

AMBIENTAL

ENVIRONMENTAL ASSESSMENT

Flood Risk Assessment

6654

The Nelson, Pier Road,
Littlehampton, West Sussex, BN17
5LP

Ambiental Environmental Assessment
Sussex Innovation Centre,
Science Park Square,
Brighton, BN1 9SB

Document Issue Record

Project: Phase 1 Flood Risk Assessment

Prepared for: Liz Galloway

Reference: 6654

Site Location: The Nelson, Pier Road, Littlehampton, BN17 5LP

Proposed Development: It is understood that the development is for the extension, reconfiguration and refurbishment of the basement, ground and first floor and the construction of a second floor to provide additional hotel rooms with all sleeping accommodation located on the first and second floor.

Consultant		Date	Signature
Author	Thomas Kearsey	21/01/2022	
Document Check	Debra Griffin	21/01/2022	
Authorisation	Steven Brown	31/01/2022	

Please Note:

This report has been prepared for the exclusive use of the commissioning party and may not be reproduced without prior written permission from Ambiental Environmental Assessment. All work has been carried out within the terms of the brief using all reasonable skill, care and diligence. No liability is accepted by AMBIENTAL for the accuracy of data or opinions provided by others in the preparation of this report, or for any use of this report other than for the purpose for which it was produced.

Contact Us:

Ambiental Environmental Assessment
Sussex Innovation Centre,
Science Park Square,
Brighton, BN1 9SB

Ambiental Environmental Assessment
Sussex Innovation Centre,
Science Park Square,
Brighton, BN1 9SB

Contents

1.	Summary.....	1
2.	Development Description and Site Area	4
	<i>Proposed Development and Location.....</i>	<i>4</i>
	<i>Vulnerability Classification</i>	<i>6</i>
	<i>Geology.....</i>	<i>6</i>
3.	Sequential Test/Exception Test	7
4.	Site Flood Hazards.....	8
	<i>Sources of Flooding.....</i>	<i>8</i>
	<i>Mechanisms and History of Flooding</i>	<i>8</i>
	<i>Tidal</i>	<i>8</i>
	<i>Defences</i>	<i>10</i>
	<i>Surface Water (Pluvial).....</i>	<i>11</i>
	<i>Groundwater</i>	<i>12</i>
	<i>Sewer</i>	<i>13</i>
	<i>Surface Water Drainage Strategy.....</i>	<i>14</i>
	<i>Records of Historical Flooding</i>	<i>14</i>
5.	Probability of Flooding	16
	<i>Flood Zones.....</i>	<i>16</i>
	<i>Climate Change on Site.....</i>	<i>16</i>
6.	Residual Risks.....	17
	<i>Identification of Residual Risks</i>	<i>17</i>
	<i>Defence Breach.....</i>	<i>17</i>
	<i>Reservoir Failure</i>	<i>19</i>
	<i>Drainage Exceedance</i>	<i>19</i>
7.	Flood Risk Management Measures.....	20
	<i>Flood Risks</i>	<i>20</i>
	<i>Flood Warning Service.....</i>	<i>21</i>
	<i>Flood Evacuation Plan</i>	<i>22</i>
8.	Off Site Impacts.....	24
	<i>Impact to Flood Risk Elsewhere</i>	<i>24</i>
	<i>Generation of Runoff.....</i>	<i>24</i>
9.	Conclusion	25
Appendix I - Site Plans		

1. Summary

- 1.1 Ambiental Technical Solutions Limited has been appointed by Caldotec Ltd to undertake a National Planning Policy Framework (NPPF) compliant Flood Risk Assessment (FRA) a development at The Nelson, Pier Road, Littlehampton, West Sussex, BN17 5LP.
- 1.2 It is understood that the development is for the extension, reconfiguration and refurbishment of the basement, ground and first floor and the construction of a second floor to provide additional hotel rooms with all sleeping accommodation located on the first and second floor.
- 1.3 With reference to the Environment Agency (EA) Flood Map for Planning, the proposed development is located within Flood Zone 3 (High Risk; having a 1 in 200 or greater, >0.5%, annual probability of flooding from the sea. The proposed development is considered "More vulnerable" under the NPPF.
- 1.4 The proposed development falls within the 'Minor Development' guidelines (commercial extensions under 250m²) and therefore should follow EA Standing Advice for Minor Developments.
- 1.5 Under the NPPF, the proposed development should not be subject to the Sequential Test, since the NPPF states:

