Geo-Environmental

VERIFICATION REPORT (GAS PROTECTION MEASURES)

for the site at

PLOTS 16-59, BLOCK A and BLOCK B,

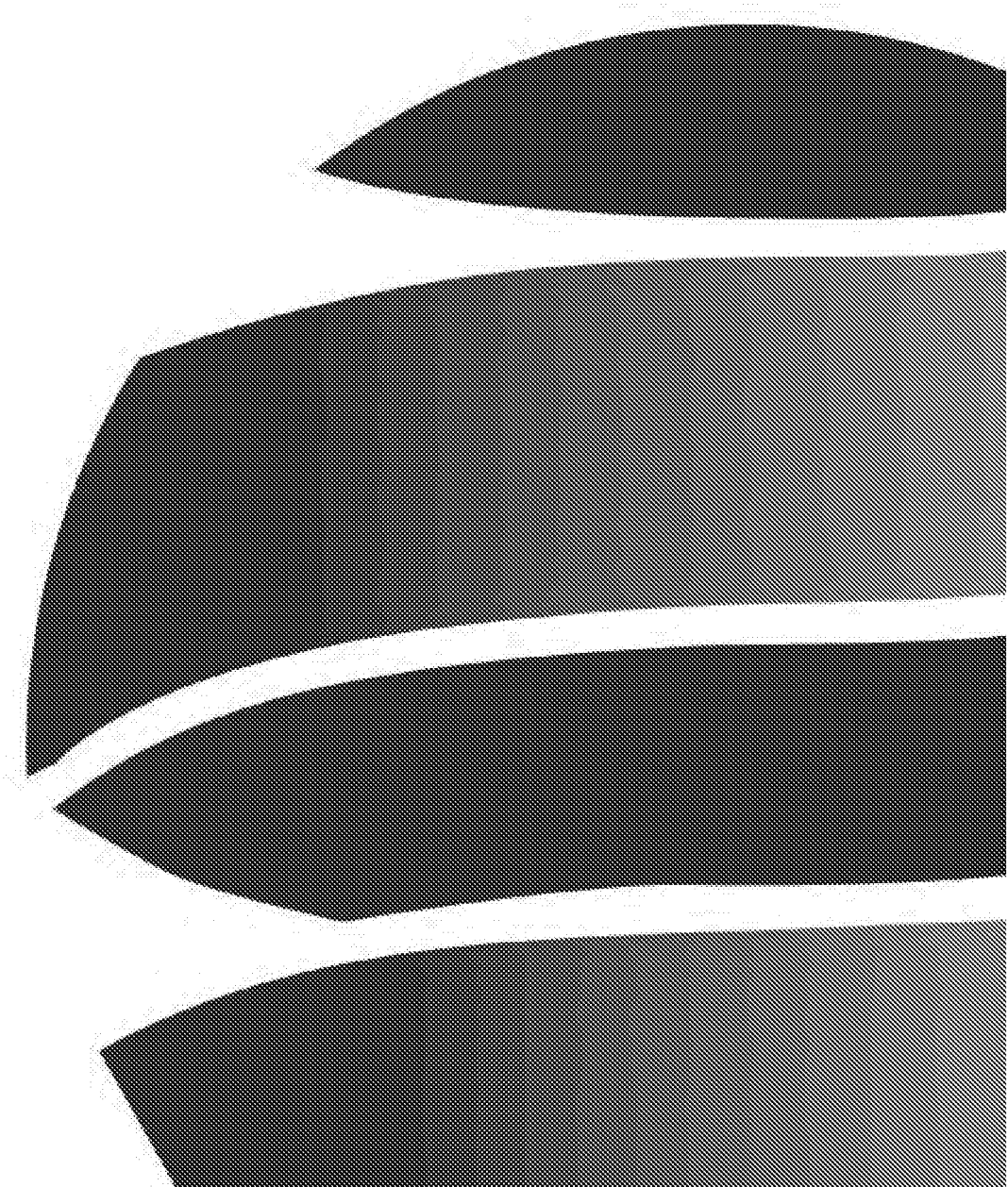
CORNFIELD CLOSE,

LITTLEHAMPTON,

WEST SUSSEX, BN17 6LD

on behalf of

THAKEHAM CLIENT LTD



ARUN DISTRICT COUNCIL LU/191/21/DOC

Report:	**VERIFICATION REPORT (GAS PROTECTION MEASURES)**
Site:	**PLOTS 16-59, BLOCK A and BLOCK B, CORNFIELD CLOSE, LITTLEHAM, WEST SUSSEX, BN17 6LG**
Client:	**THAKEHAM CLIENT LTD**
Date:	**14/04/2021**
Reference:	**GE18103/VR-GAS/APR21**
Version:	**2.0**
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[redacted]

Environmental Consultants | Geotechnical Engineers | Site Investigations

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AMENDMENT RECORD

Revision ref.	Date	Reasons for amendment	Author's initials	Reviewed by	Authorised by
1.0	05/02/2021	First issue Gas validation for Plots 16-49 and Block A (Validation for Plots 1-15 (gas protection measures, soil cover system and groundwater), have previously been issued under separate cover (GE18103/VR/JAN21)	FG	SA	LL
2.0	14/04/2021	Second issue gas validation to include all validated plots. Report covers Plots 16-59, Block A and Block B (Validation for Plots 1-15 (gas protection measures, soil cover system and groundwater), have previously been issued under separate cover (GE18103/VR/JAN21). Validation for Plots 36-39 (soil cover system) issued under report ref: GE18103/INTVR/MAR21 and validation for Plots 40-41 (soil cover system) issued and reported under report ref: GE18103/INTVR-SOIL/PLOTS 40-41/MAR21)	FG	LL	LL

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1.0 INTRODUCTION

1.1 General

Following several phases of investigation and assessment for the site, as reported in the Phase I desk study (ref. GE16903-DSR-DEC17) baseline ground investigation (ref. GE16903-BGIR-JAN18) and further Phase II intrusive investigation (ref. GE17106- GAR/AP01/231018) undertaken and reported by Geo-Environmental Services Limited, together with subsequent development of a Remediation Strategy and Verification Plan (RSVP), referenced GE17106-RSVPv1.2-GE-NOV19 and Water Quality Monitoring Plan (WQMP), referenced GE18103/WQMP/NOV19, Geo-Environmental was instructed by Thakeham Client Ltd to prepare a Verification Report to compile the relevant information in relation to the residential development for Plots 16-49 and Block A, Cornfield Close, Littlehampton, West Sussex, BN17 6LG, herein referred to as 'the site' (see Figure 1). This report relates specifically to the installation and validation of gas membranes within Plots 16-59, Block A and Block B. At the time of reporting private gardens and areas of soft landscaping where not ready for final validation inspections and will therefore be validated and reported within a separate verification (or updated) report in due course.

Previous phases of validation works onsite has already been undertaken and reported for the site under GE18103/VR/JAN21, which presented the validation of ground gas protection measures and soil cover systems associated with Plots 1-15 and groundwater analysis and controlled water requirements for the whole site, GE18103/INTVR/MAR21, which presented the validation of the soil cover system installed within Plots 36-39 only and GE18103/INTVR-SOIL/PLOTS 40-41/MAR21, which presented the validation of the soil cover system installed within Plots 40-41 only. This report does not duplicate the validation information already presented within that report, but instead provides an update to the first issue of this report (GE18103/INTVR/FEB21) reporting on works subsequently undertaken in relation to the installation of gas protection measures in Plots 50-59, Block A and Block B between January 2021 and March 2021.

This report sets out the works undertaken to date to provide independent verification of the risk mitigation measures incorporated into the development to protect the development and end users thereof. This report provides final validation for works undertaken and independent inspection in relation to Plots 16-59, Block A and Block B only with respect to ground gases.

1.2 Objectives

A desk study and ground investigation undertaken by Geo-Environmental identified the presence of potential hazards and through a risk assessment process a series of pollutant linkages were identified which require action to mitigate or otherwise reduce the risk. The Remediation Strategy and Verification Plan (RSVP) sets out the proposed remedial works to be undertaken on the subject site to support its development for a proposed residential end use. The Water Quality Monitoring Plan presents the monitoring works that would be undertaken prior to, during and following the intrusive element of development works (cut and fill and piling works).

This Verification Report (VR) presents the details and findings of inspection visits undertaken throughout the construction period by Geo-Environmental and/or to compile data provided by the Client with respect for Plots 16-49 and Block A in order to demonstrate that the gas risk mitigation measures were implemented, within these Plots only.

1.3 Planning Permission

It is understood that a planning application has been approved for the site by Arun District Council under Planning Reference LU/330/18/PL. The following pre-occupation planning conditions have been attached to the application which relate to the validation of land contamination in relation the development. Where conditions required the

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submission and agreement of works pre-commencement it is understood that those elements of the conditions have been completed and agreed.

Condition 9:

Within 3 months of the start of the development, the Developer shall agree a timetable for submission of periodic verification reports to demonstrate the completion of works set out in the approved remediation strategy and the effectiveness of the remediation. The reports shall include a maintenance plan in respect of contamination, including a timetable of monitoring and shall be submitted to, and approved in writing, by the local planning authority. The report shall include results of sampling and monitoring carried out in accordance with the approved verification plan to demonstrate that the site remediation criteria have been met. The development shall proceed in accordance with approved details.
Reason: To ensure that the site does not pose any further risk to human health or the water environment by demonstrating that the requirements of the approved verification plan have been met and that remediation of the site is complete in accordance with Arun Local Plan policies QE SP1 and QE DM4

Condition 10:

If during development, contamination not previously identified, is found to be present at the site then no further development (unless otherwise agreed in writing with the Local Planning Authority) shall be carried out until a remediation strategy detailing how this contamination will be dealt with has been submitted to and approved in writing by the Local Planning Authority. The remediation strategy shall be implemented as approved.

Reason: To ensure that the development complies with approved details in the interests of protection of the environment and prevention of harm to human health in accordance with Arun Local Plan policies QE SP1 and QE DM4.

Condition 11:

Piling & investigation boreholes using penetrative methods shall not be carried out other than with the written consent of the Local Planning Authority. The development shall be carried out and completed in accordance with details so approved.

Reason: To prevent pollution of groundwater in accordance with Arun Local Plan policy W DM1.

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2.0 BACKGROUND

This Validation Report has been produced in order to demonstrate that the works required and presented within the Remediation Strategy and Verification Plan (RSVP) have been carried out. The RSVP for the site was developed following several phases of investigation works for the site, including a Phase I desk study (ref. 16903-DSR-DEC17) baseline ground investigation (ref. 16903-BGIR-JAN18) and further Phase II intrusive investigation (ref. GE17106-GAR/AP01/231018) undertaken and reported by Geo-Environmental Services Limited. Whilst a summary of these reports is presented below, reference should be made to the full reports for further details.

2.1 Proposed Site Use

The proposed development comprised the construction of 77No. residential units with private gardens, soft landscaping, amenity space, parking, roadways and associated infrastructure.

2.2 Investigation and Assessment

A summary of the findings of previous investigations and reports is presented below:

- The site was most recently utilised as a caravan park comprising caravan plots and hardstanding from a former wash block. The northern most portion of the site comprised accommodation with the southern portion of the site recreational space;
- The ground conditions beneath the site generally comprised a thickness of Made Ground (depths up to 2.90m bgl) overlying the River Terrace Deposits over the Lewes Nodular Chalk Formation at depth;
- The encountered Made Ground materials were found to generally comprise landfill type material of mixed composition comprising sandy clay and silty sand with brick, glass, plastics, metal, china, ash, coal, concrete, black organic matter, shoes, fabric, timber and flint gravel;
- River Terraced Deposits were found to underlie the Made Ground and was generally found to comprise medium dense orange-brown sandy clay becoming orange brown sand with flint gravel with slight traces of chalk at depth.
- Groundwater was encountered within boreholes between depths of 7.50m and 9.00m bgl during the intrusive investigation works. Return monitoring between 28th August 2018 and 19th October 2018 encountered groundwater between depths of 6.00m and 7.10m bgl.
- Thirty-four soil samples were submitted for analysis of a comprehensive suite of commonly occurring contaminants augmented with speciated hydrocarbon analysis and asbestos screening. Nine of these samples were used for leachate testing. Ten additional samples were analysed for VOCs, SVOCs, PCBs and ammoniacal nitrogen. A further ten samples were analysed for Waste Acceptance Criteria tests.
- The testing showed that near surface soils were impacted by Arsenic, Lead, PCBs, VOCs, SVOCs and Asbestos.
- Remediation, or risk mitigation measures were recommended to be required to protect end users from the contaminants identified in the Made Ground within private gardens and areas of soft landscaping.
- Groundwater samples were analysed during the monitoring visits and were tested for a comprehensive suite of commonly occurring contaminants, VOCs, SVOCs, BOD, COD, electrical conductivity, suspended solids and PCBs.
- Groundwater testing showed isolated elevated concentrations of Selenium, PAHs and Boron within the groundwater.
- Based on the testing results and the development proposals to include the introduction of 50% hardcover (houses/roads etc.), together with the excavation of significant volumes of the Made Ground material to accommodate the development, it was considered that the proposed development would improve the site status in respect of the leaching of contaminants from the Made Ground/Landfill materials, and the development would provide a betterment in terms of groundwater contamination.

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- It was considered that no specific measures with respect to protection of groundwater were required on the site. A Qualitative Piling Risk Assessment (QPRA), reference GE18103/QPRA/JUL19, dated 10th July 2019 and Water Quality Management Plan (WQMP), reference GE18103/WQMP/NOV19, dated 15th November 2019 were also undertaken for the site in relation to the proposed foundation solution to be utilised on the site.
- Ten cable percussive boreholes were installed with two monitoring standpipes within each location (BH101-BH110) during the intrusive investigation works. Spot monitoring was undertaken on a single occasion within each location. Continuous gas monitoring was undertaken within ten gas monitoring standpipes (BH101-BH110) for a period of 3 weeks. The monitoring locations were sited within the former landfill area.
- Spot monitoring detected methane at concentrations in the range 0-8.5%, carbon dioxide in the range 0-19.4% and oxygen in the range 0-19.4%. VOCs were detected up to 3.2ppm. Borehole flow rates were only detected within two monitoring standpipes, BH101d and BH102s, and ranged from 0.9l/hr to 3.0l/hr.
- The continuous gas monitoring identified methane in the range 0-6.53%, carbon dioxide in the range 0.52-25.2% and oxygen in the range 0.06-18.53%. Carbon monoxide was detected in the range 0-19.43ppm, hydrogen sulphide in the range 0-3.89ppm and VOCs in the range 0-1.7ppm.
- The gas assessment based on the monitoring data indicated that the sites gassing regime was representative of Characteristic Situation 2/ Amber 2, for which remediation measures were considered necessary.
- A discovery strategy was also developed for the site. Where unexpected conditions or contamination are encountered as part of the works these were be addressed under the discovery strategy in place for the site.

2.3 Conceptual Site Model

The conceptual site model (CSM) developed as part of the risk assessment identified particular hazards, or potential hazards which were considered to require intervention (remediation) to mitigate the risk of harm.

2.4 Approach for Remediation, Monitoring and Validation

Remediation works were proposed to break the pathways of identified sources of contamination to receptors. The aim of the remediation was not necessarily to remove all contamination from the site but to provide betterment and to reduce the identified risk to an acceptable level with respect to relevant receptors, e.g. human health, the built environment and controlled waters.

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3.0 GROUND GAS

3.1 Ground Gas Assessment

A ground gas assessment was undertaken as part of the further Phase II intrusive investigation undertaken by Geo-Environmental. The monitoring undertaken as part of the 2018 investigation comprised one 'spot' monitoring visit alongside continuous monitoring undertaken over a 3 week period from 26th September 2018 to 17th October 2018. Spot monitoring detected methane at concentrations in the range 0-8.5%, carbon dioxide in the range 0-19.4% and oxygen in the range 0-19.4%. VOCs were detected up to 3.2ppm. Borehole flow rates were only detected within two monitoring standpipes, BH101d and BH102s, and ranged from 0.9l/hr to 3.0l/hr.

The continuous gas monitoring identified methane in the range 0-6.53%, carbon dioxide in the range 0.52-25.2% and oxygen in the range 0.06-18.53%. Carbon monoxide was detected in the range 0-19.43ppm, hydrogen sulphide in the range 0-3.89ppm and VOCs in the range 0-1.7ppm. Positive gas flow rates and marginally negative gas flow rates were identified within all monitoring locations during the continuous monitoring. A maximum flow rate of 1.24l/hr was detected within BH108.

On the basis of both the spot and continuous monitoring undertaken, the site's gassing regime, based on both hazardous gas flow and limiting concentrations, was assessed to be Characteristic Situation 2 (CIRIA and BS) and Amber 2 (NHBC).

3.2 Gas Protection Design Measures

The following gas protection measures were considered to be required to protect the development and end users thereof:

- Reinforced concrete cast in situ floor slab (suspended, non-suspended or raft) with sufficient reinforcement to mitigate/control cracking;
- Minimum penetration of the slab by services and sealing of all penetrations and joints using 'top hats' or bespoke/site formed top hat seals;
- Installation of a vapour and gas resistant membrane laid across the floor with all joints and service penetrations sealed to form a single integral membrane with welded joints. All joints should comprise a minimum 150mm overlap. The membrane installation is to be undertaken by a suitability competent (e.g. NVQ qualified) installer;
- Use of an appropriate gas resistant DPC across the cavity with lap on the inner skin wall to facilitate joining to the floor membrane;
- Inspection and verification of installed measures.

Gas protection measures on site have been installed by Keytec Geoembranes Limited. Independent verification of gas protection measures at various stages of development with respect to Plots 16-59, Block A and Block B were undertaken by Geo-Environmental on behalf of Thakeham Client Ltd, and included several inspection visits undertaken between July 2020 and March 2021, details of which are presented below:

- 13th July 2020 (Plots 22-27 and 36-43 perimeter);
- 29th July 2020 (Block A perimeter);
- 5th August 2020 (Plots 22-28 perimeter);
- 13th August 2020 (Plots 24-33 perimeter);
- 25th August 2020 (Plots 24-35 perimeter (reinspection));
- 10th September 2020 (Plots 20-21 perimeter);
- 2nd October 2020 (Plots 36-37 whole floor area, Plots 38-39 in progress);
- 15th October 2020 (Plots 40-42 whole floor area, Plot 43 in progress);

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- 29th October 2020 (Plots 32-34 whole floor area, Plot 35 in progress);
- 12th November 2020 (Plots 28-31 whole floor area);
- 19th November 2020 (Plots 24-27 whole floor area);
- 26th November 2020 (Plots 16-17 whole floor area);
- 3rd December 2020 (Plots 18-19 whole floor area);
- 10th December 2020 (Plots 20-21 whole floor area);
- 17th December 2020 (Plots 22-23 whole floor area);
- 21st January 2021 (Plots 47-49 whole floor area);
- 26th January 2021 (Plots 44-45 and Block A whole floor area (flats), Plot 46 in progress);
- 11th February 2021 (Plots 50-53 whole floor area);
- 25th February 2021 (Plots 54-57 whole floor area);
- 11th March 2021 (Plots 58-59 whole floor area);
- 17th March 2021 (Block A (corridor and stairwell and Block B);
- 26th March 2021 (Block A (corridor and stairwell and Block B - reinspection)

Plots 16-59

Plots 16-59 comprised semi-detached and terraced houses. Floor construction within all the plots comprised a piled foundation with 225mm reinforced concrete slab above. A gas resistant membrane was installed directly on top of the reinforced concrete slab. The membrane was installed around the perimeter of the plots so as to go directly over external walls to ensure the cavity was sealed. Where plots were semi-detached or terrace the membrane was taken across adjoining wall cavities to ensure a continuous seal. Celotex Rigid insulation (or similar) was to be installed directly on top of the gas resistant membrane with floor screed above.

The houses are of timber frame construction, with the frames secured to the foundation blockwork/external wall and floor slabs. Hammer screw type fixings were used to secure the frames, self-sealing tape was laid beneath the soleplate fixing points so that where hammer screws breached the membrane to secure the timber frame the breach was sealed with the tape product, thereby creating a continuous seal of the installed membrane.

The gas membranes installed on these plots were installed by specialist membrane installers from Keytec Geomembranes Limited. The membranes utilised were self-branded Keytec 400 HP membranes and unbranded black Juta GP1 gas resistant membranes. All joints were heat welded with at least a 150mm overlap. Corner details and threshold details were sealed using heat welded joins. Site-formed service seals were used to seal services and were formed of foil band tape that was heat sealed. Where necessary any damage or defects were sealed using foil band tape product patch repairs.

The gas resistant products installed within the development of Plots 16-59 comprised:

- Keytec 400 HP – self branded purchased from Juta;
- Unbranded black Juta GP1 gas resistant membrane;
- 301483 Foil Band 150mm width/ 1.5mm thickness/ 10m length – Aluminium heat weld membrane tape.

Block A and Block B

Block A and Block B comprised a series of apartment flats. Floor construction within all this block comprised a piled foundation with 225mm reinforced concrete slab above. A gas resistant membrane was installed directly on top of the reinforced concrete slab. The membrane was installed around the perimeter of the block so as to go directly over external walls to ensure the cavity was sealed. Where party walls were located between masonry apartments the membrane was taken across adjoining wall cavities to ensure a continuous seal. Celotex Rigid insulation (or similar) was to be installed directly on top of the gas resistant membrane with floor screed above.

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The gas membranes installed on these plots were installed by specialist membrane installers from Keytec Geomembranes Limited. The membranes utilised were self-branded Keytec 400 HP membranes and unbranded black Juta GP1 gas resistant membranes. All joints were heat welded with at least a 150mm overlap. Corner details and threshold details were sealed using heat welded joins. Site-formed service seals were used to seal services and were formed of foil band tape that was heat sealed. Where necessary any damage or defects were sealed using foil band tape product patch repairs.

The gas resistant products installed within the development of Block A and Block B comprised:

- Keytec 400 HP – self branded purchased from Juta;
- Unbranded black Juta GP1 gas resistant membrane;
- 301483 Foil Band 150mm width/ 1.5mm thickness/ 10m length – Aluminium heat weld membrane tape.

Advice was given to the site manager/s on a few visits (13/08/19, 26/01/21, and 17/03/21) in relation to ensuring, that the floor surfaces are swept and cleared of any debris and materials prior to membrane installation, that any holes or damage was repaired either using tape or with a patch repair, and following the installation of the membrane no materials or equipment should be placed directly on top of the membrane and it should be swept clean and then covered prior to the floor screed installation to prevent any damage to the membrane. Thakeham (the Client) confirmed that action to rectify any damage and to fully seal the membrane, where areas requiring further work were identified, had been completed, and this was confirmed by either client photographs (Plot 46) or by an engineer from Geo-Environmental with subsequent follow up inspection visit/s (25/08/20 and 26/03/21).

The gas membrane installation for Plots 16-59, Block A and Block B, were inspected by Geo-Environmental on several occasions to observe and record that the measures installed complied with the requirements as set out within RSVP. The proposed floor construction detail drawing including the gas membrane detail for the houses and the flats are presented in Appendix A. Visual inspection record sheets in line with the verification pro forma as set out in CIRIA C735 'Good practice on the testing and verification of protection systems for buildings against hazardous ground gases', of the gas protection measures installed are enclosed in Appendix B.

The completed membrane installation was not fully completed within Plots 35, 38-39, 43 and 46 during the visits undertaken by Geo-Environmental. As such, the final completed membrane installation within these plots was photographed by the site manager for Thakeham (the Client), with these photos then issued to Geo-Environmental. Geo-Environmental has viewed these photos and the membrane installation appears to be in-line with the installation undertaken with the completed Plots independently inspected by Geo-Environmental. As such Geo-Environmental are satisfied that the membrane installation at the point of inspection was suitable and that the client provided photographs are satisfactory. These photographs are presented within Appendix C.

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4.0 DISCOVERY STRATEGY

A discovery strategy remains in place throughout the development works on this site. Geo-Environmental have not been made aware of any discoveries having been made to date and thus the strategy, as set out in the RSVP did not require enacting. However, the strategy remains in place for the remainder of the development works.

5.0 VERIFICATION

In accordance with the Client's instruction, Geo-Environmental undertook routine and independent inspection during key stages of the construction process. The risk mitigation measures in relation to gas protection measures for Plots 16-59, Block A and Block B, have been inspected and were considered to comply with the requirements of the design and Remediation Strategy and Verification Plan at the point of inspection, or defects otherwise noted and subsequently rectified and plots re-inspected. Further validation works (installation of soil cover systems) for the site will be reported via an updated report or under separate cover in due course.

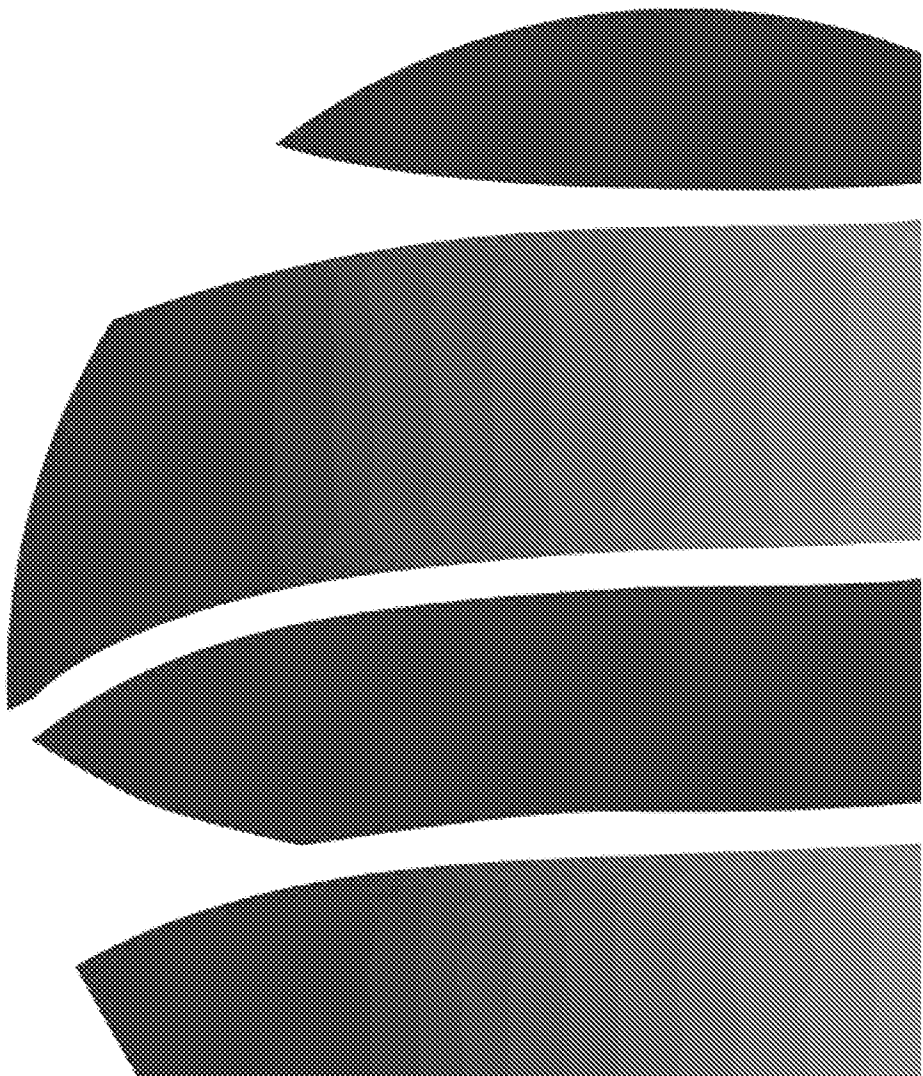
Please be aware that the independent inspection and validation of the gas protection measures installed presented within this report relates to the works undertaken up to the point of inspection, or photographs provided and reviewed. Geo-Environmental accept no responsibility or liability for any works following the inspection that may have resulted in subsequent damage to the gas protection measures and membranes installed due to any failure to protect the membrane prior to or after screeding works on site.

The report relates solely to the validation of the gas protection measures installed within Plots 16-59, Block A and Block B. Validation with respect to the importation of Subsoil/ Topsoil for proposed private gardens areas and areas of communal soft landscaping will continue be presented under separate cover as completed in due course.

This report remains the property of Geo-Environmental and the Client has no rights to, or reliance upon this document or supporting documents until such time as payment has been received in full for all invoices for works undertaken in connection with this report.

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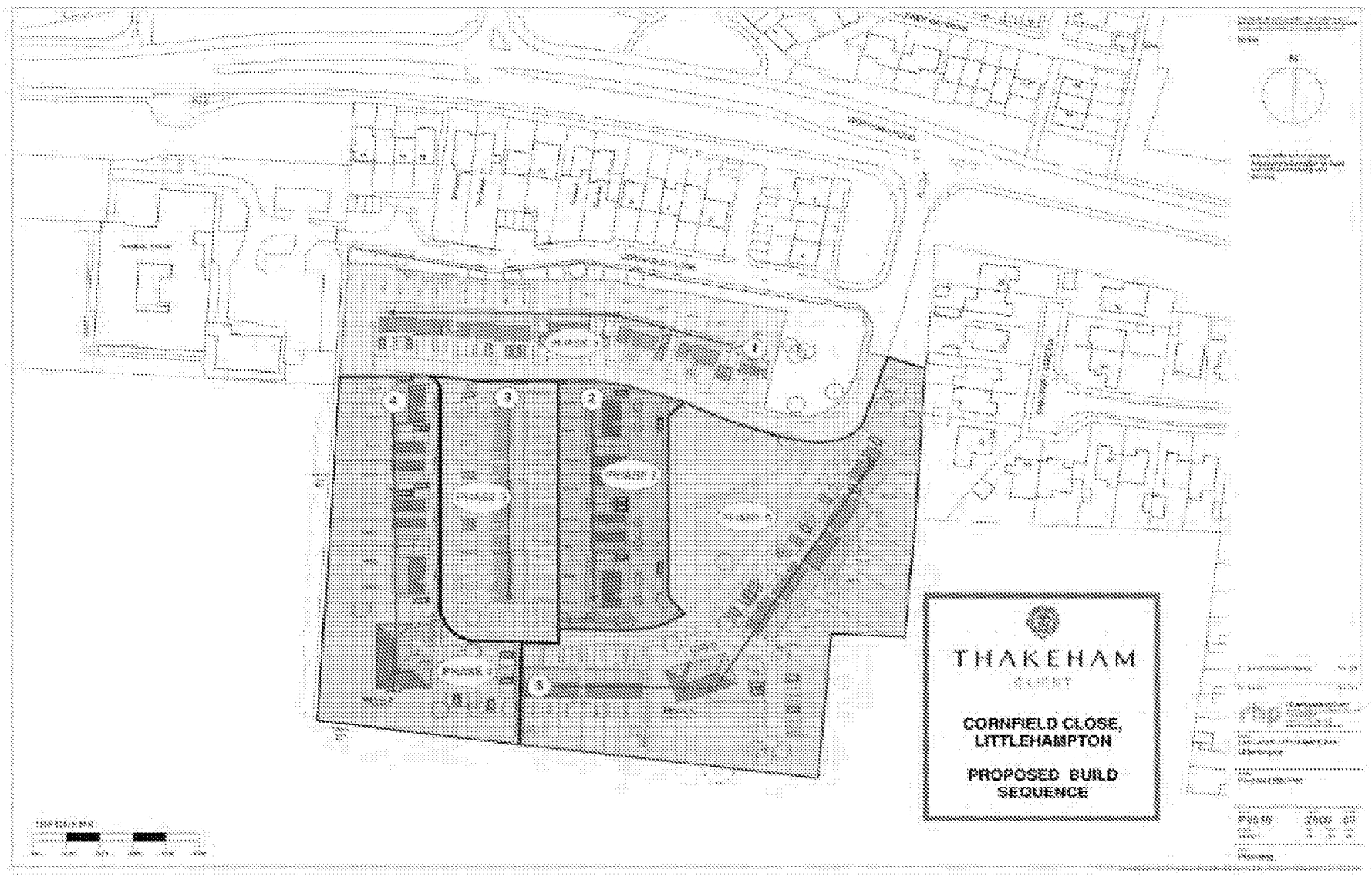
FIGURES





Project:	Cornfield Close, Littlehampton, West Sussex			**Title**	Site Location Plan
Client:	Thakeham Homes			**Geo-Environmental Services Ltd** **Unit 7 Danworth Farm, Cuckfield Road** **Hurstpierpoint, West Sussex BN6 9GL** **+44(0)1273 832972 www.gesl.net**	Geo-Environmental
Ref No:	GE18103	**Revision:**	0		
Drawn:	LL	**Date:**	01/10/2019		
Figure:	1	**Scale:**	Not To Scale		

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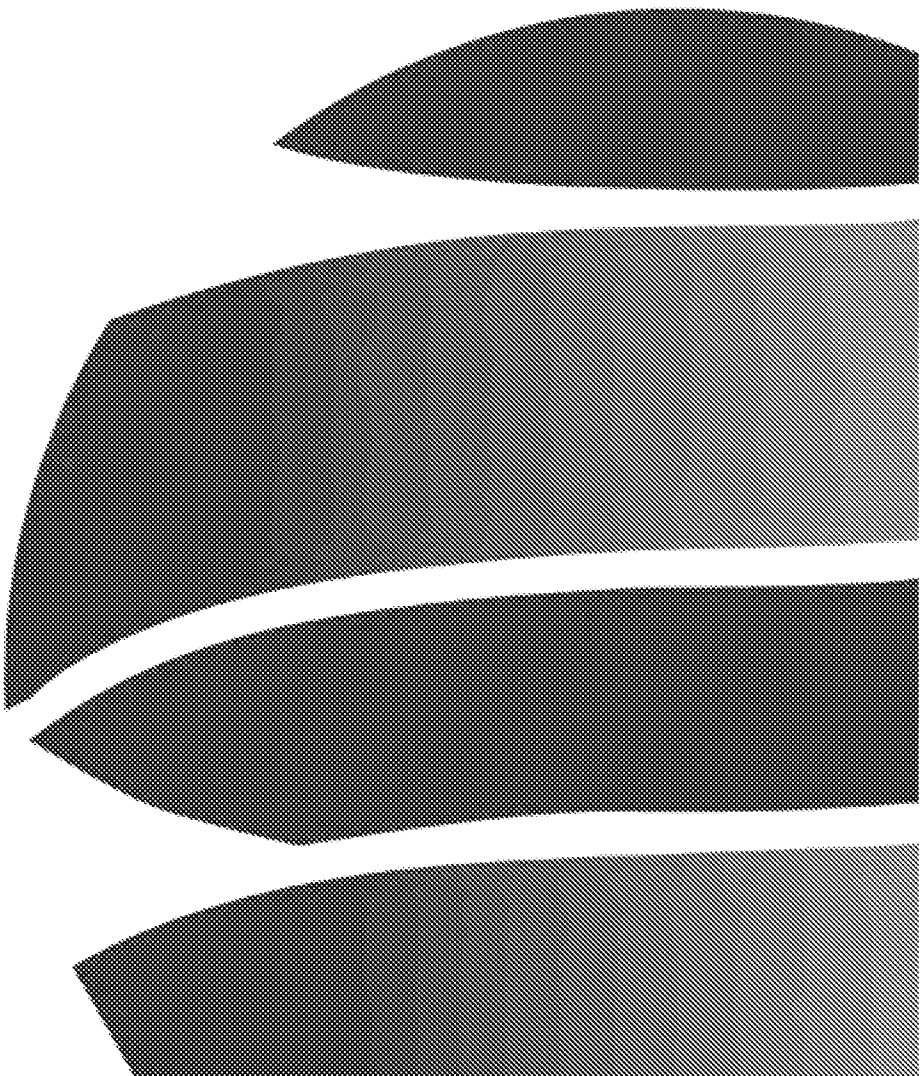
Project:	Cornfield Close, Littlehampton, West Sussex			**Title**	Site Development Phasing Plan (Phase 1-5)
Client:	Thakeham Homes			**Geo-Environmental Services Ltd**	
Ref No:	GE18103	**Revision:**	0	**Unit 7 Danworth Farm, Cuckfield Road**	
Drawn:	LL	**Date:**	01/10/2019	**Hurstpierpoint, West Sussex BN6 9GL**	Geo-Environmental
Figure:	2	**Scale:**	Not To Scale	**+44(0)1273 832972 www.gesl.net**	

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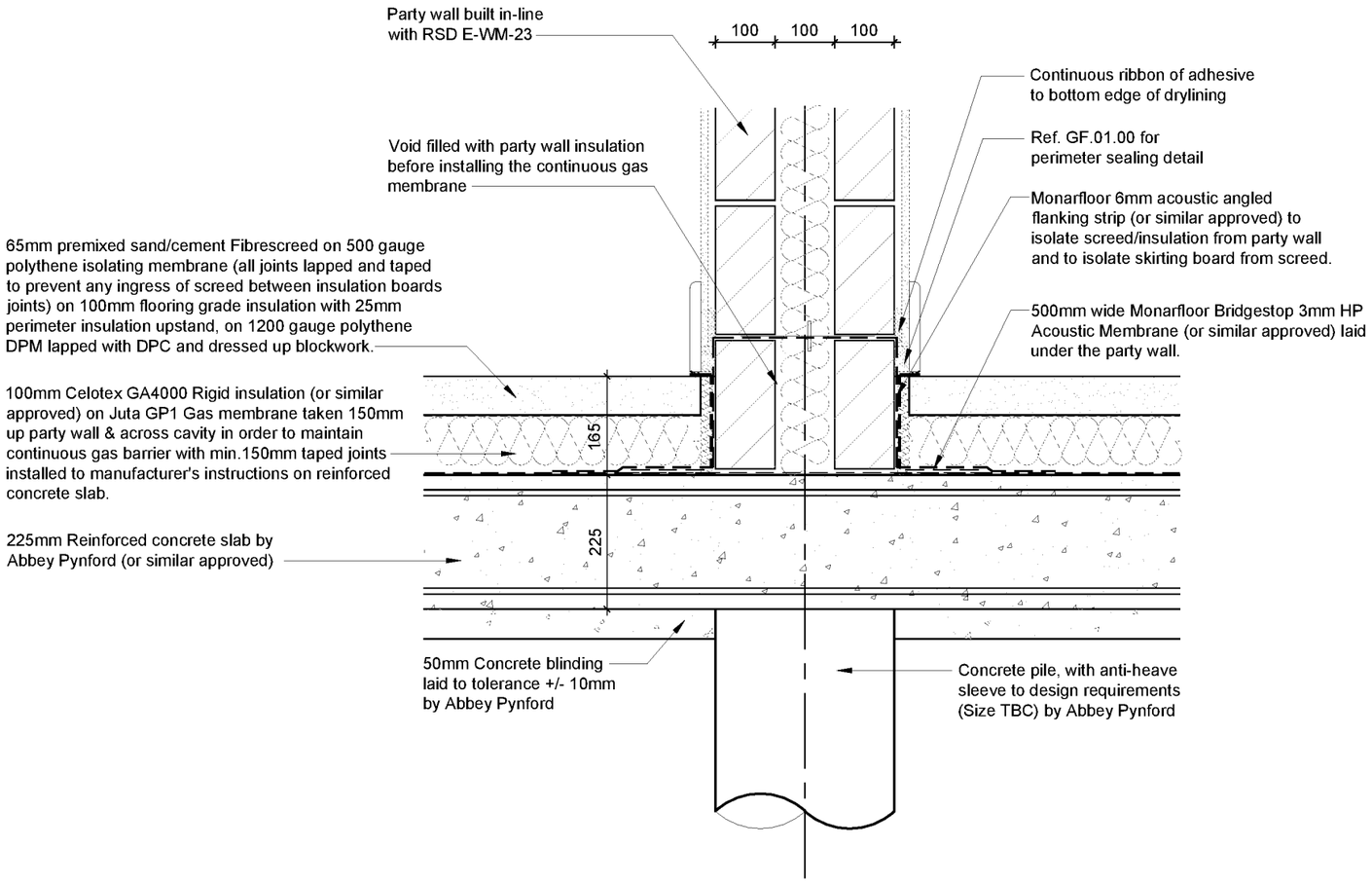
Geo-Environmental

APPENDIX A

Proposed Floor Construction Detail Plans (Flats and Houses)



Drawing to be read in conjunction with Construction Specification & Standard Details



PARTY WALL/G.F. SLAB SUBSTRUCTURE DETAIL - MASONRY APARTMENTS

(GROUND WORKS TO BE IN STRICT ACCORDANCE WITH ENGINEERS DETAILS & INFORMATION)

CONSTRUCTION

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This drawing is to be read in conjunction with all relevant consultants, specialist manufacturers drawings and specifications.

