects in performance have been found. No significant deflections have been noted throughout any of the building roof fabric.
- Vegetation growth is to be treated and removed throughout as this is likely to cause significant performance issues and will lead to expensive replacement of sheets in the long term. Cleaning using a soft-bristle brush or sponge, apply the cleaner to the cladding surface, working in small sections from top to bottom. Washing of panels to be undertaking by a specialist roof cleaning company.
- Rain water goods, apex flashings and other metal flashings show signs of damage. Replacement of these are best practice for the prolonged life of the roof any damaged flashing must be replaced.

- all fixings to sheets etc to be fully inspected and replaced where any defect/corrosion is observed at the time of pv installation. however, no significant defect to fixings have been observed at present.
- general debris on roof should be removed.
- a timber rot and infestation survey by a specialist contractor should be undertaken to the timber structure before any works are carried out to ensure compliance with the 25year life span of the pv project.

Roof 6:

figure 6: aerial perspective of roof 6

construction:

The roof construction of the building is mostly fibre cement/ asbestos sheets with grp roof lights on timber purlins and timber trusses. the structure is Duo-pitch in nature. fibre cement is a composite material, made up of Portland cement, sand cellulose fibres which are used to reinforce the material and improve its durability. fibre cement roof sheets are common and in line with the use case of storage/industrial buildings. whereas the roof sheets are durable and low maintenance with age the strength of the roof sheets degrade very quickly and are to be treated as fragile roofs. These roofs due to the time frame of manufacturing usually contained asbestos as no information is available it is to be treated that asbestos is present.

scrutinization:

the main roof covering appears to be in fair condition with defects noted as below:

- flashing against gable has been patched up showing previous damage.
- general staining throughout the roof and vegetation growth in troughs of roof sheeting.
- grp roof lights have been repaired indicating previous failure/ damage existing roof lights may require remediation in the future.
- gutters are obstructed with debris and vegetation.
- weather degradation has been observed throughout.
- Access Ladder on roof.

conclusion:

- the fibre cement sheets are to remain intact and no intrusive work is to be carried out by personnel on site other than as specified by mounting designer. mounting design should be presented to structural engineer for approval before being implemented.
- weathered sheets are performing adequately and no significant defects in performance have been found. no significant deflections have been noted throughout any of the building roof fabric.
- vegetation growth is to be treated and removed throughout as this is likely to cause significant performance issues and will lead to expensive replacement of sheets in the long term. cleaning using a soft-bristle brush or sponge, apply the cleaner to the cladding surface, working in small sections from top to bottom. washing of panels to be undertaking by a specialist roof cleaning company.
- rain water goods, apex flashings and other metal flashings show signs of damage. replacement of these are best practice for the prolonged life of the roof any damaged flashing must be replaced.

- all fixings to sheets etc to be fully inspected and replaced where any defect/corrosion is observed at the time of pv installation. however, no significant defect to fixings have been observed at present.
- general debris on roof should be removed such as large items e.g. ladders etc have been observed these gather water and other vegetative mater over time and have a detrimental effect on the roof.
- a timber rot and infestation survey by a specialist contractor should be undertaken to the timber structure before any works are carried out to ensure compliance with the 25year life span of the pv project.

Roof 7:

figure 7: aerial perspective of roof 7

construction:

The roof construction of the building is mostly fibre cement/ asbestos sheets with grp roof lights on timber purlins and timber trusses. the structure is Duo-pitch in nature. fibre cement is a composite material, made up of Portland cement, sand cellulose fibres which are used to reinforce the material and improve its durability. fibre cement roof sheets are common and in line with the use case of storage/industrial buildings. whereas the roof sheets are durable and low maintenance with age the strength of the roof sheets degrade very quickly and are to be treated as fragile roofs. These roofs due to the time frame of manufacturing usually contained asbestos as no information is available it is to be treated that asbestos is present.

scrutinization:

the main roof covering appears to be in fair condition with defects noted as below:

- flashing against gable has been patched up showing previous damage.
- general staining throughout the roof and vegetation growth in troughs of roof sheeting.
- grp roof lights have been repaired indicating previous failure/ damage existing roof lights may require remediation in the future.
- gutters are obstructed with debris and vegetation.
- weather degradation has been observed throughout.
- Access Ladder on roof.
- Parapet shows damage and loose bricks and missing copestones.

conclusion:

- the fibre cement sheets are to remain intact and no intrusive work is to be carried out by personnel on site other than as specified by mounting designer. mounting design should be presented to structural engineer for approval before being implemented.
- weathered sheets are performing adequately and no significant defects in performance have been found. no significant deflections have been noted throughout any of the building roof fabric.
- vegetation growth is to be treated and removed throughout as this is likely to cause significant performance issues and will lead to expensive replacement of sheets in the long term. cleaning using a soft-bristle brush or sponge, apply the cleaner to the cladding surface, working in small sections from top to bottom. washing of panels to be undertaking by a specialist roof cleaning company.

- rain water goods, apex flashings and other metal flashings show signs of damage. replacement of these are best practice for the prolonged life of the roof any damaged flashing must be replaced.
- all fixings to sheets etc to be fully inspected and replaced where any defect/corrosion is observed at the time of pv installation. however, no significant defect to fixings have been observed at present.
- general debris on roof should be removed such as large items e.g. ladders etc have been observed these gather water and other vegetative mater over time and have a detrimental effect on the roof.
- Repair parapet like for like.
- a timber rot and infestation survey by a specialist contractor should be undertaken to the timber structure before any works are carried out to ensure compliance with the 25year life span of the pv project.

Roof 8:

figure 8: aerial perspective of roof 8

construction:

The roof construction of the building is mostly fibre cement/ asbestos sheets with grp roof lights on timber purlins and timber trusses. the structure is Duo-pitch in nature. fibre cement is a composite material, made up of Portland cement, sand cellulose fibres which are used to reinforce the material and improve its durability. fibre cement roof sheets are common and in line with the use case of storage/industrial buildings. whereas the roof sheets are durable and low maintenance with age the strength of the roof sheets degrade very quickly and are to be treated as fragile roofs. These roofs due to the time frame of manufacturing usually contained asbestos as no information is available it is to be treated that asbestos is present.

scrutinization:

the main roof covering appears to be in fair condition with defects noted as below:

- flashing against gable has been patched up showing previous damage.
- general staining throughout the roof and vegetation growth in troughs of roof sheeting.
- grp roof lights have been repaired indicating previous failure/ damage existing roof lights may require remediation in the future.
- gutters are obstructed with debris and vegetation.
- weather degradation has been observed throughout.
- Parapet shows damage and loose bricks and missing copestones.

conclusion:

- the fibre cement sheets are to remain intact and no intrusive work is to be carried out by personnel on site other than as specified by mounting designer. mounting design should be presented to structural engineer for approval before being implemented.
- weathered sheets are performing adequately and no significant defects in performance have been found. no significant deflections have been noted throughout any of the building roof fabric.
- vegetation growth is to be treated and removed throughout as this is likely to cause significant performance issues and will lead to expensive replacement of sheets in the long term. cleaning using a soft-bristle brush or sponge, apply the cleaner to the cladding surface, working in small sections from top to bottom. washing of panels to be undertaking by a specialist roof cleaning company.
- rain water goods, apex flashings and other metal flashings show signs of damage. replacement of these are best practice for the prolonged life of the roof any damaged flashing must be replaced.

- all fixings to sheets etc to be fully inspected and replaced where any defect/corrosion is observed at the time of pv installation. however, no significant defect to fixings have been observed at present.
- Repair parapet like for like.
- a timber rot and infestation survey by a specialist contractor should be undertaken to the timber structure before any works are carried out to ensure compliance with the 25year life span of the pv project.

Roof 9:

figure 9: aerial perspective of roof 9

construction:

The roof construction of the building is mostly fibre cement/ asbestos sheets with grp roof lights on timber purlins and timber trusses. the structure is mono-pitch in nature. fibre cement is a composite material, made up of Portland cement, sand cellulose fibres which are used to reinforce the material and improve its durability. fibre cement roof sheets are common and in line with the use case of storage/industrial buildings. whereas the roof sheets are durable and low maintenance with age the strength of the roof sheets degrade very quickly and are to be treated as fragile roofs. These roofs due to the time frame of manufacturing usually contained asbestos as no information is available it is to be treated that asbestos is present.

scrutinization:

the main roof covering appears to be in fair condition with defects noted as below:

- flashing against gable has been patched up showing previous damage.
- general staining throughout the roof and vegetation growth in troughs of roof sheeting.
- grp roof lights have been repaired indicating previous failure/ damage existing roof lights may require remediation in the future.
- gutters are obstructed with debris and vegetation.
- weather degradation has been observed throughout.
- General large debris on roof.
- Parapet shows vegetation and should be treated before further growth that can damage the brick work.
- Hole in roof has been observed which is possibly from a previous chimney of similar pipe structure penetration.

conclusion:

- the fibre cement sheets are to remain intact and no intrusive work is to be carried out by personnel on site other than as specified by mounting designer. mounting design should be presented to structural engineer for approval before being implemented.
- weathered sheets are performing adequately and no significant defects in performance have been found. no significant deflections have been noted throughout any of the building roof fabric.
- vegetation growth is to be treated and removed throughout as this is likely to cause significant performance issues and will lead to expensive replacement of sheets in the long term. cleaning using a soft-bristle brush or sponge, apply the cleaner to the cladding surface, working in small

sections from top to bottom. washing of panels to be undertaking by a specialist roof cleaning company.

- rain water goods, apex flashings and other metal flashings show signs of damage. replacement of these are best practice for the prolonged life of the roof any damaged flashing must be replaced.
- all fixings to sheets etc to be fully inspected and replaced where any defect/corrosion is observed at the time of pv installation. however, no significant defect to fixings have been observed at present.
- general debris on roof should be removed such as large items e.g. planks etc have been observed these gather water and other vegetative mater over time and have a detrimental effect on the roof.
- Remove vegetation from parapet.
- Repair roof where hole is
- a timber rot and infestation survey by a specialist contractor should be undertaken to the timber structure before any works are carried out to ensure compliance with the 25year life span of the pv project.

Roof 10:

Figure 10: aerial perspective of roof 10

Construction:

The roof construction of the building is corrugated metal sheet with GRP roof lights over timber purlins and timber trusses. The structure is mono-pitch in nature. Corrugated metal roofing is a metal sheet that is roll formed into metal panels. These panels are attached to the roof onto purlins or structure via screws. Corrugated metal roof sheets are very common and in line with the use case of industrial/office/studio buildings. This roof type is treated as fragile roof and are not designed to take any personnel loading.

Scrutinization:

The main roof covering appears to be in good condition.

- Weathering is observed throughout.
- It is to be noted that fixings are to be inspected for any corroded/broken and to be replaced.
- Gutters contain vegetation/debris.
- No further defects are noted. Hence, minimal remediation required.
- GRP lights seem to be in good condition.
- Parapet has a large section of missing masonry.

Conclusion:

- The main roof covering requires to be pressure washed, any loose paint and corrosion to be removed, gun applied mastic at any unsealed areas. An external weatherproof and corrosion resistant coating such as Fosroc Galvafroid to be applied throughout to prevent future defects.
- Any corroded/broken fixings to be replaced for like to like. All gutters to be cleaned and any obstructions to be removed, where the gutters are deformed these are to be repaired so that no flow is restricted throughout.
- Parapet masonry to be replaced like for like.
- A timber rot and infestation survey by a specialist contractor should be undertaken to the timber structure before any works are carried out to ensure compliance with the 25year life span of the PV project.

Roof 11:

Figure 11: Aerial perspective of roof 11

Construction:

The roof construction of the building is corrugated metal sheet with GRP roof lights over timber purlins and timber trusses. The structure is mono-pitch in nature. Corrugated metal roofing is a metal sheet that is roll formed into metal panels. These panels are attached to the roof onto purlins or structure via screws. Corrugated metal roof sheets are very common and in line with the use case of industrial/office/studio buildings. This roof type is treated as fragile roof and are not designed to take any personnel loading.

Scrutinization:

The main roof covering appears to be in good condition.

- Weathering is observed throughout.
- It is to be noted that fixings are to be inspected for any corroded/broken and to be replaced.
- Gutters contain vegetation/debris.
- No further defects are noted. Hence, minimal remediation required.
- GRP lights seem to be in good condition.
- Parapet has a large section of missing masonry.

Conclusion:

- The main roof covering requires to be pressure washed, any loose paint and corrosion to be removed, gun applied mastic at any unsealed areas. An external weatherproof and corrosion resistant coating such as Fosroc Galvafroid to be applied throughout to prevent future defects.
- Any corroded/broken fixings to be replaced for like to like. All gutters to be cleaned and any obstructions to be removed, where the gutters are deformed these are to be repaired so that no flow is restricted throughout.
- Parapet masonry to be replaced like for like.
- A timber rot and infestation survey by a specialist contractor should be undertaken to the timber structure before any works are carried out to ensure compliance with the 25year life span of the PV project.

Roof 12:

figure 12: aerial perspective of roof 12

Construction:

The roof construction of the building is slate roof with GRP lights on timber purlins and timber roof trusses. The roof structure is a offset mono-pitch roof. Slate roof construction in the UK is a traditional roofing method characterized by the use of natural slate tiles, which are highly durable, weather-resistant, and aesthetically appealing. Commonly used in both historic and contemporary buildings, slate roofs are typically constructed by laying individual slate tiles in overlapping rows over a waterproof underlayment on a pitched roof structure, often supported by timber rafters or trusses. The tiles are secured with nails or hooks, and the roof is designed to allow rainwater to flow off effectively, preventing water ingress. Slate is favoured in the UK for its longevity, fire resistance, and ability to withstand harsh weather conditions, as well as its distinctive appearance, which blends well with the local architectural styles and heritage requirements in many regions. The structure below is timber trusses. Even though these roofs have a build-up of insulation and other secondary supporting elements they are still treated as a fragile roof and are not designed to take any personnel loading.