"Applications for some minor development and changes of use should not be subject to the sequential or exception tests but should still meet the requirements for site-specific flood requirements"
- 1.6 The site is 35m west of the River Arun and 320m north of the English Channel. The EA have provided information regarding the flood defences in the area. The EA have stated that the site is currently protected from the west, by a steel sheet pile wall with concrete cap and promenade with a Designed Standard of Protection of 1:300. The flood defence wall is in fair condition with a downstream crest level of 4.76mOAD and an upstream crest level of 4.80mAOD.
- 1.7 The scheme to strengthen the defences in the area is stated in the Beachy Head to Selsey Bill Shoreline Management Plan (2006), the management policy for Angmering-on-Sea to Littlehampton (Policy Unit: 4d18) is "Hold the Line" - maintain or upgrade the level of protection provided by defences. The management policy will continue to apply at present day and across the medium (2025 to 2055) to long term (2105). It can therefore be assumed that flood defences should be maintained and upgraded in the future.
- 1.8 Topographic levels across site vary between approximately 2.34mAOD and 3.51mAOD (Source: 2m LiDAR). EA modelled flood levels confirms that the site partially resides within the extreme tidal flood extent for the present day 1:200 year event (2.37mAOD) and the 1:1000 year flood event (2.94mAOD). Possible maximum flood depth, based on the minimum topographic level on site (2.34mAOD), for the present day 1:200 year and 1:1000 year flood events has been shown to be 0.03m and 0.60m, respectively.
- 1.9 The entire site is shown to be affected by the 1:200 year 2115 design event (4.88mAOD), 2.54m above the minimum site topography of 2.34mAOD. As such, and assuming that all sleeping quarters will be located on the first floor or second floor levels, the site could be considered to be at **moderate risk** of flooding from tidal/fluvial sources.
- 1.10 The site is could be considered to be at **low risk** of flooding from surface water and at **relatively low risk** of flooding from sewer sources. The proposed basement extension could be considered to be at **moderate risk** of flooding from groundwater sources, while the rest of the proposed development could be considered to be at **relatively low risk** of flooding from this source.

- 1.11 The site is shown by EA modelling to be outside of the present day 1:200 year defence breach events. As such, the risk of flooding from this source could be considered to be relatively low.
- 1.12 It is recommended that residents are aware of the EA Flood Information service which identifies whether any flood warnings or alerts have been issued for a specific postcode or place in England or Wales: <https://flood-warning-information.service.gov.uk/>.
- 1.13 The Met Office issues weather warnings up to 5 days in advance, through the National Severe Weather Warning Service, when severe weather has the potential to bring impacts to the UK. It is also possible to stay up to date with weather warnings through the Met Office app (available on both android and apple), social media (twitter, Facebook) or email alerts. More information can be found at <https://www.metoffice.gov.uk/weather/guides/warnings>.
- 1.14 During periods of bad weather, site users should monitor local weather reports and sign up for the Met Office UK weather warnings. Warnings can be monitored through an Apple/Android app, Twitter or directly via emails. Further information can be found at <https://www.metoffice.gov.uk/>.
- 1.15 Refuge on the first and second floors is recommended in the case of any flooding. As such, access between all proposed basement and ground floor extension, to the first floor should be maintained.
- 1.16 Following the guidelines contained within the NPPF, and given that:
- The development is for the extension, reconfiguration and refurbishment of the basement, ground and first floor and the construction of a second floor to provide additional hotel rooms with all sleeping accommodation located on the first and second floor. **It should be considered to be a minor extension (<250m²).**
 - The flood level for the site in the 1:200 year 2115 design event (4.88mAOD).
 - It is recommended that internal ground floor FFLs are built no lower than existing ground floor levels.
 - The site is situated in an EA Flood Warning Area.
 - Betterment can be provided by the formalisation of a flood warning and evacuation plan.
 - Residents sign up to the EA Flood Warning systems and monitor weather warnings regularly during periods of bad weather.
- 1.17 Following the guidelines contained within the NPPF, the proposed development is **considered to be suitable** assuming appropriate mitigation (including adequate warning procedures) can be maintained for the lifetime of the development.