Any discrepancies in dimensions or details on or between these drawings should be drawn to our attention.

All dimensions are in millimetres unless noted otherwise.

Any surveyed information incorporated within this drawing cannot be guaranteed as accurate unless confirmed by fixed dimension.

Party Wall/G.F. Slab Substructure Detail
Littlehampton - (Masonry Apartments)

REV	DATE	DESCRIPTION	INITIAL	CHECKED
C03	19.12.19	DETAIL UPDATED TO SUIT GAS MEMBRANE COMMENTS.	AJH	CD
C02	09.10.19	SUB FLOOR VOID & VENTS OMITTED & DPC'S UPDATED.	AJH	CD
C01	12.06.19	ISSUED FOR CONSTRUCTION	AJH	CD
P02	07.03.19	225mm AIR VOID AND TELESCOPIC VENTS INTRODUCED.	AJH	CD
P01	07.12.18	FIRST ISSUE	AJH	CD

enquiries@architecture.co.uk
01344 752 271

CLIENT: THAKEHAM CLIENT

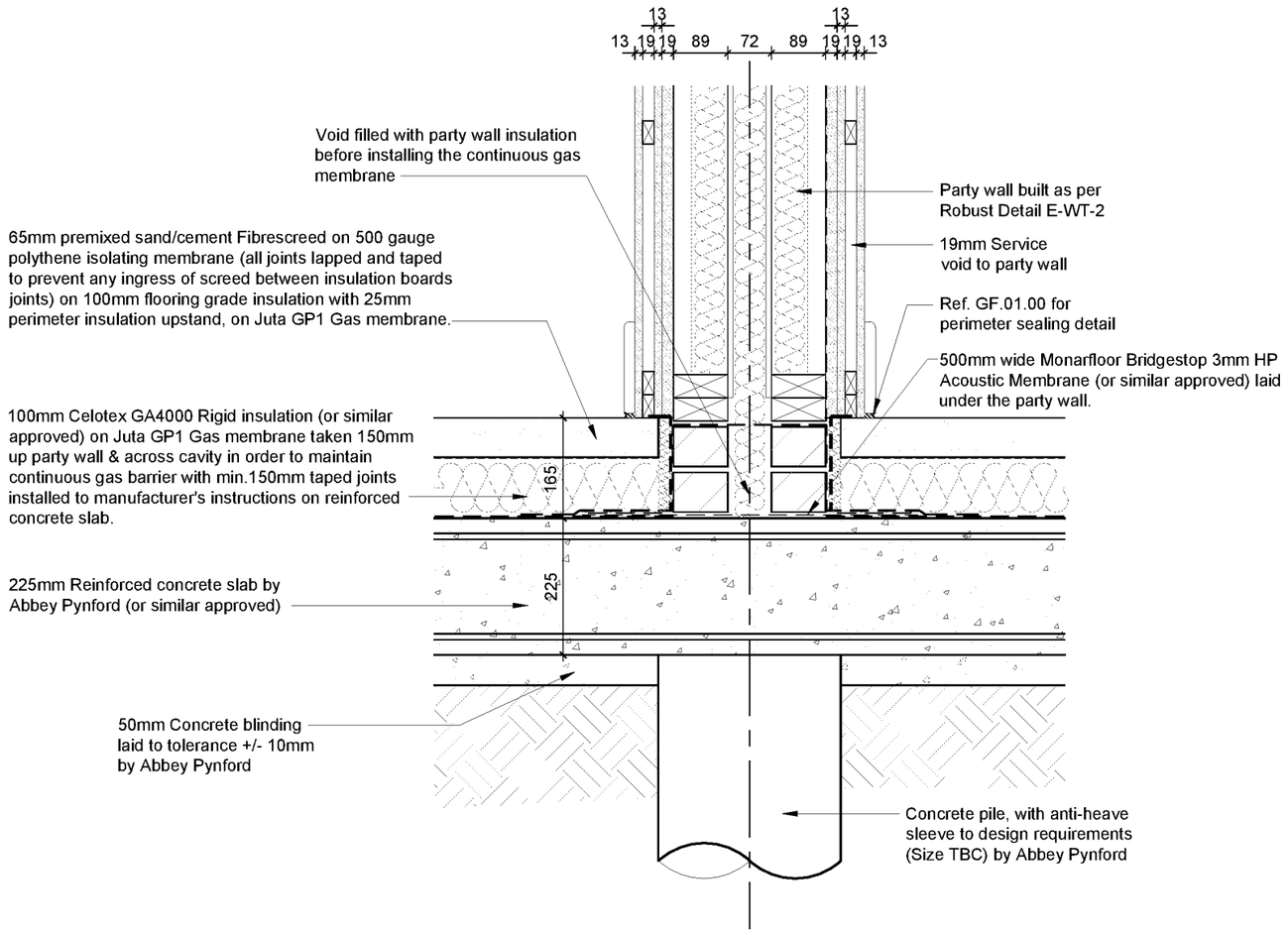
PROJECT: CORNFIELD CLOSE, LITTLEHAMPTON

TITLE: PARTY WALL/G.F. SLAB SUBSTRUCTURE MASONRY APARTMENTS

SCALE	DATE	PROJECT NO
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DRAWN	CHECKED	
AJH	CD	M637_60.50.03 C03

Drawing to be read in conjunction with Construction Specification & Standard Details



PARTY WALL/G.F. SLAB SUBSTRUCTURE DETAIL - TIMBER FRAME HOUSES

(GROUND WORKS TO BE IN STRICT ACCORDANCE WITH ENGINEERS DETAILS & INFORMATION)

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Any surveyed information incorporated within this drawing cannot be guaranteed as accurate unless confirmed by fixed dimension.

Party Wall/G.F. Slab Substructure Detail
Littlehampton - (Timber Frame Houses)

REV	DATE	DESCRIPTION	INITIAL	CHECKED
C03	19.12.19	DETAIL UPDATED TO SUIT GAS MEMBRANE COMMENTS.	AJH	CD
C02	09.10.19	SUB FLOOR VOID & VENTS OMITTED, PARTY WALL DETAIL AMENDED.	AJH	CD
C01	12.06.19	ISSUED FOR CONSTRUCTION	AJH	CD
P02	07.03.19	225mm AIR VOID AND TELESCOPIC VENTS INTRODUCED.	AJH	CD
P01	07.12.18	FIRST ISSUE	AJH	CD

enquiries@architecture.co.uk
01344 752 271

CLIENT: THAKEHAM CLIENT

PROJECT: CORNFIELD CLOSE, LITTLEHAMPTON

TITLE: PARTY WALL/G.F. SLAB SUBSTRUCTURE TIMBER FRAME HOUSES

SCALE: 1:10 @ A3 | DATE: 07/12/18 | PROJECT NO.: 18.335

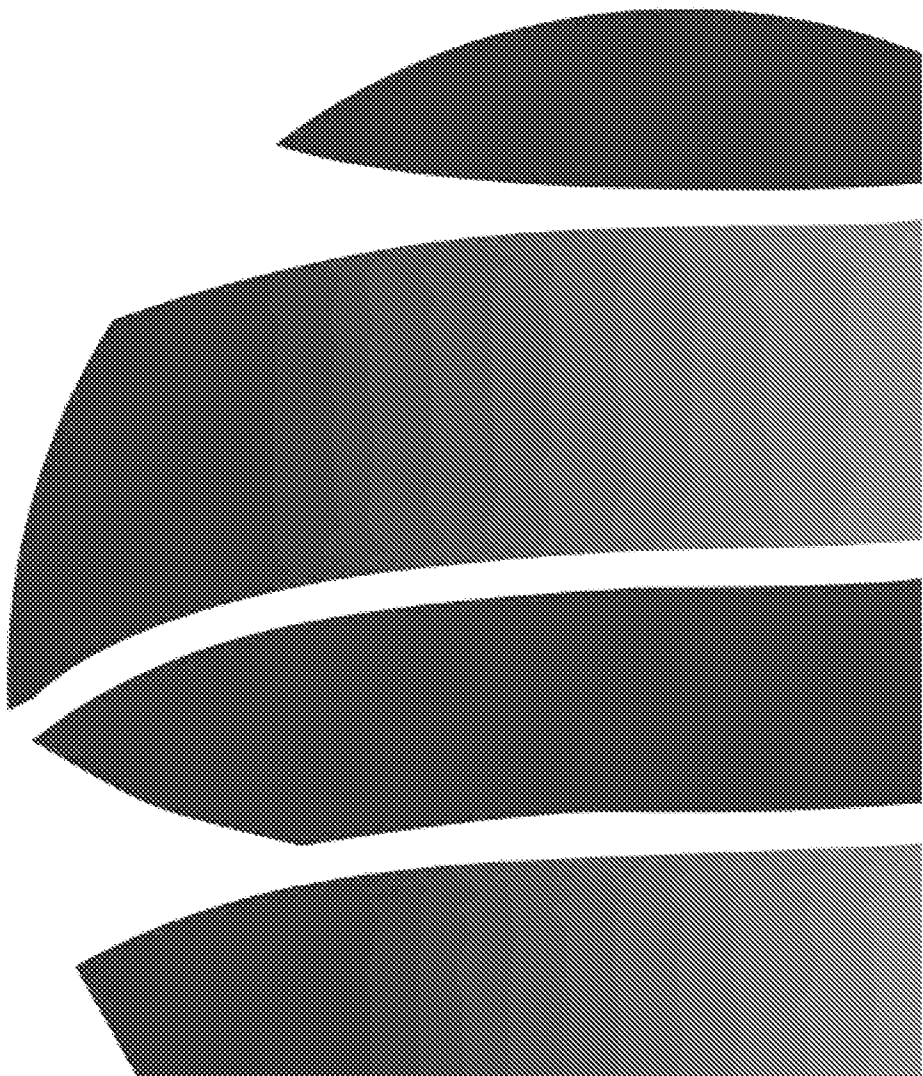
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M637_60.50.04 C03

Geo-Environmental

APPENDIX B

Visual Inspection Records



Geo-Environmental

Project Name	Cornfield Close
Project No.	GE18103
Client	Thakeham Homes
Geo-Environmental Project Manager's Email	[redacted]
Date	13/07/2020, 13:37
Site Engineer	Katie O'Dea [redacted]
Weather at time of inspection	Warm, sunny, light breeze
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Residential houses.
Plot No.	22-27, 36-43
Foundation Type	Suspended
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Sub grade and membrane slightly dusty but in good condition.
1.2 Gas membrane type	Keytec 400 Gas Membrane
1.3 Gas membrane condition	Gas membrane in good condition with no visible damage.
Jointing tape product	Butyl tape to seal screw holes.
1.5 Lapping design	Min 150mm overlap.
1.6 Laps, welds and joints seals	All heated welds in good condition with no gaps.
1.7 Service seals	Bespoke seals using butyl tape. Some services had been marked with a road pin which needs to be cut out and sealed.

Engineer's Prelim Assessment (Mem)

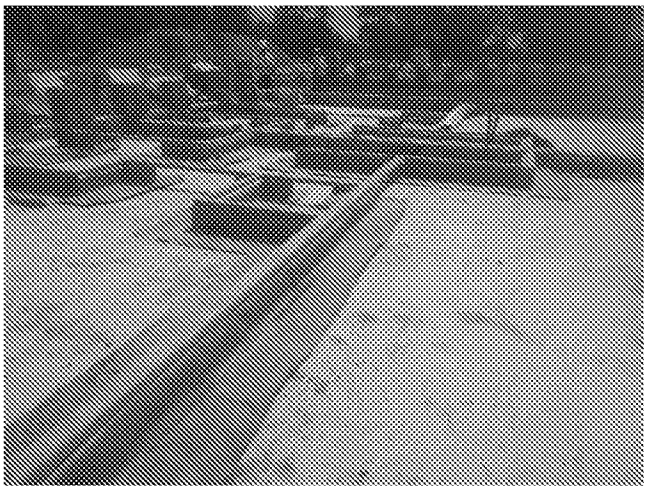
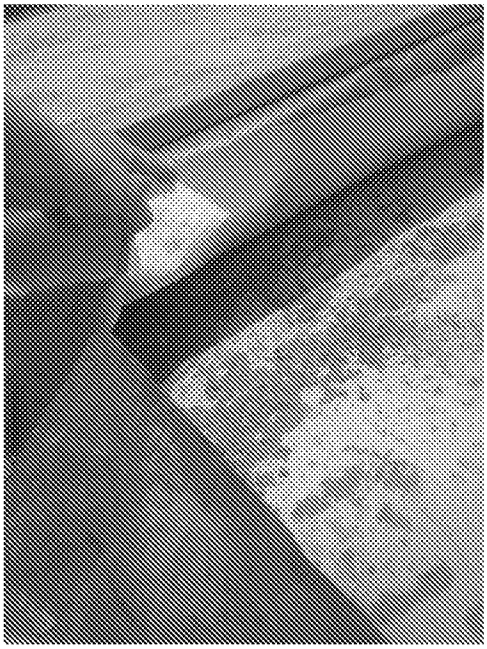
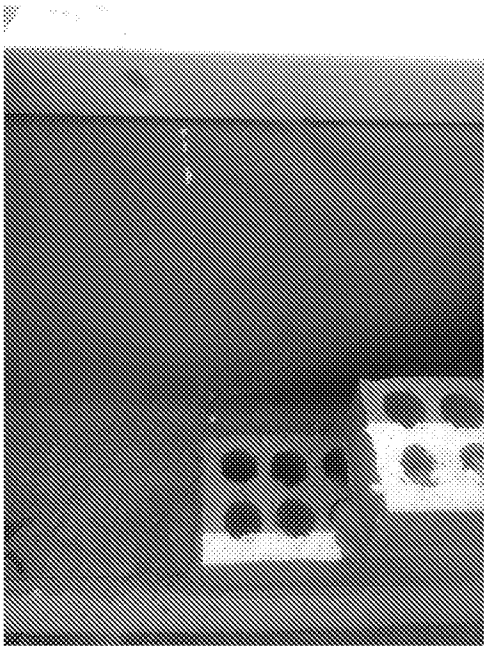
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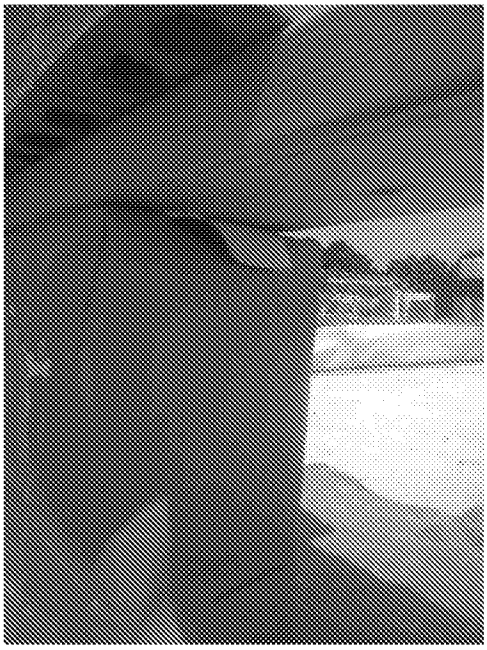
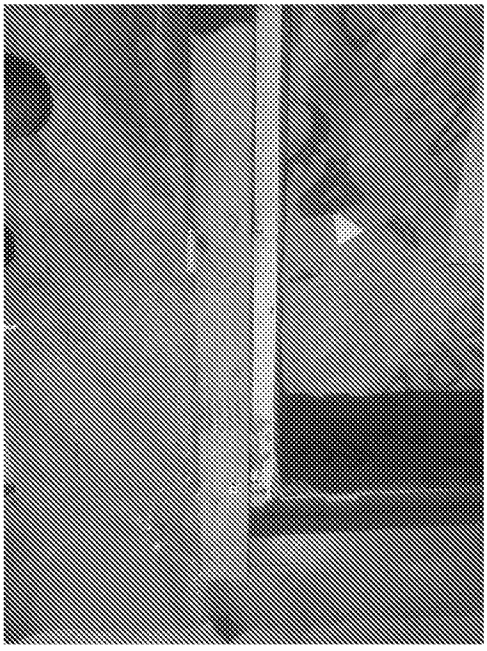
4. PHOTOGRAPHS

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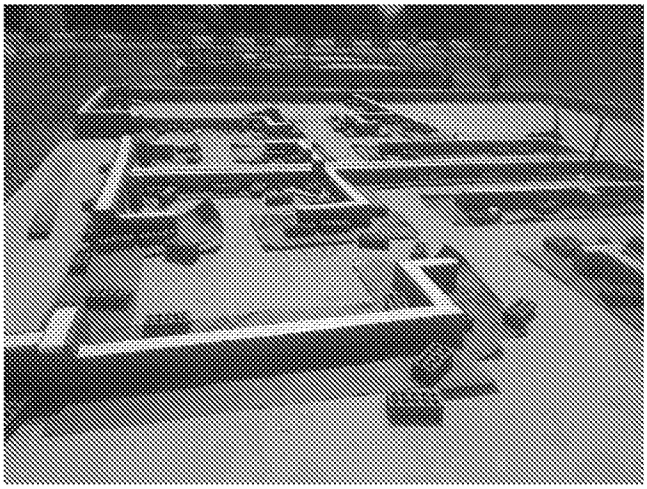
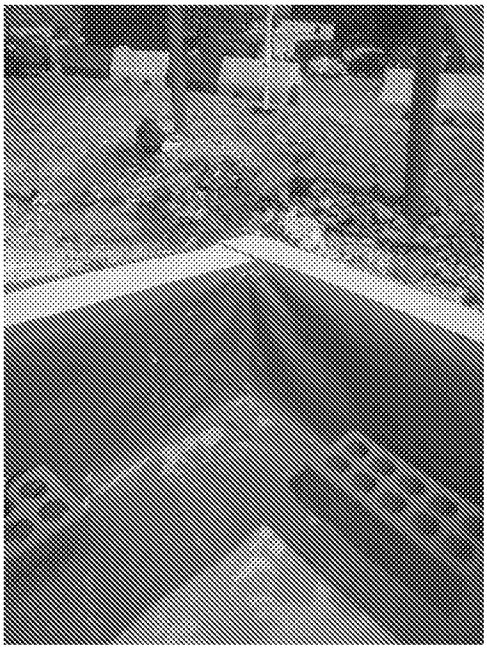
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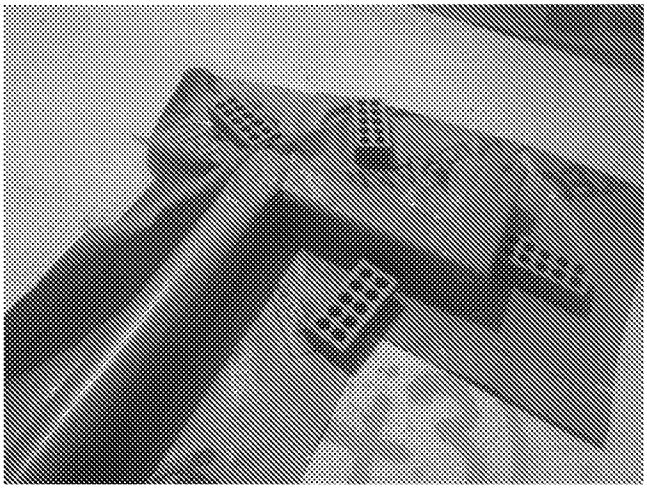
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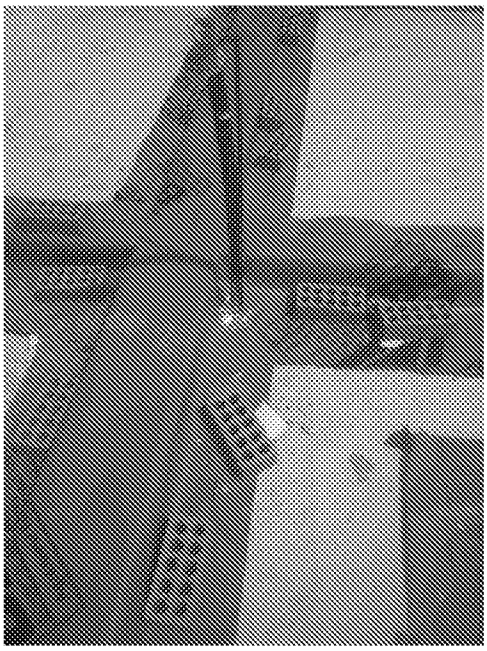
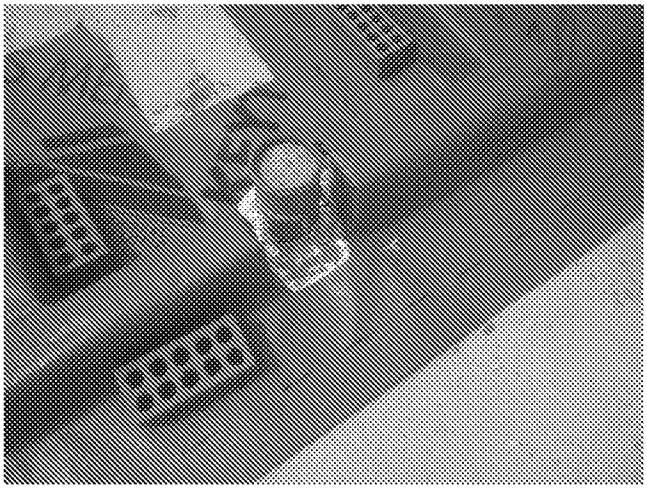
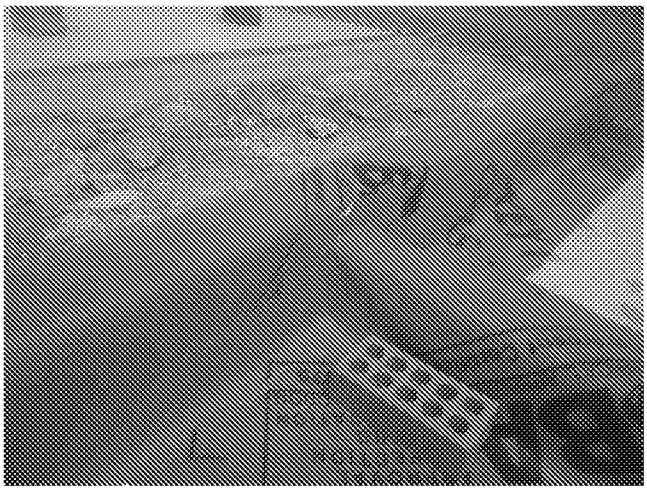
	Plots 36-37. View across plots.
	Plots 36-37. Example of underside of membrane.
	Plots 38-39. Example of weld.

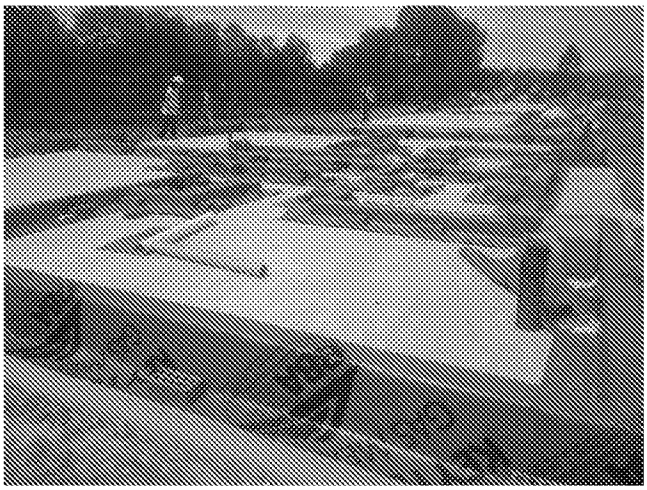
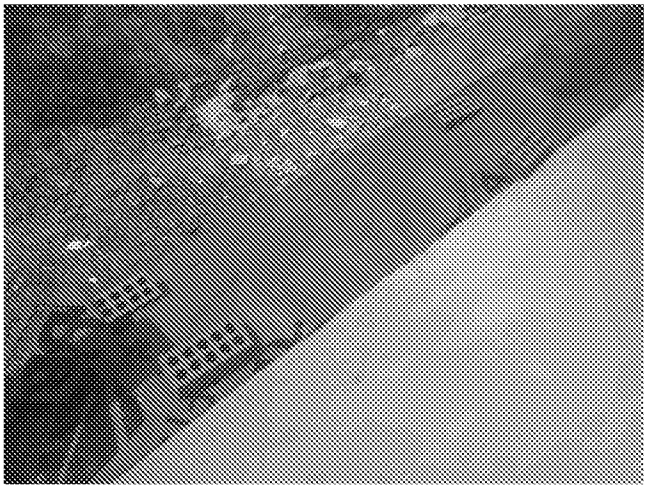
	Plots 38-39. Underside of wooden frame with butyl tape for sealing screws.
	Plots 38-39. Example of butyl tape under wooden frame.

	Plots 38-39. Service seal using foil backed butyl tape.
	Plots 38-39. Service seal using butyl tape.

	Plot 40-41. Servicing seal.
	Plots 40-41. View across Plots showing butyl tape laid out for fixture of wooden frame.
	Plots 40-41. Corner detail.

	Plots 42-43. View across plots.
	Plots 42-43. Corner detail.
	Plots 24-27. View across plots.

	Plots 24-27. Service seal. Road pin will be cut out.
	Plots 24-27. Service seal.
	Plots 24-27. Corner detail.

	Plots 22-23. View across plots.
	Plots 22-23. Threshold detail.
	Plots 22-23. Lapping over external wall.

5. PASS/FAIL

The gas protection measures inspected:

Details of issues

Approved by

No users

Date

Geo-Environmental

Project Name	Cornfield Close
Project No.	GE18103
Client	Thakeham Homes
Geo-Environmental Project Manager's Email	[redacted]
Date	29/07/2020, 14:37
Site Engineer	
Fiona Goode	[redacted]
Weather at time of inspection	Sunny, breezy, warm
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Houses plot 1 detached and Plots 2-3 semi detached Flats Block A plots 60-65 Block B plots 66-77 lift pit skin only
Plot No.	Plots 1-3 (whole floor) and Block A (60-65) perimeter and Block B lift pit
Foundation Type	Suspended
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Very clean
1.2 Gas membrane type	Keytec 400hp gas resistant membrane
1.3 Gas membrane condition	Good condition, some dust but generally clean
Jointing tape product	Heat sealed joins with double sided tape to seal services. Tape along brick and timber frame walls so no brick or other materials puncture membrane and where nails are driven through membrane tape forms a seal
1.5 Lapping design	150mm joins
1.6 Laps, welds and joints seals	All heat sealed joins some double sided tape on services and corners. Patch repairs heat sealed
1.7 Service seals	All well sealed with site formed taped seals

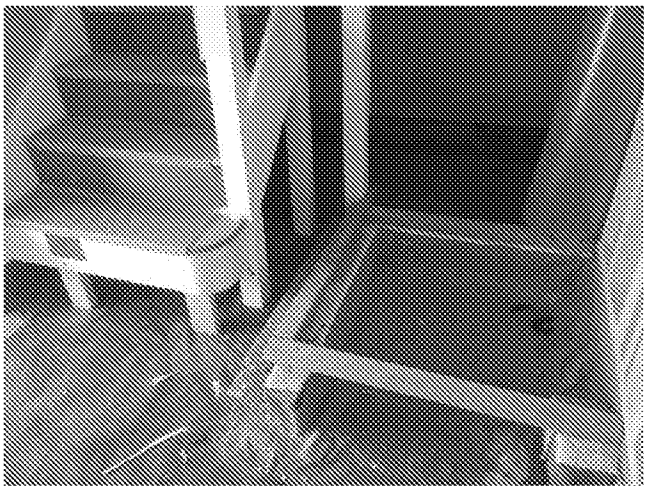
4. PHOTOGRAPHS

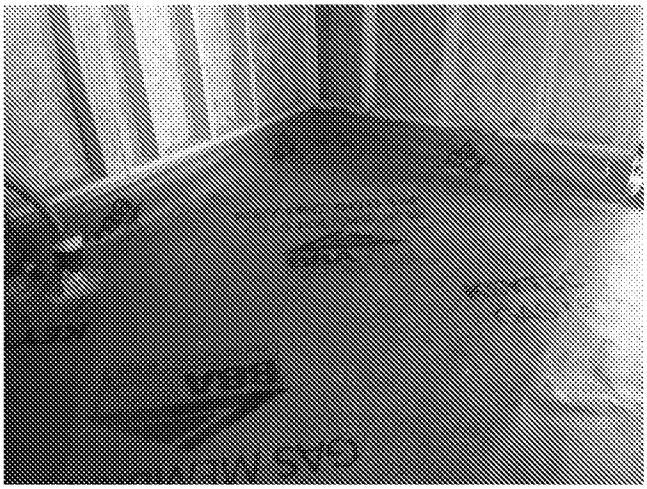
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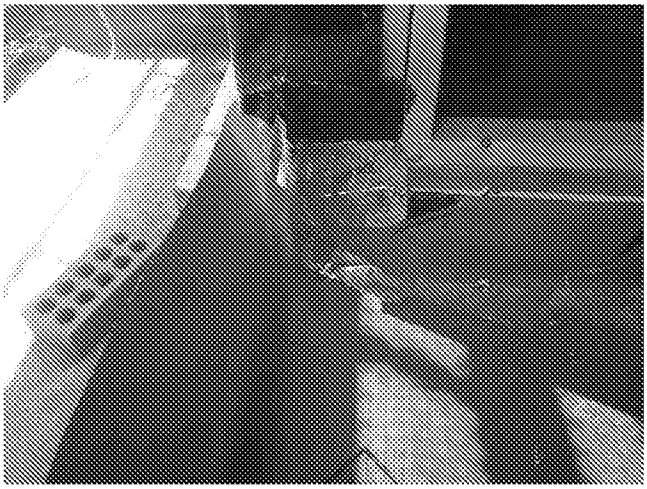
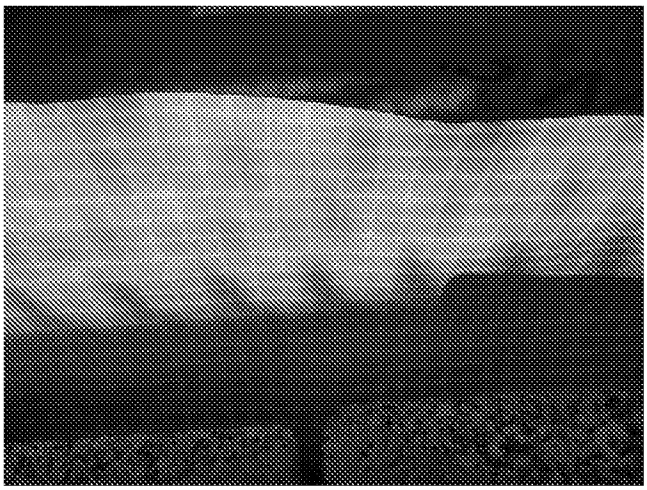
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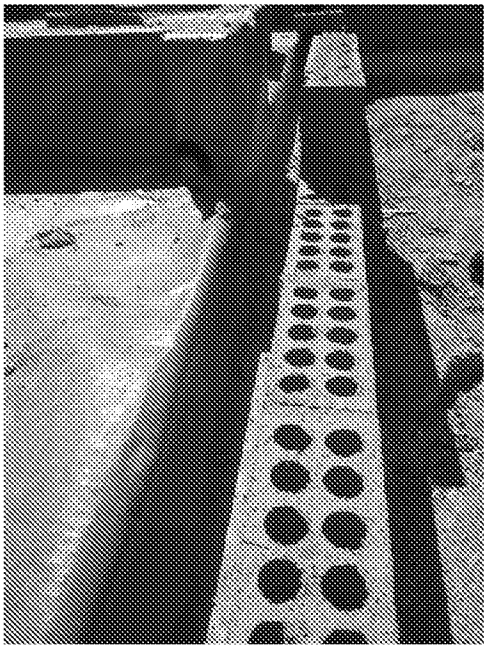
Photograph	*Photograph Title*