Scrutinization:

The main roof covering appears to be in fair condition with defects noted as below:

- Debris such as wooden plank on the roof.
- Valley gutters are obstructed with debris and vegetation.
- Weather degradation has been observed throughout.
- Parapet has degraded and missing pointing.
- Tiles are broken and slipped close to the valley

Note: water staining has been noted below in the suspended ceiling which may indicate water ingress. This may be ongoing but looks historic in nature.

Conclusion:

The main roof covering requires to be cleaned any loose bedding mortar to be to be removed and replaced and sealed. Gutters to be de-clogged and cleaned fixings to be inspected where corroded fixings are discovered they are to be replaced like for like. Parapet wall to be re-pointed where required. Broken tiles to be replaced as required. Timber boards to be removed.

- A timber rot and infestation survey by a specialist contractor should be undertaken to the timber structure before any works are carried out to ensure compliance with the 25year life span of the PV project.

Roof 13:

Figure 13: aerial perspective of roof 13

Construction:

The roof construction of the building is slate roof with GRP lights on timber purlins and timber roof trusses. The roof structure is a offset mono-pitch roof. Slate roof construction in the UK is a traditional roofing method characterized by the use of natural slate tiles, which are highly durable, weather-resistant, and aesthetically appealing. Commonly used in both historic and contemporary buildings, slate roofs are typically constructed by laying individual slate tiles in overlapping rows over a waterproof underlayment on a pitched roof structure, often supported by timber rafters or trusses. The tiles are secured with nails or hooks, and the roof is designed to allow rainwater to flow off effectively, preventing water ingress. Slate is favoured in the UK for its longevity, fire resistance, and ability to withstand harsh weather conditions, as well as its distinctive appearance, which blends well with the local architectural styles and heritage requirements in many regions. The structure below is timber trusses. Even though these roofs have a build-up of insulation and other secondary supporting elements they are still treated as a fragile roof and are not designed to take any personnel loading.

Scrutinization:

The main roof covering appears to be in fair condition with defects noted as below:

- Debris such as wooden plank on the roof.
- Valley gutters are obstructed with debris and vegetation.
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- Parapet has degraded and missing pointing.
- Tiles are broken and slipped close to the valley

Note: water staining has been noted below in the suspended ceiling which may indicate water ingress. This may be ongoing but looks historic in nature.

Conclusion:

The main roof covering requires to be cleaned any loose bedding mortar to be to be removed and replaced and sealed. Gutters to be de-clogged and cleaned fixings to be inspected where corroded fixings are discovered they are to be replaced like for like. Parapet wall to be re-pointed where required. Broken tiles to be replaced as required. Timber boards to be removed.

- A timber rot and infestation survey by a specialist contractor should be undertaken to the timber structure before any works are carried out to ensure compliance with the 25year life span of the PV project.

Roof 14:

Figure 14: aerial perspective of roof 14

Construction:

The roof construction of the building is slate roof with GRP lights on timber purlins and timber roof trusses. The roof structure is a offset mono-pitch roof. Slate roof construction in the UK is a traditional roofing method characterized by the use of natural slate tiles, which are highly durable, weather-resistant, and aesthetically appealing. Commonly used in both historic and contemporary buildings, slate roofs are typically constructed by laying individual slate tiles in overlapping rows over a waterproof underlayment on a pitched roof structure, often supported by timber rafters or trusses. The tiles are secured with nails or hooks, and the roof is designed to allow rainwater to flow off effectively, preventing water ingress. Slate is favoured in the UK for its longevity, fire resistance, and ability to withstand harsh weather conditions, as well as its distinctive appearance, which blends well with the local architectural styles and heritage requirements in many regions. The structure below is timber trusses. Even though these roofs have a build-up of insulation and other secondary supporting elements they are still treated as a fragile roof and are not designed to take any personnel loading.

Scrutinization:

The main roof covering appears to be in fair condition with defects noted as below:

- Valley gutters are obstructed with debris and vegetation.
- Weather degradation has been observed throughout.
- Parapet has degraded and missing pointing.
- Tiles are broken and slipped close to the valley

Note: patchwork to end of the roof is noted the roof has been overclad with trapezoidal metal sheet.

Conclusion:

The main roof covering requires to be cleaned any loose bedding mortar to be to be removed and replaced and sealed. Gutters to be de-clogged and cleaned fixings to be inspected where corroded fixings are discovered they are to be replaced like for like. Parapet wall to be re-pointed where required. Broken tiles to be replaced as required.

- A timber rot and infestation survey by a specialist contractor should be undertaken to the timber structure before any works are carried out to ensure compliance with the 25year life span of the PV project.

Roof 15:

figure 15: aerial perspective of roof 15

construction:

the roof construction of the building is slate roof with grp lights on timber purlins and timber roof trusses. the roof structure is a offset mono-pitch roof. slate roof construction in the uk is a traditional roofing method characterized by the use of natural slate tiles, which are highly durable, weather-resistant, and aesthetically appealing. commonly used in both historic and contemporary buildings, slate roofs are typically constructed by laying individual slate tiles in overlapping rows over a waterproof underlayment on a pitched roof structure, often supported by timber rafters or trusses. the tiles are secured with nails or hooks, and the roof is designed to allow rainwater to flow off effectively, preventing water ingress. slate is favoured in the uk for its longevity, fire resistance, and ability to withstand harsh weather conditions, as well as its distinctive appearance, which blends well with the local architectural styles and heritage requirements in many regions. the structure below is timber trusses. even though these roofs have a build-up of insulation and other secondary supporting elements they are still treated as a fragile roof and are not designed to take any personnel loading.

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conclusion:

the main roof covering requires to be cleaned any loose bedding mortar to be to be removed and replaced and sealed. gutters to be de-clogged and cleaned fixings to be inspected where corroded fixings are discovered they are to be replaced like for like. parapet wall to be re-pointed where required. broken tiles to be replaced as required.

- a timber rot and infestation survey by a specialist contractor should be undertaken to the timber structure before any works are carried out to ensure compliance with the 25year life span of the pv project.

Roof 16:

figure 16: aerial perspective of roof 16

construction:

the roof construction of the building is slate roof with grp lights on timber purlins and timber roof trusses. the roof structure is a offset mono-pitch roof. slate roof construction in the uk is a traditional roofing method characterized by the use of natural slate tiles, which are highly durable, weather-resistant, and aesthetically appealing. commonly used in both historic and contemporary buildings, slate roofs are typically constructed by laying individual slate tiles in overlapping rows over a waterproof underlayment on a pitched roof structure, often supported by timber rafters or trusses. the tiles are secured with nails or hooks, and the roof is designed to allow rainwater to flow off effectively, preventing water ingress. slate is favoured in the uk for its longevity, fire resistance, and ability to withstand harsh weather conditions, as well as its distinctive appearance, which blends well with the local architectural styles and heritage requirements in many regions. the structure below is timber trusses. even though these roofs have a build-up of insulation and other secondary supporting elements they are still treated as a fragile roof and are not designed to take any personnel loading.

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Note: patchwork to end of the roof is noted the roof has been overclad with trapezoidal metal sheet.

conclusion:

the main roof covering requires to be cleaned any loose bedding mortar to be to be removed and replaced and sealed. gutters to be de-clogged and cleaned fixings to be inspected where corroded fixings are discovered they are to be replaced like for like. parapet wall to be re-pointed where required. broken tiles to be replaced as required.

- a timber rot and infestation survey by a specialist contractor should be undertaken to the timber structure before any works are carried out to ensure compliance with the 25year life span of the pv project.

Roof 17:

figure 17: aerial perspective of roof 17

construction:

the roof construction of the building is slate roof with grp lights on timber purlins and timber roof trusses. the roof structure is a offset mono-pitch roof. slate roof construction in the uk is a traditional roofing method characterized by the use of natural slate tiles, which are highly durable, weather-resistant, and aesthetically appealing. commonly used in both historic and contemporary buildings, slate roofs are typically constructed by laying individual slate tiles in overlapping rows over a waterproof underlayment on a pitched roof structure, often supported by timber rafters or trusses. the tiles are secured with nails or hooks, and the roof is designed to allow rainwater to flow off effectively, preventing water ingress. slate is favoured in the uk for its longevity, fire resistance, and ability to withstand harsh weather conditions, as well as its distinctive appearance, which blends well with the local architectural styles and heritage requirements in many regions. the structure below is timber trusses. even though these roofs have a build-up of insulation and other secondary supporting elements they are still treated as a fragile roof and are not designed to take any personnel loading.

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- parapet has degraded and missing pointing.
- tiles are broken and slipped close to the valley

Note: patchwork to end of the roof is noted the roof has been overclad with trapezoidal metal sheet.

conclusion:

the main roof covering requires to be cleaned any loose bedding mortar to be to be removed and replaced and sealed. gutters to be de-clogged and cleaned fixings to be inspected where corroded fixings are discovered they are to be replaced like for like. parapet wall to be re-pointed where required. broken tiles to be replaced as required.

- a timber rot and infestation survey by a specialist contractor should be undertaken to the timber structure before any works are carried out to ensure compliance with the 25year life span of the pv project.

Roof 18:

figure 18: aerial perspective of roof 18

construction:

the roof construction of the building is slate roof with grp lights on timber purlins and timber roof trusses. the roof structure is a offset mono-pitch roof. slate roof construction in the uk is a traditional roofing method characterized by the use of natural slate tiles, which are highly durable, weather-resistant, and aesthetically appealing. commonly used in both historic and contemporary buildings, slate roofs are typically constructed by laying individual slate tiles in overlapping rows over a waterproof underlayment on a pitched roof structure, often supported by timber rafters or trusses. the tiles are secured with nails or hooks, and the roof is designed to allow rainwater to flow off effectively, preventing water ingress. slate is favoured in the uk for its longevity, fire resistance, and ability to withstand harsh weather conditions, as well as its distinctive appearance, which blends well with the local architectural styles and heritage requirements in many regions. the structure below is timber trusses. even though these roofs have a build-up of insulation and other secondary supporting elements they are still treated as a fragile roof and are not designed to take any personnel loading.

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- parapet has degraded and missing pointing.
- tiles are broken and slipped close to the valley

Note: patchwork to end of the roof is noted the roof has been overclad with trapezoidal metal sheet.

conclusion:

the main roof covering requires to be cleaned any loose bedding mortar to be to be removed and replaced and sealed. gutters to be de-clogged and cleaned fixings to be inspected where corroded fixings are discovered they are to be replaced like for like. parapet wall to be re-pointed where required. broken tiles to be replaced as required.

- a timber rot and infestation survey by a specialist contractor should be undertaken to the timber structure before any works are carried out to ensure compliance with the 25year life span of the pv project.

Roof 19:

figure 19: aerial perspective of roof 19

construction:

the roof construction of the building is slate roof with grp lights on timber purlins and timber roof trusses. the roof structure is a offset mono-pitch roof. slate roof construction in the uk is a traditional roofing method characterized by the use of natural slate tiles, which are highly durable, weather-resistant, and aesthetically appealing. commonly used in both historic and contemporary buildings, slate roofs are typically constructed by laying individual slate tiles in overlapping rows over a waterproof underlayment on a pitched roof structure, often supported by timber rafters or trusses. the tiles are secured with nails or hooks, and the roof is designed to allow rainwater to flow off effectively, preventing water ingress. slate is favoured in the uk for its longevity, fire resistance, and ability to withstand harsh weather conditions, as well as its distinctive appearance, which blends well with the local architectural styles and heritage requirements in many regions. the structure below is timber trusses. even though these roofs have a build-up of insulation and other secondary supporting elements they are still treated as a fragile roof and are not designed to take any personnel loading.

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- parapet has degraded and missing pointing.
- tiles are broken and slipped close to the valley

Note: patchwork to end of the roof is noted the roof has been overclad with trapezoidal metal sheet.

conclusion:

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- a timber rot and infestation survey by a specialist contractor should be undertaken to the timber structure before any works are carried out to ensure compliance with the 25year life span of the pv project.

Roof 20:

figure 20: aerial perspective of roof 20

construction:

the roof construction of the building is slate roof with grp lights on timber purlins and timber roof trusses. the roof structure is a offset mono-pitch roof. slate roof construction in the uk is a traditional roofing method characterized by the use of natural slate tiles, which are highly durable, weather-resistant, and aesthetically appealing. commonly used in both historic and contemporary buildings, slate roofs are typically constructed by laying individual slate tiles in overlapping rows over a waterproof underlayment on a pitched roof structure, often supported by timber rafters or trusses. the tiles are secured with nails or hooks, and the roof is designed to allow rainwater to flow off effectively, preventing water ingress. slate is favoured in the uk for its longevity, fire resistance, and ability to withstand harsh weather conditions, as well as its distinctive appearance, which blends well with the local architectural styles and heritage requirements in many regions. the structure below is timber trusses. even though these roofs have a build-up of insulation and other secondary supporting elements they are still treated as a fragile roof and are not designed to take any personnel loading.