Table 1 Summary of flood risks, impacts and proposed flood mitigation measures.

N/A¹ not required for this assessment; N/A² data not available..

Development Description	Existing	Proposed
Development Type:	Public house on the Ground Floor, function room and storage in the basement and hotel rooms on the first floor.	Extension (under 250m ²) and reconfiguration on the ground and first floor, construction of a second floor to create additional hotel rooms.
Number of Bedrooms:	Six	Fourteen
EA Vulnerability Classification:	More vulnerable	More vulnerable
Ground Floor Level:	Elevations on site vary between approximately 2.34mAOD and 3.52mAOD (2m LIDAR data).	Ground floor levels set no lower than existing ground floor levels. Exact internal FFLs unknown at the time of writing.
Level of Sleeping Accommodation:	Ground floor x1 and First floor x5	First floor x7 and Second Floor x7
Impermeable Surface Area:	405m ²	405m ²
Surface Water Drainage:	N/A ¹	Increase in built footprint, minor extension. Small scale SuDS recommended to be incorporated into the proposed development to provide betterment.
Site Size:	405m ²	No change
Risk to Development	Summary	Comment
EA Flood Zone:	3	High Risk
Flood Source:	Tidal	River Arun estuary
1:200 Year Flood Level	2.37mAOD	
1:200 Year Flood Level & Climate Change (2115)	4.88mAOD	Arun to Adur Modelling study (2012 & 2017).
1:1000 Year Flood Level	2.94mAOD	
Recorded Flood Events in Area:	Yes	Refer to Section 4
Recorded Flood Events at Site:	No	
SFRA Available:	Yes	Arun District SFRA (August 2016 update)
Management Measures	Summary	Comment
Ground floor level above extreme flood levels:	N/A ¹	Internal FFLs unknown at time of writing
Safe Access/Egress Route:	Yes	Safe egress can be provided via evacuation or via internal stairwells to upper floors
Flood Resilient Design:	Yes	Sleeping Accommodation located on the first floor and second floor
Site Drainage Plan:	N/A ¹	Increase in built footprint of <250m ² , minor extension
Flood Warning & Evacuation Plan:	Yes	EA Flood Warning Service
Offsite Impacts	Summary	Comment
Displacement of floodwater:	N/A ¹	Site lies in area of tidal flood risk
Increase in surface run-off generation:	N/A ¹	Increase in built footprint minor extension.
Impact on hydraulic performance of channels:	None	-

2. Development Description and Site Area

Proposed Development and Location

- 2.1 The proposed development is located at The Nelson, Pier Road, Littlehampton, West Sussex, BN17 5LP (see Figure 1 and Figure 2).
- 2.2 It is understood that the development is for the extension, reconfiguration and refurbishment of the basement, ground and first floor and the construction of a second floor to provide additional hotel rooms with all sleeping accommodation located on the first and second floor.
- 2.3 Elevations on site vary between approximately 2.34mAOD and 3.52mAOD (1m LiDAR data). Analysis of topographic levels indicates that the site generally slopes to the east, away from the River Arun (see Figure 3).