	Plot 1 services
	Plot 1steel

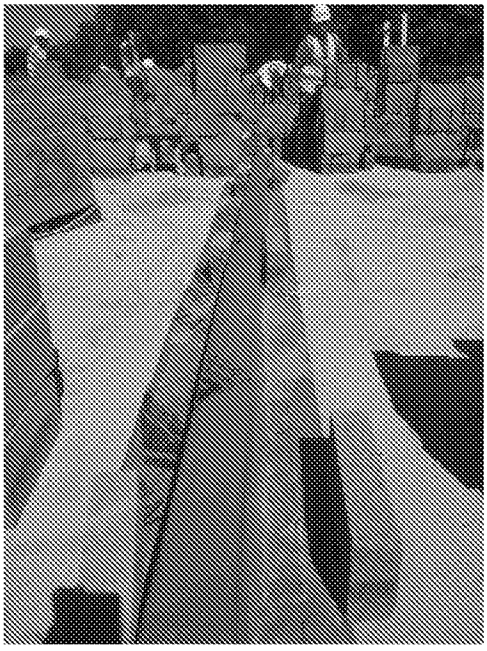
	Plot 1 seals
	Plot door threshold
	Plot 1 stairwell

	Plot 1 overview
	Plot 2 overview
	Plot 2 under stairs

	Plot 2 services
	Plot 2 details
	Plot 2 underside

	Block A services
	Block A cavity

	Block A tape under blockwork
	Block A corner

	Block A water
	Block A overview

	Block B pit
	Block B damage

	Block B overview
	Plot 3 overview

	Plot 3 services
	Plot 3 under stairs



Plot 3 overview

5. PASS/FAIL

The gas protection measures inspected:	Are acceptable & comply with the specification
Details of issues	
Approved by	
Fiona Goode	[redacted]
Date	29/07/2020

Geo-Environmental

Project Name	Cornfield Close
Project No.	GE18103
Client	Thakeham Homes
Geo-Environmental Project Manager's Email	[redacted]
Date	05/08/2020, 15:35
Site Engineer	
Fiona Goode	[redacted]
Weather at time of inspection	Sunny, hot, breezy little cloud
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Flats and semi detached houses
Plot No.	Block B plots 66-77 (lift pit) and Plots 22 and 23
Foundation Type	Suspended
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Unable to see under side as sealed on lift pit. Underside of membrane on perimeter of Plots 22 and 23 in good condition
1.2 Gas membrane type	Keytec 400 gas resistant membrane
1.3 Gas membrane condition	Membrane in good condition
Jointing tape product	Heat sealed joins
1.5 Lapping design	150mm lap
1.6 Laps, welds and joints seals	All joins are heat sealed and well sealed around block work
1.7 Service seals	No services in lift pit. Services in plots 22 and 23 sealed with site formed taped seals. All well sealed

Engineer's Prelim Assessment (Mem)

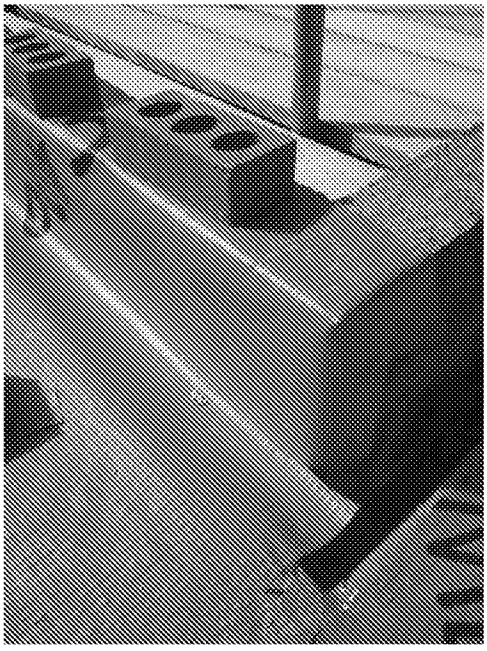
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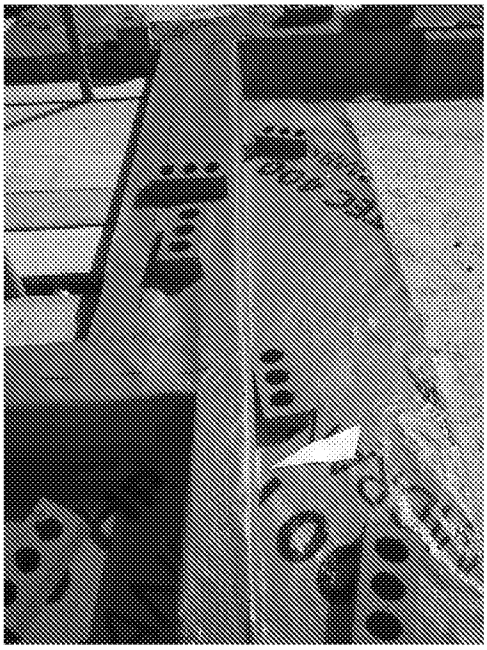
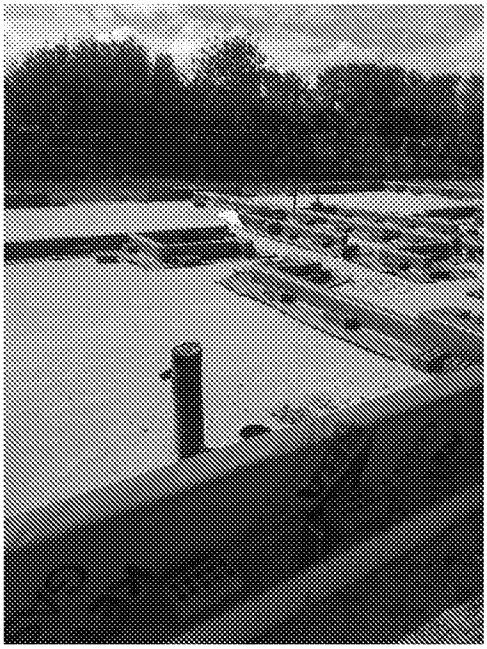
4. PHOTOGRAPHS

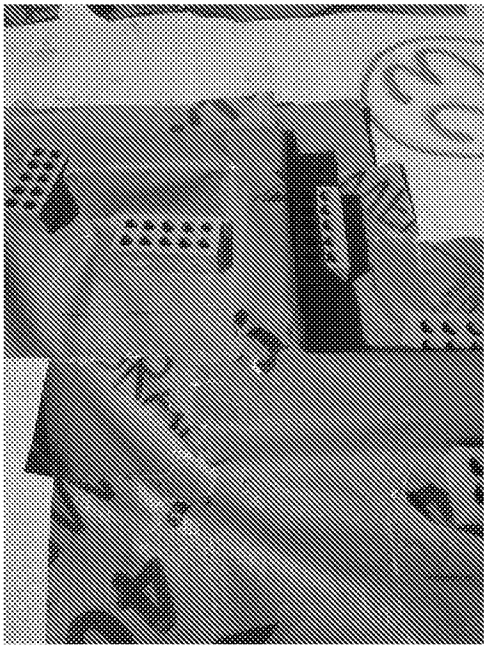
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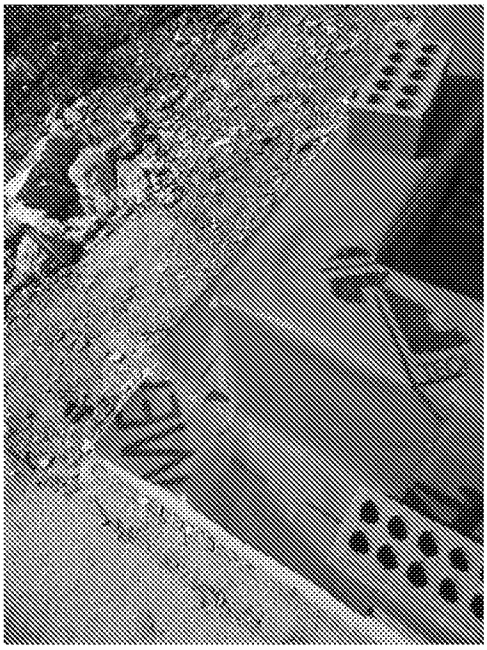
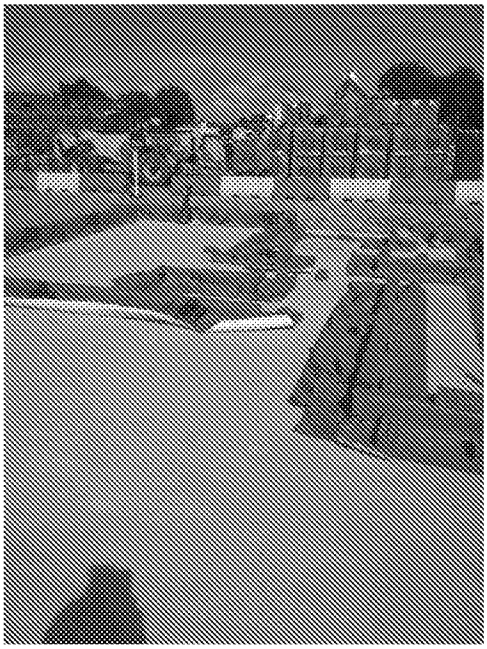
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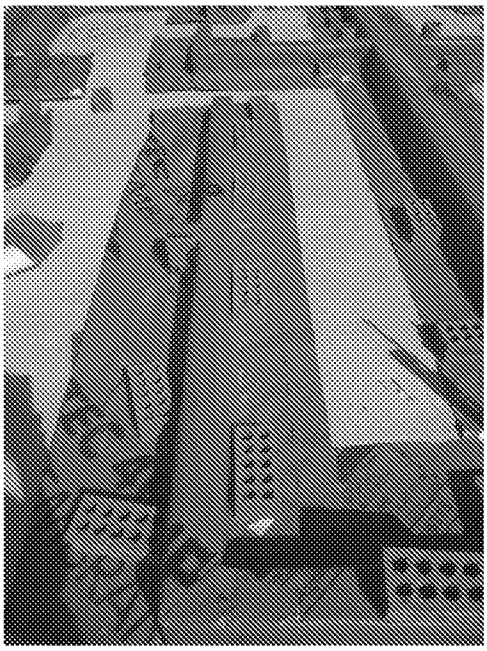
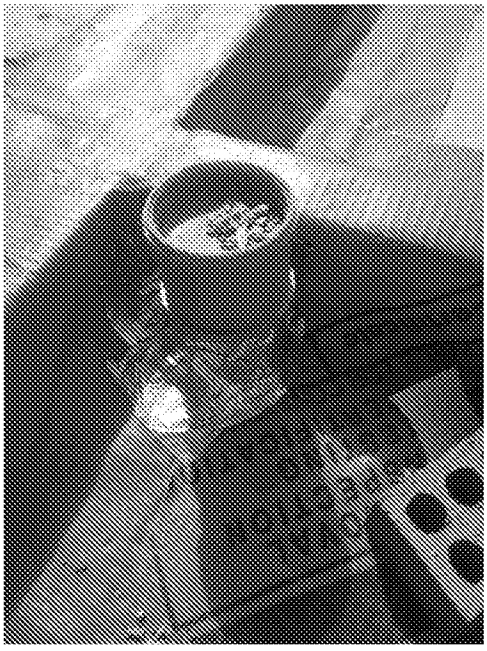
Photograph	*Photograph Title*

	Block B Overview
	Block B Block work

	Block B Rear of pit
	Plot 23

	Plot 23 services
	Plot 23 corners

	Plot 23 corner
	Plot 22 overview

	Plot 22 walls
	Plot 22 service detail

5. PASS/FAIL

The gas protection measures inspected:

Details of issues

Approved by

No users

Date

Geo-Environmental

Project Name	Cornfield Close
Project No.	GE18103
Client	Thakeham Homes
Geo-Environmental Project Manager's Email	[redacted]
Date	13/08/2020, 13:58
Site Engineer	
Fiona Goode	[redacted]
Weather at time of inspection	Overcast, humid, slightly breezy, warm
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Blocks of terraced housing
Plot No.	Plots 24-33 (perimeter)
Foundation Type	Suspended
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Underside in good condition
1.2 Gas membrane type	Keytech 400 gas resistant membrane- red
1.3 Gas membrane condition	Membrane in good condition some dust and mortar in places
Jointing tape product	Double sided tape on service seals all other joins heat sealed
1.5 Lapping design	150mm
1.6 Laps, welds and joints seals	Some seals came apart when pulled there are specific areas where remediation works are needed.
1.7 Service seals	Site formed seals with double sided tape

Engineer's Prelim Assessment (Mem)

Remedial Measures Required

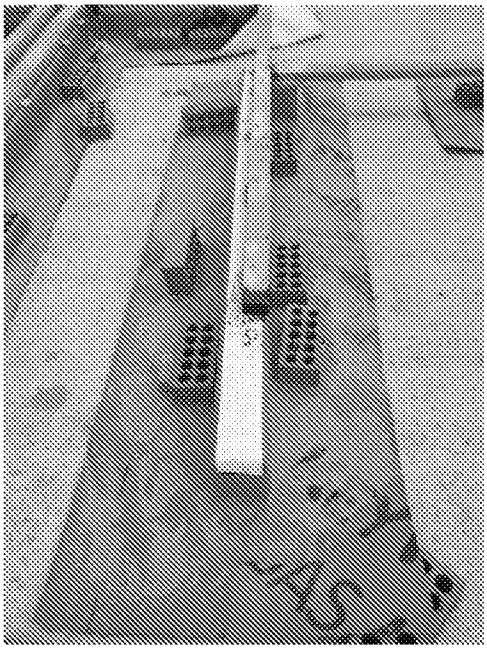
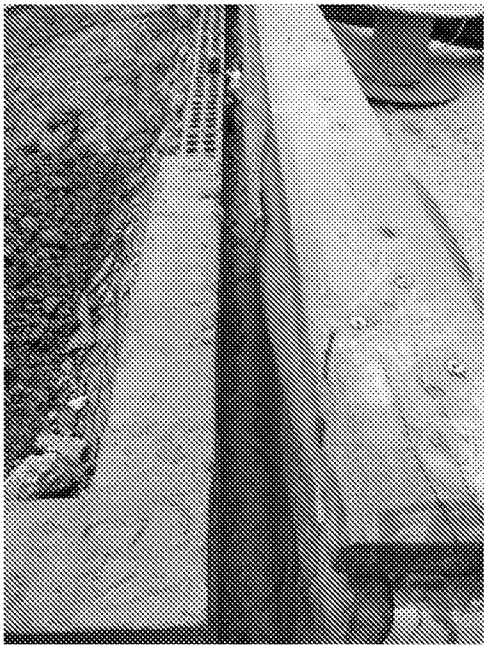
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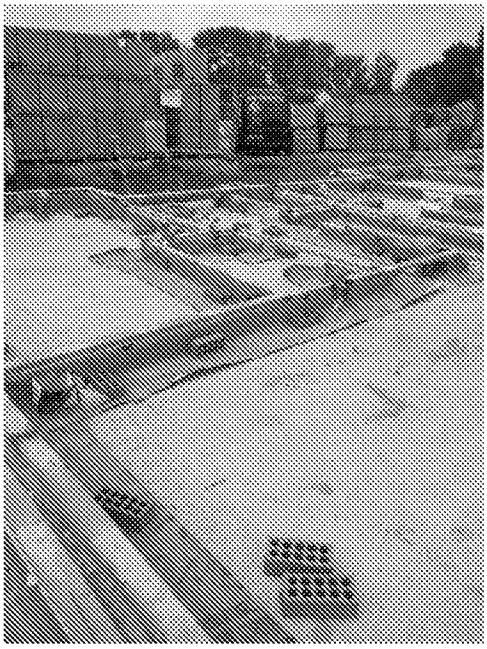
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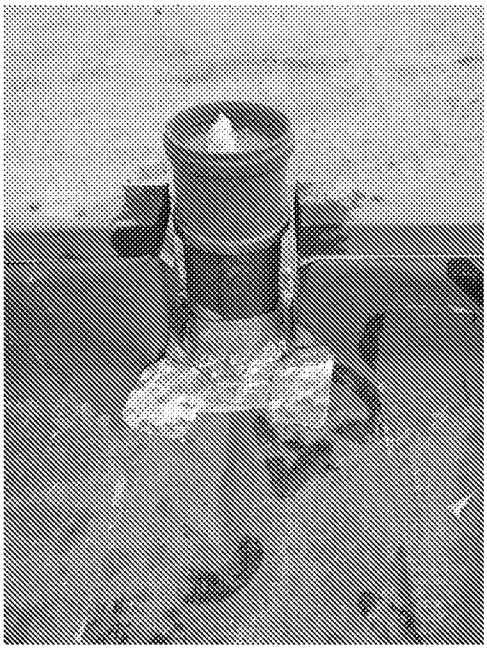
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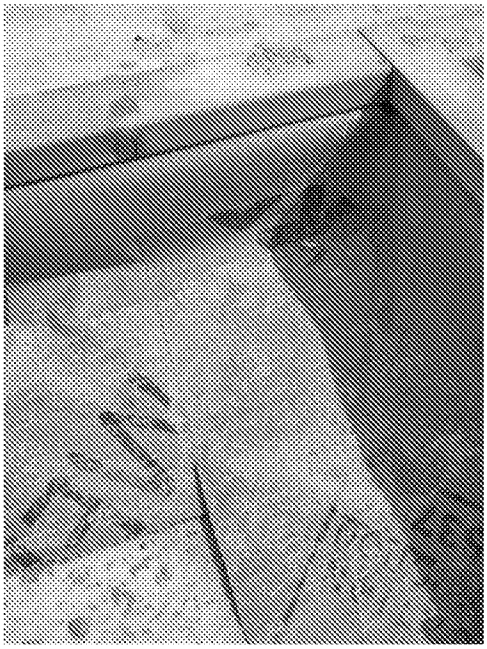
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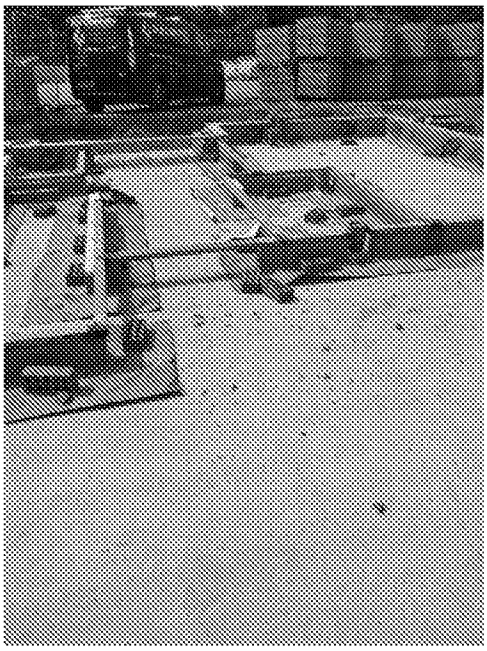
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	Plot 24 services

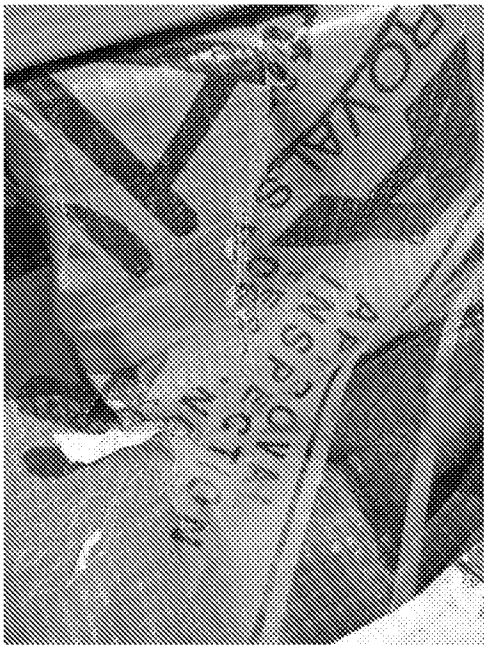
	Plot 24 tape for timber frame
	Plot 24 cavity

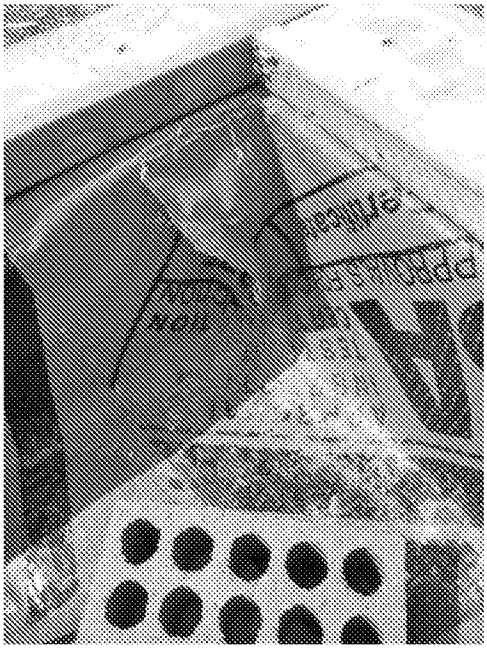
	Plot 25
	Plot 25 threshold

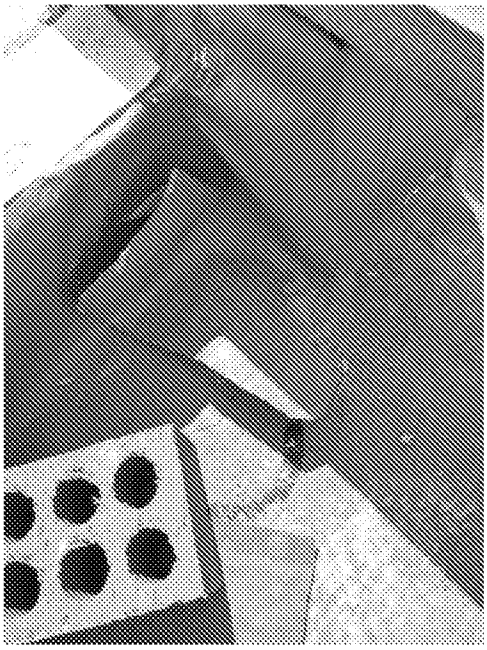
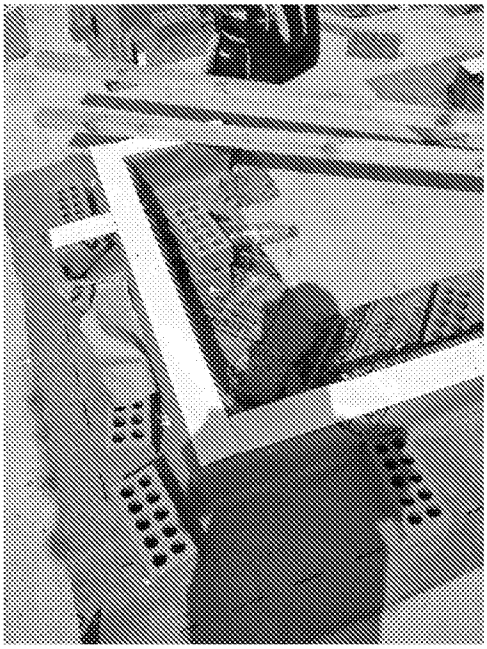
	Plot 25 service
	Plot 26

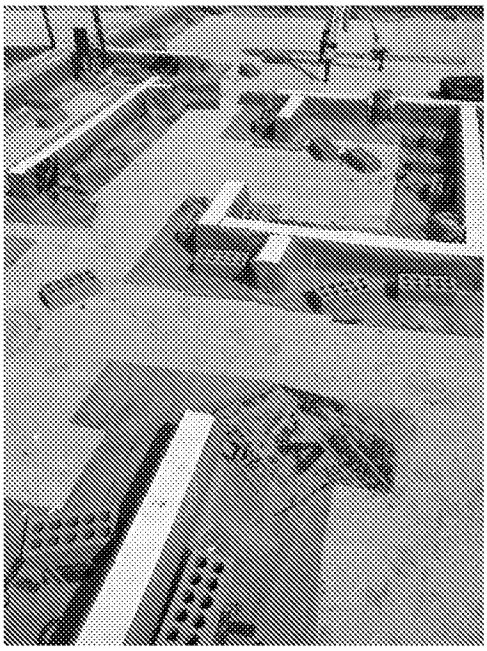
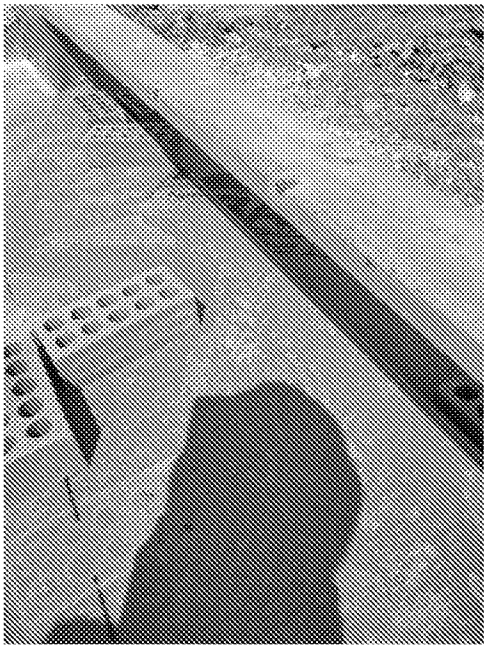
	Plot 26 corner
	Plot 26 lapping

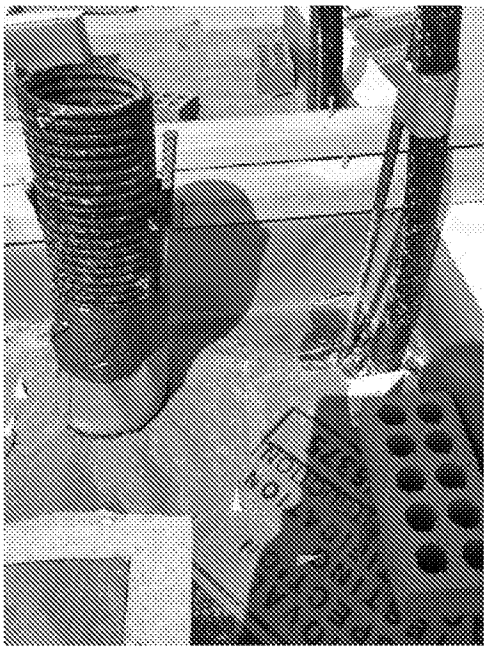
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	Plot 27 service

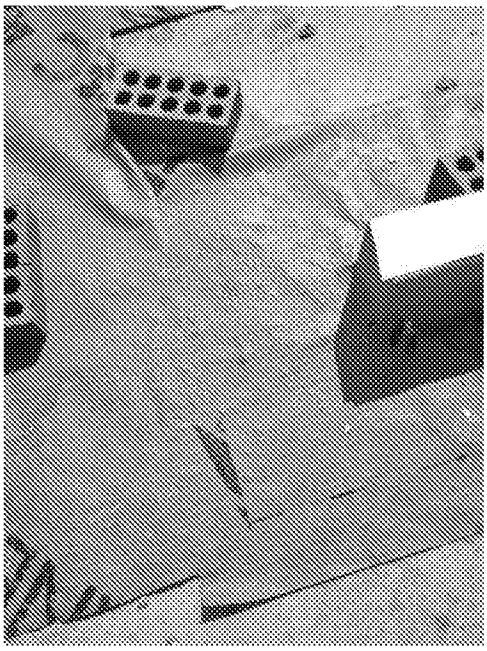
	Plot 27 damage
	Plot 27 corner damage

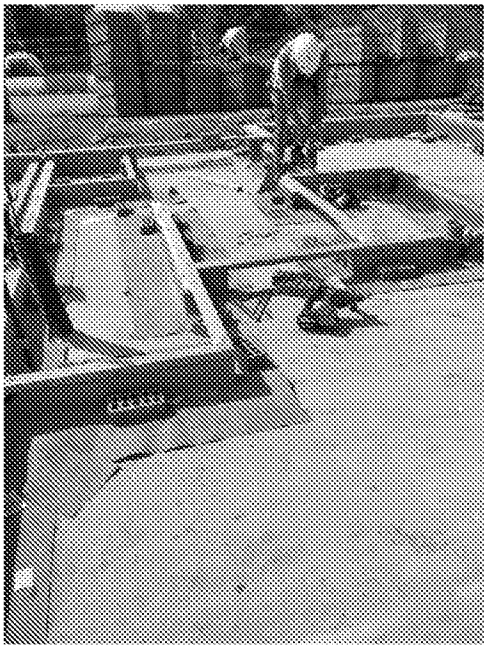
	Plot 28
	Plot 28 corner needs sealing

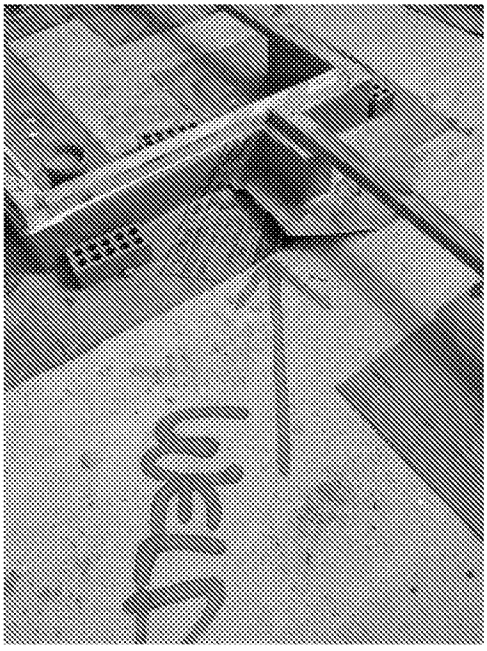
	Plot 28 lapping needs sealing
	Plot 28 tape for frame

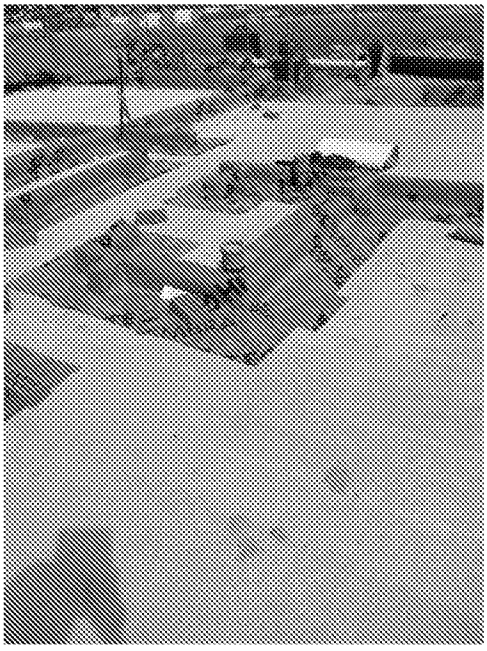
	Plot 29
	Plot 29 threshold

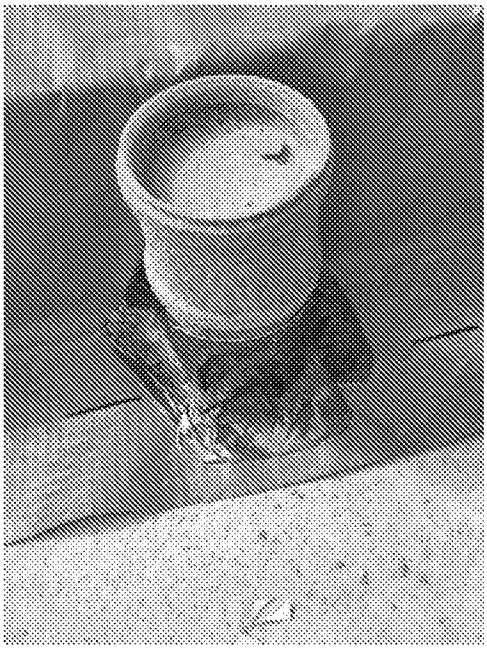
	Plot 29 services
	Plot 30

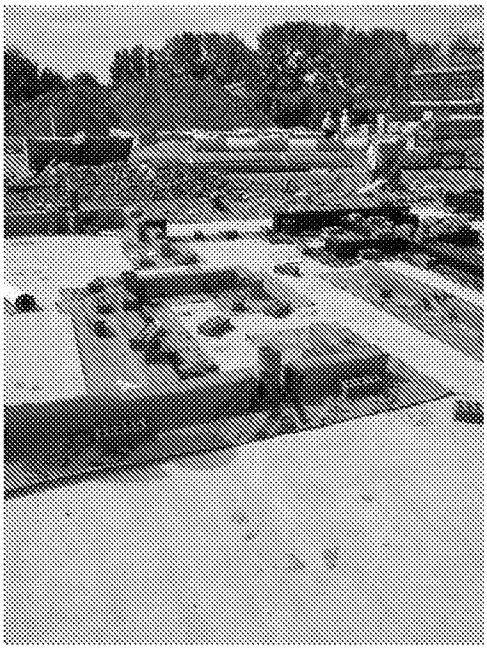
	Plot 30 joins
	Plot 30 services

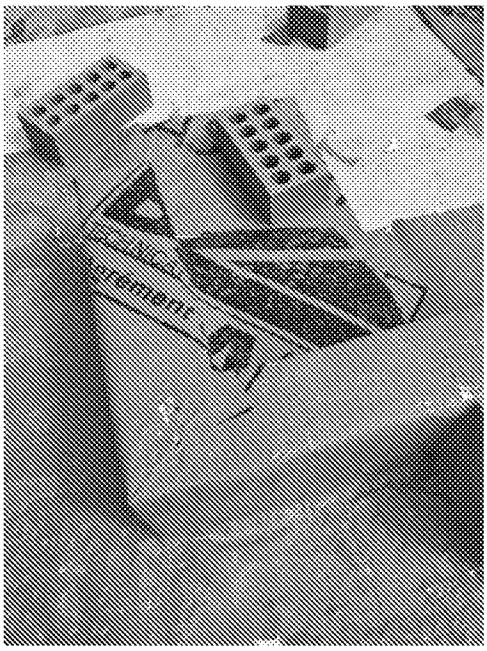
	Plot 30 corner
	Plot 31

	Plot 31 corner
	Plot 31 seal needs attention

	Plot 31 edge detail
	Plot 32

	Plot 32 service
	Plot 32 corner

	Plot 33
	Plot 33 service

	Plot 33 corner

5. PASS/FAIL

The gas protection measures inspected:

Details of issues

Approved by

No users

Date

Geo-Environmental

Project Name	Cornfield Close
Project No.	GE18103
Client	Thakeham Homes
Geo-Environmental Project Manager's Email	[redacted]
Date	25/08/2020, 14:09
Site Engineer	
Fiona Goode	[redacted]
Weather at time of inspection	Windy, warm, overcast
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Terraced house
Plot No.	perimeter
Foundation Type	Suspended
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Unable to inspect in plots 8-11 as sealed
1.2 Gas membrane type	Juta GP1 gas resistant membrane (black)
1.3 Gas membrane condition	Generally good condition, some signs of foot traffic
Jointing tape product	Heat sealed joins, double sided tape used on service seals and patch repairs
1.5 Lapping design	At least 150mm
1.6 Laps, welds and joints seals	All well sealed
1.7 Service seals	Site made seals, all services well sealed

4. PHOTOGRAPHS

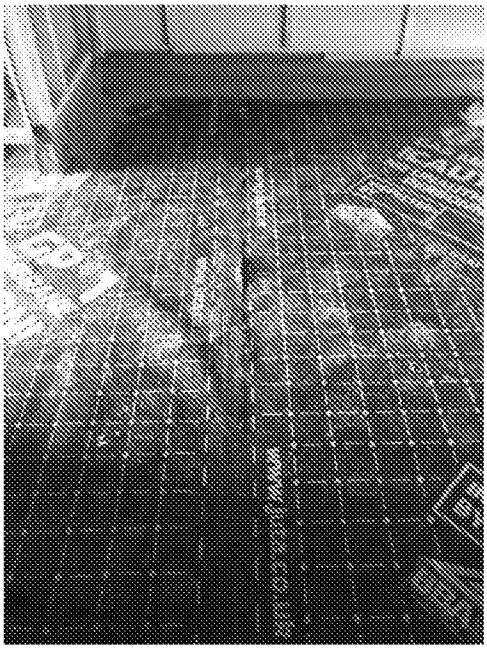
Photographs

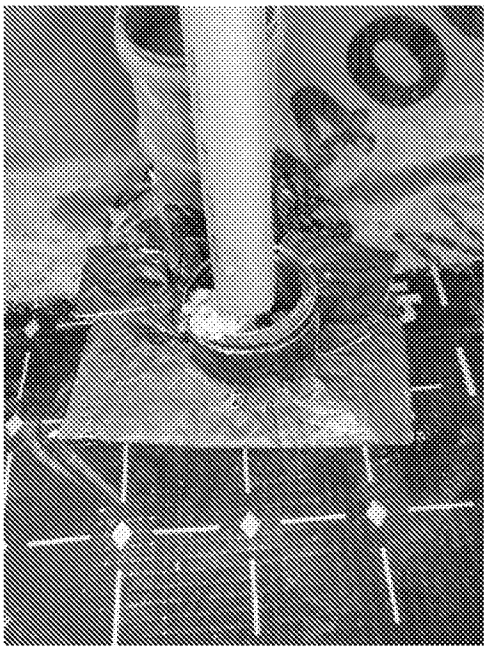
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Photograph	*Photograph Title*