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- weather degradation has been observed throughout.
- parapet has degraded and missing pointing.
- tiles are broken and slipped close to the valley

Note: patchwork to end of the roof is noted the roof has been overclad with trapezoidal metal sheet.

conclusion:

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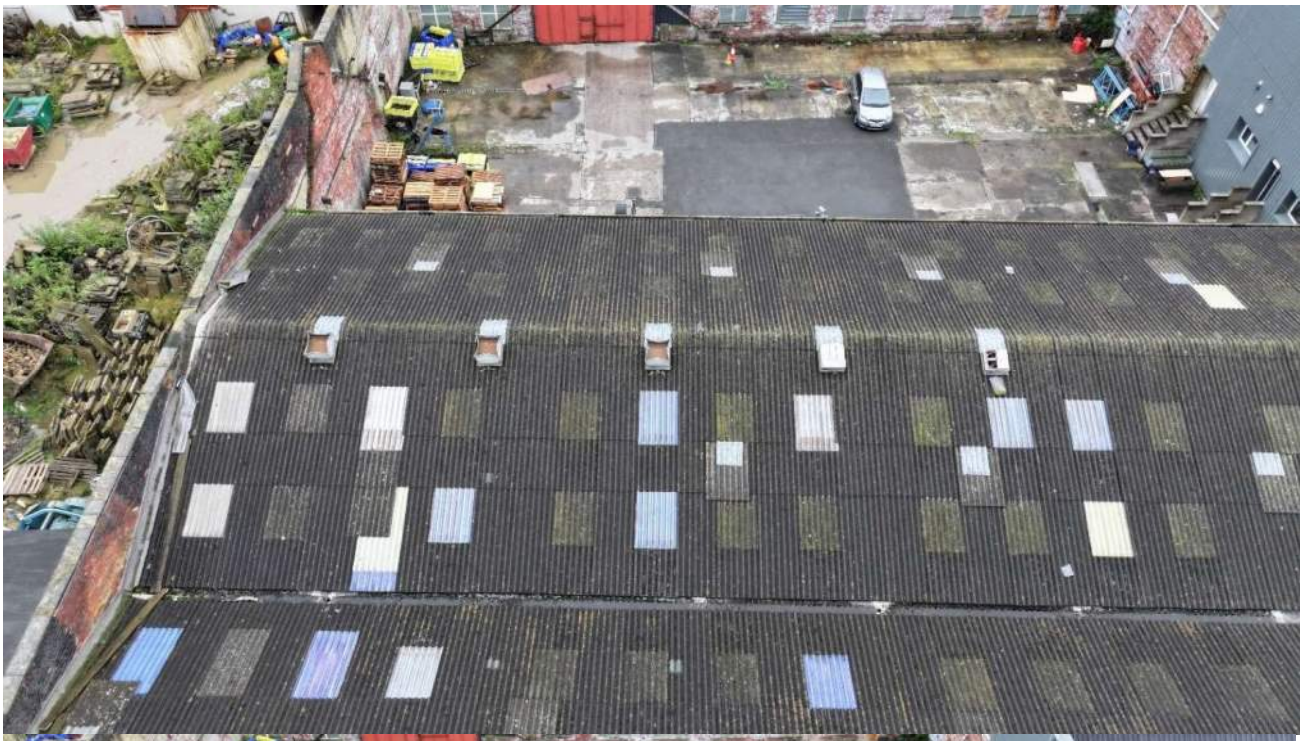
- a timber rot and infestation survey by a specialist contractor should be undertaken to the timber structure before any works are carried out to ensure compliance with the 25year life span of the pv project.