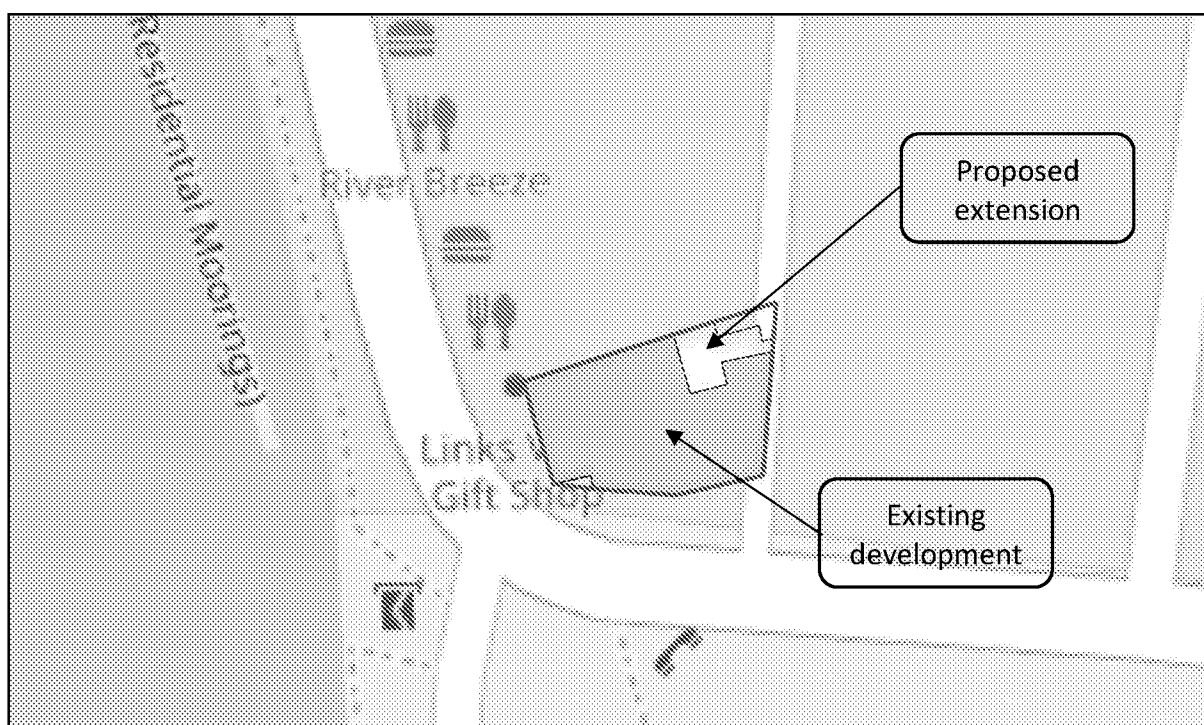


Figure 1 Site Location (Source: OS)



Figure 2 Site location map (Source: Google)