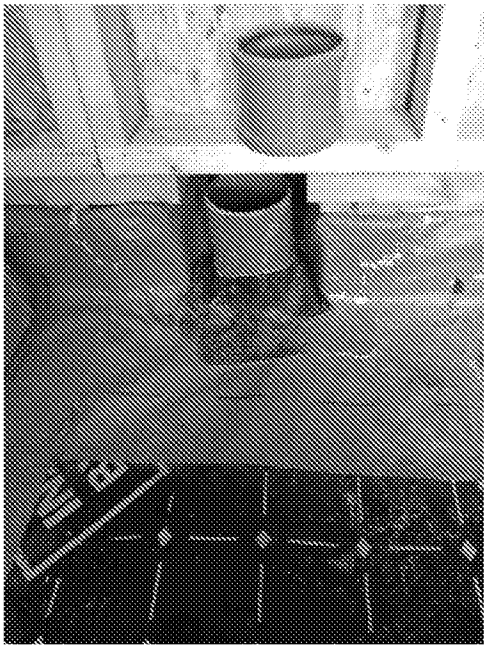
	Plot 8 overview
	Plot 8 under stairs

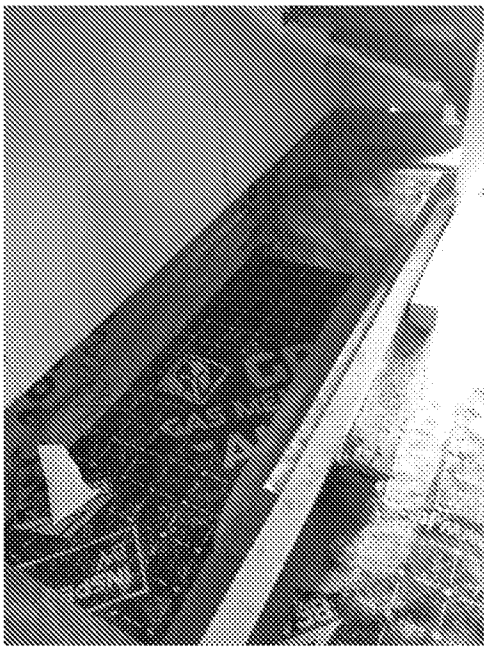
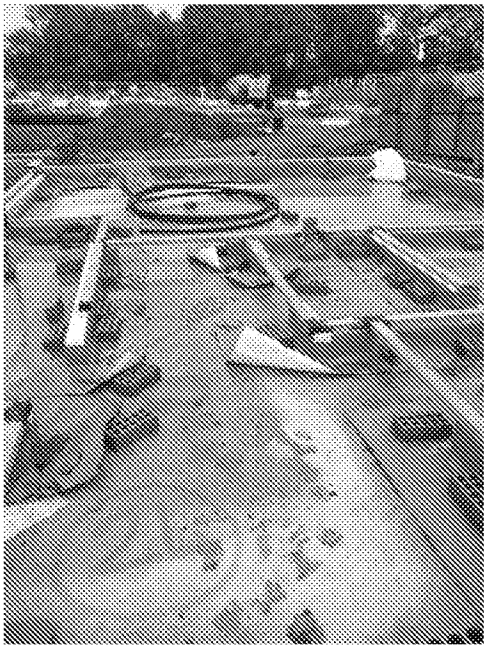
	Plot 8 patch repair
	Membrane type

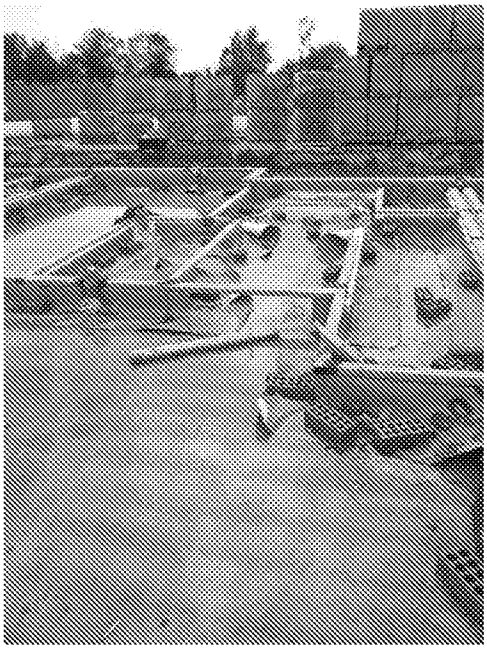
	Plot 8 join
	Plot 9 overview

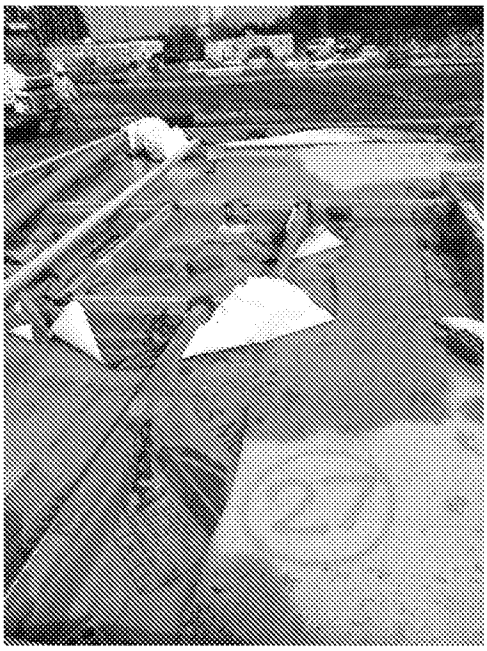
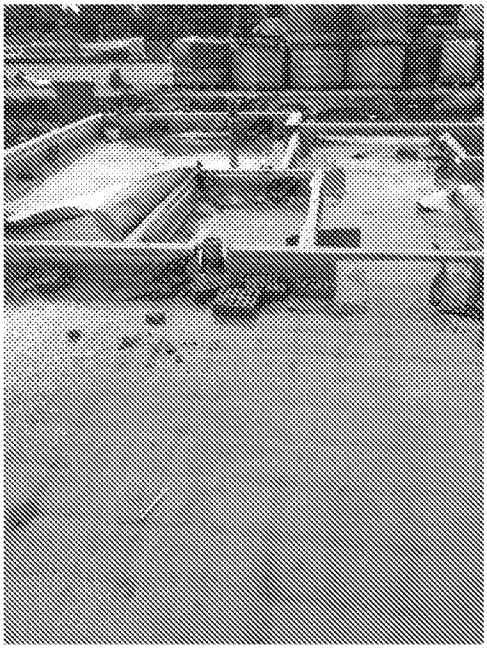
	Plot 9 service seal
	Plot 9 patch repair

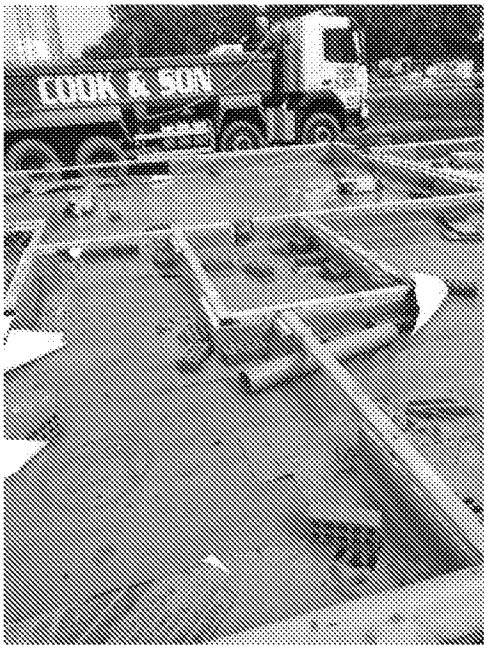
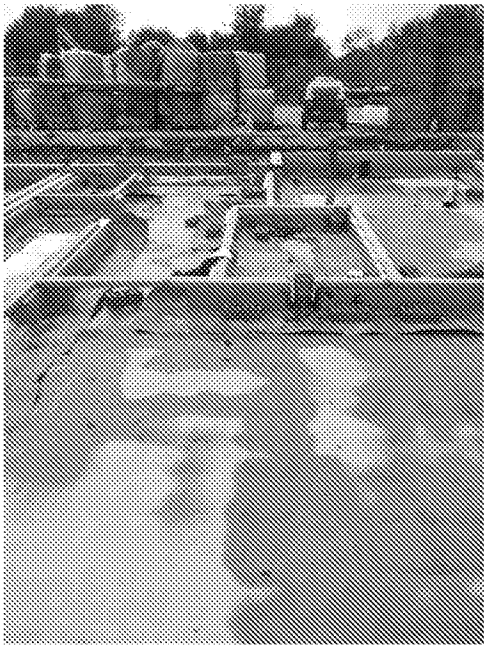
	Plot 9 floor
	Plot 10 overview

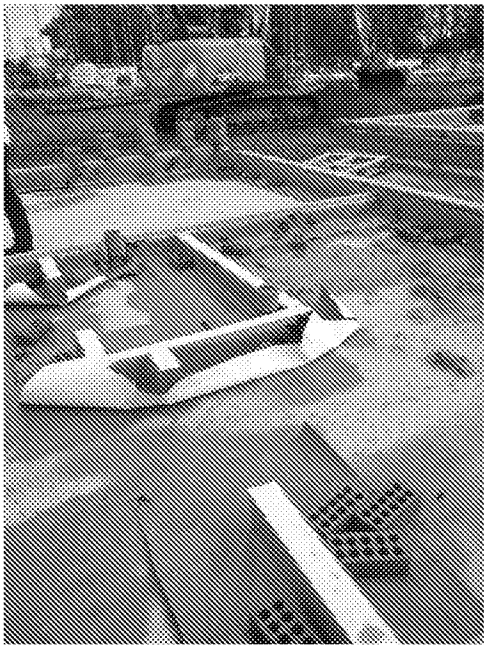
	Pot 10 membrane joins
	Plot 10 services

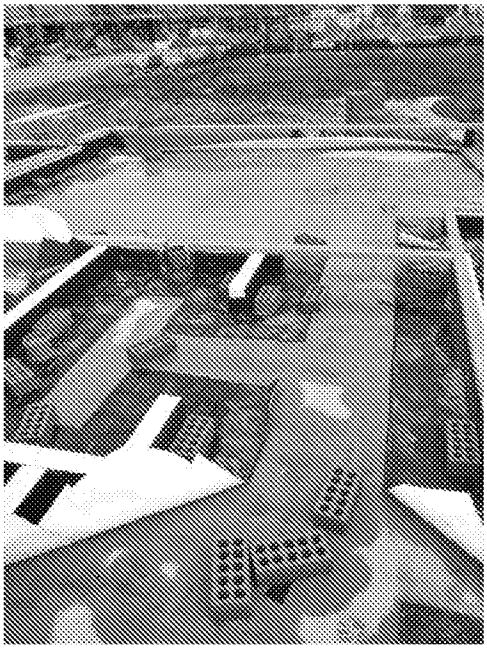
	Plot 10 under stairs
	Plot 24 reinspection

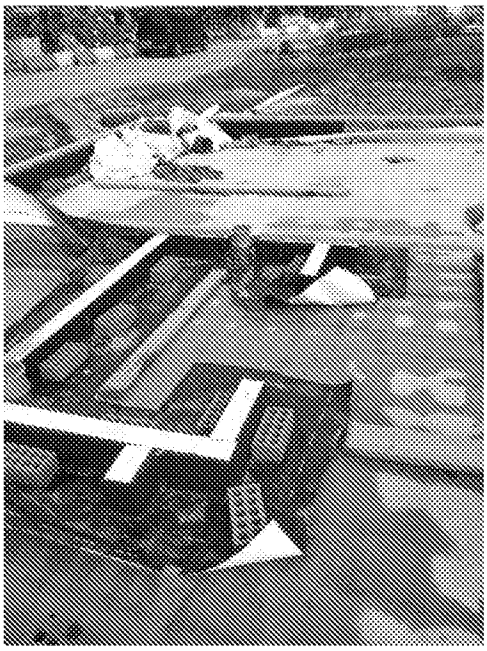
	Plot 25 reinspection
	Plot 26 service

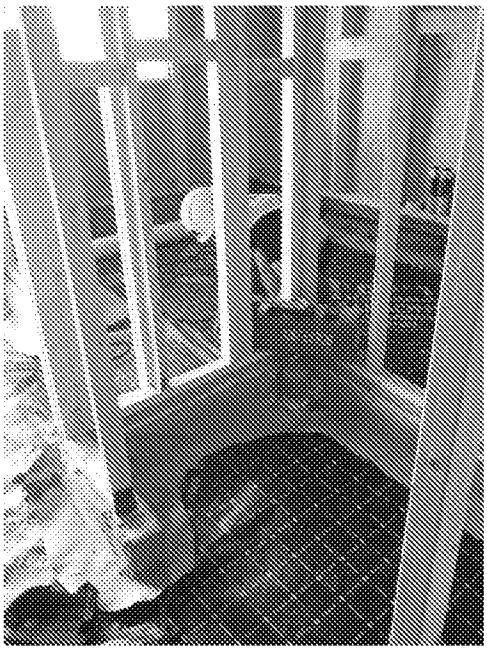
	Plot 27
	Plot 28

	Plot 29
	Plot 30

	Plot 31
	Plot 32

	Plot 33
	Plot 34

	Plot 35
	Plot 11 in progress

	Plot 11 in progress

5. PASS/FAIL

The gas protection measures inspected:	Are acceptable & comply with the specification
Details of issues	
Approved by	
Fiona Goode	[redacted]
Date	25/08/2020

Geo-Environmental

Project Name	Cornfield Close
Project No.	GE18103
Client	Thakeham Homes
Geo-Environmental Project Manager's Email	[redacted]
Date	10/09/2020, 12:23
Site Engineer	Katie O'Dea [redacted]
Weather at time of inspection	Warm, sunny, dry
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Residential - terraced houses
Plot No.	Plots 12-13 complete, Plots 14-15 in progress, Plots 20-21 (Phase 4) perimeter
Foundation Type	Suspended
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Good condition where visible. Membrane sealed in Plots12-13.
1.2 Gas membrane type	Red Keytec gas membrane and black gas membrane.
1.3 Gas membrane condition	Good condition. Any holes or tears had been patched.
Jointing tape product	Heat welded joints.
1.5 Lapping design	Min 150mm overlap
1.6 Laps, welds and joints seals	Welded joints in good condition and well sealed.
1.7 Service seals	Service seals using membrane and tape. All well sealed and in good condition.

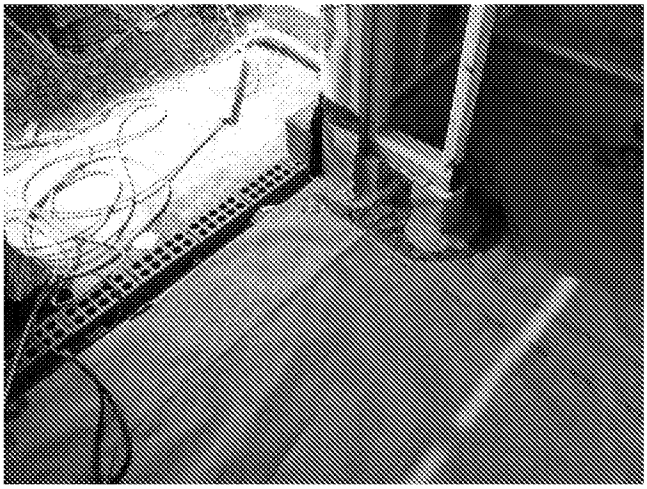
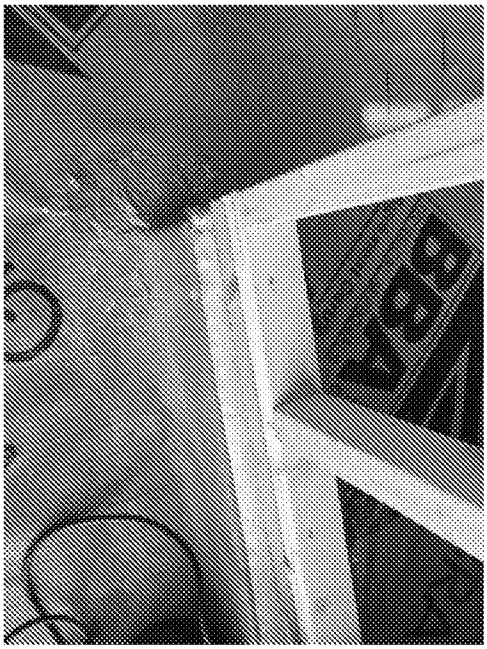
4. PHOTOGRAPHS

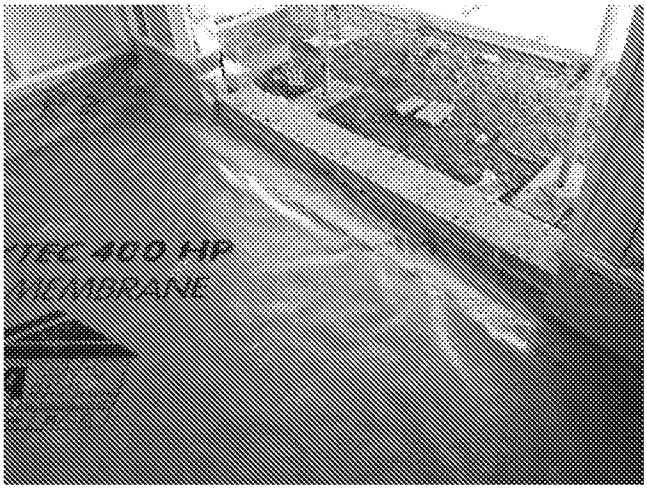
Photographs

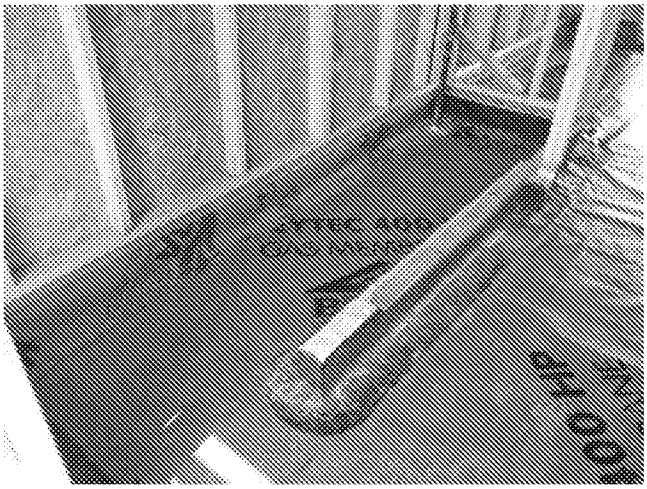
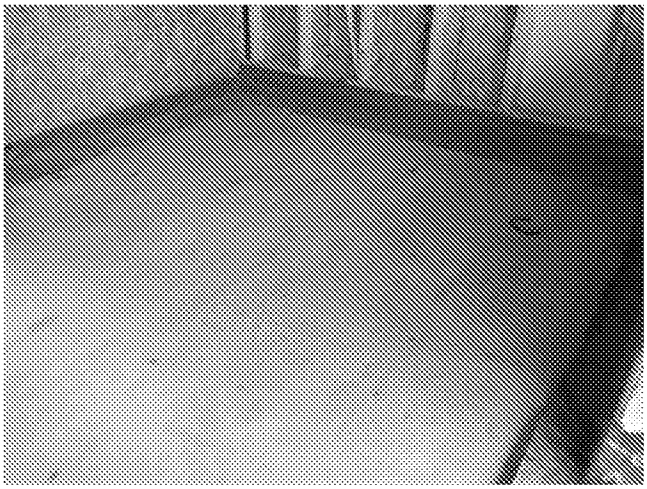
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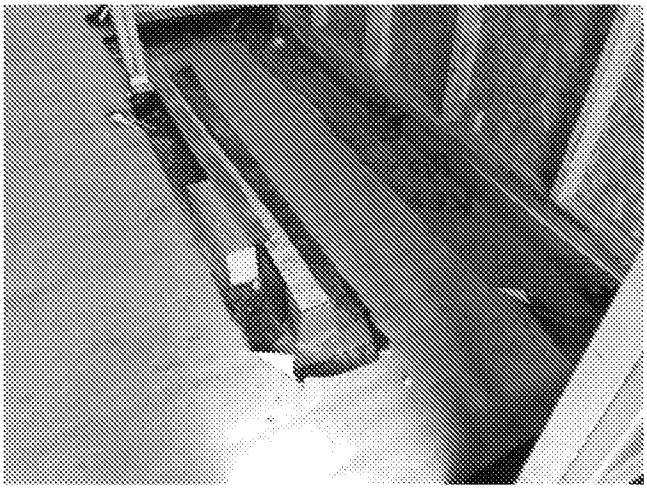
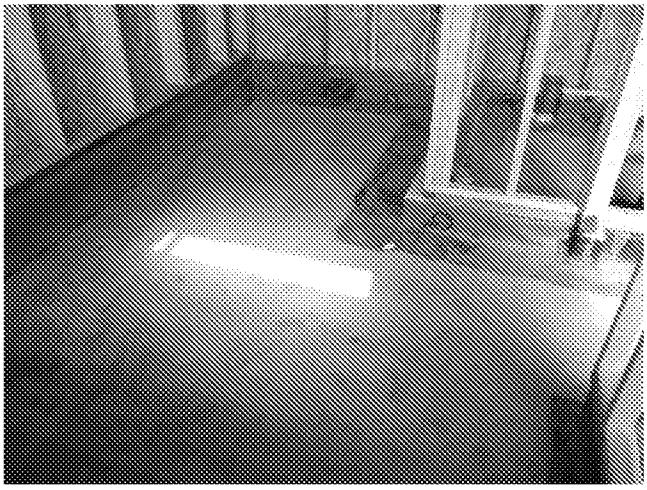
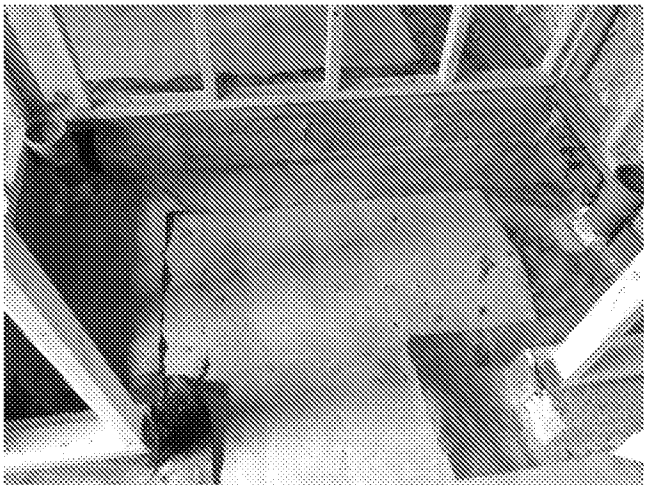
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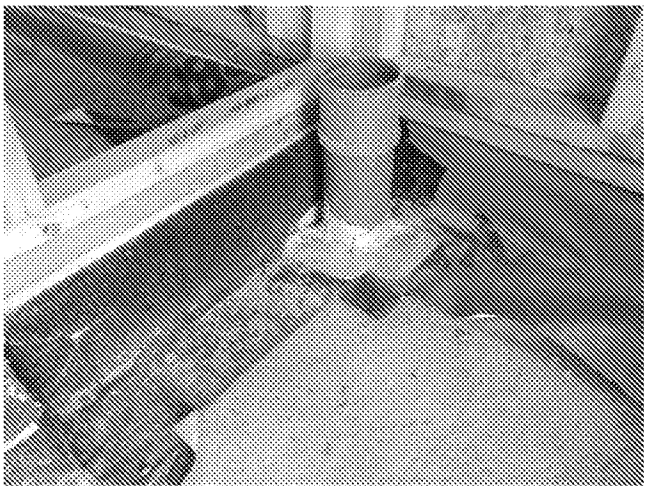
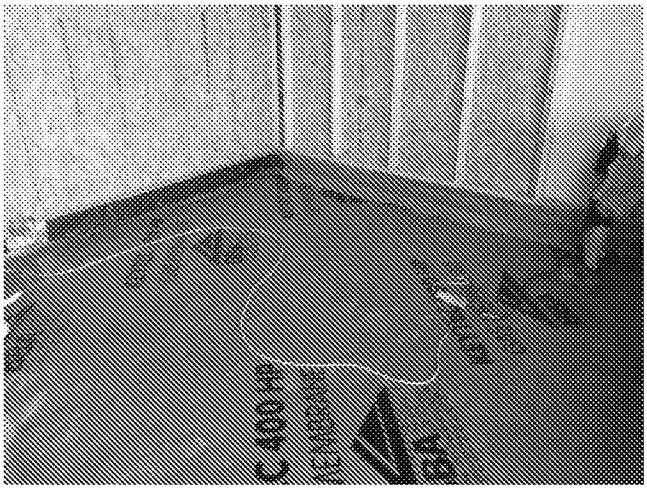
	Plot 12 - View across floor
	Plot 12 - service seal
	Plot 12 - Holes have been patched

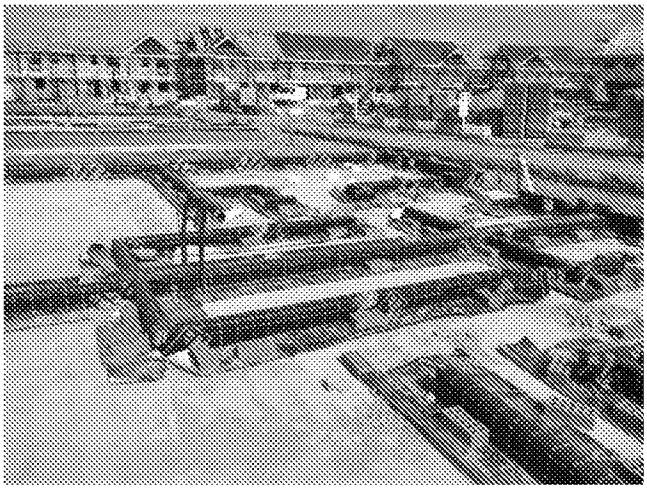
	Plot 12 - Threshold
	Plot 13 - Threshold
	Plot 13 - Corner detail

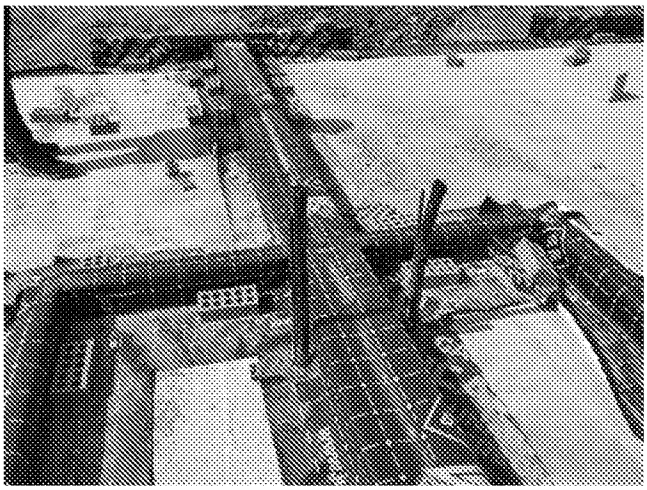
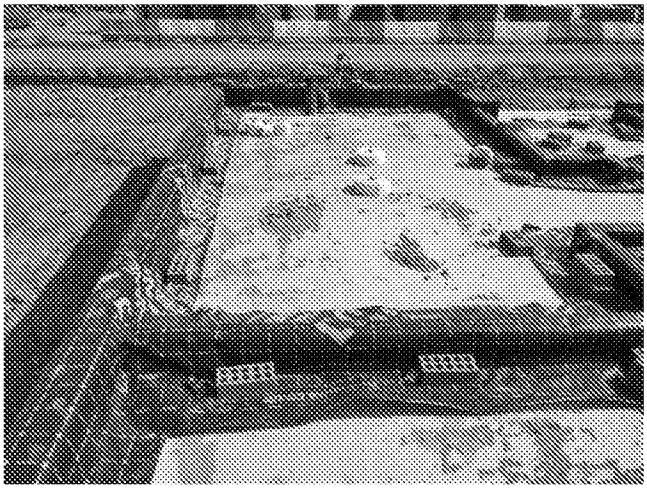
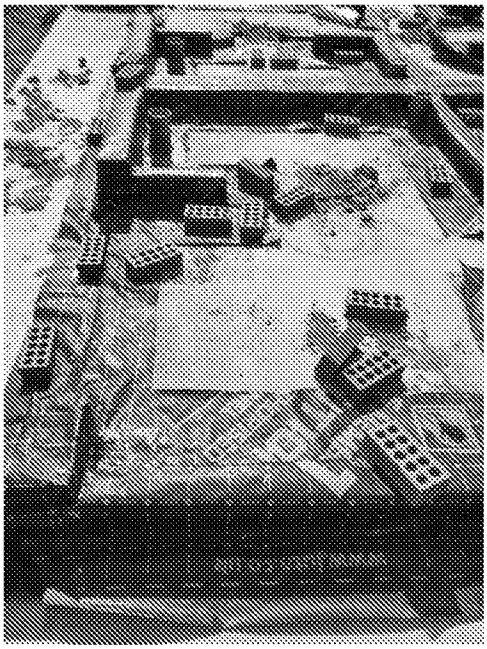
	Plot 13 - Floor
	Plot 13 - Floor and service seal
	Plot 13 - Threshold

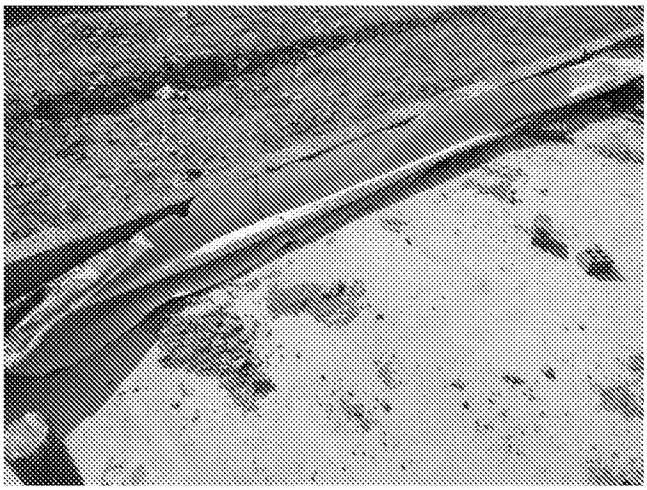
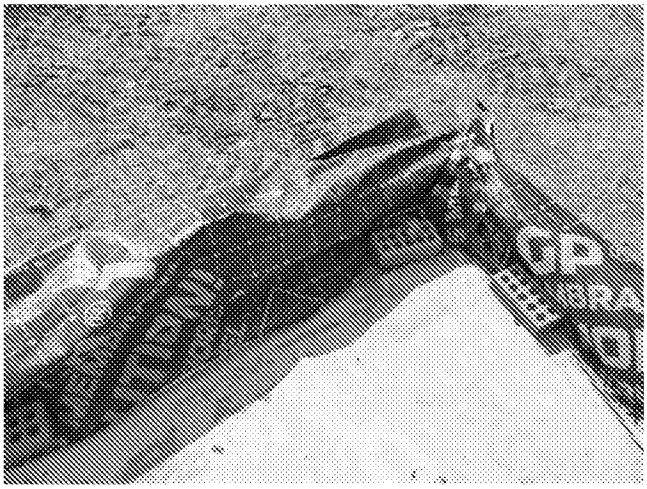
	Plot 13 - Patching
	Plot 13 - Under stairs
	Plot 15 - In progress

	Plot 15 - Under stairs
	Plot 15 - Floor swept and l good condition
	Plot 15 - Services sealed

	Plot 15 - Services sealed
	Plot 14 in progress
	Plot 14 in progress

	Plot 14 in progress
	Plot 14 in progress
	Plot 20-21(Phase 4) - View across plots

	Plot 20-21(Phase 4)
	Plot 20-21(Phase 4)
	Plot 20-21(Phase 4) - walls and doorway

	Plot 20-21(Phase 4) - Wind damage
	Plot 20-21(Phase 4) - Damaged membrane will be replaced before bitumen tape placement

5. PASS/FAIL

The gas protection measures inspected:	Are acceptable & comply with the specification
Details of issues	
Approved by	[redacted]
Fiona Goode	
Date	10/09/2020

Geo-Environmental

Project Name	Cornfield Close
Project No.	GE18103
Client	Thakeham Homes
Geo-Environmental Project Manager's Email	[redacted]
Date	01/10/2020, 11:52
Site Engineer	William Hughes [redacted]
Weather at time of inspection	Sunny
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Residential - terraced houses
Plot No.	Plots 36-37 complete, Plots 38-39 in progress
Foundation Type	Suspended
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Good condition. Membrane sealed in Plots 36-37
1.2 Gas membrane type	Keytec 400 HP
1.3 Gas membrane condition	Good condition. Any damage patched with tape
Jointing tape product	Heat welded joints
1.5 Lapping design	Min 150mm overlap
1.6 Laps, welds and joints seals	Welded joints sealed. In good condition
1.7 Service seals	Sealed using membrane and tape. All well sealed, no damage

Engineer's Prelim Assessment (Mem)

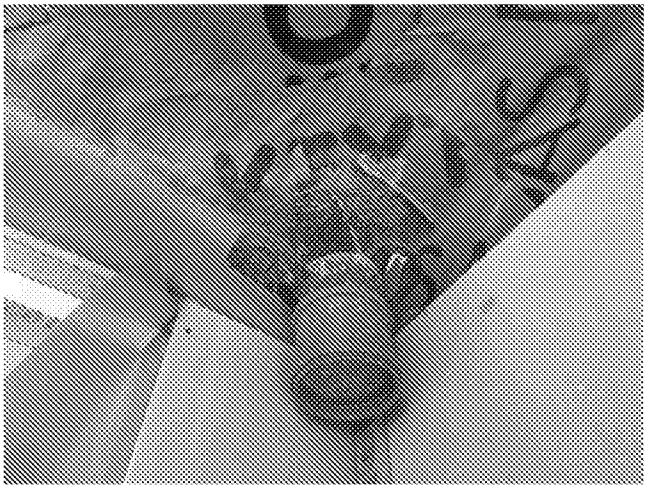
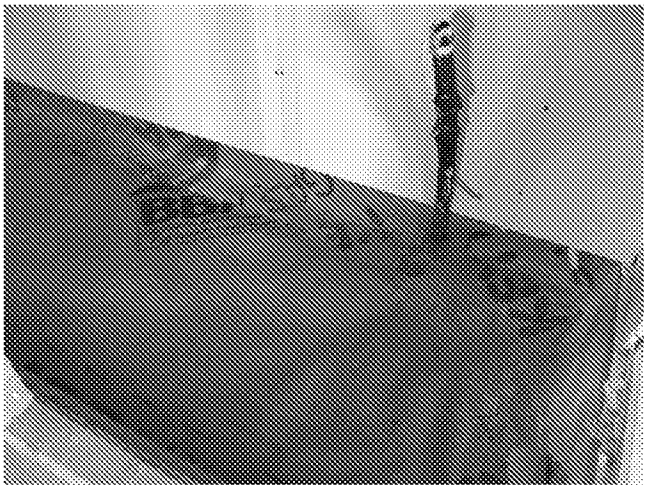
Pass