APPENDIX A: ROOF 1 PHOTOGRAPHS



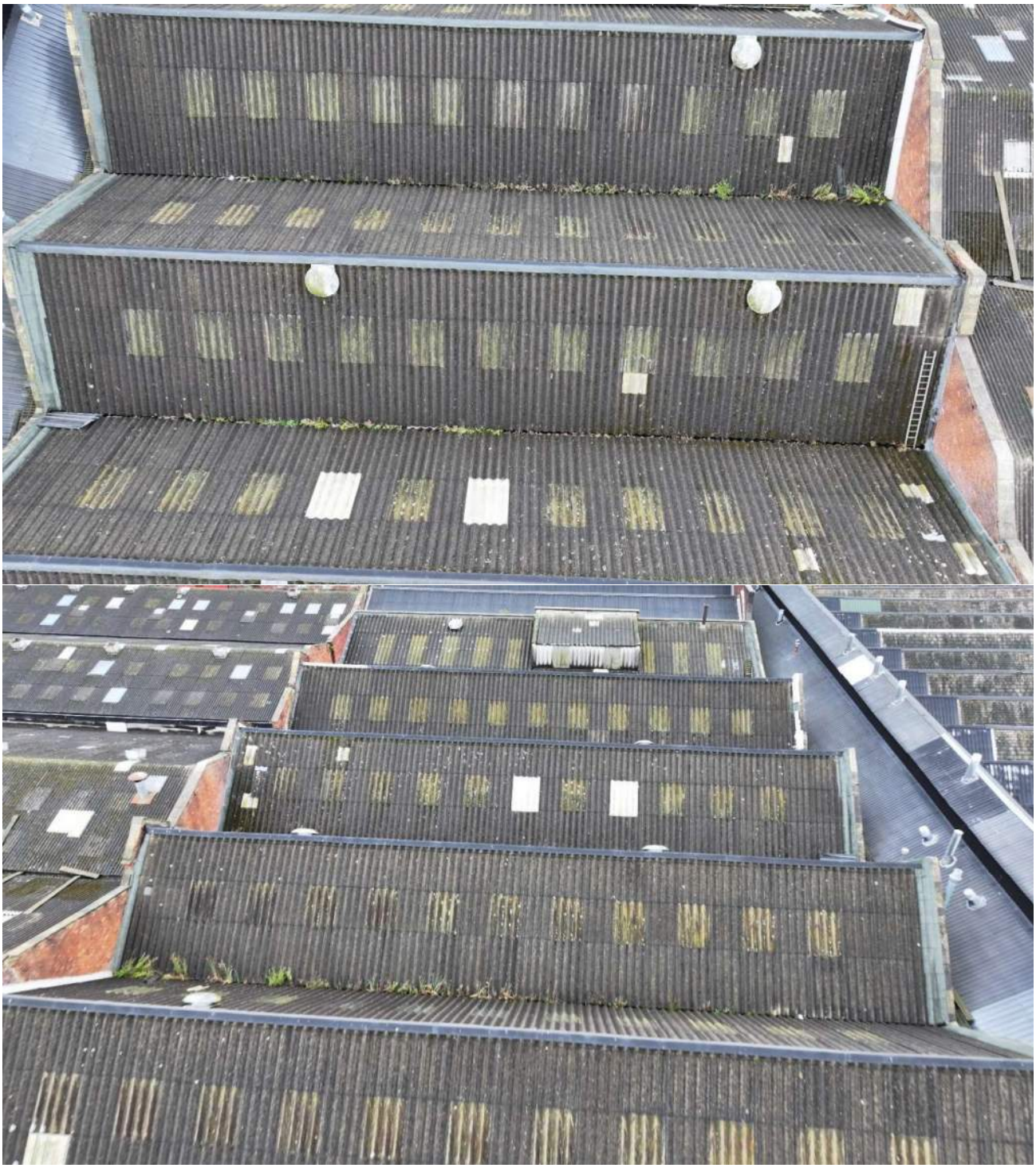
APPENDIX B: ROOF 2 PHOTOGRAPHS

APPENDIX C: ROOF 3 PHOTOGRAPHS

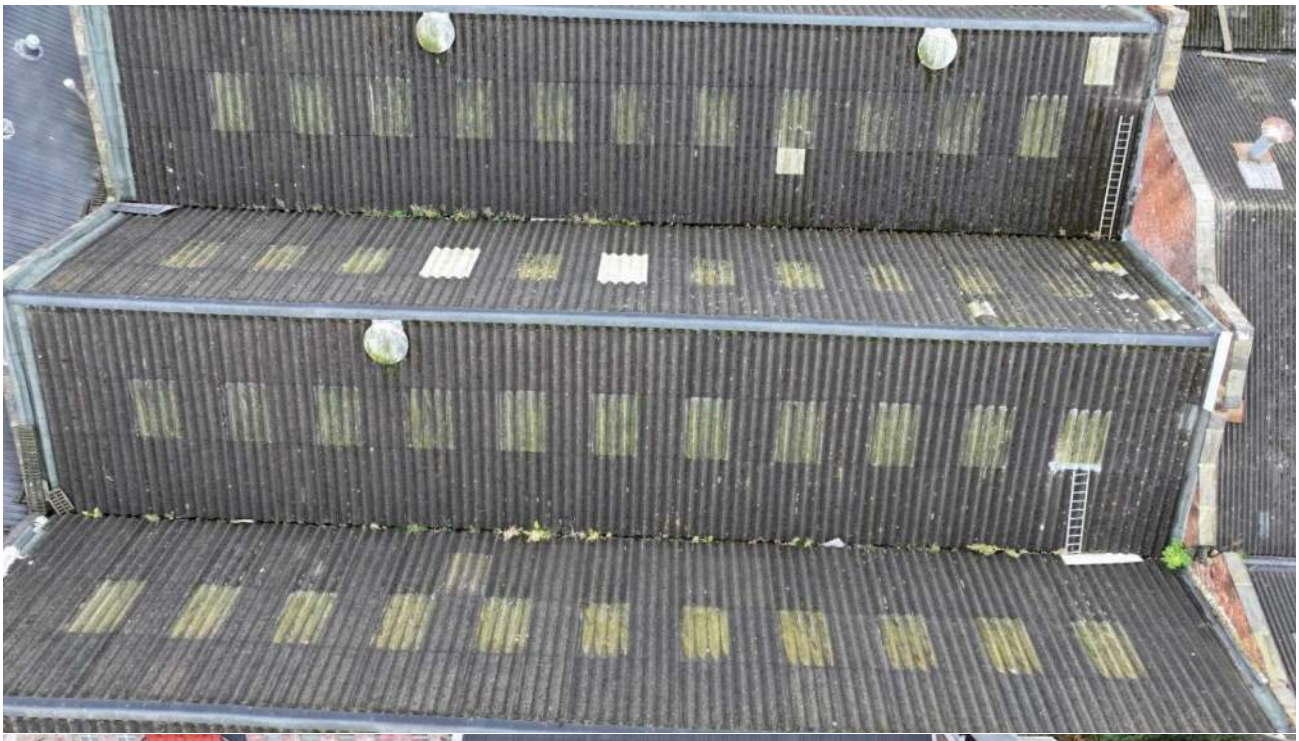
APPENDIX D: ROOF 4 PHOTOGRAPHS

APPENDIX E: ROOF 5 PHOTOGRAPHS

APPENDIX F: ROOF 6 PHOTOGRAPHS



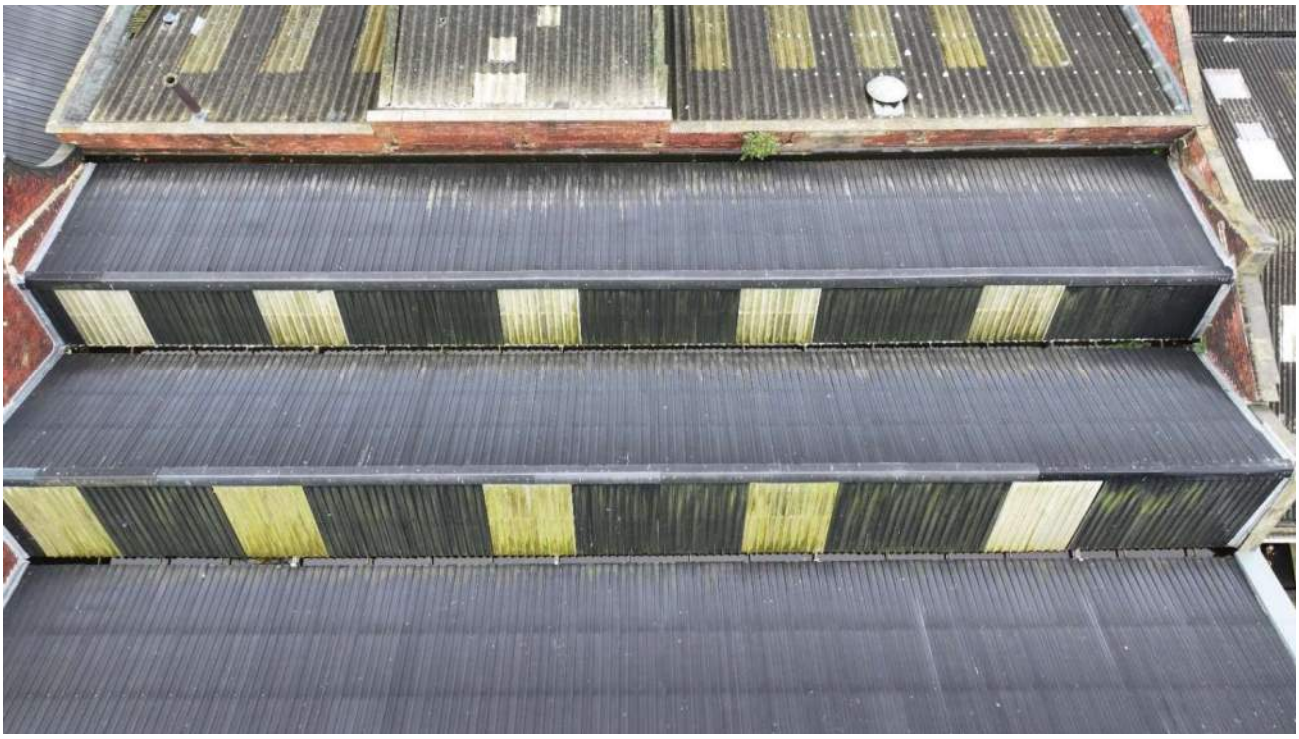