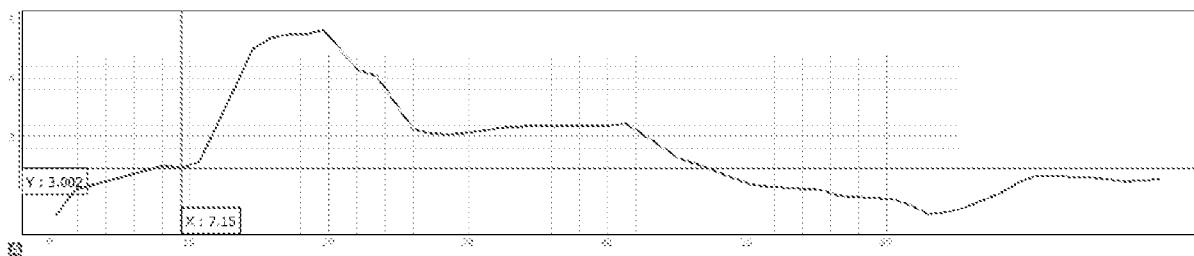
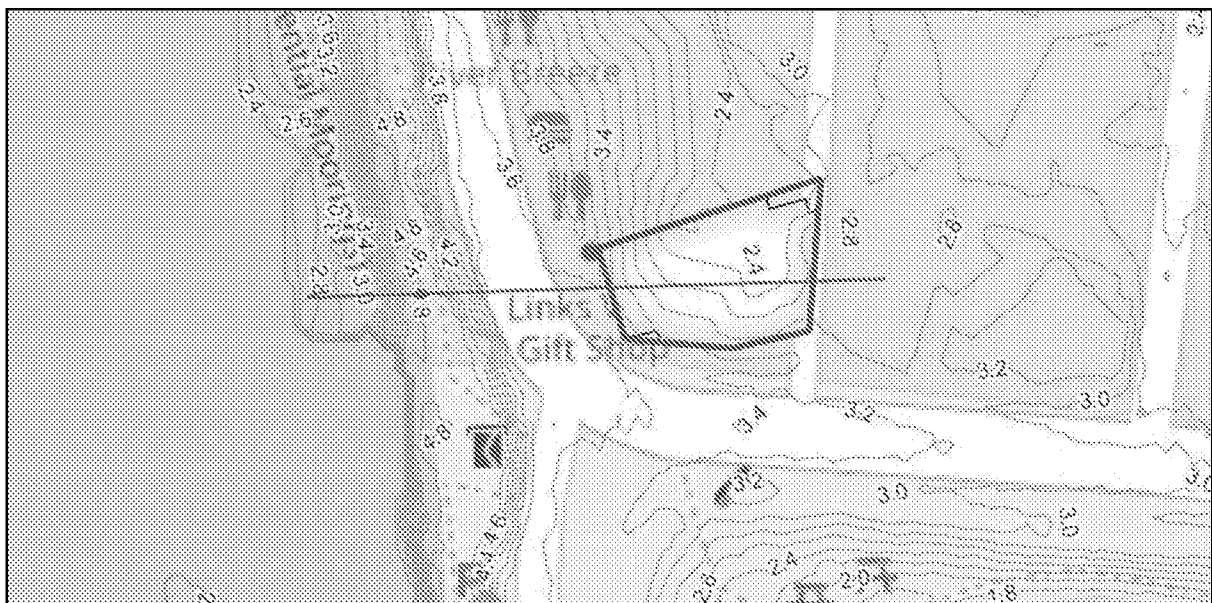


Figure 3 Site topography (upper) and cross-section (lower) (Source: EA). Cross section is taken from west top east.

Vulnerability Classification

- 2.4 According to the NPPF and the Environment Agency (EA) standing advice on development and flood risk, as well as the low detail, national-scale flood mapping created on behalf of the EA the site is located in Flood Zone 3 (High Risk; 1 in 200 or greater annual probability of flooding from the sea (>0.5%) (see Figure 4).
- 2.5 According to NPPF guidelines, the existing site is classified as 'More Vulnerable', and the proposed development is classified as 'More Vulnerable'.