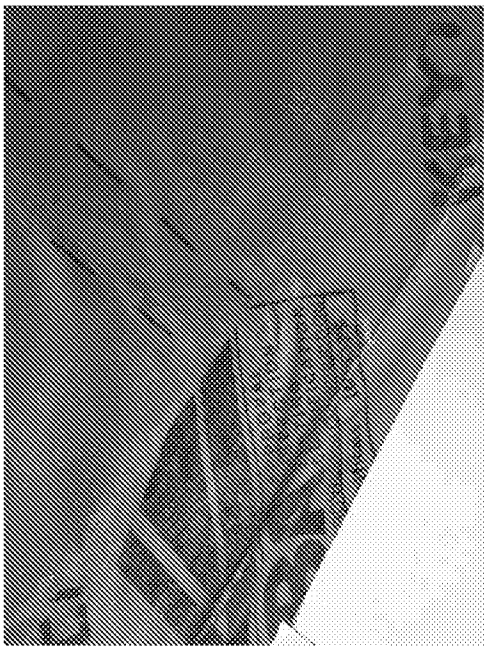
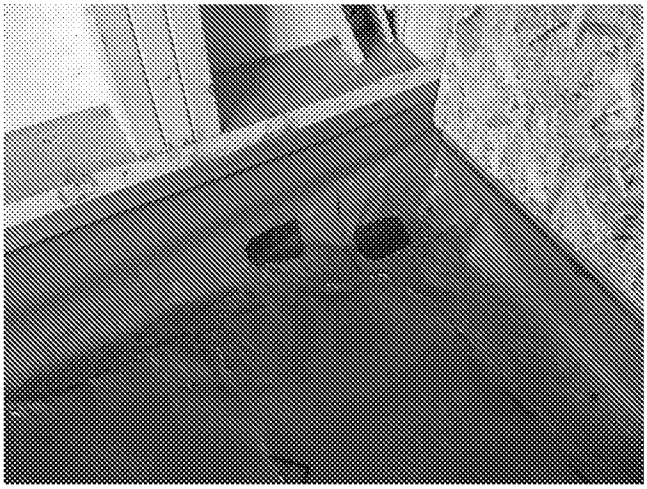
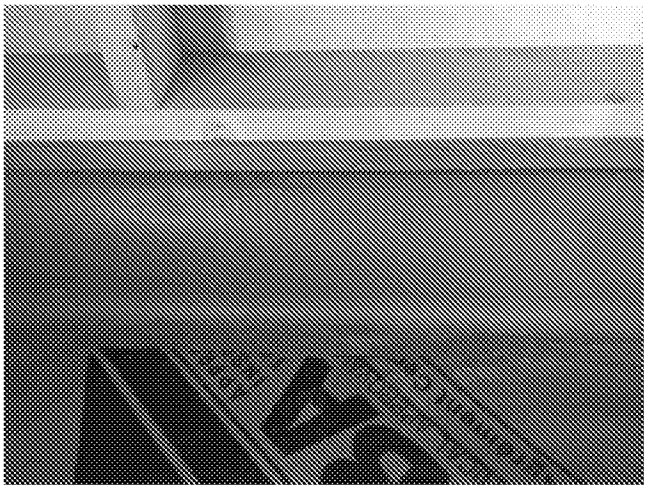
4. PHOTOGRAPHS

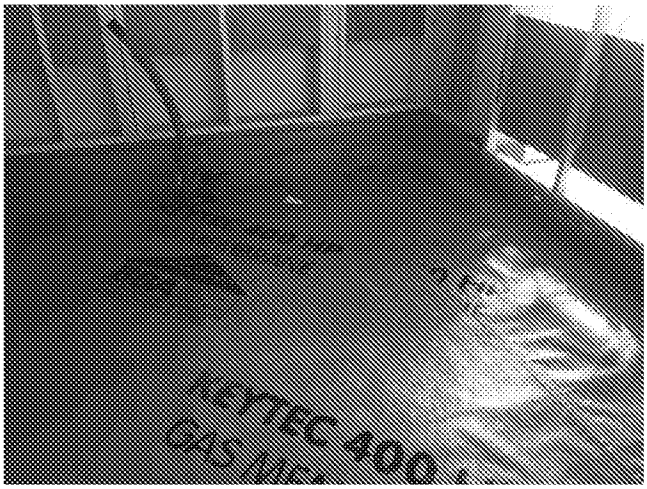
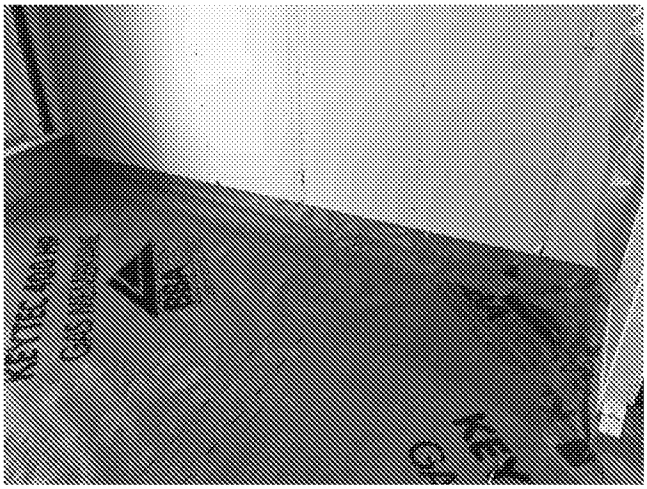
Photographs

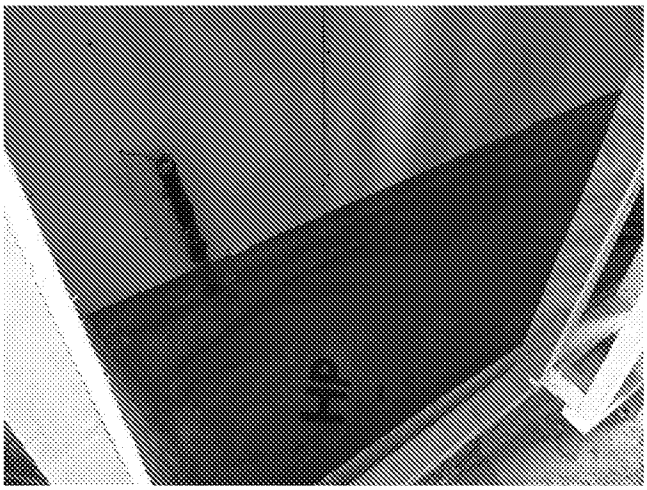
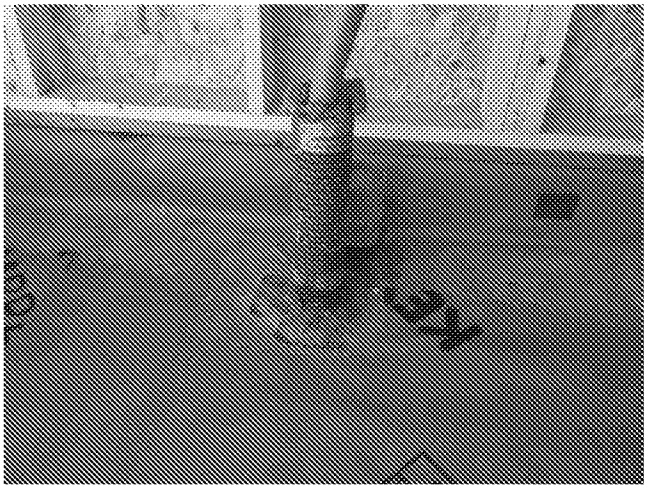
(14 records)

Photograph	*Photograph Title*

	Plot 36
	Plot 36 Service seal
	Plot 36 Under stairs

	Plot 36 Joins
	Plot 36 Patch repairs
	Plot 36 sides

	Plot 36 Front room
	Plot 37
	Plot 37 Joins and a patch repair

	Plot 37 Under stairs
	Plot 37 Service seal
	Plot 37 Front room

	Plot 38
	Plot 39 in progress

5. PASS/FAIL

The gas protection measures inspected:

Details of issues

Approved by

No users

Date

Geo-Environmental

Project Name	Cornfield Close
Project No.	GE18103
Client	Thakeham
Geo-Environmental Project Manager's Email	[redacted]
Date	15/10/2020, 12:17
Site Engineer	

No users

Weather at time of inspection	Warm, dry, sunny
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Residential.
Plot No.	40-42 complete, 43 inpl progress
Foundation Type	Suspended
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Good condition where visible (Plot 42 & 43). Membranes sealed in Plots 40 & 41.
1.2 Gas membrane type	Red Keytec gas membrane.
1.3 Gas membrane condition	Good condition. Holes patched during inspection.
Jointing tape product	Heat welded joints.
1.5 Lapping design	Min 150mm overlap.
1.6 Laps, welds and joints seals	Welded joints well sealed and in good condition. Awaiting final site photos of Plot 43 complete.
1.7 Service seals	Service seals using membrane and tape. All in good condition

Engineer's Prelim Assessment (Mem)

Pass

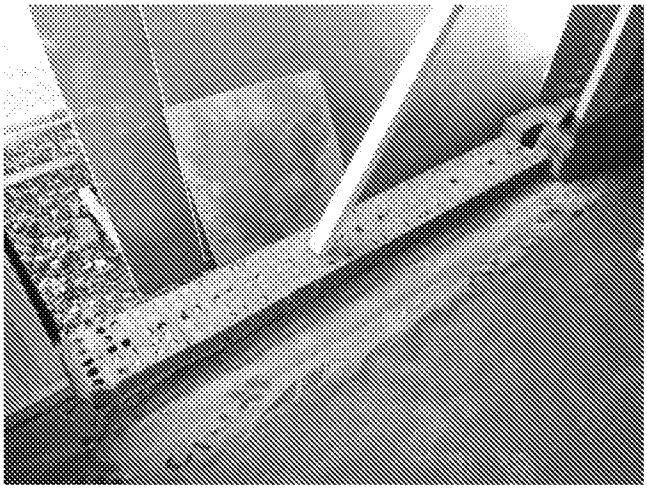
4. PHOTOGRAPHS

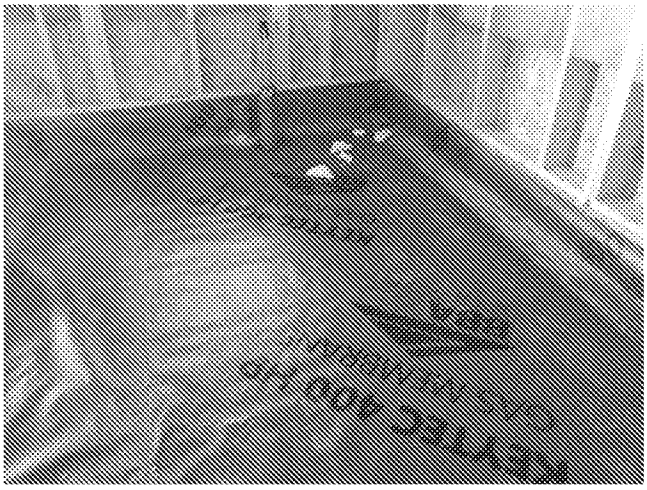
Photographs

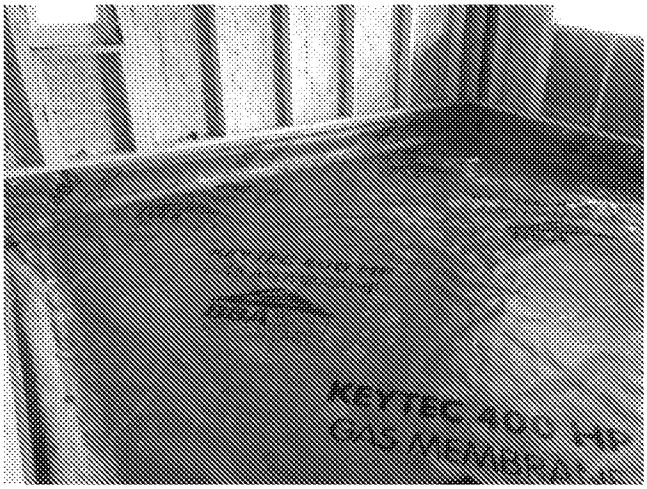
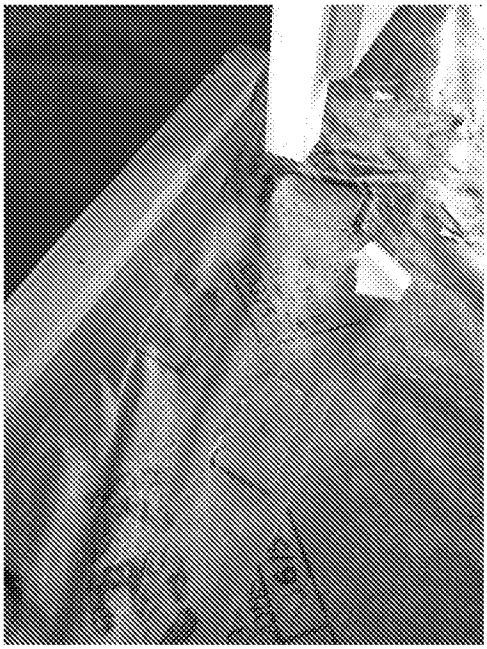
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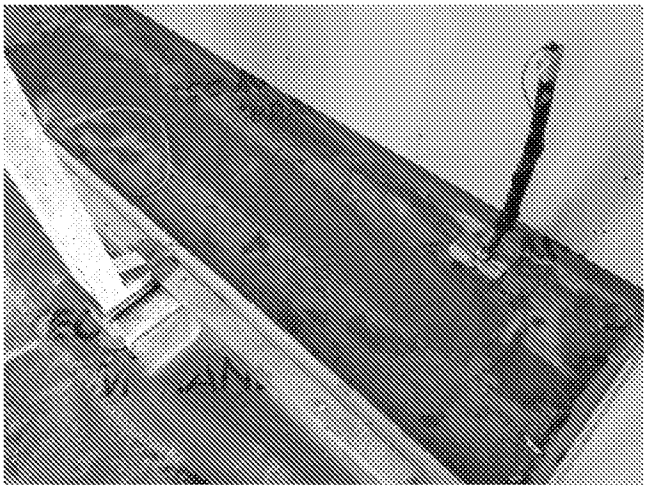
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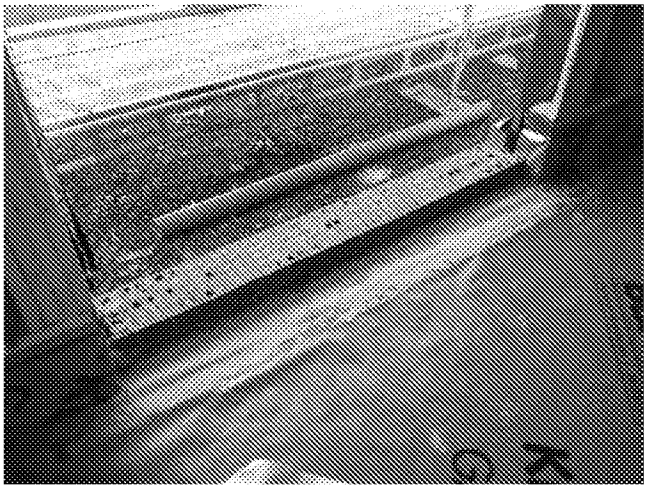
	Plot 40 - floors sealed
	Plot 40 - example of service seal
	Plot 40 - Corner detail

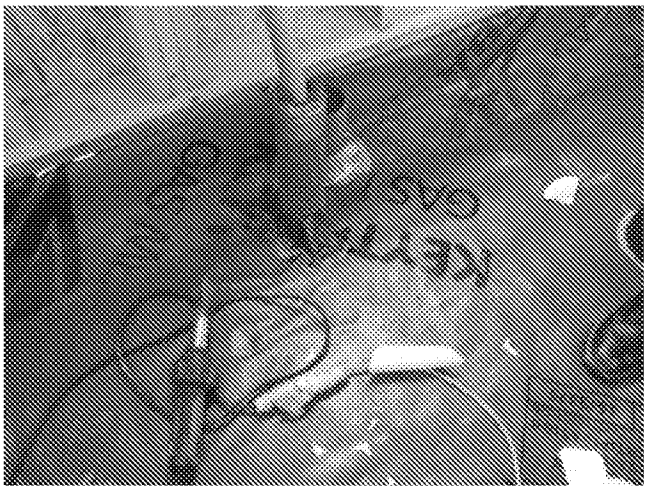
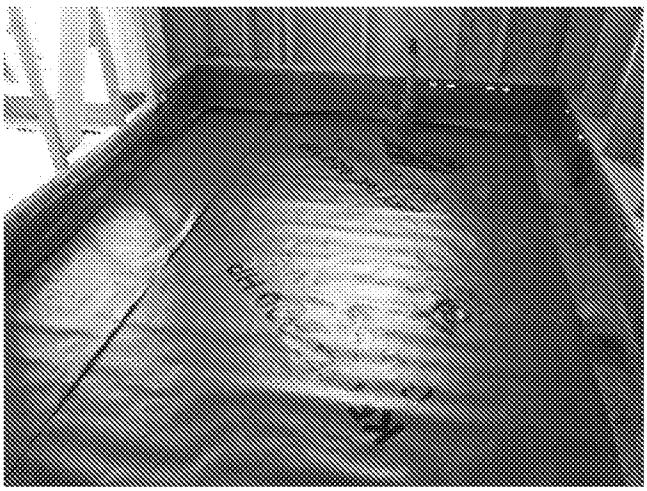
	Plot 40 - under stairs
	Plot 40 - floors sealed
	Plot 40 - Threshold

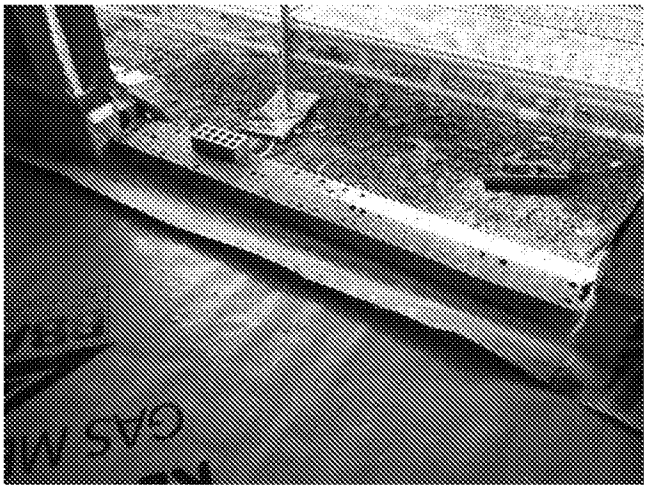
	Plot 41 - Threshold
	Plot 41 - Floor and services sealed
	Plot 41 - under stairs sealed

	Plot 41 - floors sealed
	Plot 41 - Threshold
	Plot 41 - Holes patched during inspection

	Plot 42 - services in progress
	Plot 42 - Floor in progress
	Plot 42 - under stairs sealed

	Plot 42 - floors sealed
	Plot 42 - Threshold sealed
	Plot 42 - Floor completed during visit

	Plot 42 - service seals completed during inspection
	Plot 43 - in progress
	Plot 43 - in progress

	Plot 43 - in progress
	Plot 43 - in progress
	Plot 43 - in progress

5. PASS/FAIL

The gas protection measures inspected:

Details of issues

Approved by

No users

Date

Geo-Environmental

Project Name	Cornfield Close
Project No.	GE18103
Client	Thakeham Homes
Geo-Environmental Project Manager's Email	[redacted]
Date	29/10/2020, 11:01
Site Engineer	*No users*
Weather at time of inspection	Drizzle, overcast, cool
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Semi detached houses
Plot No.	Plots 32-35 (infills) plot 35 incomplete
Foundation Type	Suspended
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Membrane sealed so unable to inspect
1.2 Gas membrane type	Keytech 400 HP gas membrane (red)
1.3 Gas membrane condition	Membrane generally in good condition some dust ad saw dust
Jointing tape product	Heat sealed joins, tape around services
1.5 Lapping design	At least 150mm
1.6 Laps, welds and joints seals	All joins, welds and seals heat sealed and well sealed. A few holes/damage identified during visit, ut were repaired in the presence of the engineer.
1.7 Service seals	Services sealed with site made seals and eated tape

Engineer's Prelim Assessment (Mem)

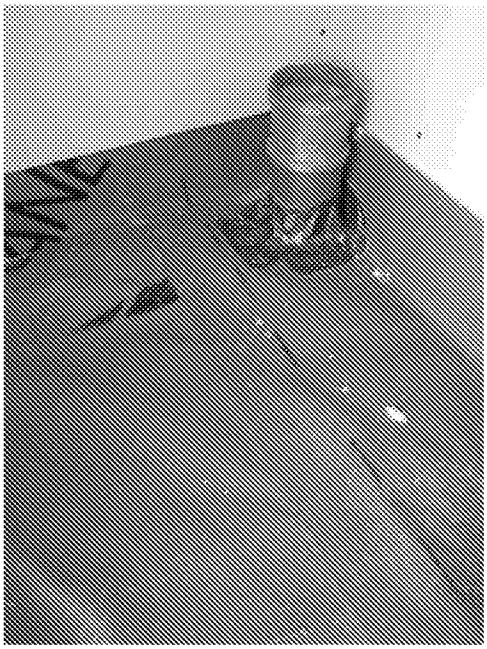
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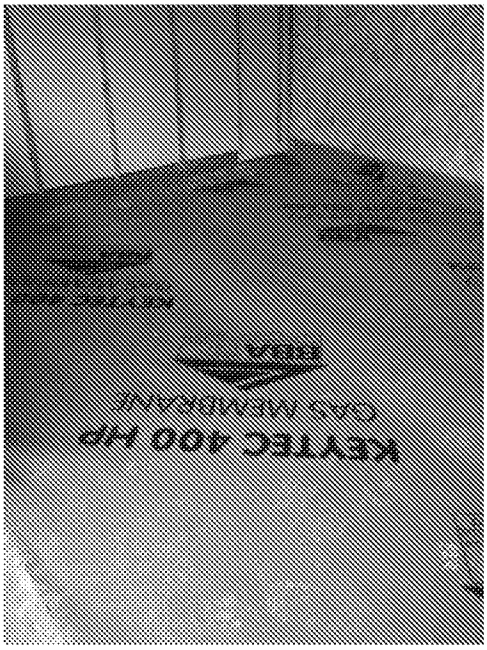
4. PHOTOGRAPHS

Photographs

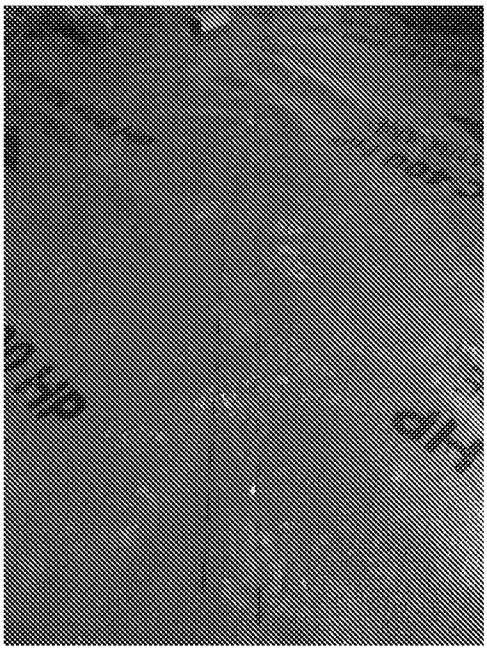
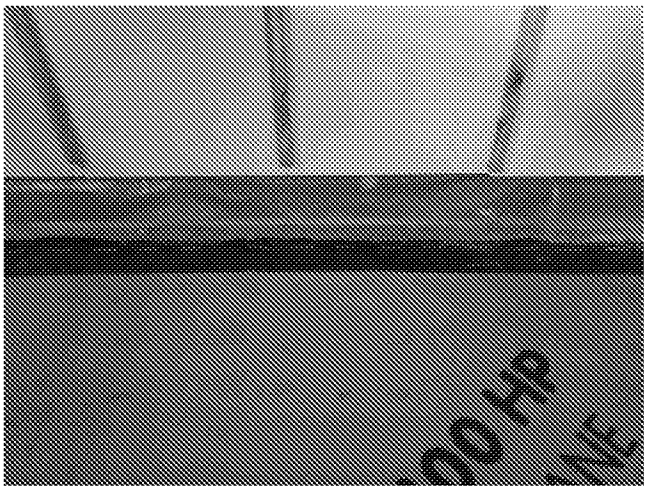
(12 records)

Photograph	*Photograph Title*

	Plot 32 overview
	Plot 32 services
	Plot 32 detail

	Plot 33 overview
	Plot 33 threshold
	Plot 33 patch repair

	Plot 33 repair
	Plot 33 timber frame
	Plot 34 overview

	Plot 34 membrane seal
	Plot 34 services
	Plot 34 detail extra membrane to protect threshold beneath

5. PASS/FAIL

The gas protection measures inspected:

Details of issues

Approved by

No users

Date

Geo-Environmental

Project Name	Cornfield Close
Project No.	GE18103
Client	Thakeham Homes
Geo-Environmental Project Manager's Email	[redacted]
Date	12/11/2020, 12:24
Site Engineer	[redacted]
Katie O'Dea	
Weather at time of inspection	Warm, sunny, dry.
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Residential
Plot No.	Plots 28-31
Foundation Type	Suspended
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Underside of membrane unable to be inspected as fully sealed. Gravel removed from some areas of subgrade and membrane subsequently patched up in Plots 28 and 30.
1.2 Gas membrane type	Keytec gas membrane.
1.3 Gas membrane condition	Good condition. Dusty with some debris in areas due to construction work within the plots. Any holes identified were patched during the inspection visit.
Jointing tape product	Heat sealed joints with some tape patching.
1.5 Lapping design	Min 150mm overlap
1.6 Laps, welds and joints seals	Heat sealed joints with some tape patching.
1.7 Service seals	Services sealed with tape.

Engineer's Prelim Assessment (Mem)

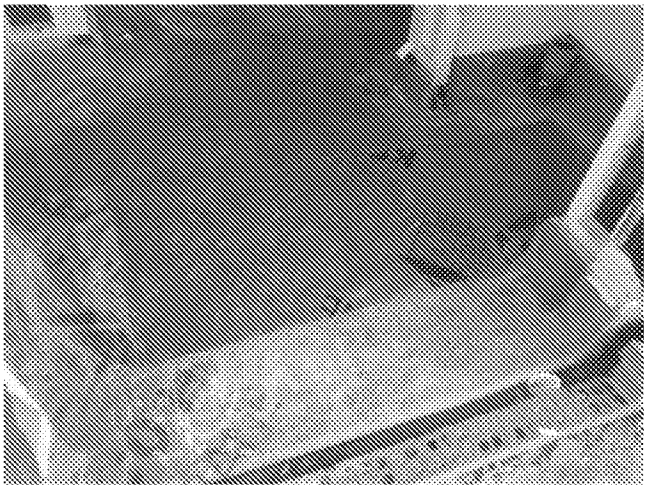
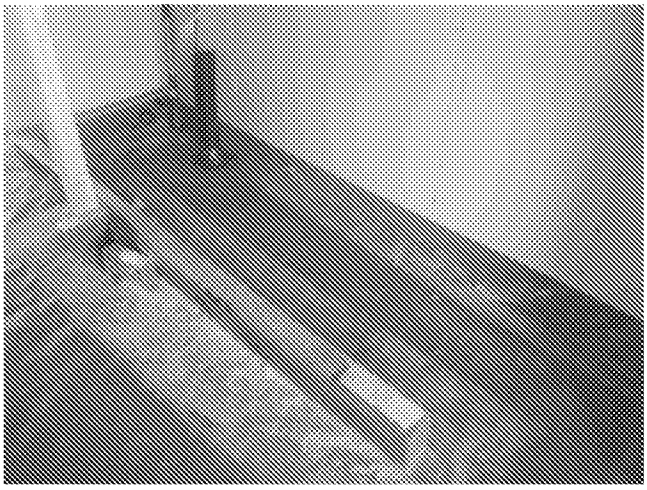
Pass

4. PHOTOGRAPHS

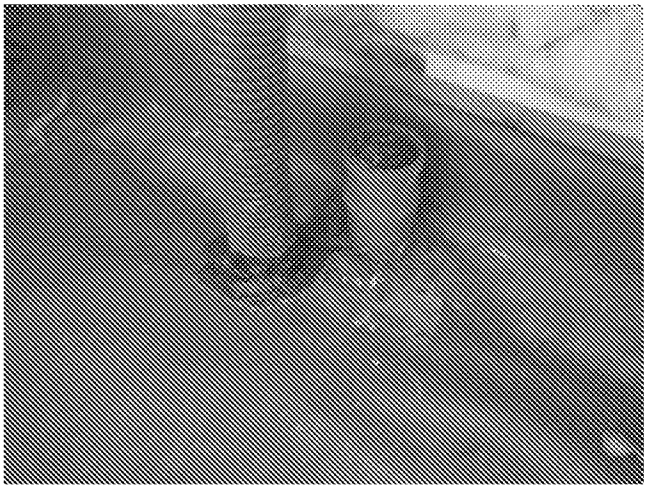
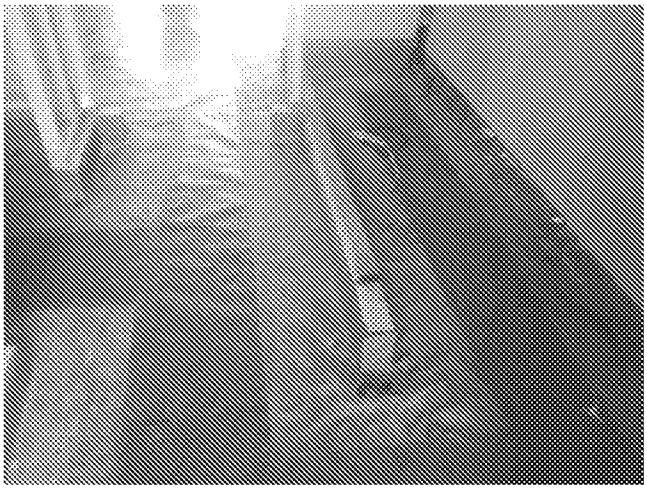
Photographs

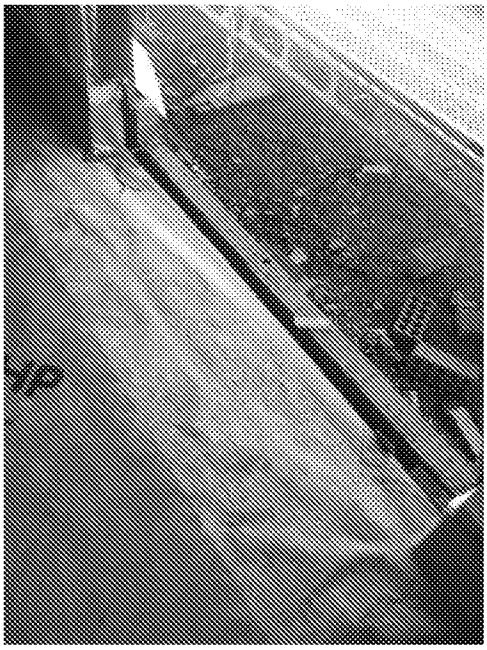
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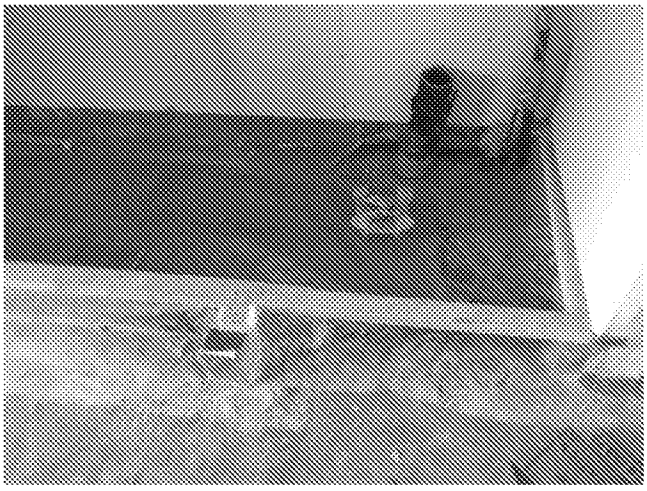
Photograph	*Photograph Title*

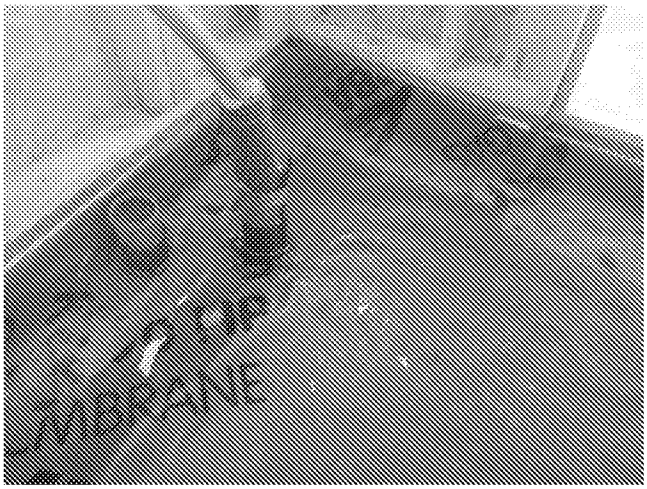
	Plot 31 - Threshold
	Plot 31 - Under stairs
	Plot 31 - Floor and service seals

	Plot 31 - Service seals. Bricks to hold membrane in shape
	Plot 31 - Floor
	Plot 31 - Threshold

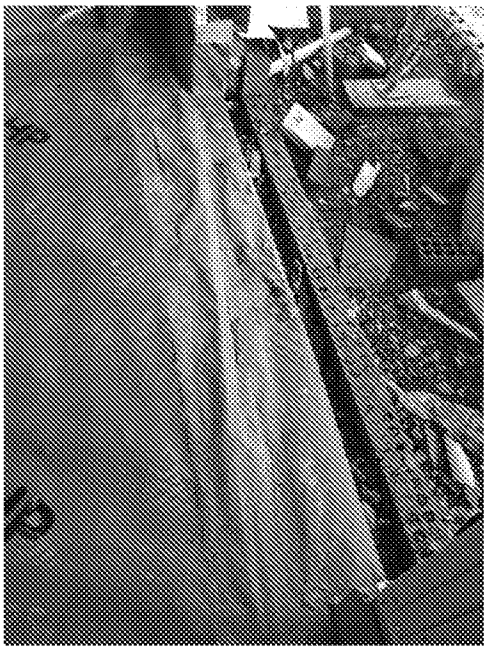
	Plot 30 - Threshold
	Plot 30 - Service seals
	Plot 30 - Under stairs

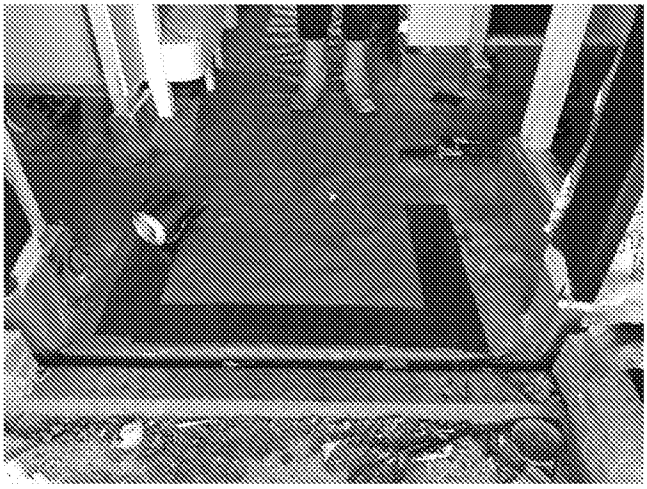
	Plot 30 - Floor
	Plot 30 - Patching after removal of debris under membrane
	Plot 30 - Threshold

	Plot 29 - Threshold and entrance hallway
	Plot 29 - Floor
	Plot 29 - Under stairs

	Plot 29 - Patching after removal of debris under membrane
	Plot 29 - Floor with some patching
	Plot 28 - Service seals

	Plot 28 - Floor
	Plot 28 - Floor with patching after removal of debris from under membrane
	Pot 28 - Floor with some patching

	Plot 28 - Threshold with some patching
	Plot 28 - Floor
	Plot 28 - Floor with patching after removal of debris from under membrane

	Plot 28 - Debris visible under membrane in doorway
	Plot 28 - Doorway area with patching after removal of debris from under membrane

5. PASS/FAIL

The gas protection measures inspected:

Details of issues

Approved by

No users

Date

Geo-Environmental

Project Name	Cornfield Close
Project No.	GE18103
Client	Thakeham
Geo-Environmental Project Manager's Email	[redacted]
Date	19/11/2020, 14:23
Site Engineer	

No users

Weather at time of inspection	Dry, cold, slightly cloudy
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Terrace houses
Plot No.	24-27
Foundation Type	Suspended
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Membrane sealed so unable to inspect
1.2 Gas membrane type	Key tech 400hp gas membrane (Red)
1.3 Gas membrane condition	Generally in good condition
Jointing tape product	Heat sealed double sided tape
1.5 Lapping design	At least 150mm
1.6 Laps, welds and joints seals	All heat sealed and taped joins
1.7 Service seals	Site made seals, all well sealed with heat sealed taped joins