APPENDIX G: ROOF 7 PHOTOGRAPHS



APPENDIX H: ROOF 8 PHOTOGRAPHS

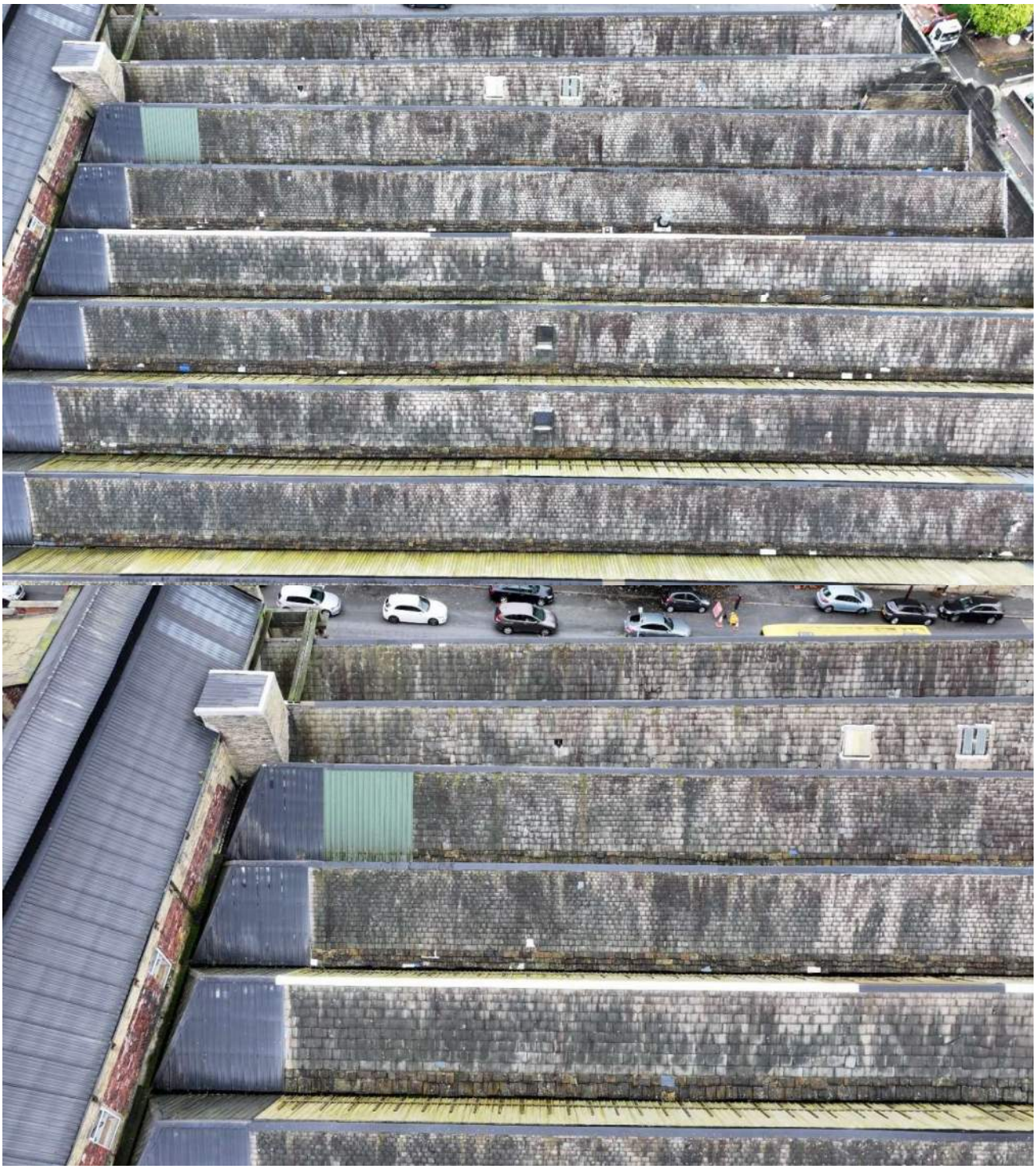
APPENDIX I: ROOF 9 PHOTOGRAPHS

APPENDIX J: ROOF 10 PHOTOGRAPHS

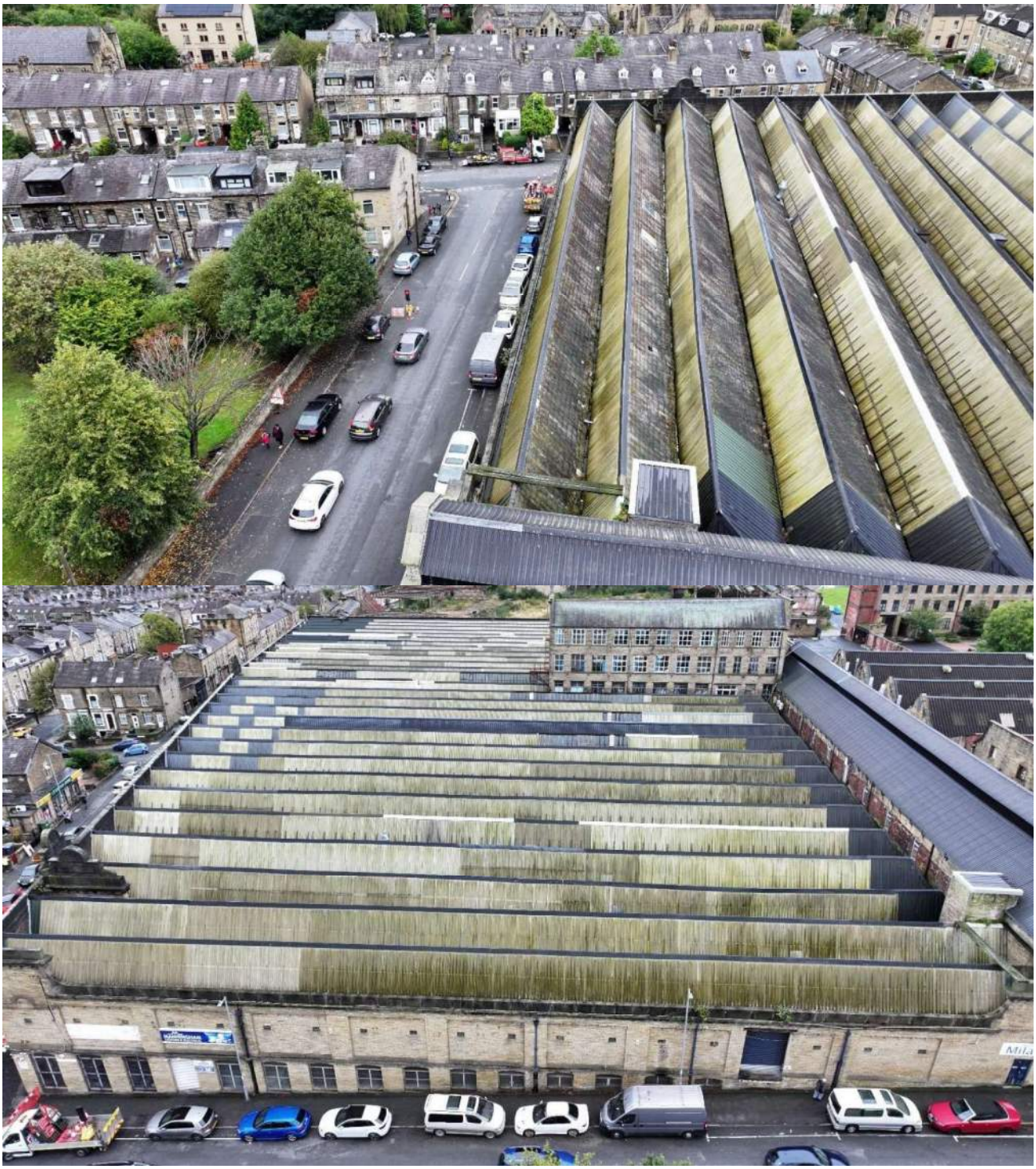


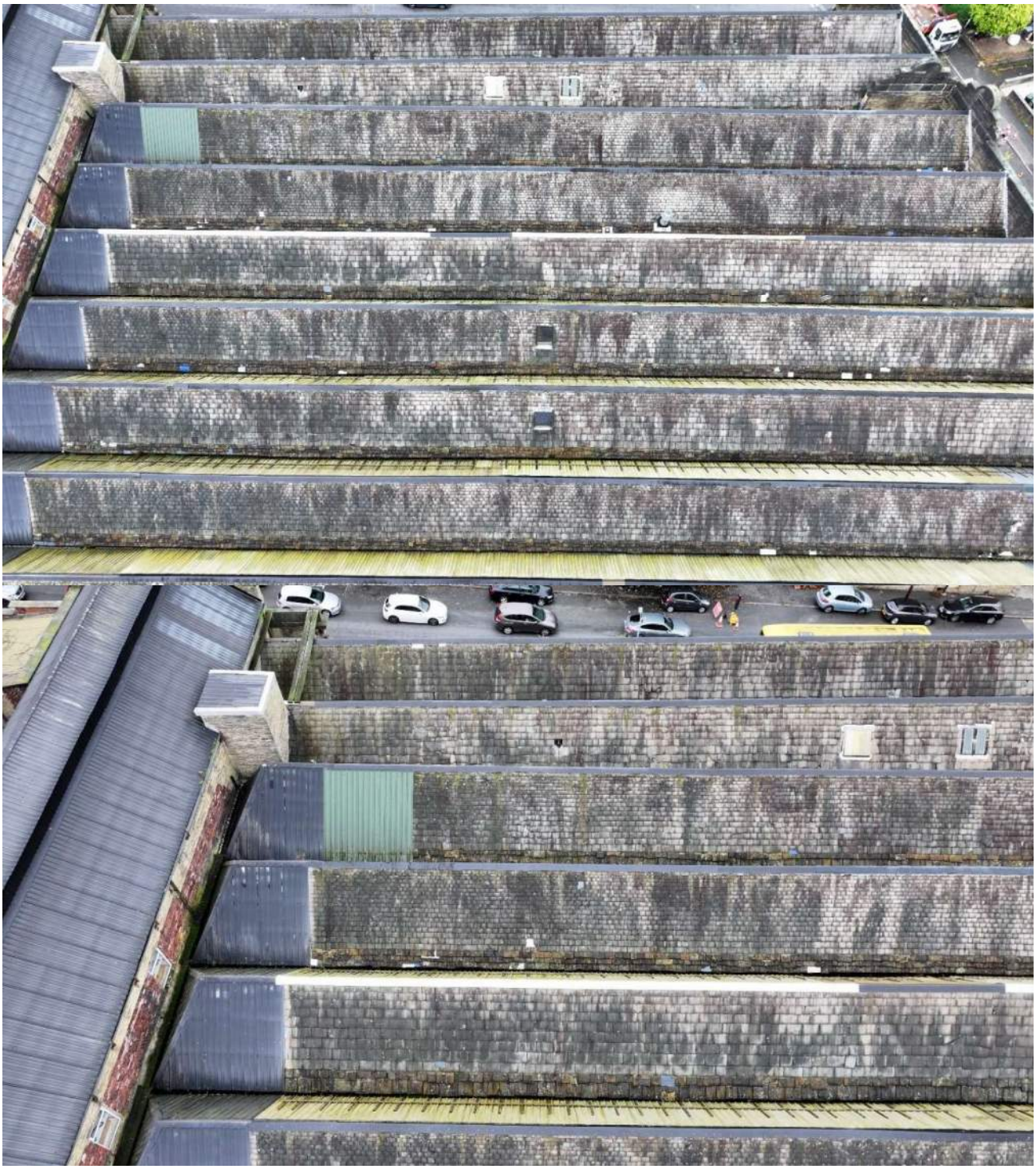
APPENDIX K: ROOF 11 PHOTOGRAPHS