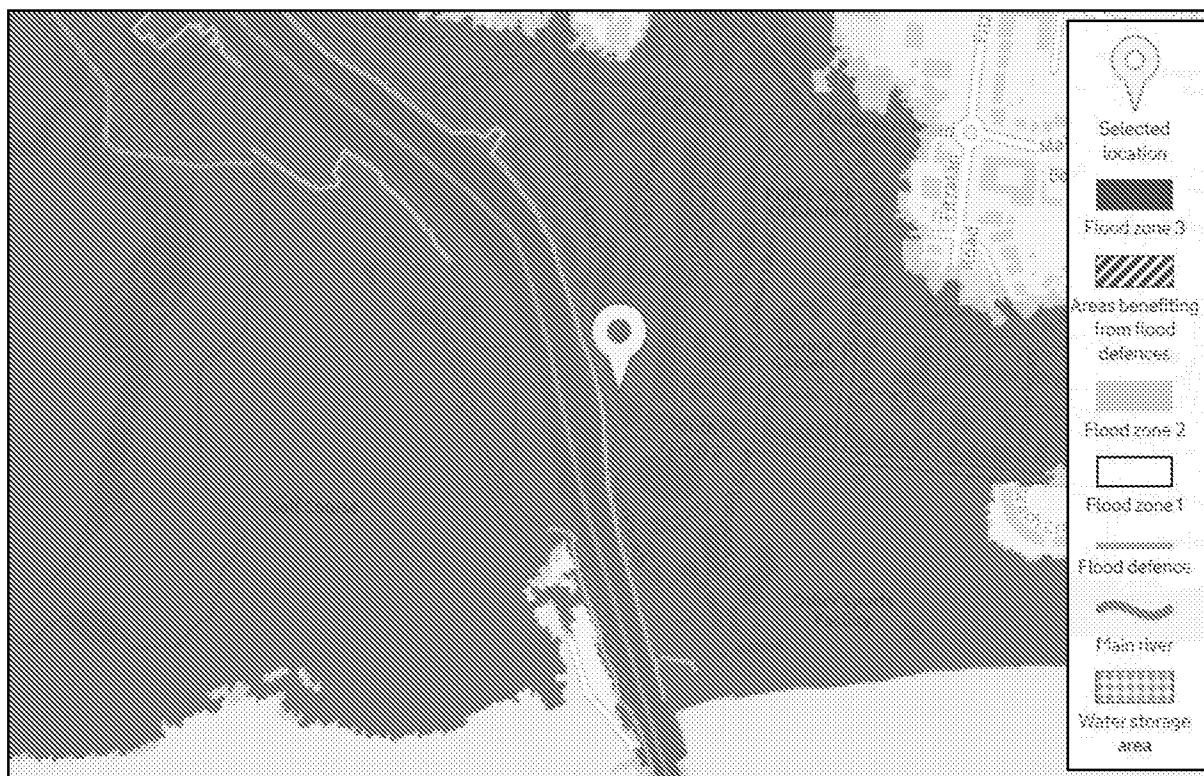


Figure 4 EA Flood Map for Planning (Source: EA)

Geology

- 2.6 According to the British Geological Survey (BGS) the bedrock of the site is of the Lewes Nodular Chalk Formation, Newhaven Chalk Formation and Culver Chalk Formations. The superficial geology of the site is classified as Raised Beach Deposits formed of Sand and Gravel.

3. Sequential Test/Exception Test

- 3.1 Under the NPPF, all new planning applications should undergo a *Sequential Test*. This test should be implemented by local planning authorities with a view to locating particularly vulnerable new developments (e.g. residential, hospitals, mobile homes etc.) outside of the floodplain.
- 3.2 It is understood that the development is for the extension, reconfiguration and refurbishment of the basement, ground and first floor and the construction of a second floor to provide additional hotel rooms with all sleeping accommodation located on the first and second floor.
- 3.3 The NPPF *Sequential Test: Flood Risk Vulnerability and Flood Zone 'Compatibility' Table* is reproduced below in Table 2;

Table 2 The Sequential Test: Flood Risk Vulnerability and Flood Zone 'Compatibility' Table as specified by NPPF.
Please note: ✓ means development is appropriate; ✗ means the development should not be permitted.

Flood Risk Vulnerability Classification		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test Required	✓	✓
	Zone 3a	Exception Test Required	✓	✗	Exception Test Required	✓
	Zone 3b Functional Floodplain	Exception Test Required	✓	✗	✗	✗

- 3.4 Using the principles of the Sequential Test outlined above, the proposed development is 'More Vulnerable' and located within Flood Zone 3 (as defined by the EA Flood Map for Planning Flood Map, Figure 4) and as such, the development is required to implement the Exception Test.