Engineer's Prelim Assessment (Mem)

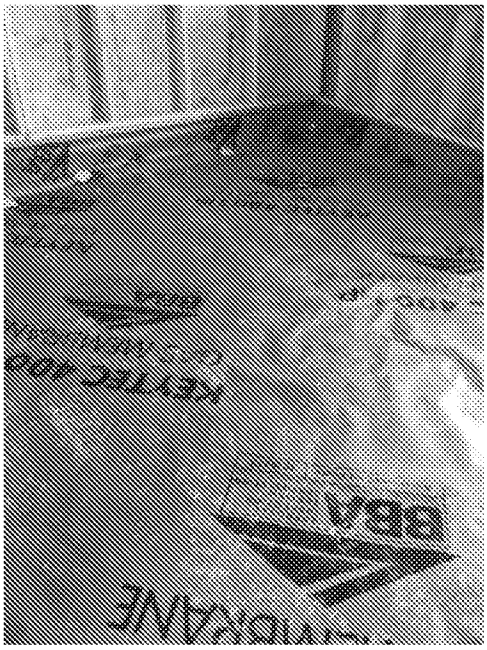
Pass

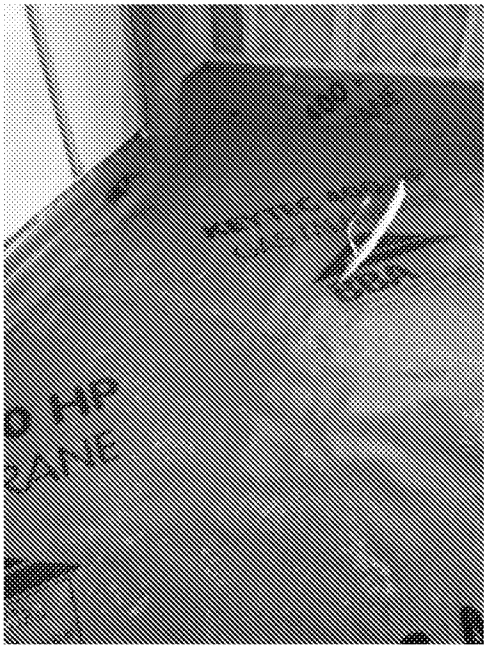
4. PHOTOGRAPHS

Photographs

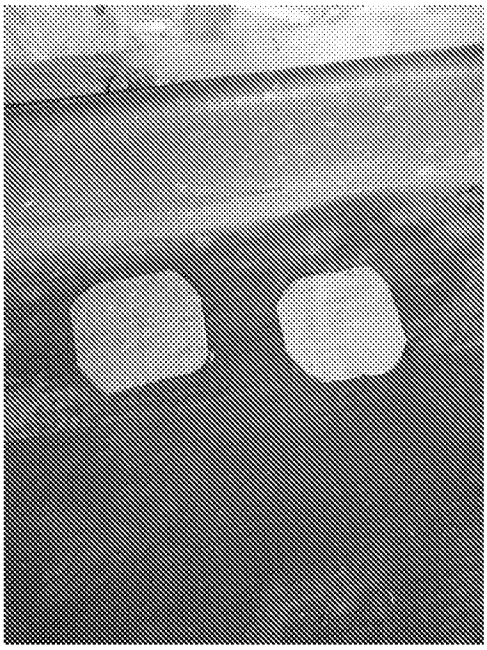
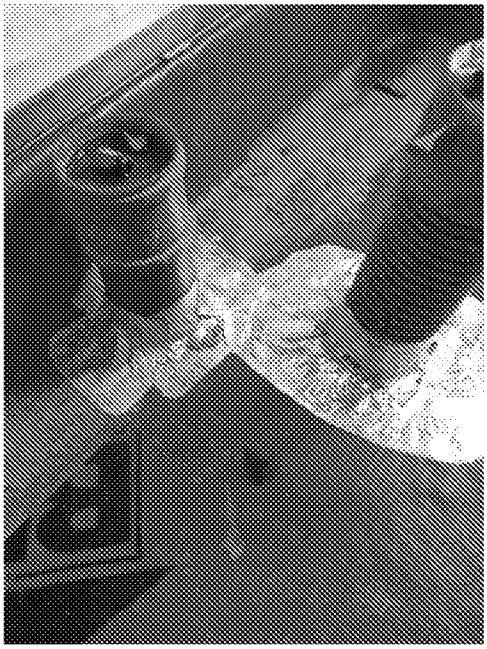
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Photograph	*Photograph Title*

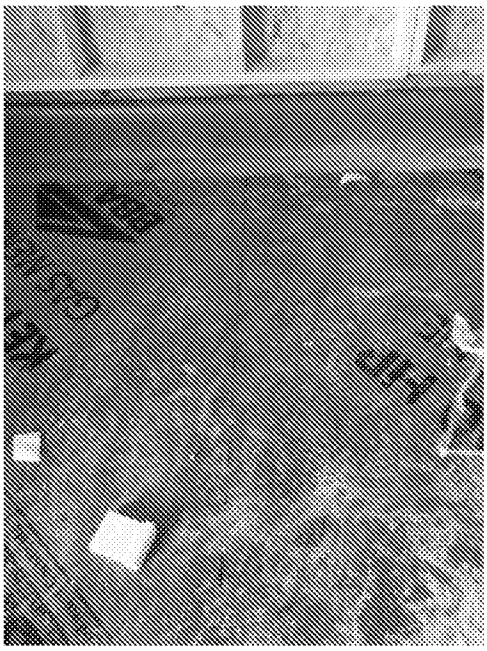
	Plot 27 services
	Plot 27 detail
	Plot 27 overview

	Plot 26 corner and service
	Plot 26 overview

	Plot 26 repair
	Plot 25 overview

	Plot 25 repairs
	Plot 25 services

	Plot 24 services
	Plot 24 detail

	Plot 24 membrane join

5. PASS/FAIL

The gas protection measures inspected:

Details of issues

Approved by

No users

Date

Geo-Environmental

Project Name	Cornfield Close, Littlehampton
Project No.	GE18103
Client	Thakeham Homes
Geo-Environmental Project Manager's Email	[redacted]
Date	26/11/2020, 13:34
Site Engineer	

No users

Weather at time of inspection	Cool, cloudy dry
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Residential with garages
Plot No.	16-17
Foundation Type	Raft
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Unable to inspect. Fully sealed.
1.2 Gas membrane type	Red Keytec gas membrane
1.3 Gas membrane condition	Generally good condition. Any holes identified were patched during the visit.
Jointing tape product	Heat sealed joints.
1.5 Lapping design	Min 150mm overlap
1.6 Laps, welds and joints seals	Heat sealed joints with some tape patching.
1.7 Service seals	Services sealed with tape.

Engineer's Prelim Assessment (Mem)

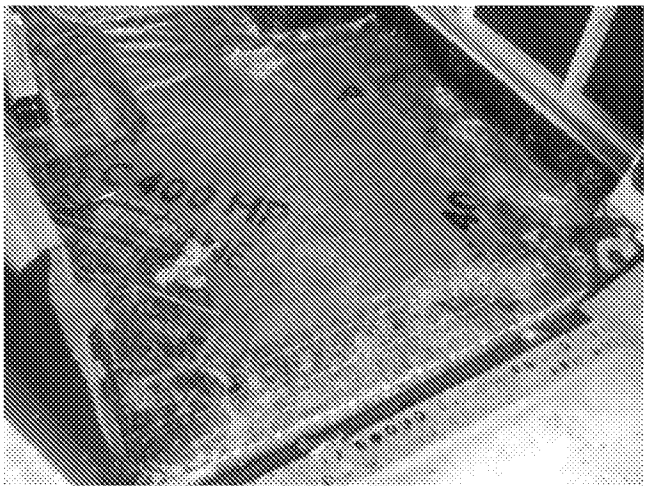
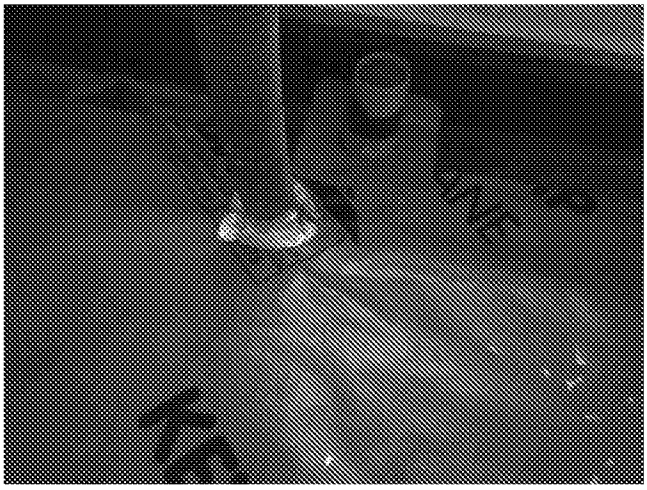
Pass

4. PHOTOGRAPHS

Photographs

(10 records)

Photograph	*Photograph Title*

	Plot 16 - threshold
	Plot 16 - service seals
	Plot 16 - under stairs

	Plot 16 - floor and corner
	Plot 16 - threshold
	Plot 17 - entrance

	Plot 17 - floor and service seal
	Plot 17 - under stairs
	Plot 17 - floor

	Plot 17 - floor and corner details

5. PASS/FAIL

The gas protection measures inspected:

Details of issues

Approved by

No users

Date

Geo-Environmental

Project Name	Cornfield Close
Project No.	GE18103
Client	Thakeham Homes
Geo-Environmental Project Manager's Email	[redacted]
Date	03/12/2020, 12:30
Site Engineer	Katie O'Dea [redacted]
Weather at time of inspection	Rainy, cold
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Residential
Plot No.	18-19 complete, 50-59 perimeters
Foundation Type	Raft
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Underside of 18-19 unable to inspect - sealed. Underside if 50-59 in good condition.
1.2 Gas membrane type	Red Keytec gas membrane
1.3 Gas membrane condition	Generally good condition. Perimeter 50-59 membrane held in pace with bricks to prevent wind damage.
Jointing tape product	Heat welded joints with some tape.
1.5 Lapping design	Minimum 150mm overlap
1.6 Laps, welds and joints seals	Heat welded joints with some tape. Al well sealed.
1.7 Service seals	Services well sealed in Plots 18-19. Plots 50-59 service seals in progress.

Engineer's Prelim Assessment (Mem)

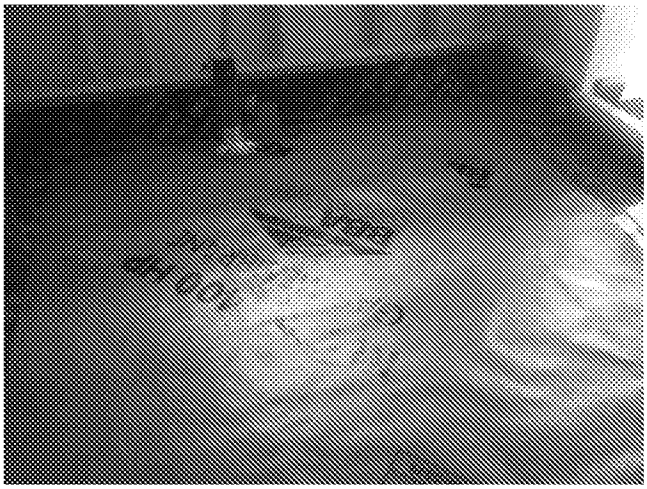
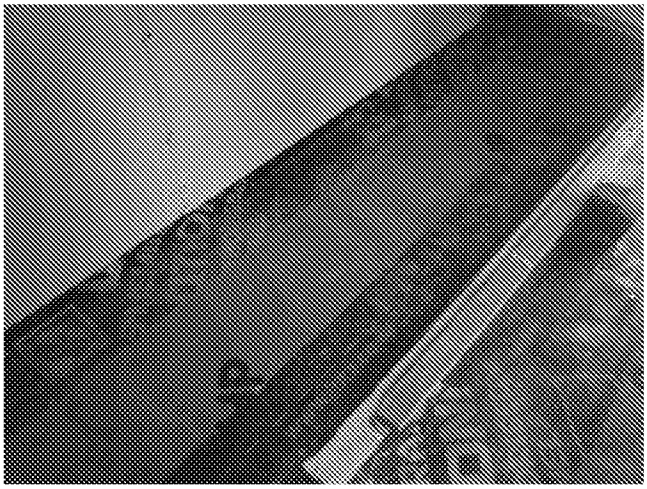
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4. PHOTOGRAPHS

Photographs

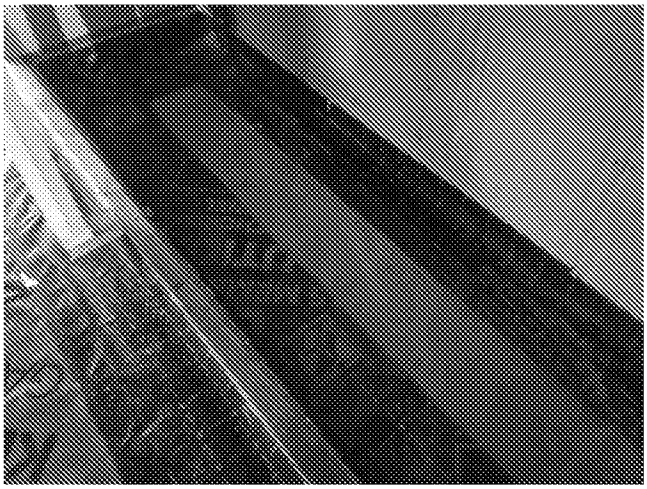
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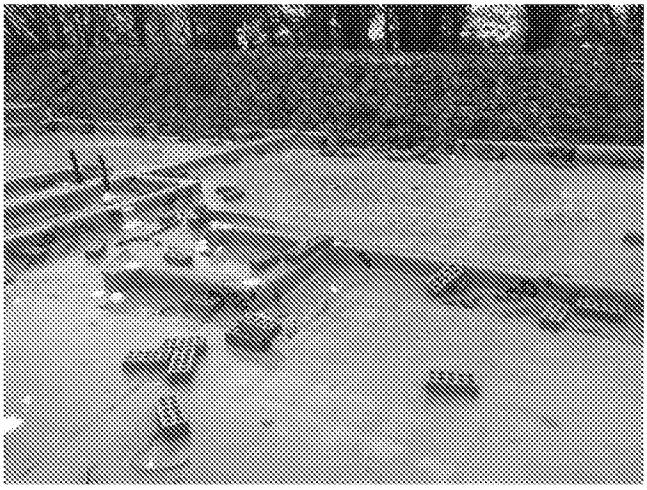
Photograph	*Photograph Title*

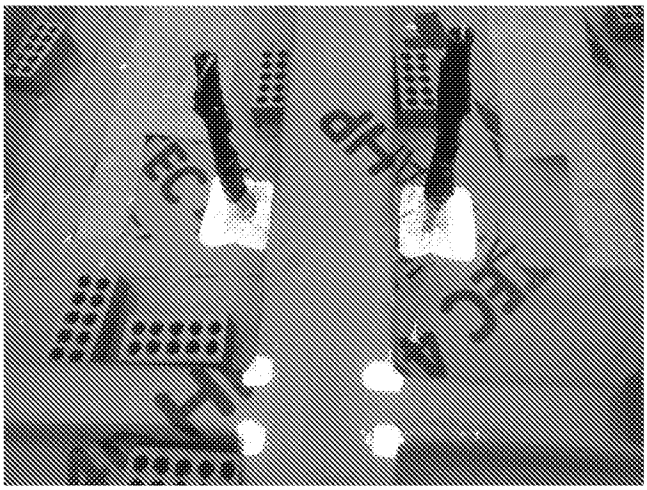
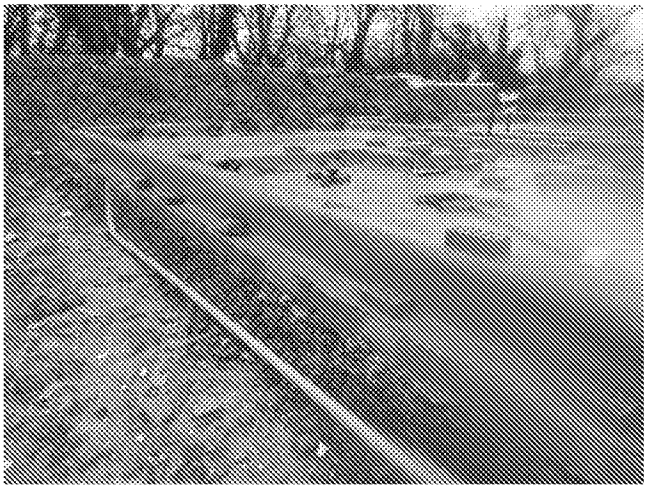
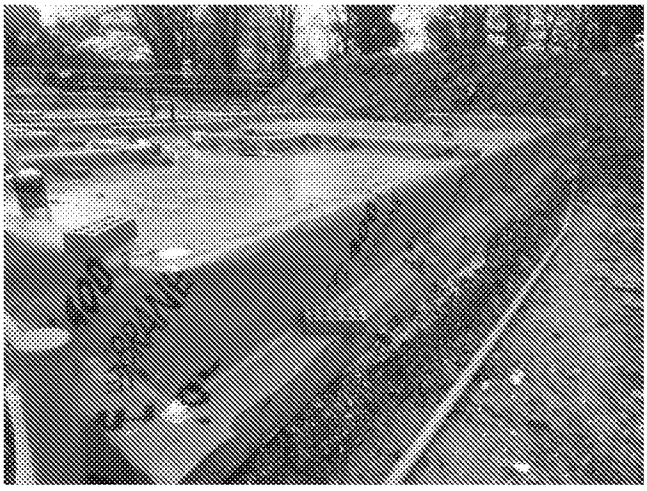
	Plot 18 - floor
	Plot 18 - under stairs
	Plot 18 - floor

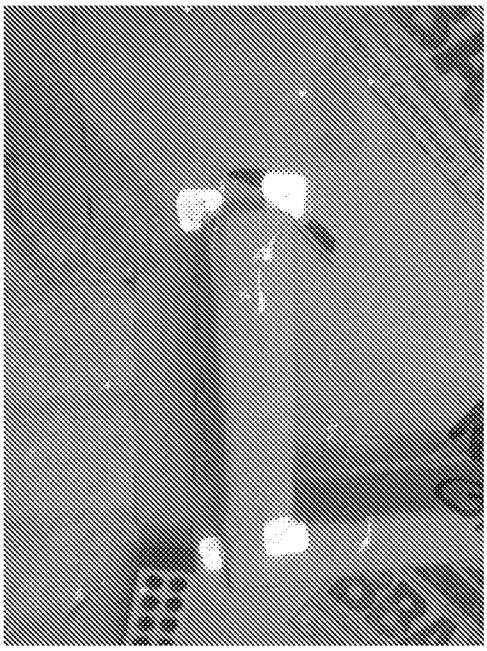
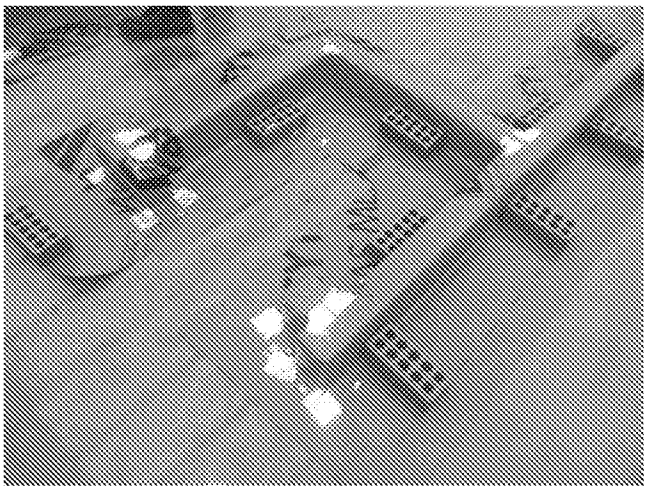
	Plot 18 - Threshold
	Plot 18 - Patching
	Plot 18 - service seal

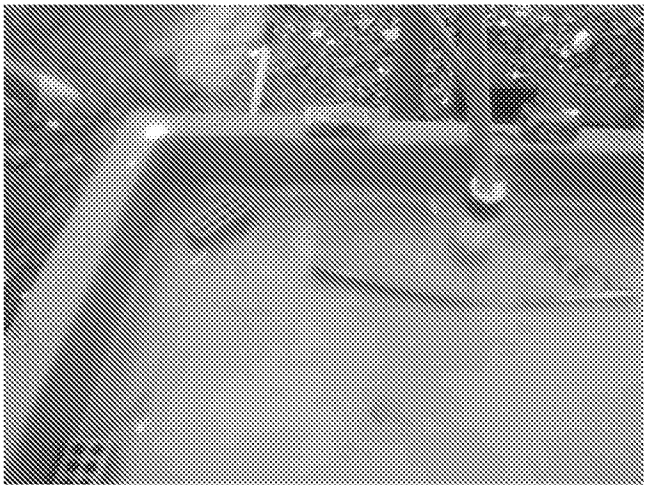
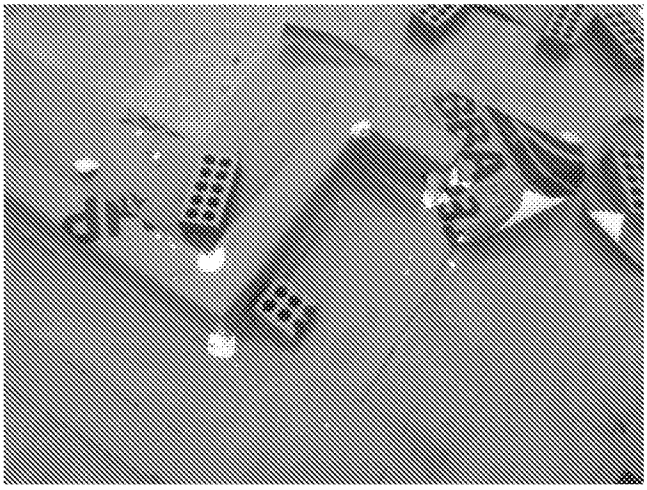
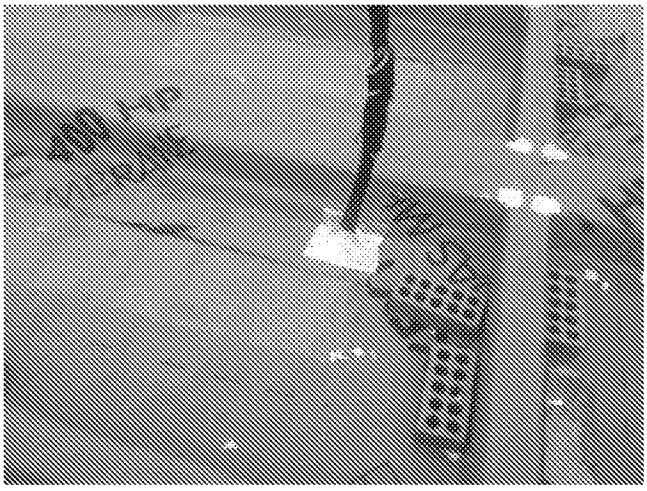
	Plot 19 - Floor
	Plot 19 - service seal
	Plot 19 - floor

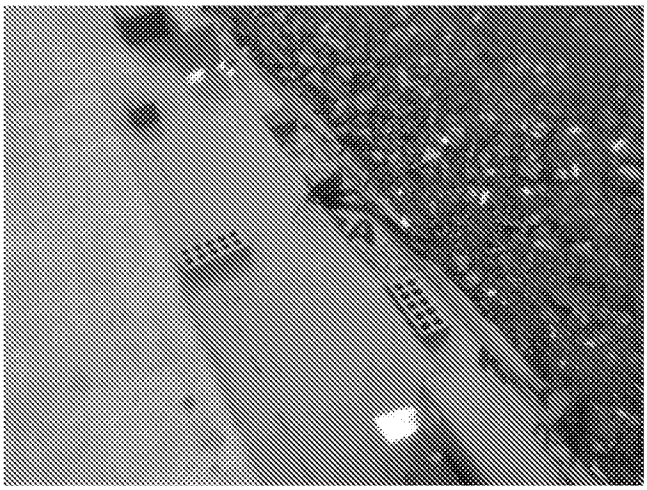
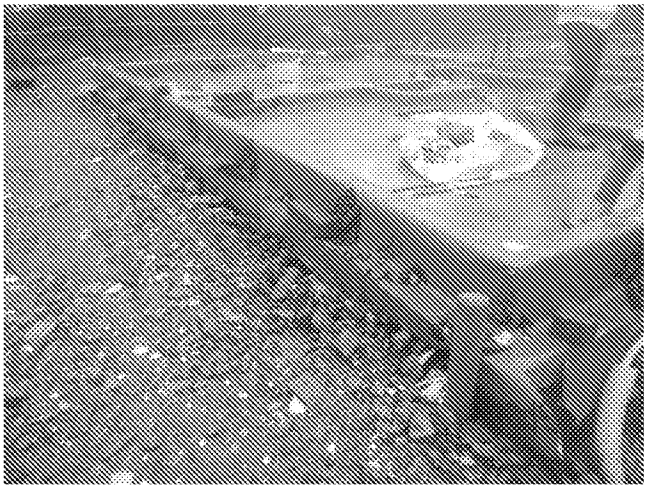
	Plot 19 - under stairs
	Plot 19 - Threshold
	Plot 19 - Floor

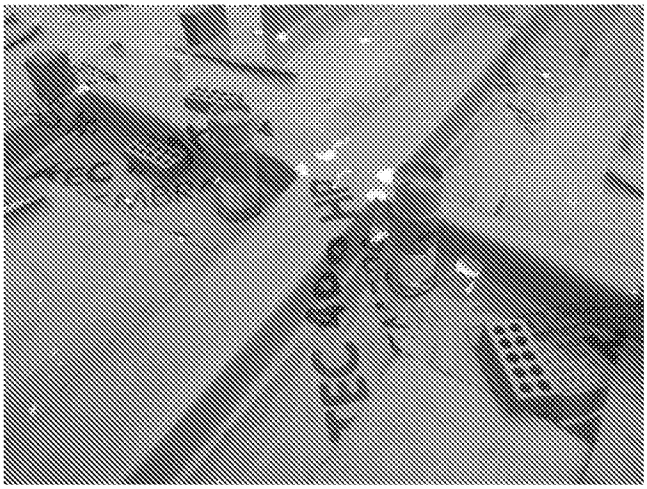
	Plot 50-51 perimeter
	Plot 50-51 - perimeter
	Plot 50-51 perimeter

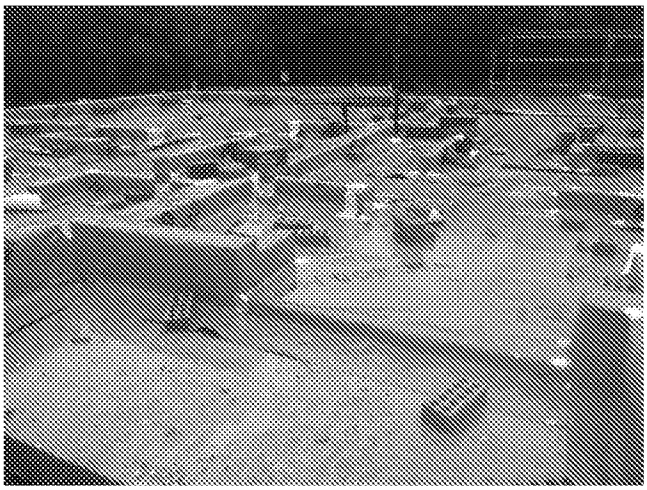
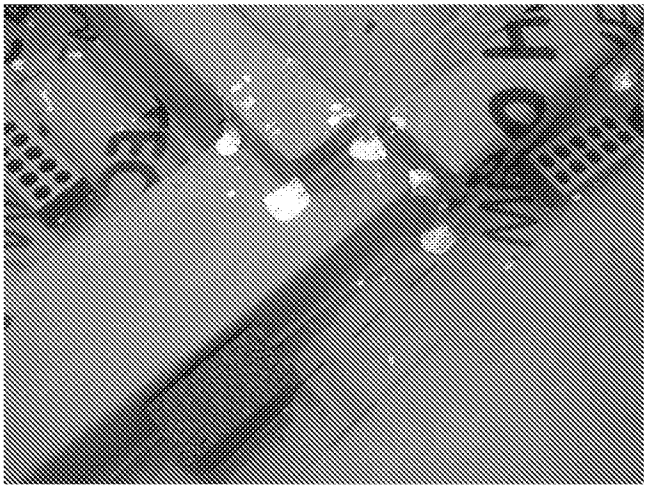
	Plot 50-51 service seals
	Plot 50-51 perimeter
	Plot 52-53 perimeter

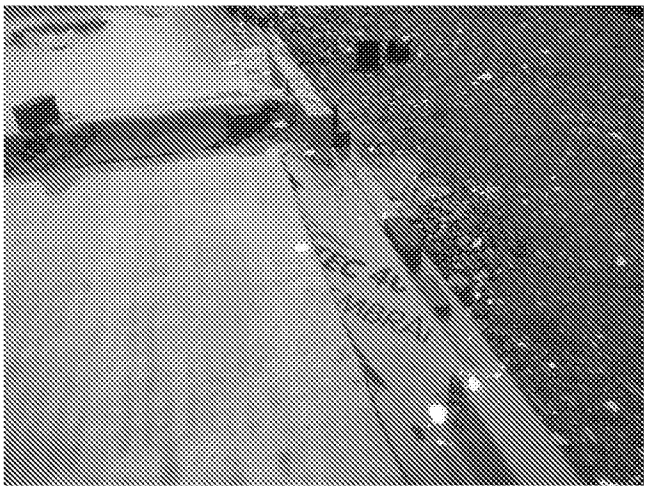
	Plot 52-53 perimeter corner detail
	Plot 52-53 perimeter
	Plot 52-53 perimeter

	Plot 52-53 perimeter services not yet sealed
	Plot 52-53 perimeter
	Plot 52-53 perimeter services sealed

	Plot 52-53 perimeter
	Plot 52-53 perimeter
	Plot 56-57 perimeter

	Plot 56-57 perimeter Service seals
	Plot 56-57 perimeter
	Plot 56-57 perimeter

	Plot 58-59 perimeter
	Plot 58-59 perimeter
	Plot 58-59 perimeter service seal

	Plot 58-59 perimeter Threshold

5. PASS/FAIL

The gas protection measures inspected:

Details of issues

Approved by

No users

Date

Geo-Environmental

Project Name	Cornfield Close
Project No.	GE18103
Client	Thakeham Homes
Geo-Environmental Project Manager's Email	[redacted]
Date	10/12/2020, 08:32
Site Engineer	
Tom Grace	[redacted]
Weather at time of inspection	Overcast with light rain, 8 degrees C.
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Residential semi-detached with private gardens.
Plot No.	20 - 21 complete
Foundation Type	Raft
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Concrete slab in good condition. Inspected roll of red Keytec gas membrane, new roll in good condition.
1.2 Gas membrane type	Red Keytec 400 HP gas membrane
1.3 Gas membrane condition	New rolls, good condition.
Jointing tape product	Heat welded joints with occasional tape
1.5 Lapping design	>150mm overlap
1.6 Laps, welds and joints seals	All neat and well sealed
1.7 Service seals	Services sealed correctly.

Engineer's Prelim Assessment (Mem)

Pass

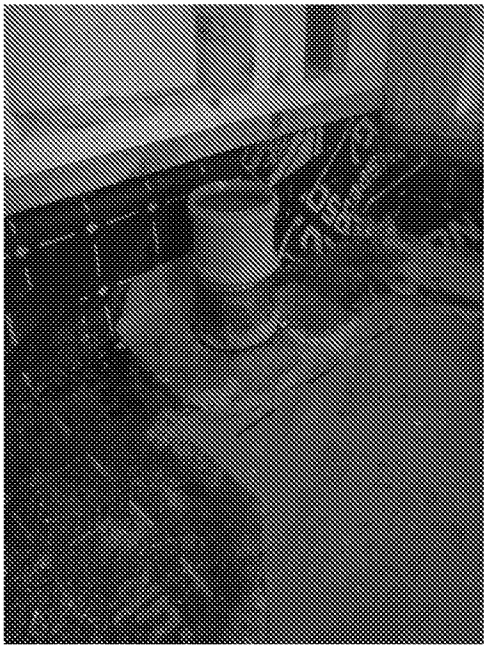
4. PHOTOGRAPHS

Photographs

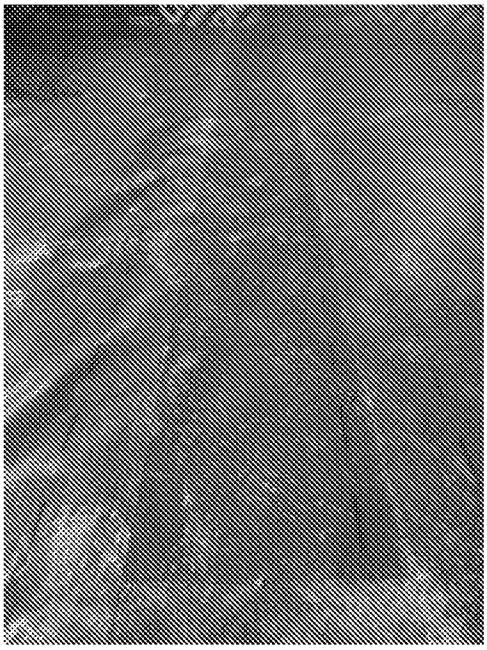
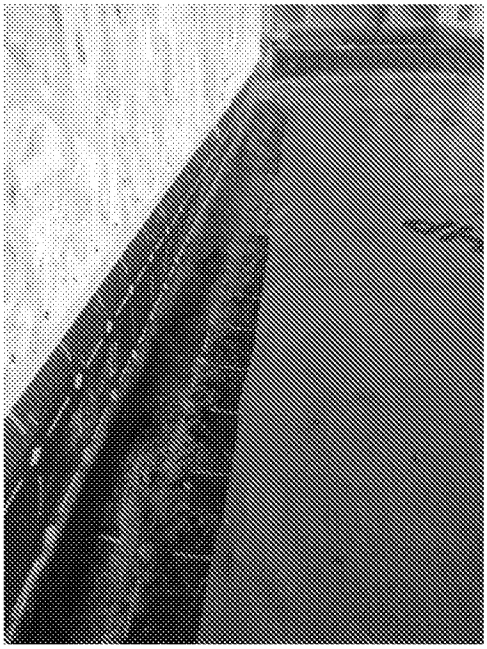
(17 records)

Photograph	*Photograph Title*

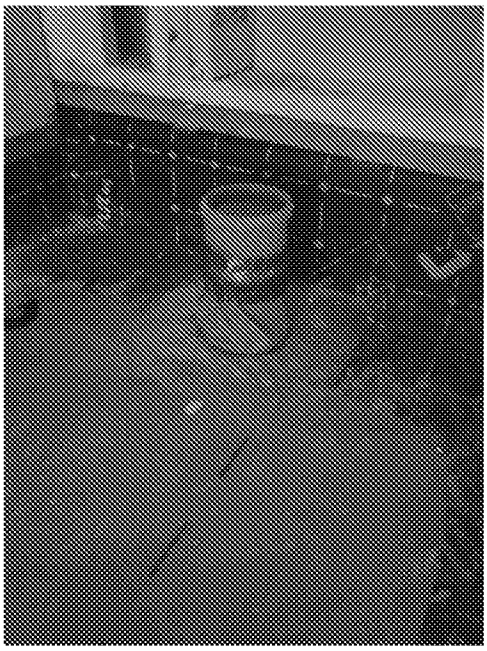
	Plot 20 prior to install. Concrete slab in good condition.
	Plot 21 prior to install concrete slab in good condition.

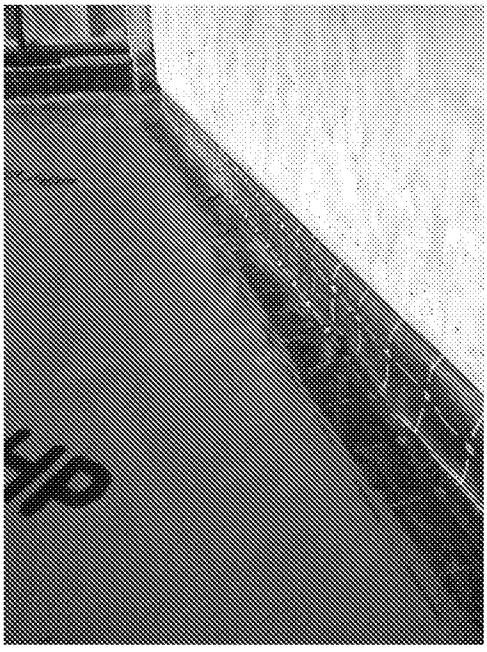
	Plot 20 - entrance
	Plot 20 - sealed foul outlet WC

	Plot 20 - sealed water in & foul outlet Kitchen
	Plot 20 - front of property all good.
	Plot 20 - rear of property all good.