APPENDIX L: ROOF 12 PHOTOGRAPHS

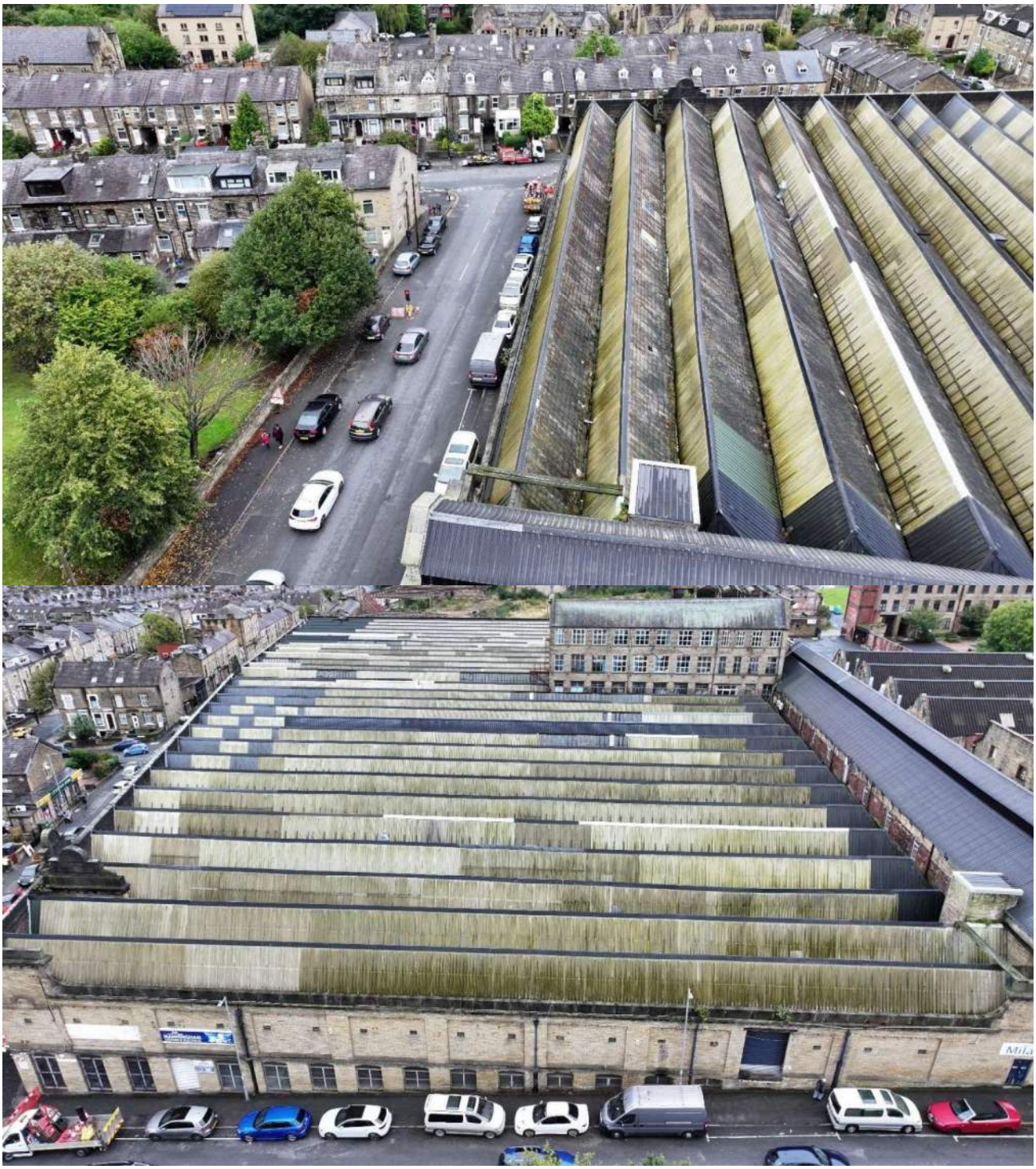


APPENDIX M: ROOF 13 PHOTOGRAPHS

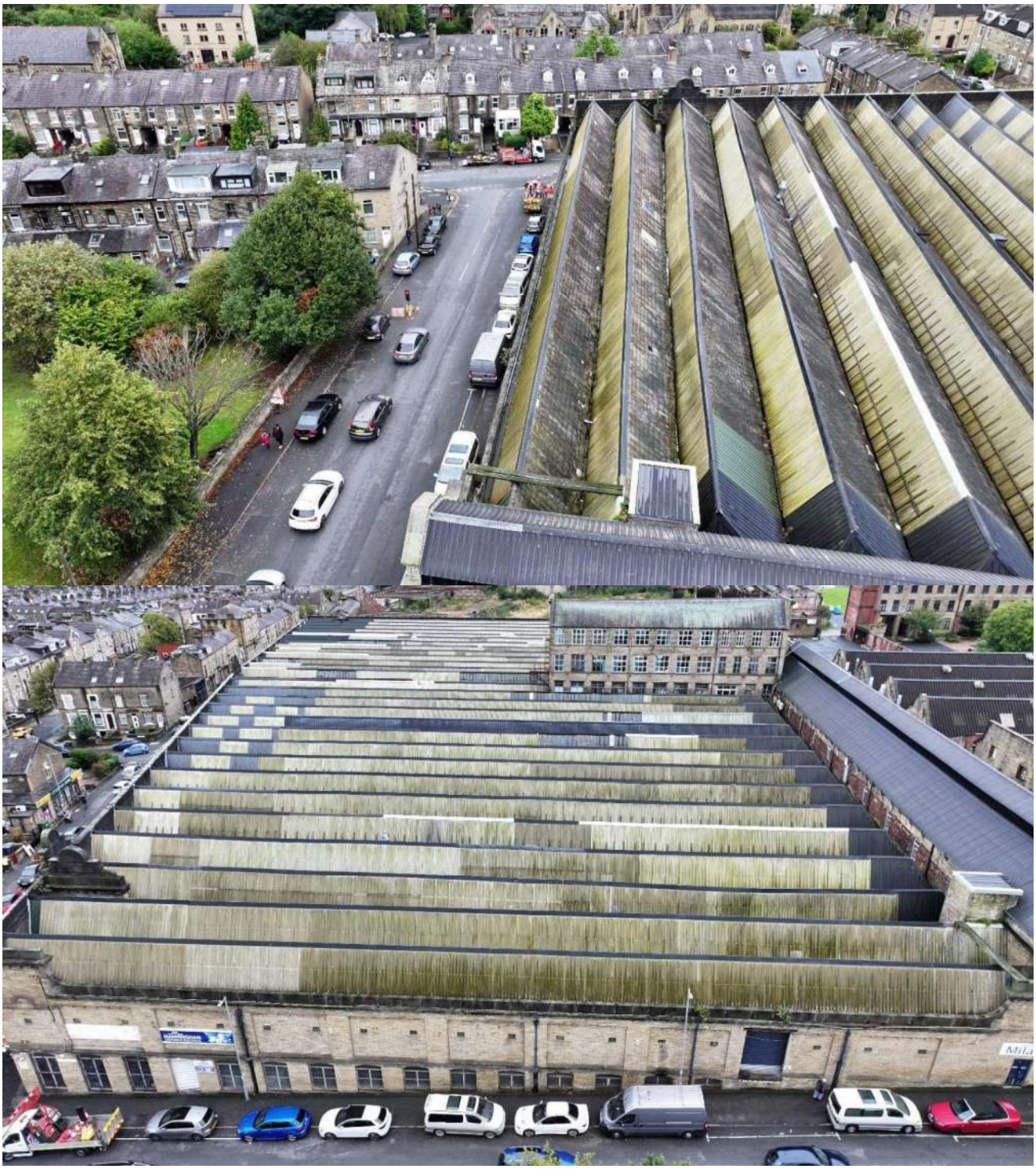




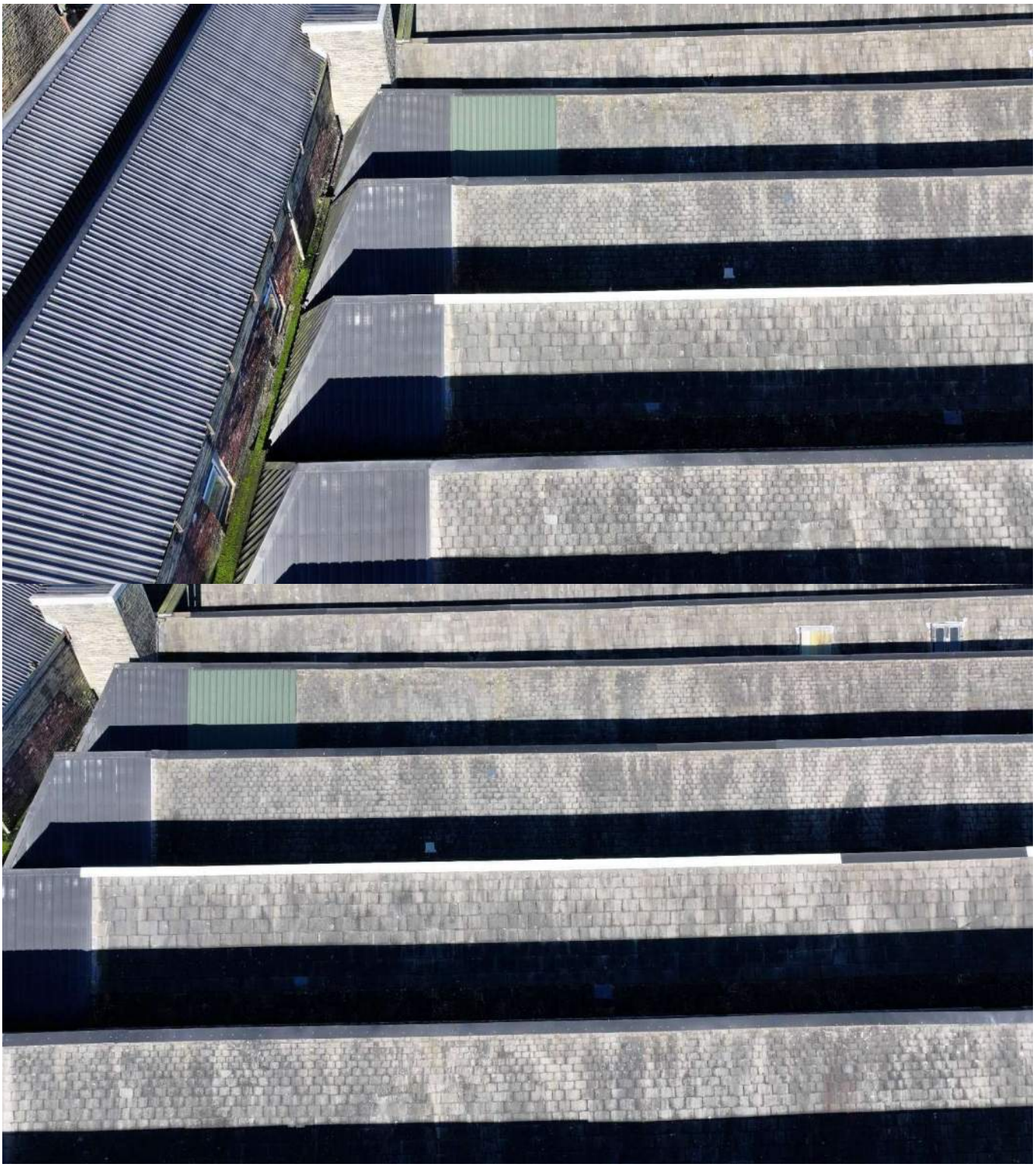
APPENDIX N: ROOF 14 PHOTOGRAPHS

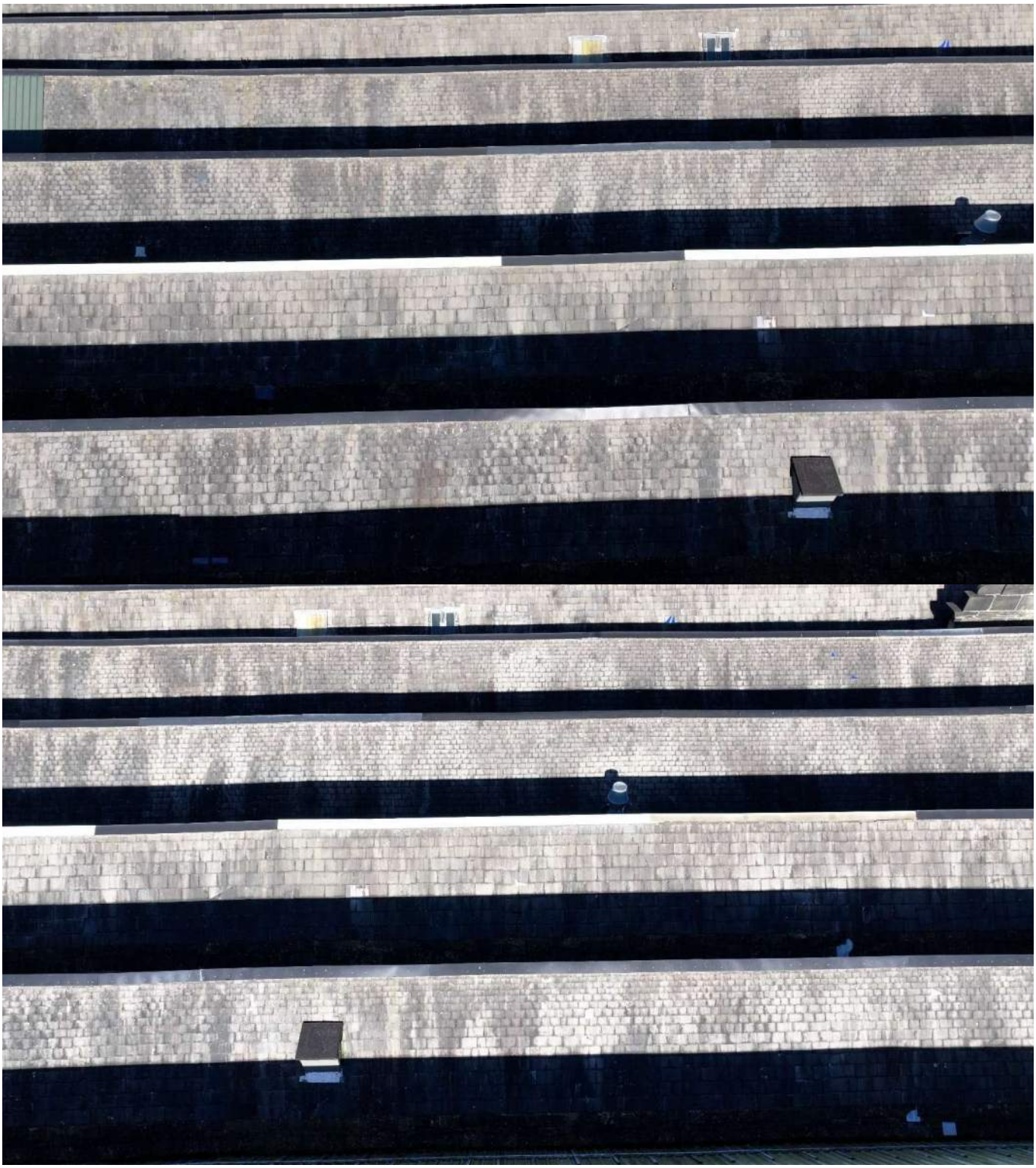


APPENDIX O: ROOF 15 PHOTOGRAPHS

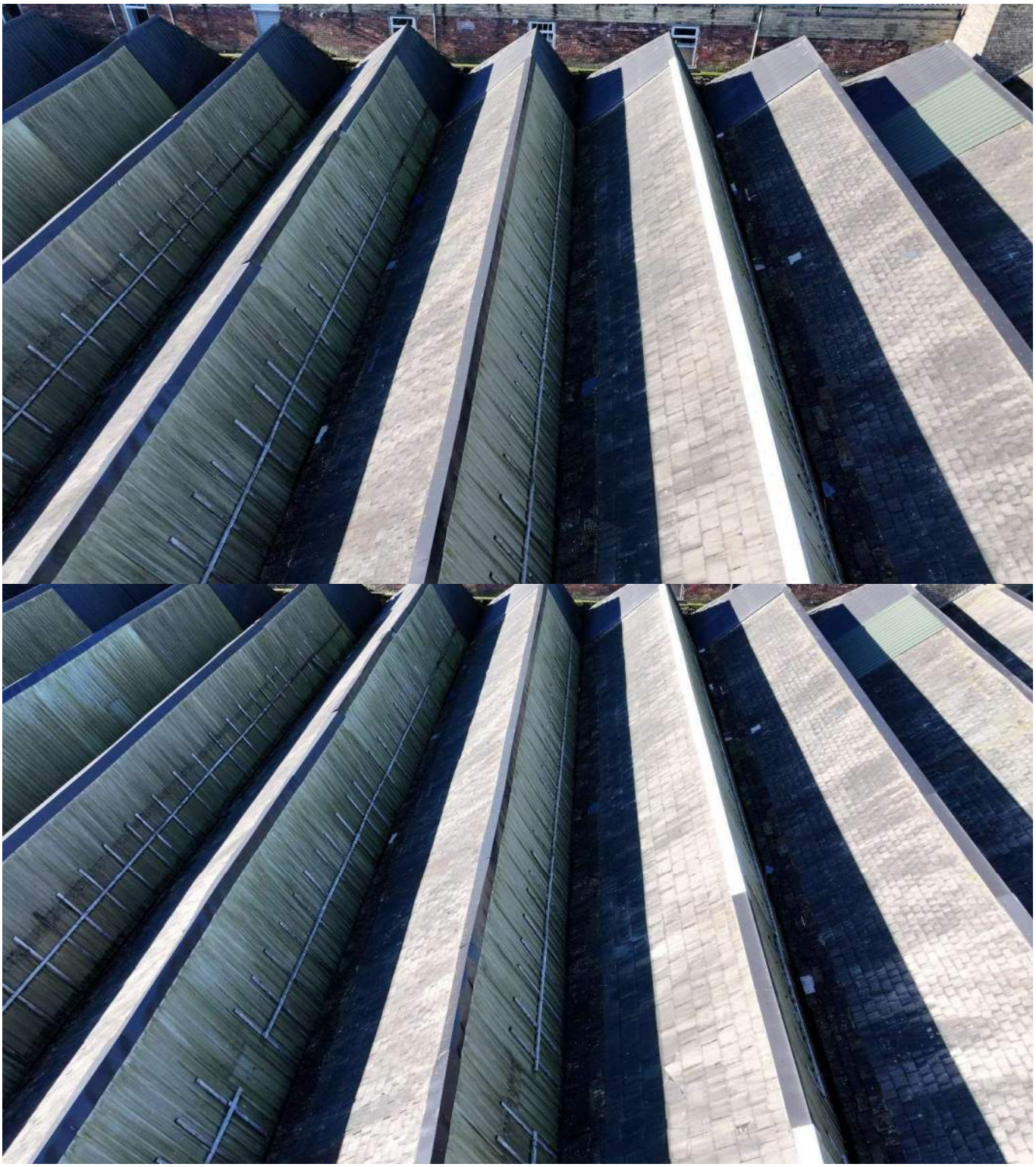


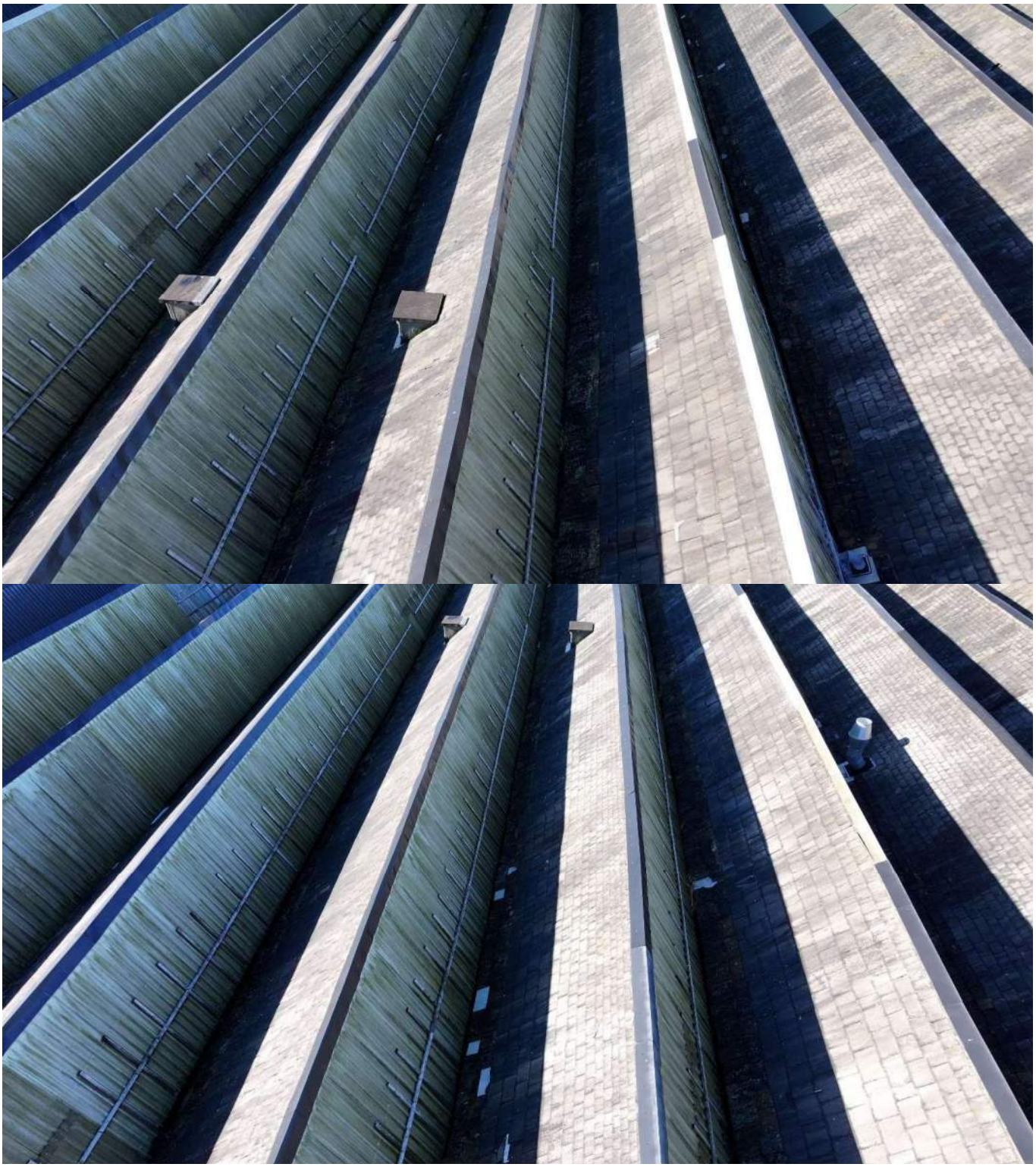
APPENDIX P: ROOF 16 PHOTOGRAPHS

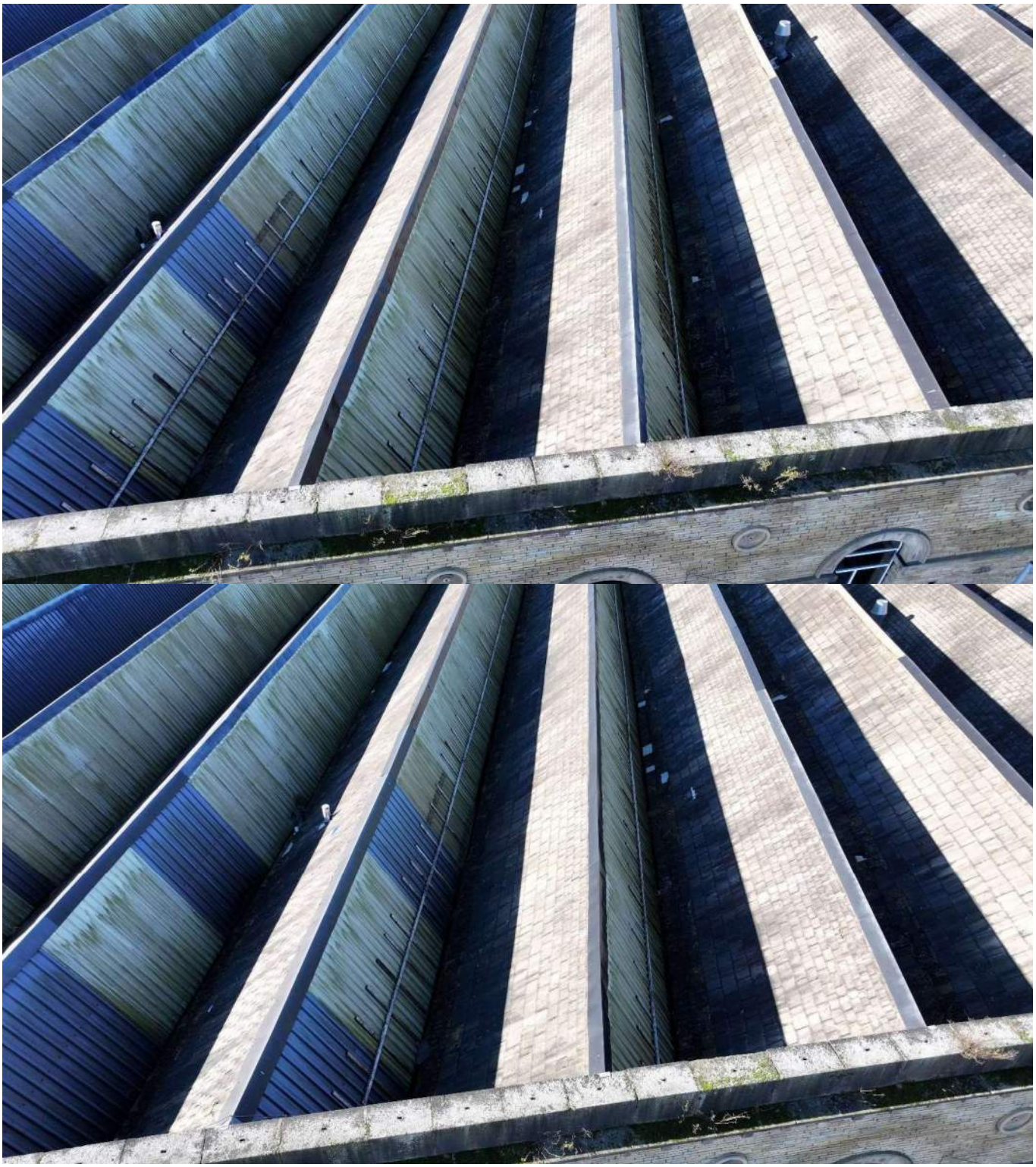


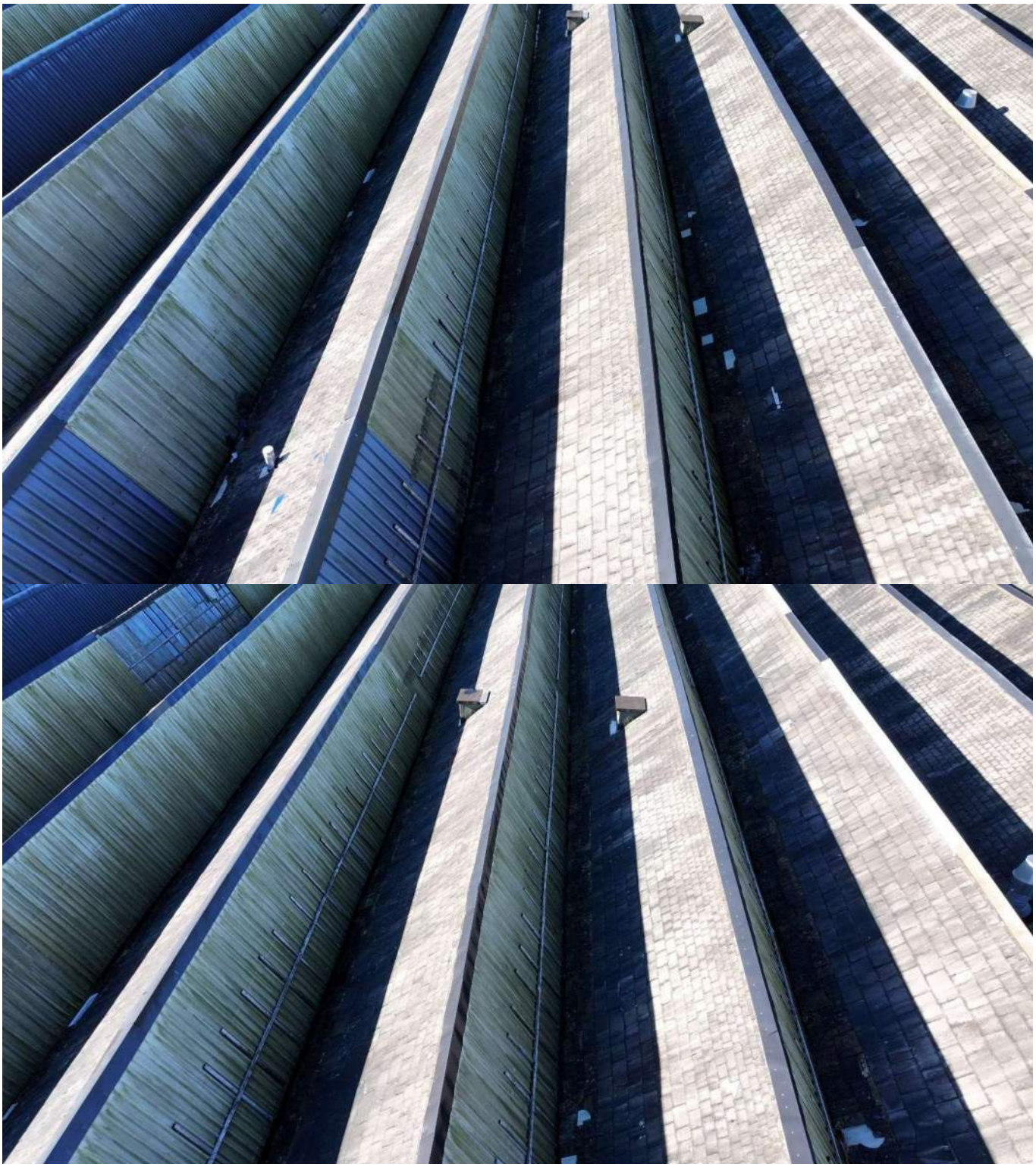


APPENDIX Q: ROOF 17 PHOTOGRAPHS

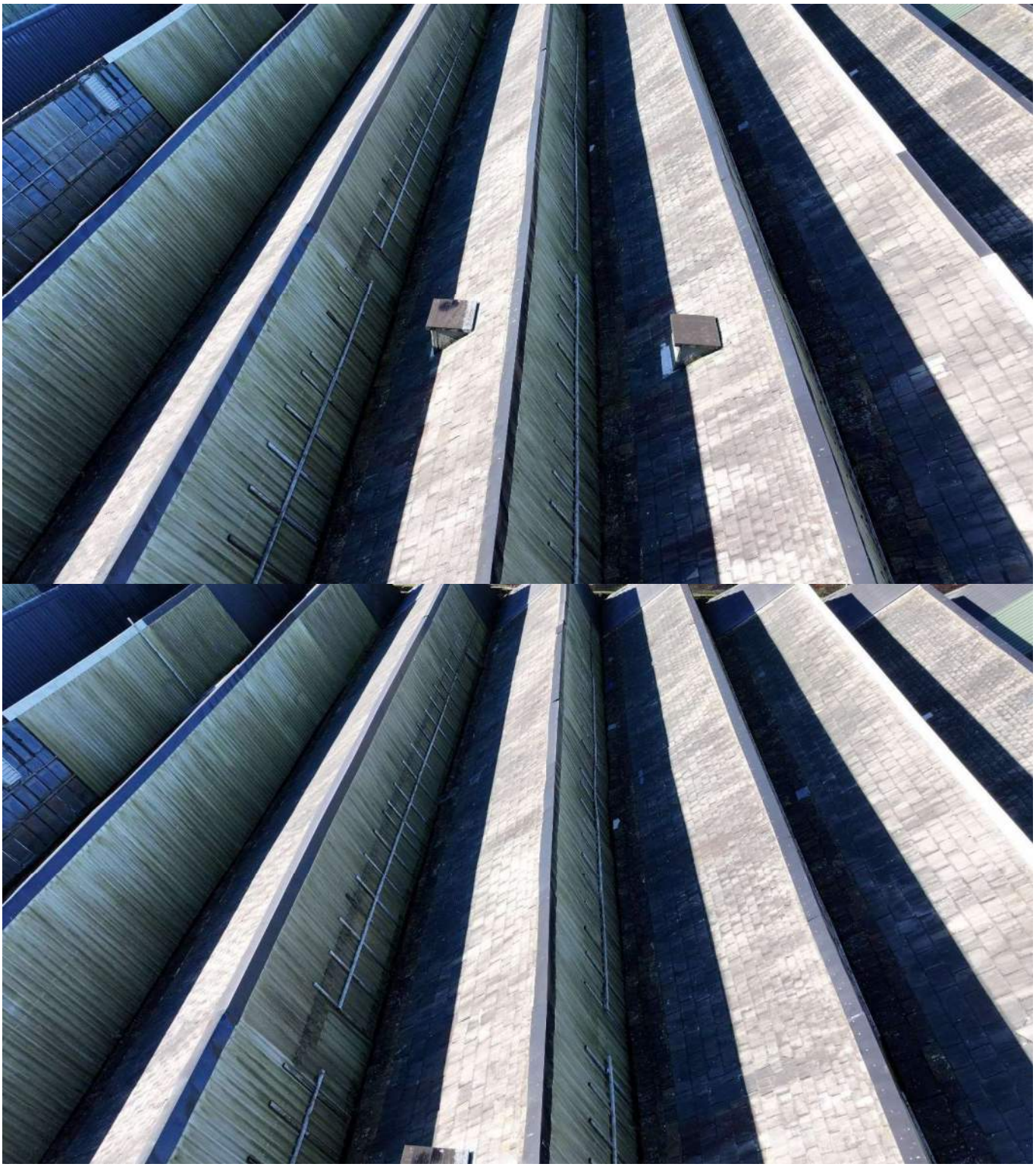


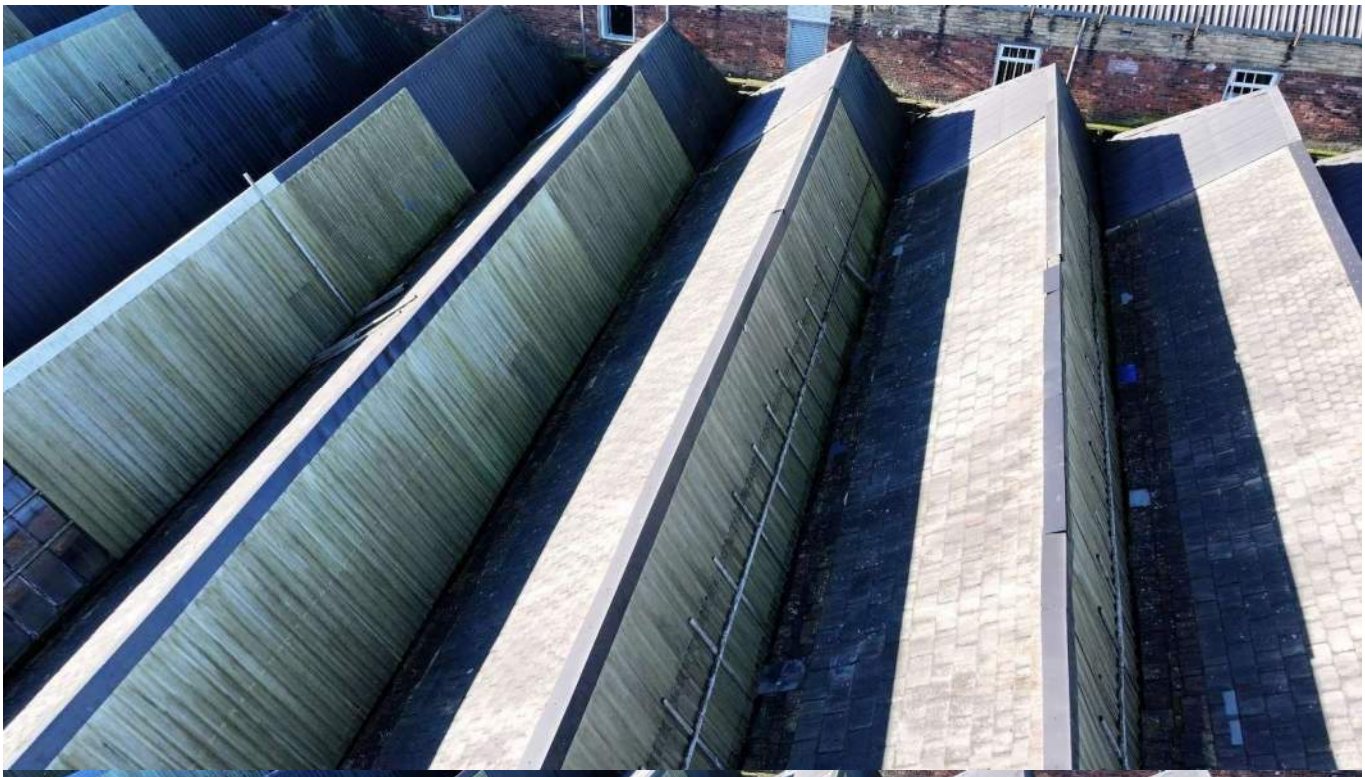