	Plot 20 - all overlaps well jointed and sealed, >150mm overlap.
	Plot 20 - perimeter seals all good.

	Plot 20 - tape well sealed
	Plot 21 - entrance

	Plot 21 - foul outlet sealed WC
	Plot 21 - water in and foul outlet sealed Kitchen.
	Plot 21 - front of property all good.

	Plot 21 - rear of property all good.
	Plot 21 - all overlaps well jointed and sealed with >150mm overlap.
	Plot 21 - perimeter well sealed.

5. PASS/FAIL

The gas protection measures inspected:

Details of issues

Approved by

No users

Date

Geo-Environmental

Project Name	GE18103
Project No.	Cornfield Close
Client	Thakeham
Geo-Environmental Project Manager's Email	[redacted]
Date	17/12/2020, 12:35
Site Engineer	
Fiona Goode	[redacted]
Weather at time of inspection	Cool, slight breeze, dry
Gas Characteristic Situation	Characteristic Situation 3
Type of development and building/block checked	Semi-detached
Plot No.	22 and 23 (infills)
Foundation Type	Suspended
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Unable to inspect as sealed
1.2 Gas membrane type	Keytec 400 hp gas resistant membrane
1.3 Gas membrane condition	Generally in good condition
Jointing tape product	Heat sealed joins with some taping
1.5 Lapping design	At least 150mm
1.6 Laps, welds and joints seals	All heat sealed and well sealed
1.7 Service seals	Services sealed with site made seals, all well sealed

Engineer's Prelim Assessment (Mem)

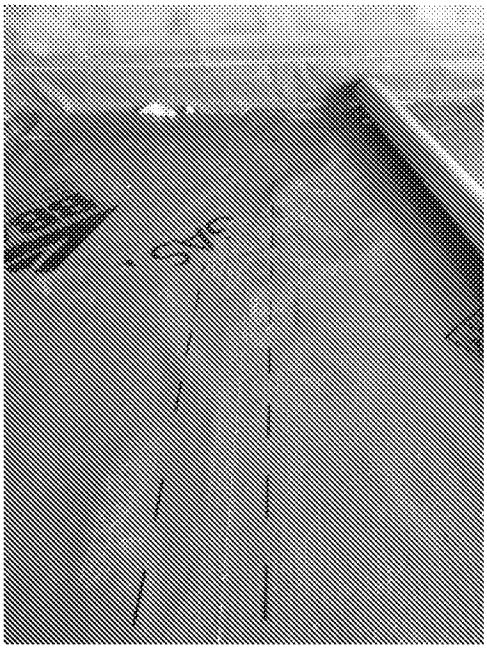
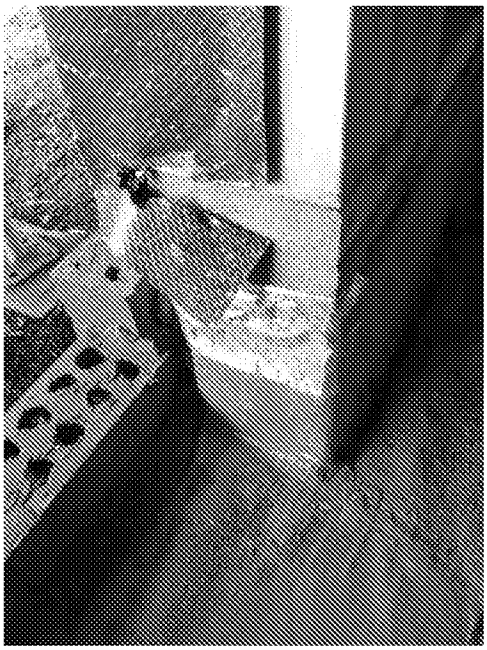
Pass

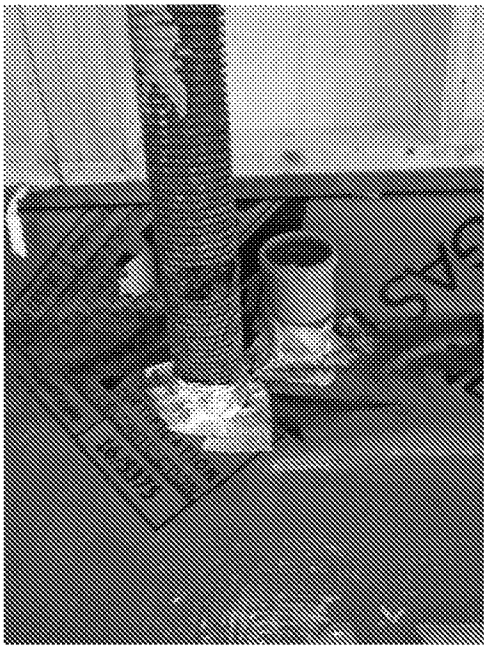
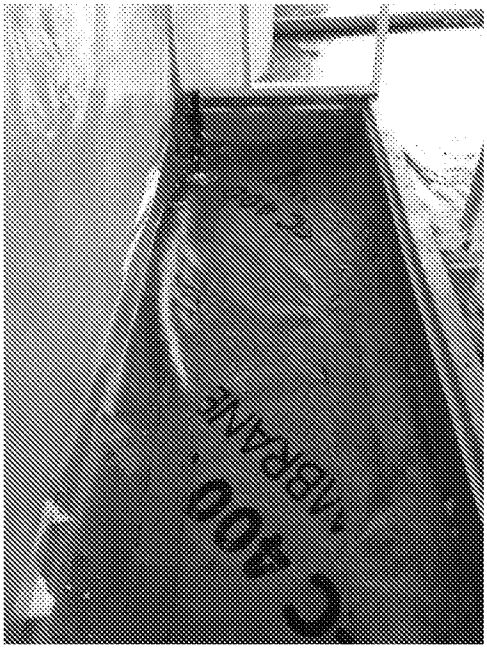
4. PHOTOGRAPHS

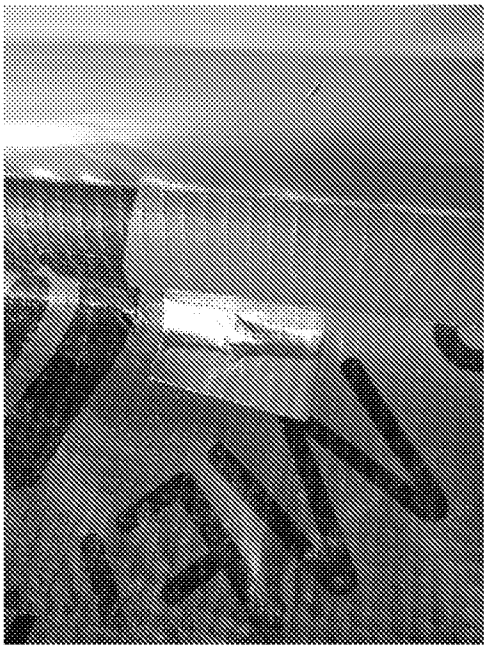
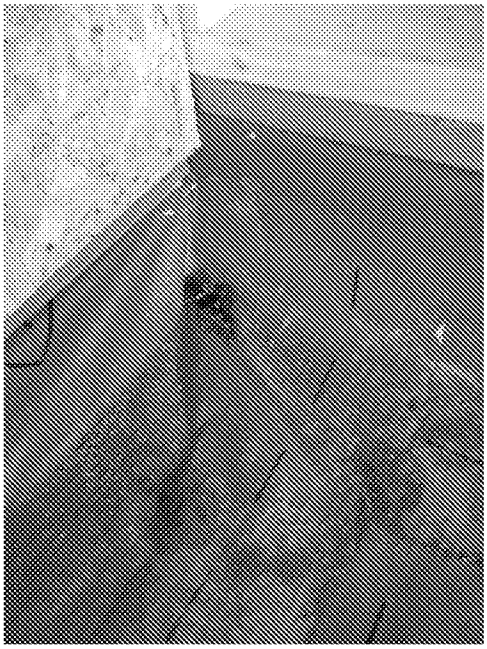
Photographs

(10 records)

Photograph	*Photograph Title*

	Plot 22 overview
	Plot 22 membrane joins
	Plot 22 patch repair

	Plot 22 services
	Plot 22 understair detail

	Plot 23 patch repair
	Plot 23 corner detail

	Plot 23 overview
	Plot 23 membrane joins

	Plot 23 services

5. PASS/FAIL

The gas protection measures inspected:

Details of issues

Approved by

No users

Date

Geo-Environmental

Project Name	Cornfield Close, Littlehampton
Project No.	GE18103
Client	Thakeham
Geo-Environmental Project Manager's Email	[redacted]
Date	21/01/2021, 11:32
Site Engineer	

No users

Weather at time of inspection	Dry, cool.
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Residential and garages
Plot No.	Plots 47-49
Foundation Type	Suspended
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Membrane fully sealed, unable to see underside.
1.2 Gas membrane type	Black gas membrane
1.3 Gas membrane condition	Surface muddy due to foot traffic in bad weather. Some leaves and debris on surface as plots not fully roofed and without windows. Otherwise in good condition. Any holes patched during site visit.
Jointing tape product	Heat welded joints.
1.5 Lapping design	Min 150mm
1.6 Laps, welds and joints seals	All in good condition.
1.7 Service seals	Service seals in good condition.

Engineer's Prelim Assessment (Mem)

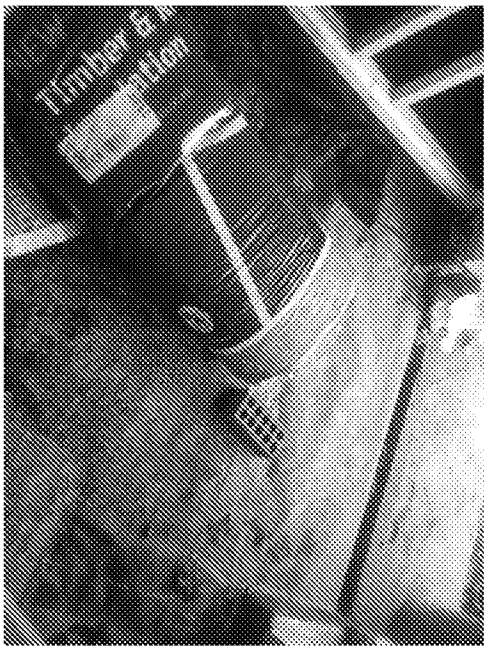
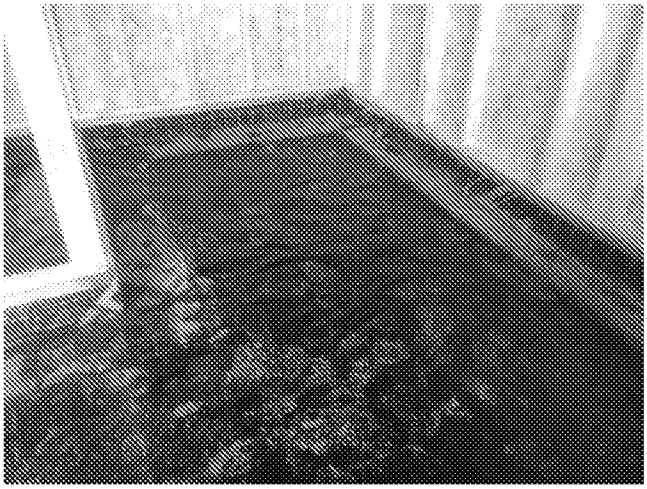
Pass

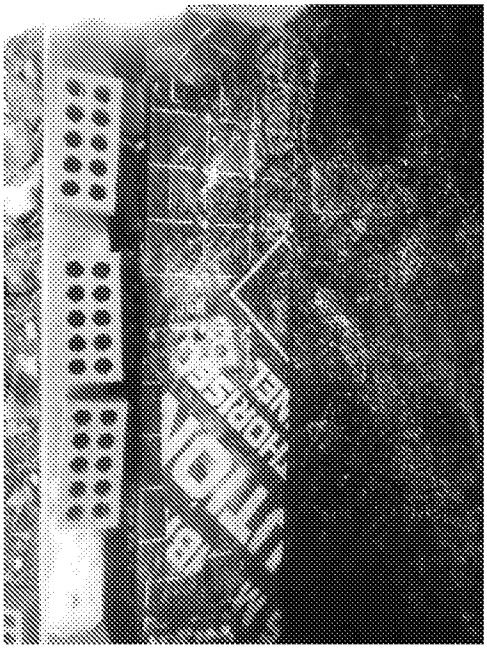
4. PHOTOGRAPHS

Photographs

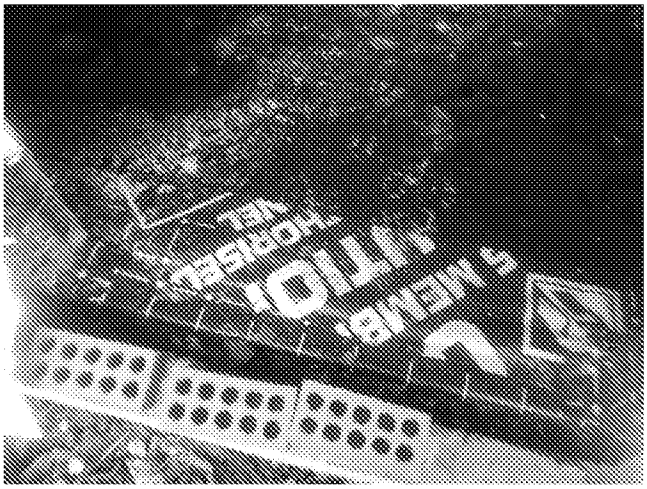
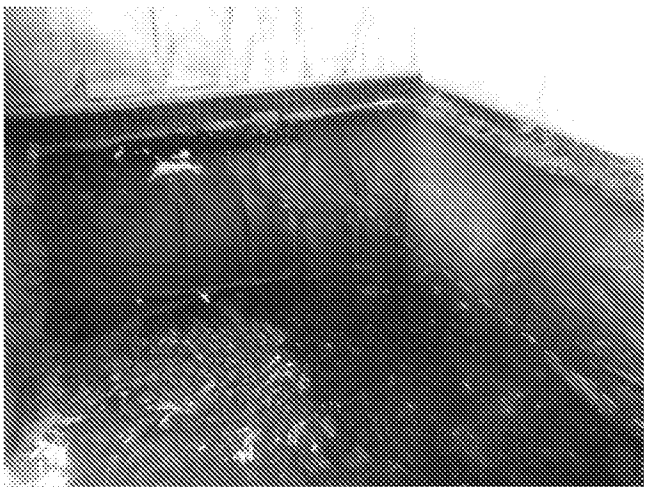
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Photograph	*Photograph Title*

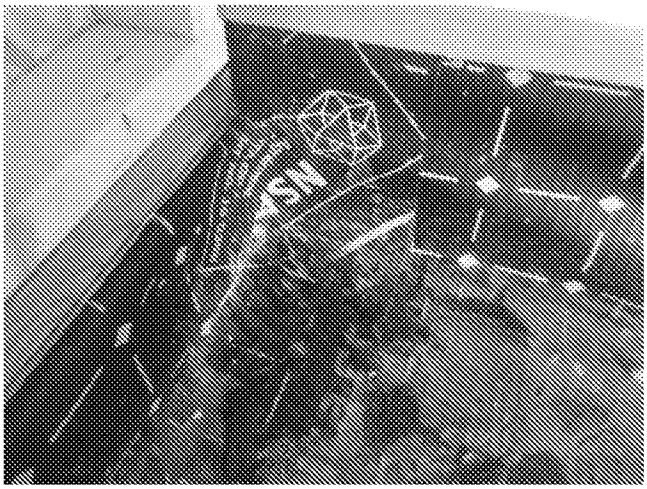
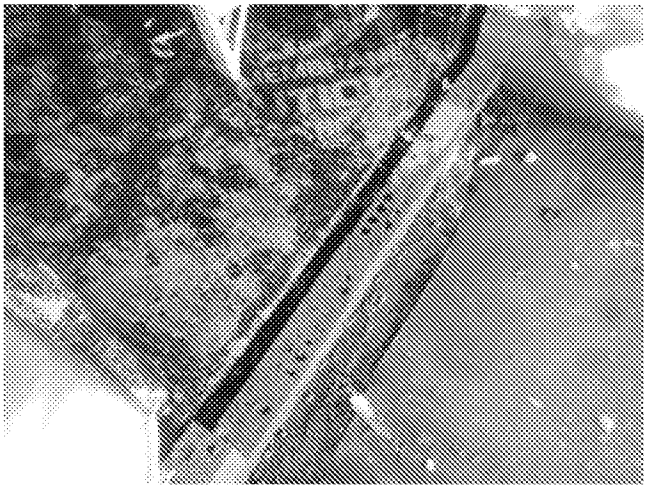
	Plot 49 entrance. Undergoing insulation.
	Plot 49 floor.
	Plot 49 floor and service seal.

	Plot 49 floor.
	Plot 49 Threshold.
	Plot 49 patching.

	Plot 48 floor.
	Plot 48 under stairs and service seal.
	Plot 48 hallway.

	Plot 48 floor.
	Plot 48 threshold.
	Plot 47 floor.

	Plot 47 under stairs.
	Plot 47 service seals.
	Plot 47 floor.

	Plot 47 corner detail.
	Plot 47 Threshold
	Plot 47 patching.

5. PASS/FAIL

The gas protection measures inspected:

Details of issues

Approved by

No users

Date

Geo-Environmental

Project Name	Cornfield Close
Project No.	GE18103
Client	Thakeham Homes
Geo-Environmental Project Manager's Email	[redacted]
Date	26/01/2021, 09:38
Site Engineer	
Katie Brayne	[redacted]
Weather at time of inspection	Light rain, overcast.
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Residential and garages
Plot No.	Block A (60 +61) 44, 45, 46
Foundation Type	Suspended
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Membrane fully sealed, underside appears to have been sweeped.
1.2 Gas membrane type	Red gas membrane.
1.3 Gas membrane condition	60 and 61 selotex laid, lifted to inspect below.
Jointing tape product	Heat welded.
1.5 Lapping design	150mm minimum
1.6 Laps, welds and joints seals	All in very good condition.
1.7 Service seals	Sealed satisfactory.

Engineer's Prelim Assessment (Mem)

Pass

4. PHOTOGRAPHS

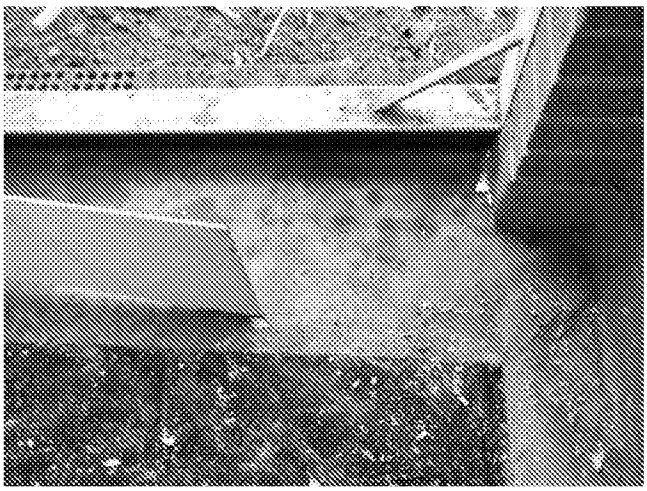
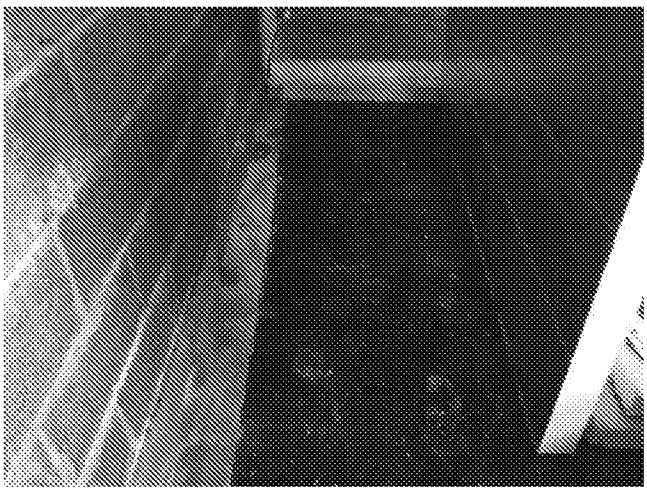
Photographs

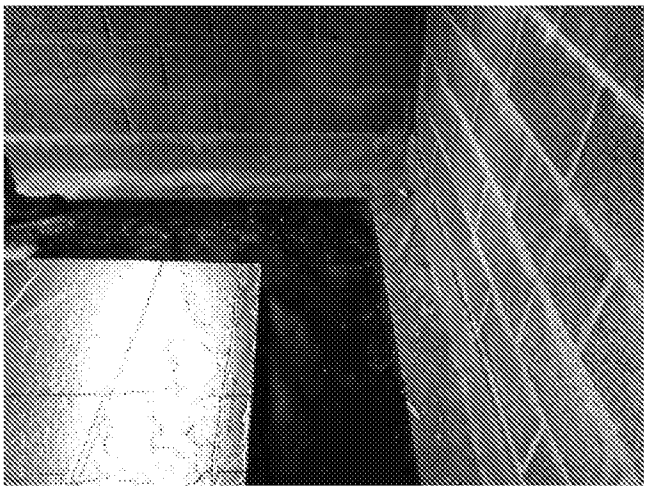
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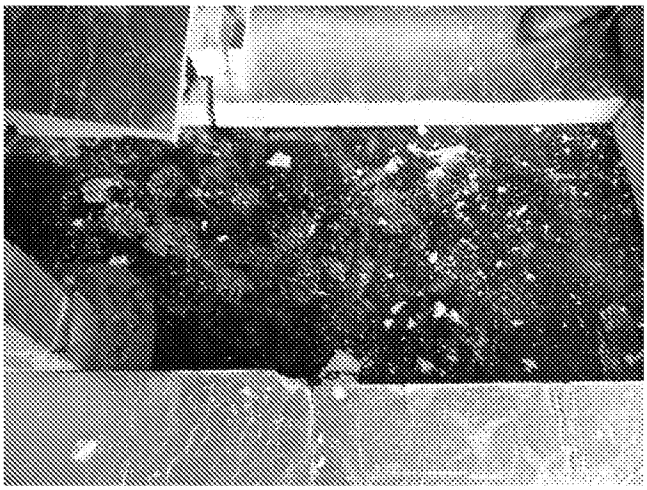
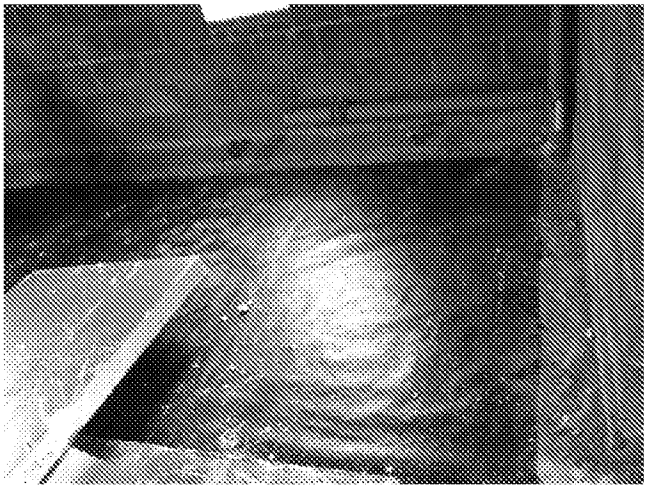
Photograph	*Photograph Title*

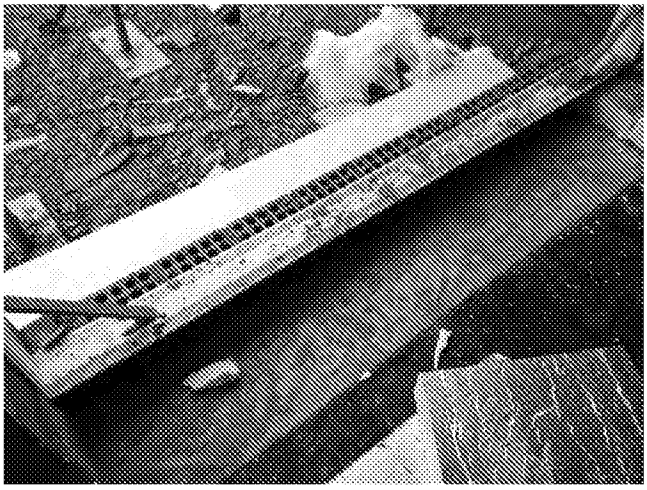
	60 bathroom
	60 lounge
	60 lounge

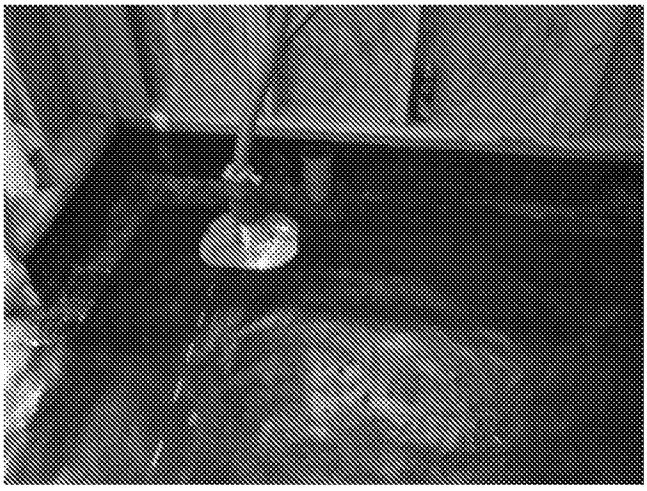
	60 lounge
	60 kitchen
	

	Service sealed and laped.
	Laped patio.
	60 kitchen diner.

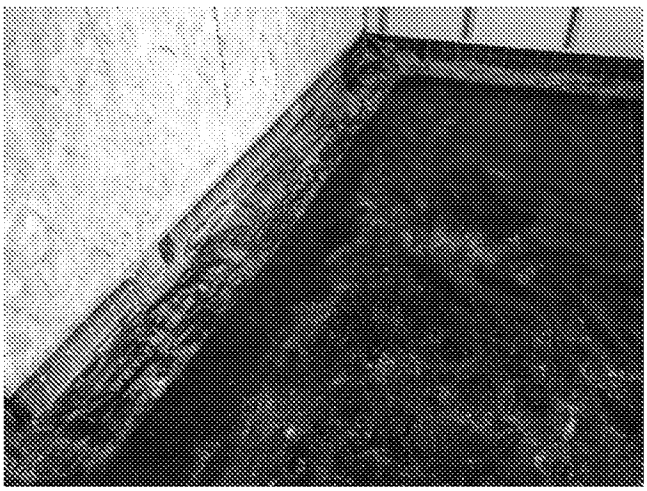
	60 Kitchen diner.
	61
	61

	61
	61
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	61

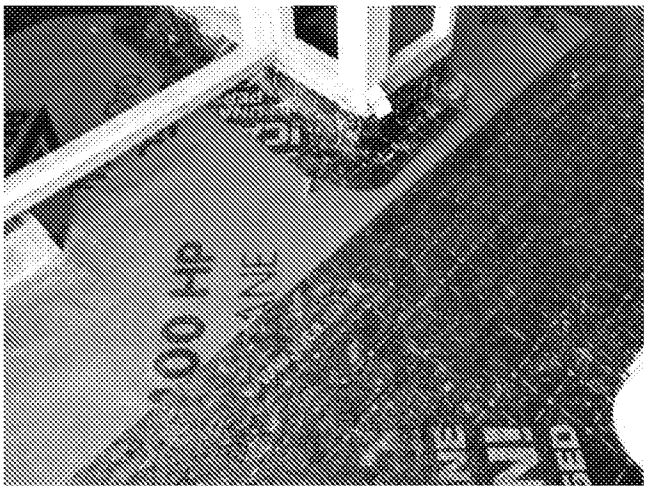
	44
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	46
	46
	46

	46
	46
	46

	Nail under walkway. Plot 46 fail.

5. PASS/FAIL

The gas protection measures inspected:

Details of issues

Approved by

No users

Date

Geo-Environmental

Project Name	Cornfield Close
Project No.	GE18103
Client	Thakeham Homes
Geo-Environmental Project Manager's Email	[redacted]
Date	11/02/2021, 14:04
Site Engineer	
Fiona Goode	[redacted]
Weather at time of inspection	Cold, overcast, breezy
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Semi-detached houses
Plot No.	Plot 50 - 53
Foundation Type	Suspended
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Unable to inspect as sealed
1.2 Gas membrane type	Black unbranded juta GP1 gas resistant membrane
1.3 Gas membrane condition	Membrane in very good condition well swept
Jointing tape product	Heat sealed double sided tape
1.5 Lapping design	At least 150mm overlap
1.6 Laps, welds and joints seals	Heat sealed, all well sealed
1.7 Service seals	Site made seals, well sealed

Engineer's Prelim Assessment (Mem)

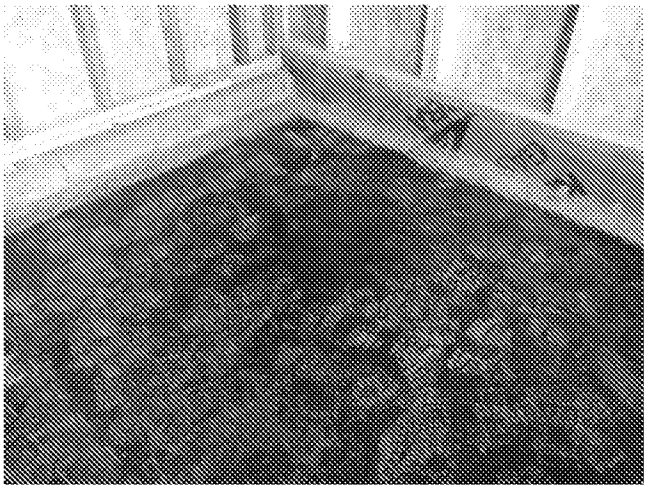
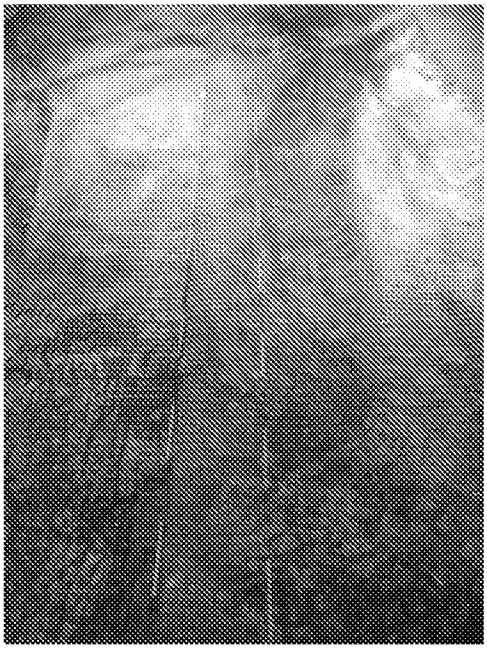
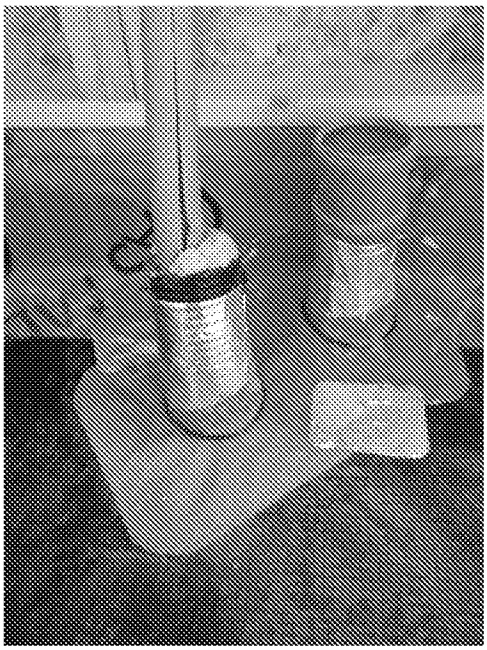
Pass

4. PHOTOGRAPHS

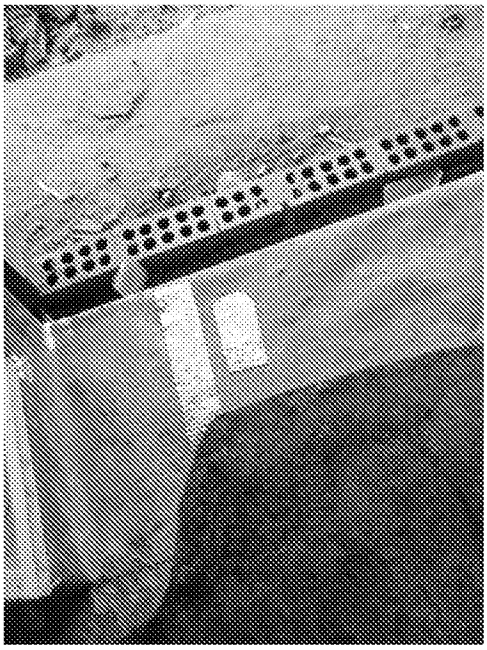
Photographs

(14 records)

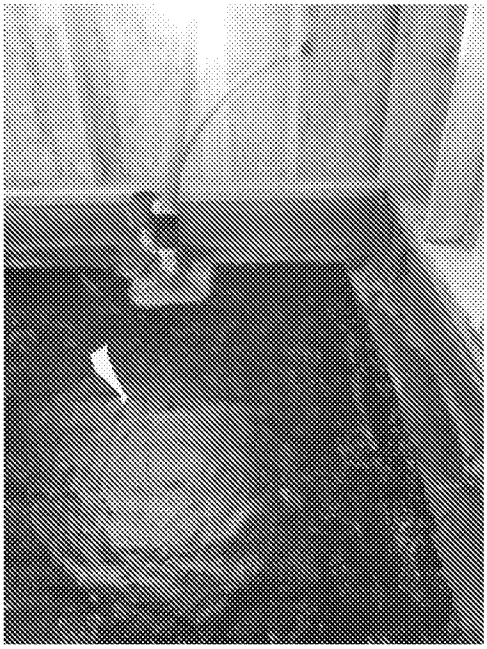
Photograph	*Photograph Title*

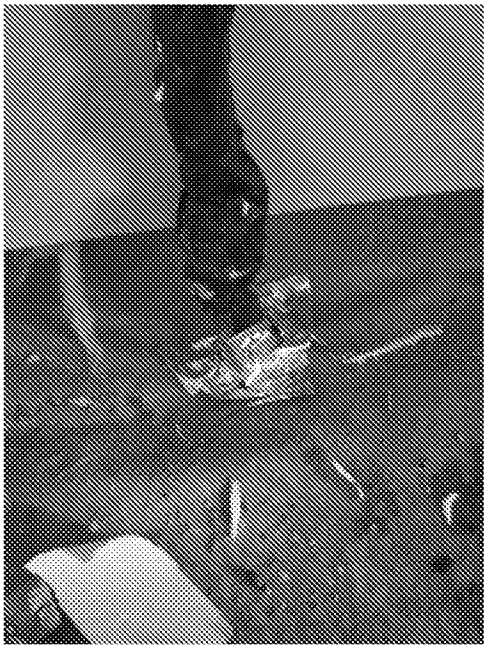
	Plot 50 overview
	Plot 50 joins
	Plot 50 services

	Plot 50
	Plot 51

	Plot 51 services
	Plot 51 overview
	Plot 51 repairs

	Plot 52
	Plot 52 overview

	Plot 52 patch repair
	Plot 53

	Plot 53 joins
	Plot 53 service seal

5. PASS/FAIL

The gas protection measures inspected:

Details of issues

Approved by

No users

Date

Geo-Environmental

Project Name	Cornfield Close, Littlehampton
Project No.	GE18103
Client	Thakeham Homes
Geo-Environmental Project Manager's Email	[redacted]
Date	25/02/2021, 11:39
Site Engineer	

No users

Weather at time of inspection	Dry, cloudy, mild
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Residential
Plot No.	Plots 54-57
Foundation Type	Suspended
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Unable to inspect, membrane fully sealed.
1.2 Gas membrane type	Red Keytec gas membrane.
1.3 Gas membrane condition	Gas membrane generally in good condition. Any holes identified were repaired during the site visit.
Jointing tape product	Heat welded joints.
1.5 Lapping design	Min 150mm overlap.
1.6 Laps, welds and joints seals	All in good condition.
1.7 Service seals	Service seals all in good condition.