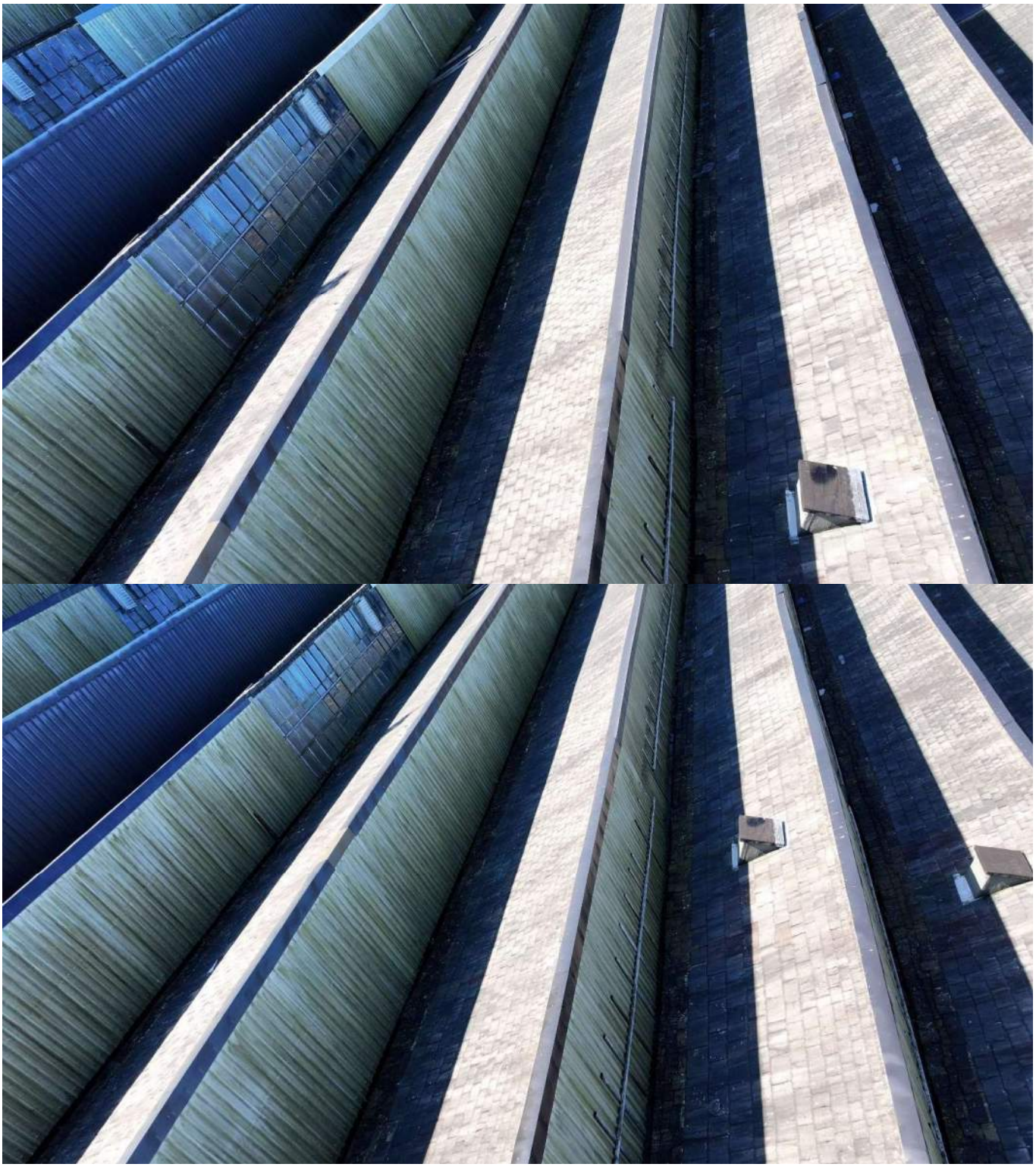


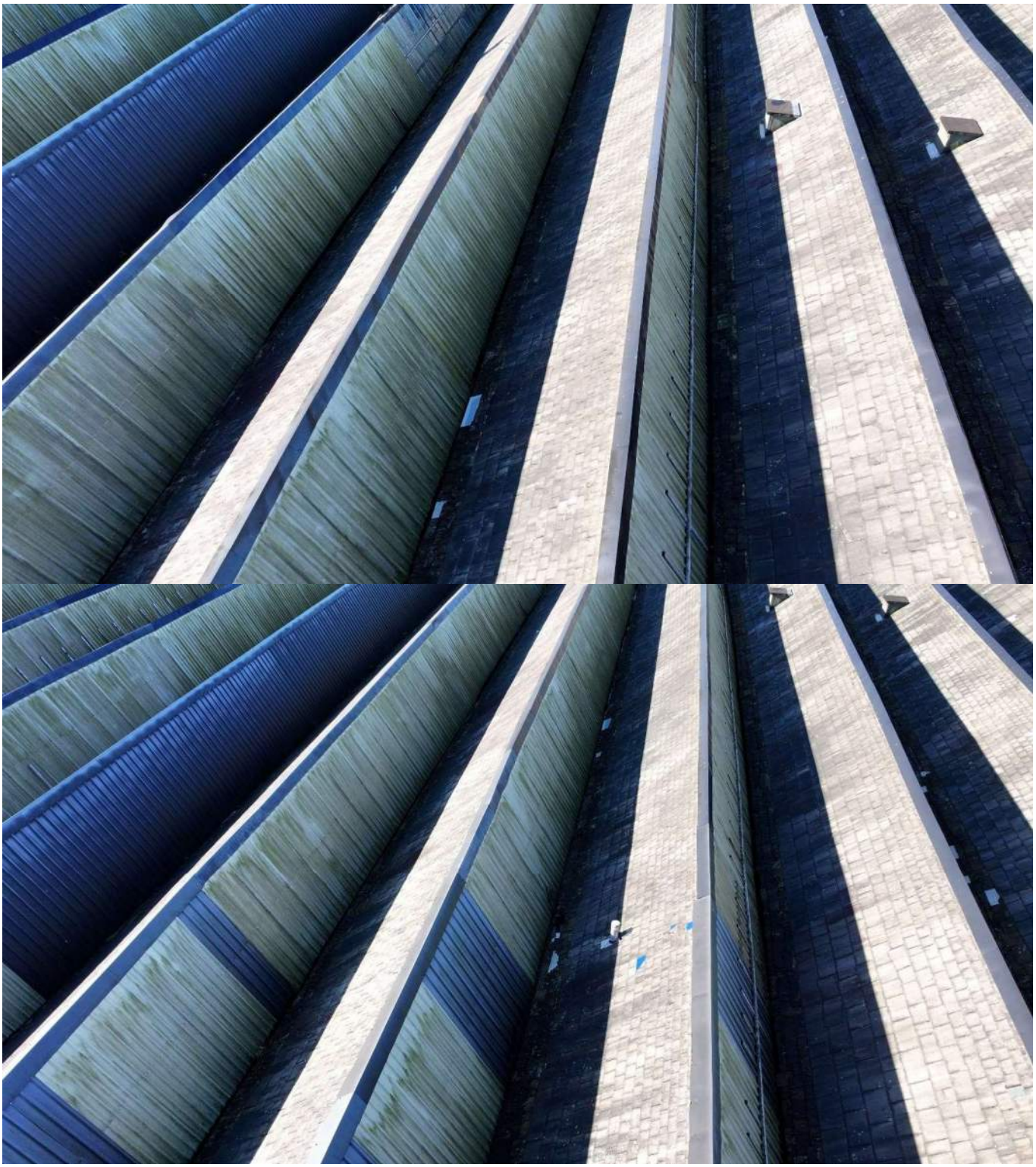


APPENDIX R: ROOF 18 PHOTOGRAPHS

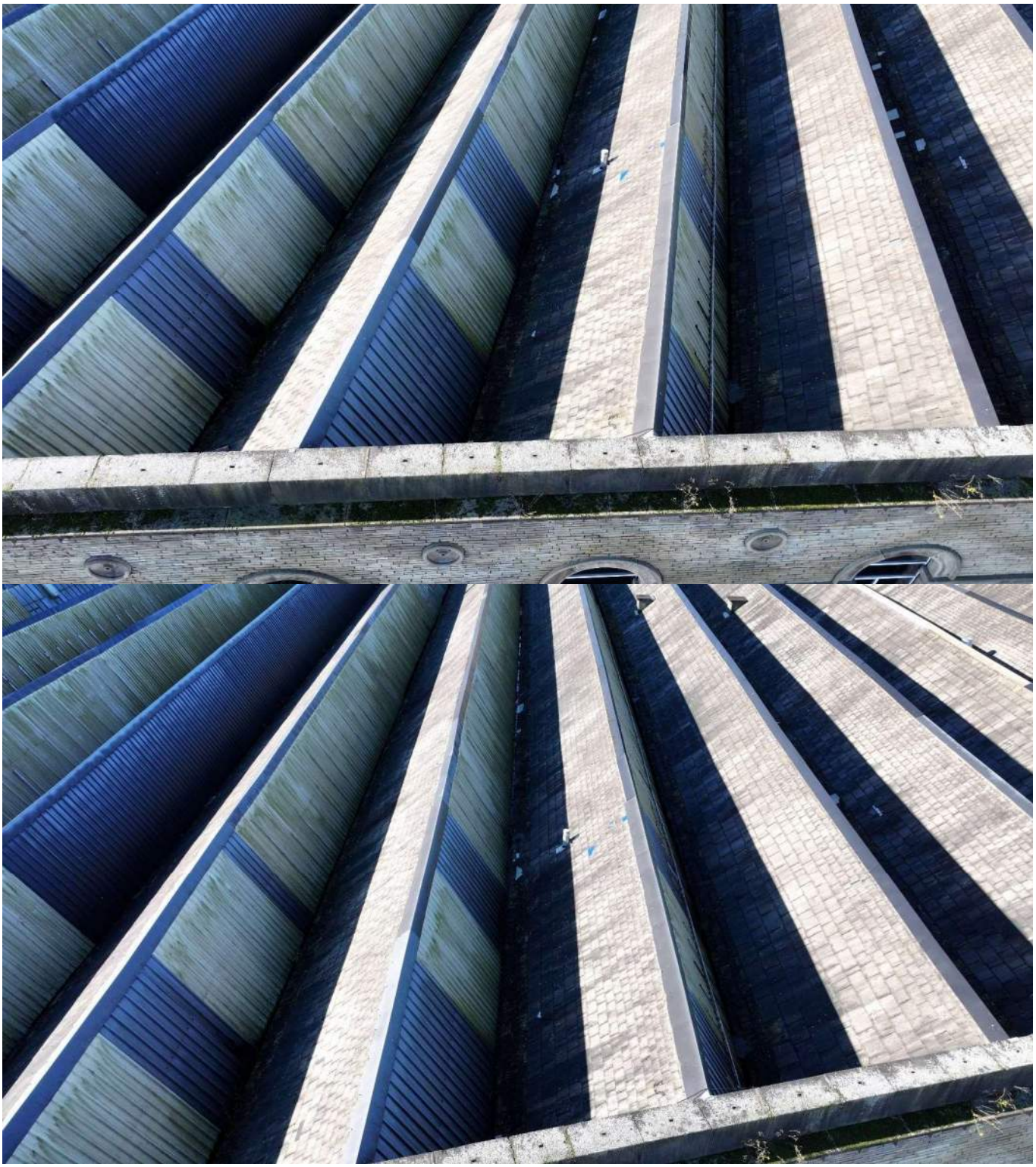


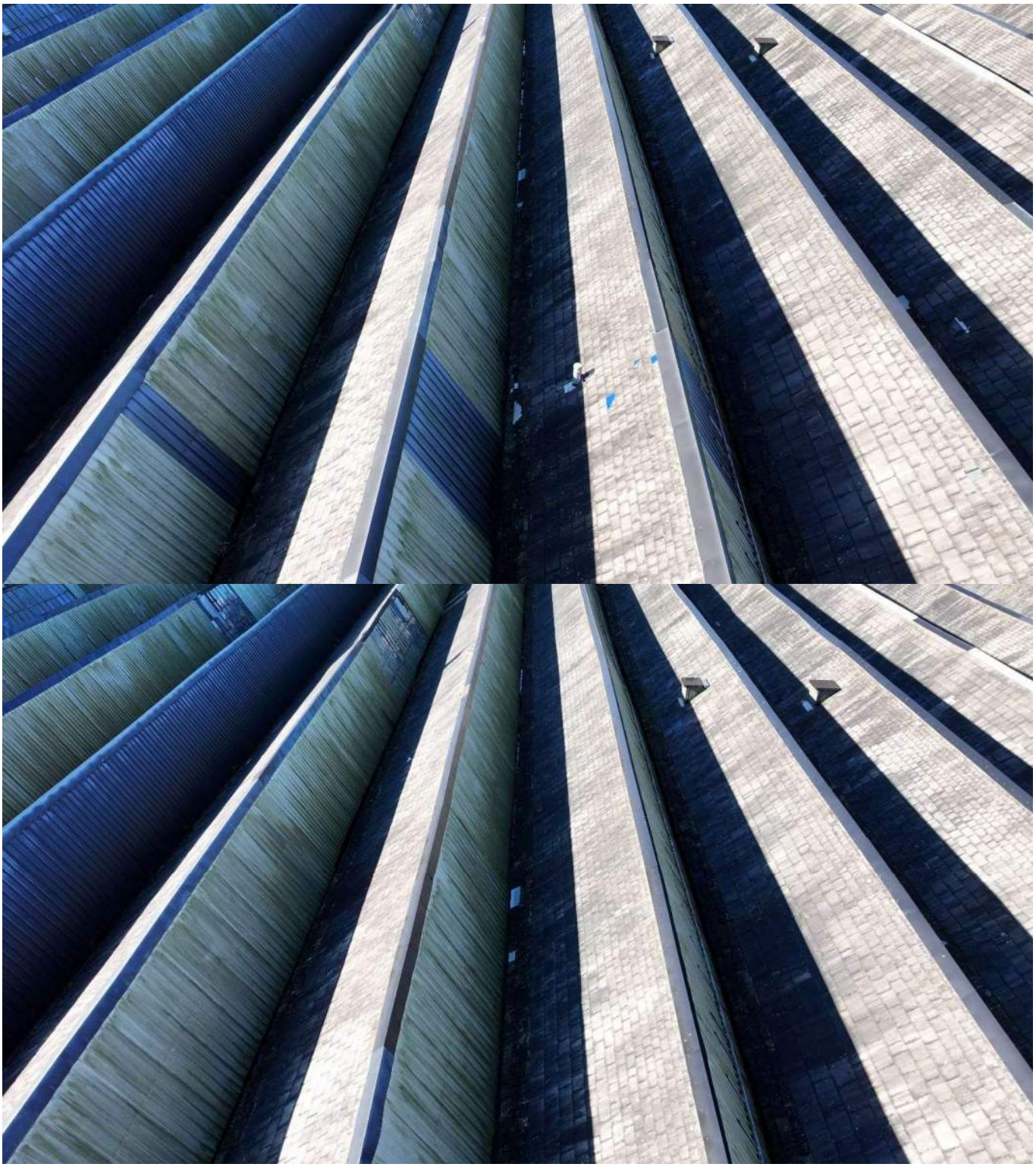


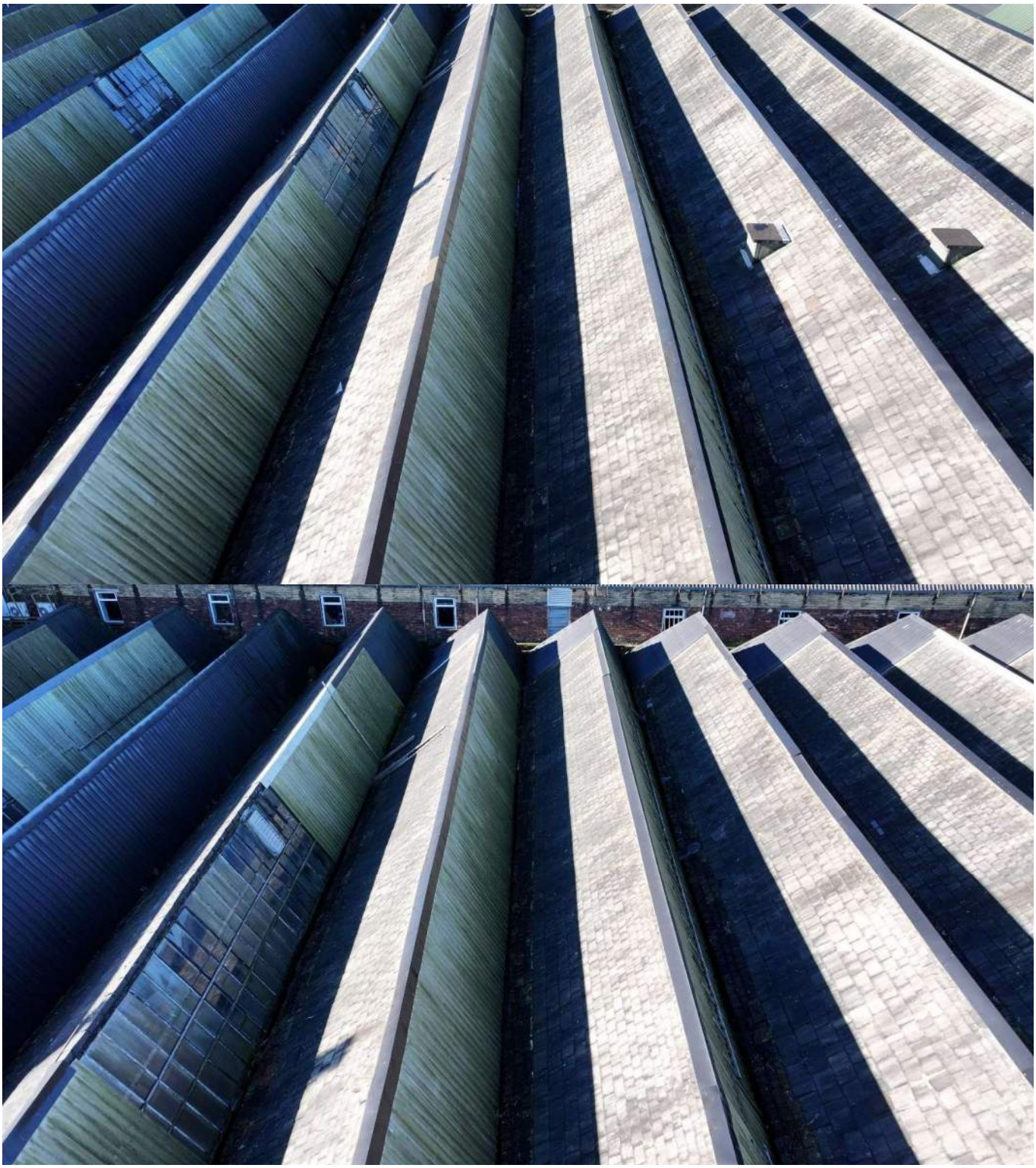




APPENDIX S: ROOF 19 PHOTOGRAPHS







APPENDIX O: ROOF 20 PHOTOGRAPHS