Engineer's Prelim Assessment (Mem)

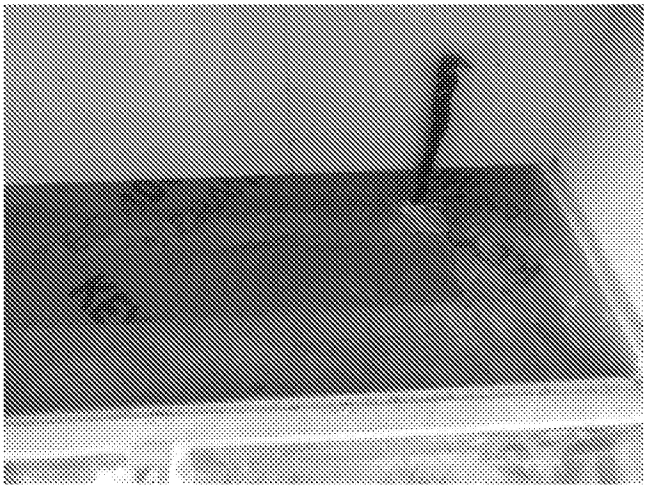
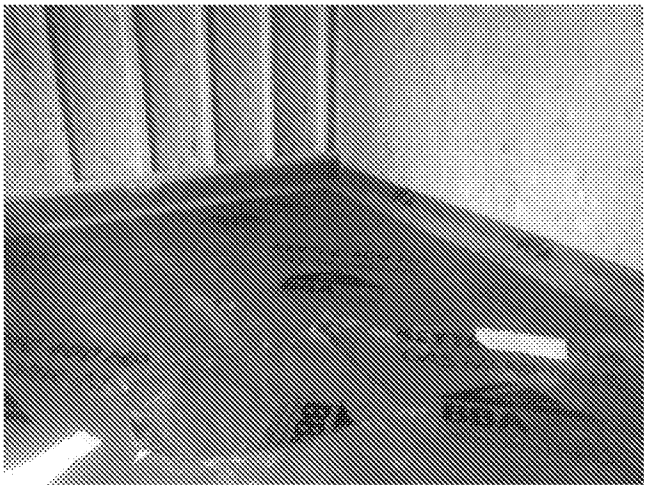
Pass

4. PHOTOGRAPHS

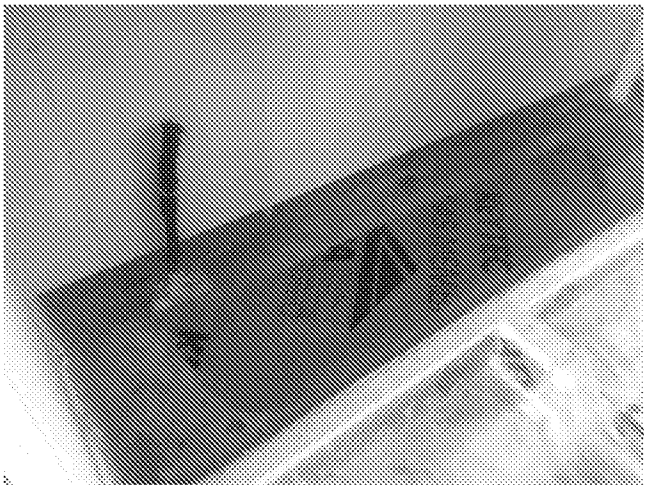
Photographs

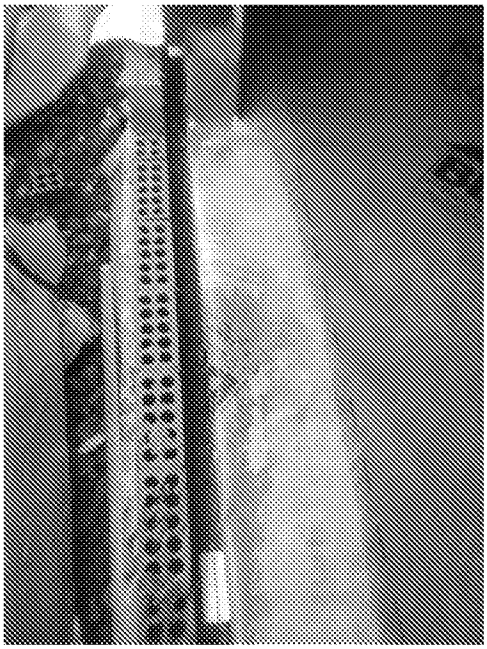
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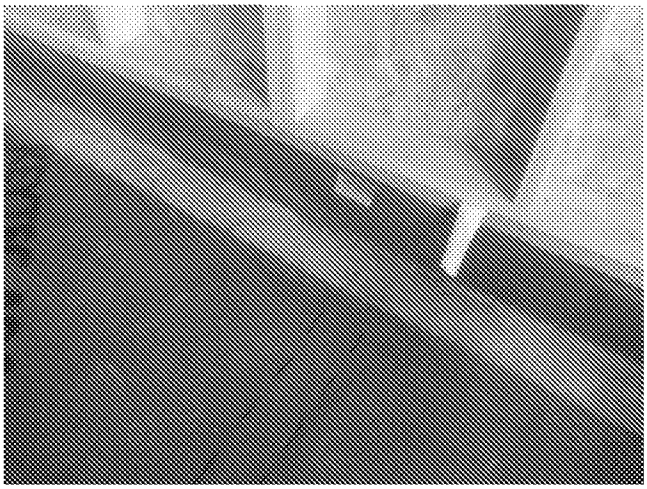
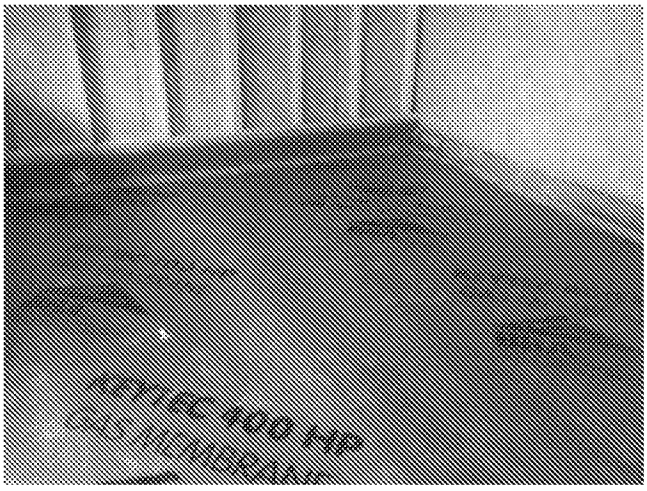
Photograph	*Photograph Title*

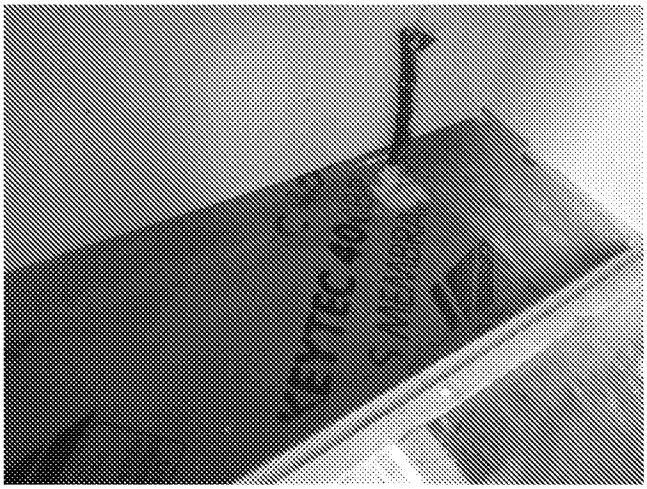
	Plot 54 entrance
	Plot 54 under stairs
	Plot 54 floor

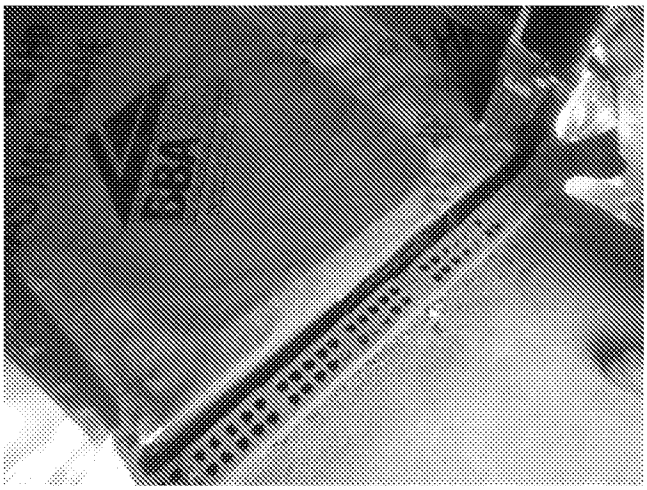
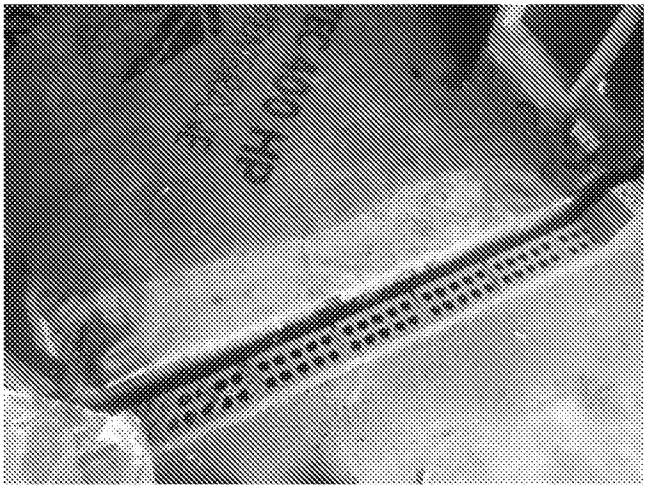
	Plot 54 threshold
	Plot 54 corner detail
	Plot 55 entrance

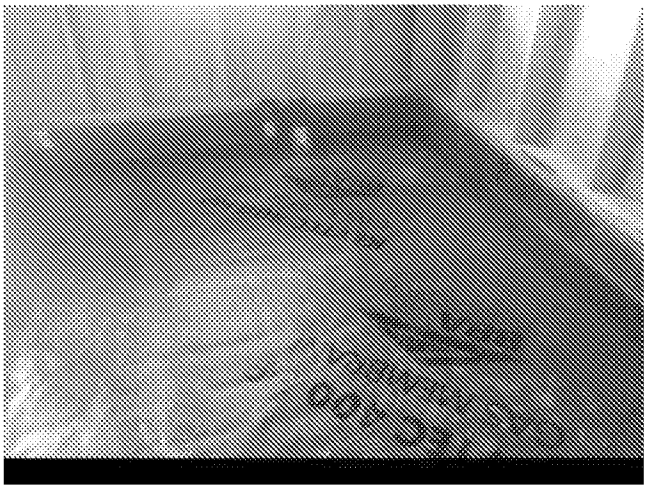
	Plot 55 service seal
	Plot 55 floor
	Plot 55 under stairs

	Plot 55 floor
	Plot 55 floor and threshold
	Plot 55 threshold

	Plot 55 patch repair
	Plot 56 threshold
	Plot 56 floor

	Plot 56 under stairs
	Plot 56 service seals
	Plot 56 floor

	Plot 56 threshold
	Plot 57 threshold
	Plot 57 service seals

	Plot 57 floor and service seals
	Plot 57 under stairs
	Plot 57 threshold

	Plot 57 floor and patching underway

5. PASS/FAIL

The gas protection measures inspected:

Details of issues

Approved by

No users

Date

Geo-Environmental

Project Name	Cornfield Close
Project No.	GE18103
Client	Thakeham Homes
Geo-Environmental Project Manager's Email	[redacted]
Date	11/03/2021, 13:36
Site Engineer	
Katie O'Dea	[redacted]
Weather at time of inspection	Sunny, cool, windy
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Residential
Plot No.	58-59
Foundation Type	Suspended
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	.
1.2 Gas membrane type	.
1.3 Gas membrane condition	.
Jointing tape product	.
1.5 Lapping design	.
1.6 Laps, welds and joints seals	.
1.7 Service seals	.

Engineer's Prelim Assessment (Mem)

Pass

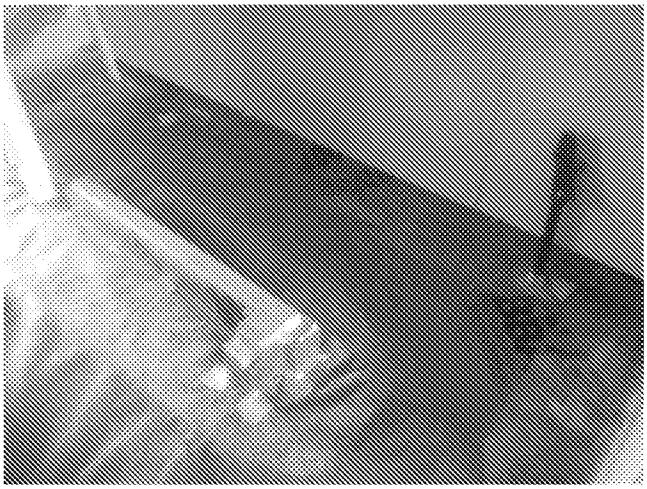
4. PHOTOGRAPHS

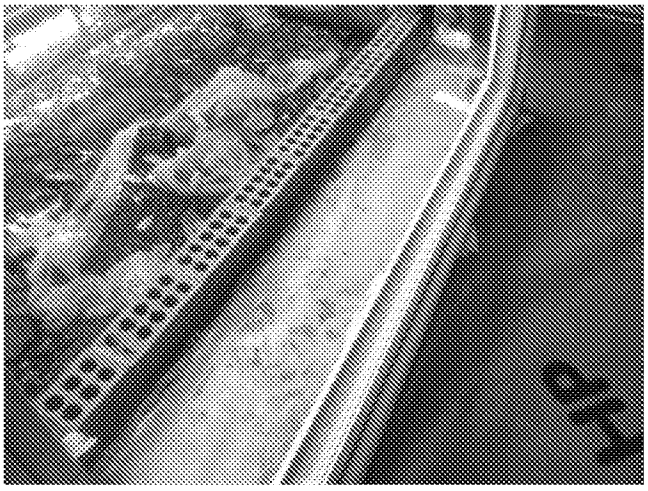
Photographs

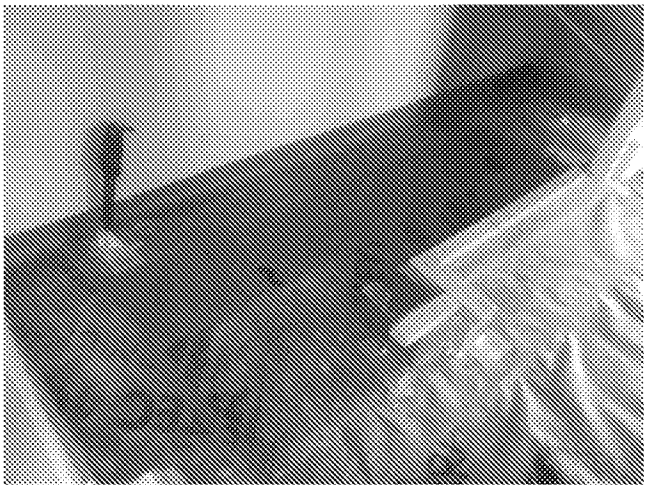
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Photograph	*Photograph Title*

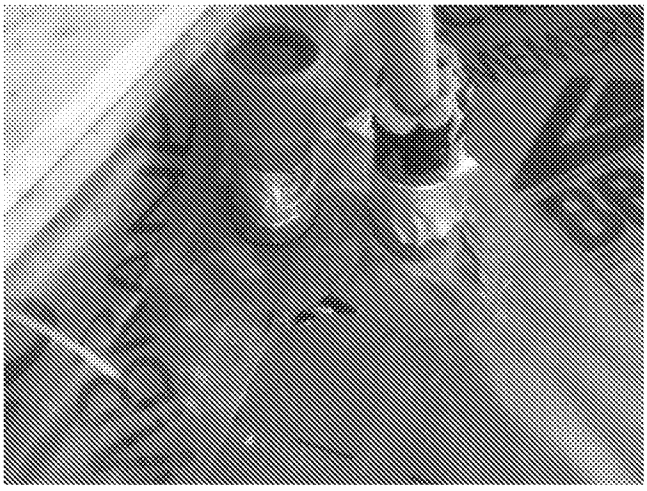
	Plot 58
	Plot 58 floor and service seal
	

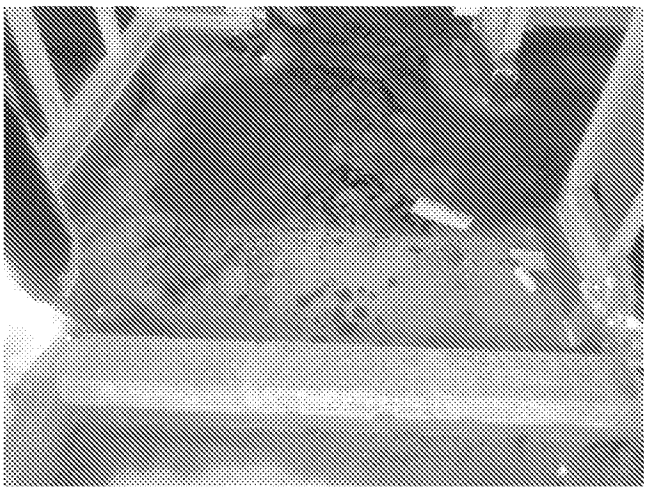
	Plot 58 under stairs
	Plot 58 floor
	Plot 58 Threshold

	Plot 58 patch repair
	Plot 59
	







5. PASS/FAIL

The gas protection measures inspected:

Details of issues

Approved by

No users

Date

Geo-Environmental

Project Name	Cornfield Close
Project No.	GE18103
Client	Thakeham
Geo-Environmental Project Manager's Email	[redacted]
Date	17/03/2021, 10:39
Site Engineer	
Fiona Goode	[redacted]
Weather at time of inspection	Dry, cool, breezy
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Flats
Plot No.	Block A and Block B
Foundation Type	Suspended
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

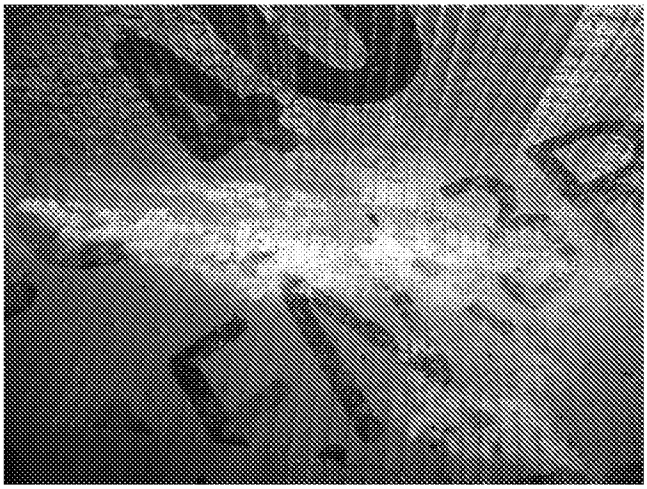
1.1 Condition of sub-grade and underside of membrane	Unable to inspect as sealed
1.2 Gas membrane type	Keytec 400 gas resistant membrane
1.3 Gas membrane condition	Block B - Main floor area generally clear however membrane did require sweeping. Materials were being stored on top of membrane in stairwell and a lot of rubble and debris on membrane in the smaller rooms Block A membrane needs clearing and materials being stored on it
Jointing tape product	Heat sealed joins mainly welded some heat sealed taped joins
1.5 Lapping design	At least 150mm overlap
1.6 Laps, welds and joints seals	All heat sealed joins. Block B - A large number of patch repairs are required Block A - seal around stairs is not sufficient
1.7 Service seals	Services sealed with site made seals, all well sealed
Engineer's Prelim Assessment (Mem)	
Remedial Measures Required	

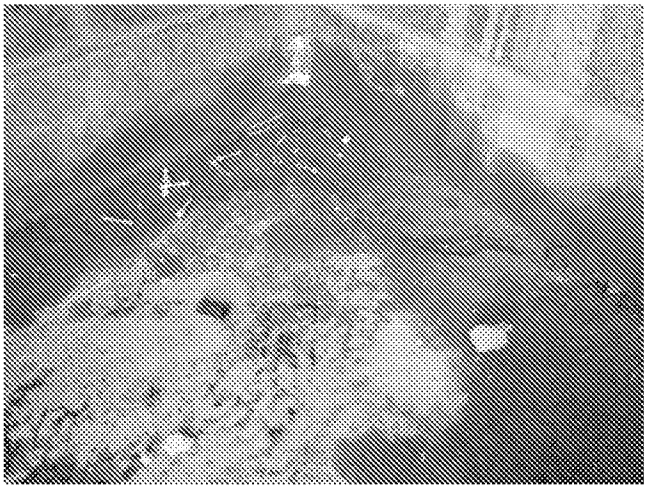
4. PHOTOGRAPHS

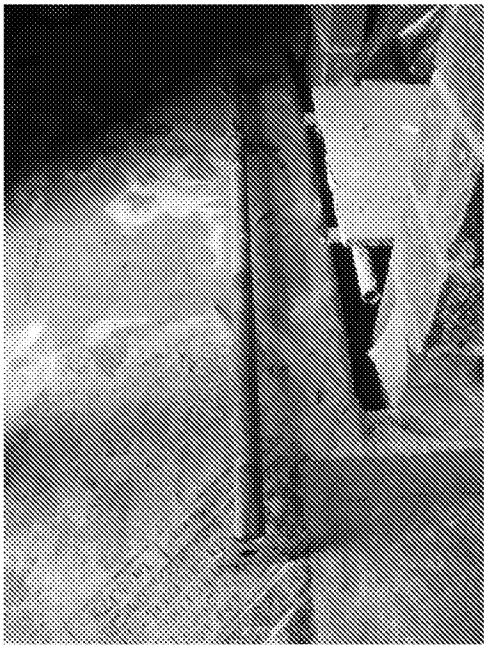
Photographs

(15 records)

Photograph	*Photograph Title*
	Block B overview
	Block B membrane joins
	Block B patch repairs

	Block B damage
	Block B damage
	Block B materials stored

	Block B materials
	Block B
	Block B understairs

	Block B damage
	Block B
	Block A stairs

	Block A not sealed
	Block A
	Bock A materials

5. PASS/FAIL

The gas protection measures inspected:

Details of issues

Approved by

No users

Date

Project Name	Cornfield Close
Project No.	GE18103
Client	Thakeham
Geo-Environmental Project Manager's Email	[redacted]
Date	26/03/2021, 08:49
Site Engineer	
Fiona Goode	[redacted]
Weather at time of inspection	Cool, breezy, sunny
Gas Characteristic Situation	Characteristic Situation 2
Type of development and building/block checked	Flats
Plot No.	Block A and B
Foundation Type	Suspended
Gas Protection Type	Passive
What is being inspected	[ ] Venting [X] Membrane [ ] Venting and Membrane

1. MEMBRANE

1.1 Condition of sub-grade and underside of membrane	Unable to inspect as sealed
1.2 Gas membrane type	Keytec gas resistant 400 hp membrane
1.3 Gas membrane condition	Generally in good condition, insulation board laid over walkways to protect membrane
Jointing tape product	Double sided heat sealed butyle tape and liquid membrane on concrete stairs
1.5 Lapping design	At least 150mm overlap
1.6 Laps, welds and joints seals	All heat sealed joins and well sealed. Patch repairs over areas of membrane that had been installed as part of the timber frame construction and therefore exposed for sometime
1.7 Service seals	Site made seals, well sealed

Engineer's Prelim Assessment (Mem)

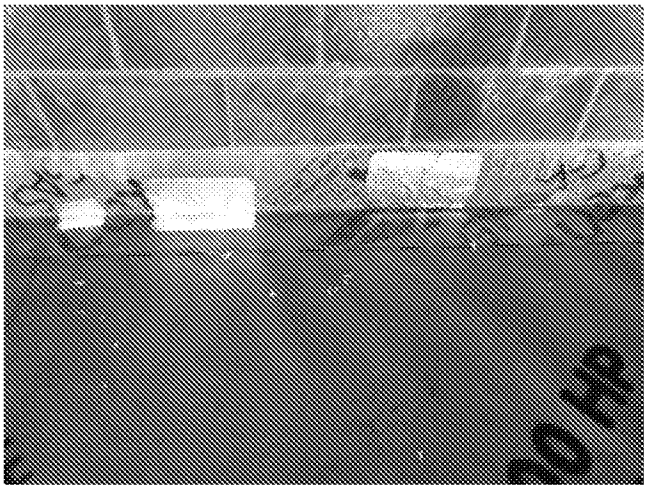
Pass

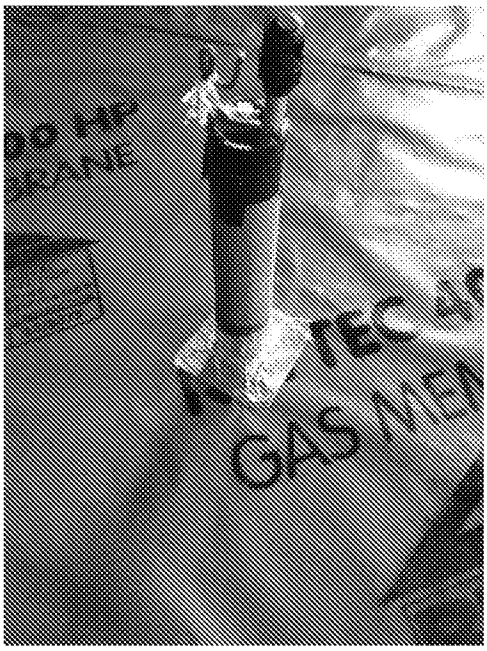
4. PHOTOGRAPHS

Photographs

(15 records)

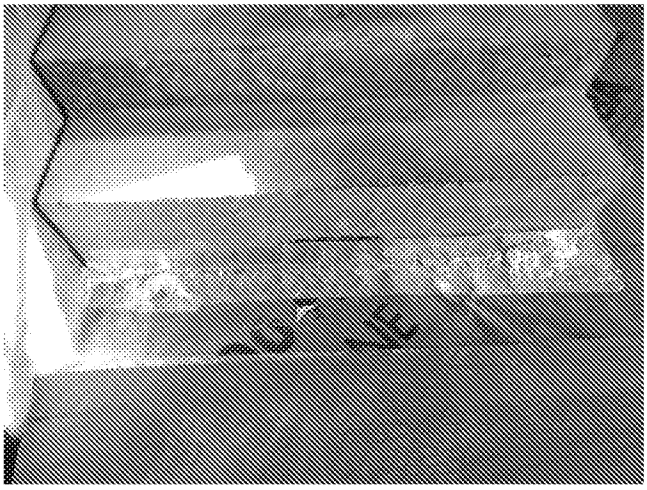
Photograph	*Photograph Title*

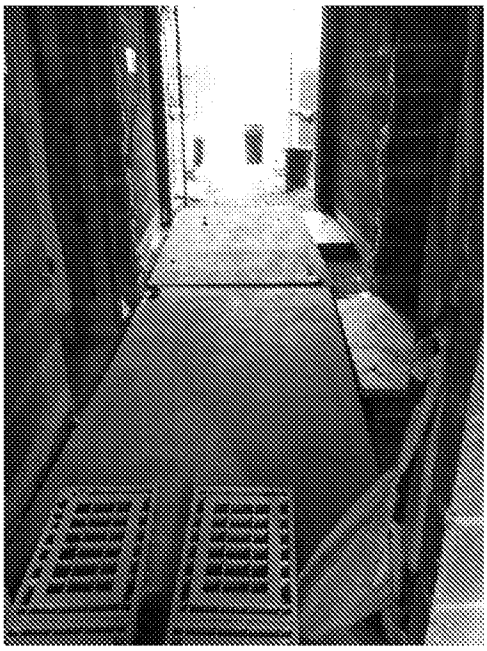
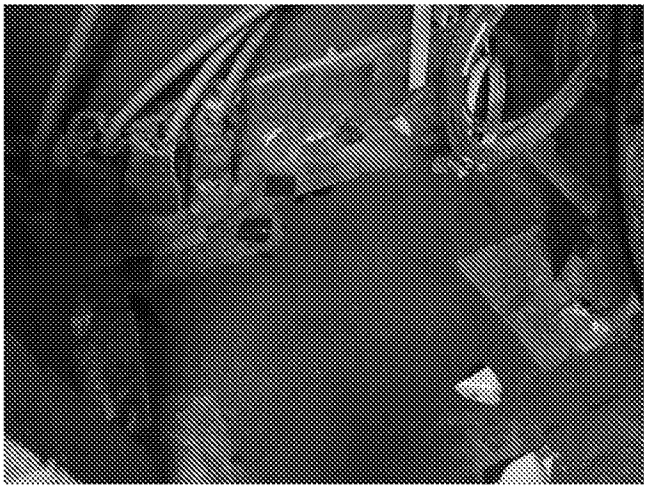
	Block B overview
	Block B repairs
	Block B repairs

	Block B services
	Block B walkway

	Block B stairs
	Block B service cardboards

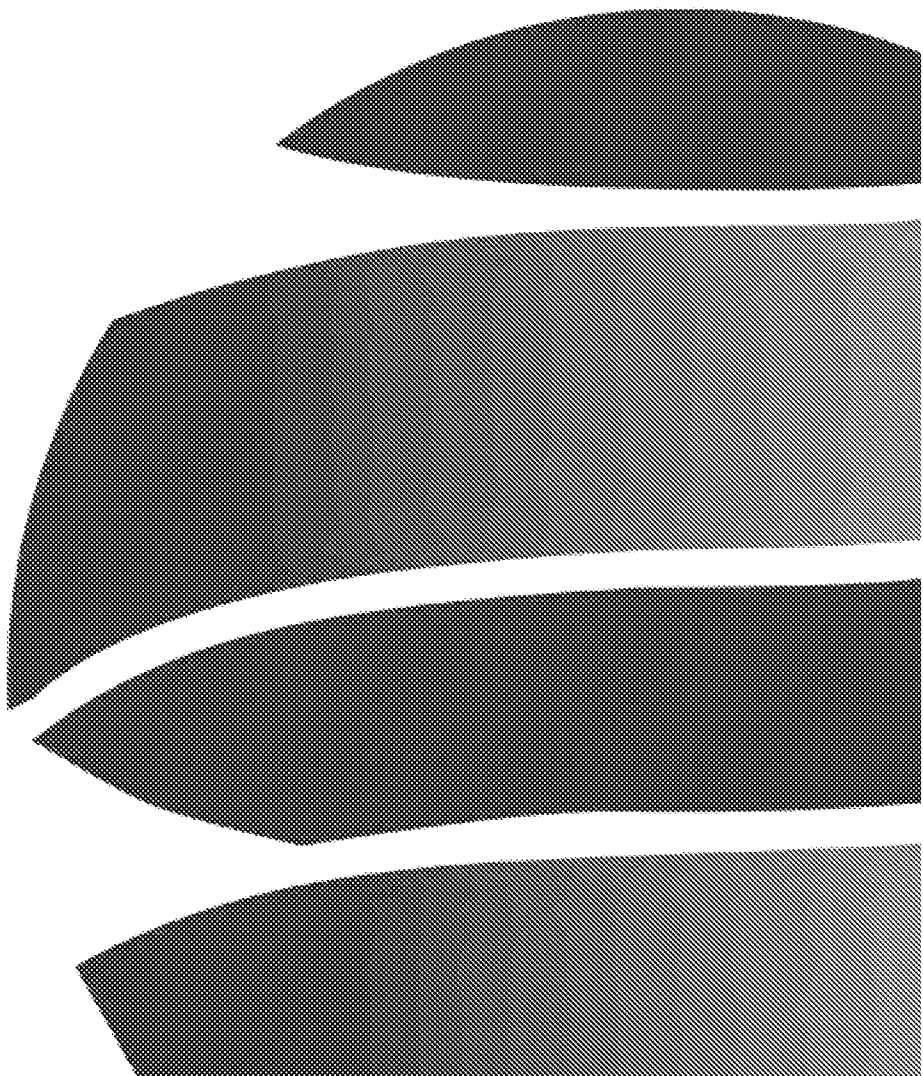
	Block B overview
	Block B patch repairs
	Block B

	Block B
	Block A stairs
	Block A under stairs

	Block A walkway
	Block A service cardboard

APPENDIX C

Photos of Gas Membrane (Provided by Client)



Photographs provided by client (Thakeham)

Plot 35







ARUN DISTRICT COUNCIL LU/191/21/DOC

Plot 38





ARUN DISTRICT COUNCIL LU/191/21/DOC





ARUN DISTRICT COUNCIL LU/191/21/DOC

Plot 39





ARUN DISTRICT COUNCIL LU/191/21/DOC





ARUN DISTRICT COUNCIL LU/191/21/DOC

Plot 43



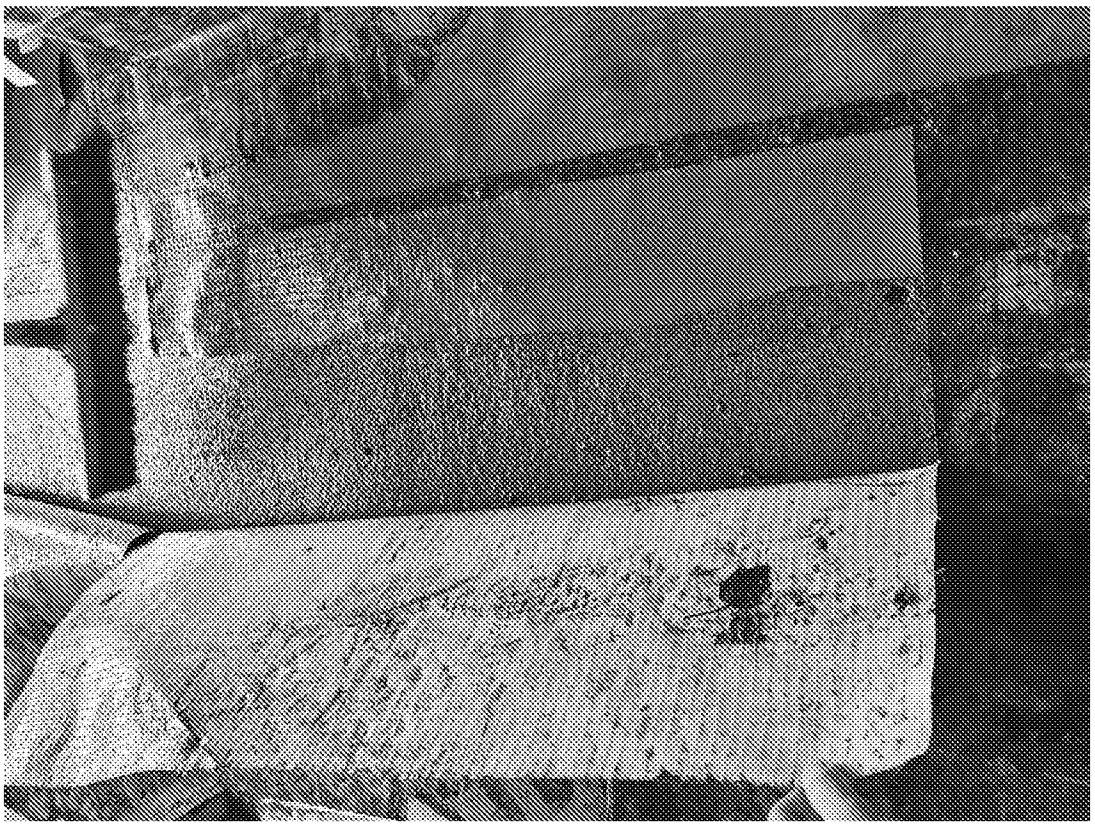
ARUN DISTRICT COUNCIL LU/191/21/DOC





ARUN DISTRICT COUNCIL LU/191/21/DOC

Plot 46





ARUN DISTRICT COUNCIL LU/191/21/DOC



ARUN DISTRICT COUNCIL LU/191/21/DOC