For the Exception Test to be passed, the proposed development must meet the following criteria:

- it must be demonstrated that the development provides wider sustainability benefits to the community that outweigh the flood risk, as informed by a Strategic Flood Risk Assessment;
- a Flood Risk Assessment demonstrates that the development will be safe, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

(Source: the NPPF)

- 3.5 The Sequential Test does not need to be applied for individual developments on sites which have been allocated in development plans through the Sequential Test, or for applications for **minor development** or change of use.
- 3.6 As such, and in order to address these requirements, the planning application submitted by the applicant is required to be accompanied by a FRA which shows that the development can be achieved in a sustainable manner, with an overall reduction of flood risk to the site and surrounding area.

4. Site Flood Hazards

Sources of Flooding

- 4.1 The proposed development is located within Flood Zone 2 (medium risk of flooding) and is considered to be 'More vulnerable' according to NPPF guidelines. Table 3 summarises the potential sources of flooding to the site:

Table 3 Summary of flood sources.

Source	Description
Fluvial/Tidal	EA Main River: River Arun 35m west Sea: English Channel 320m South; Moderate Risk
Surface	Low risk
Groundwater	Moderate
Sewer	Relatively low risk

Mechanisms and History of Flooding

- 4.2 According to the low detail, national-scale flood mapping created on behalf of the EA the proposed development is located within Flood Zone 3 of the tidal flood plains of the River Arun and the English Channel (tidal).
- 4.3 The Flood Map for Planning, in Figure 4, outlines only the potential floodplain; and the mitigating effects of flood defences currently in place are not considered. The site benefits from flood defences and the EA have stated that the western side of the site is currently protected by a steel sheet pile wall with concrete cap and promenade with Designed Standard of Protection of 1:300 year. The flood defence wall is in fair condition with a downstream crest level of 4.76mOAD and an upstream crest level of 4.80mAOD. Defences on the River Arun approximately 130m north of the site have a Designed Standard of Protection of 1:75 years.

Tidal

- 4.4 The EA Flood Map for Planning (see Figure 4) confirms that the site lies within Flood Zone 3 (High Risk), having a 1 in 200 or greater annual probability of flooding from the sea (>0.5%).
- 4.5 The River Arun is located approximately 35m west of the site at its closest proximity. The River Arun has been identified as a main river by the EA. The English Channel is located approximately 320m to the south.
- 4.6 Flood extents, levels and depths have been extracted for the site from the EA's Arun to Adur model (Source: EA, 2012).
- 4.7 Flood extents for the defended scenario are shown in Figure 6. This shows the site, and any area within 10m, to avoid flooding in the 1:20 year, 1:20 year and 1:75 year events. This site is however shown to be affected by flooding in the defended 1:200 year (2.37mAOD), 1:1,000 year (2.94mAOD), 1:200 +CC 2070 epoch (4.09mAOD) and 1:200 year +CC 2115 (4.88mAOD) scenarios.

- 4.8 The site currently benefits from the presence of nearby defences, the closest of which have a design Standard of Protection of the 1:300 year event. However the site is demonstrated to be affected by flooding in the present day 1:200 year event. This suggests that either;
- Since the East Arun Tidal Defence Scheme upgrade of flood defences, completed in spring 2015, is not taken account of by flood extents and depths in Arun to Adur Flood Modelling Study, which was completed in 2012, and/or
 - Flooding to the site in the 1:200 year present day event is sourced from defences approximately 140m north of site, where the Design Standard of Protection is to 1:75 years.
- 4.9 Figure 5 shows the node points for flood levels from the Arun to Adur Flood Modelling Study, completed in 2012. Flood levels from these node points are shown in Table 4 below.
- 4.10 Data provided by the EA gives a flood level of 4.88mAOD for the 1:200 year +CC 2115 epoch design flood event (Node 1, 2 and 3). A level of 4.09mAOD was demonstrated for the 1:200 year flood event for the 2070 epoch.
- 4.11 Topographic levels across site vary between approximately 2.34mAOD and 3.51mAOD (Source: LiDAR). Comparison of the topographic site levels with the modelled design flood level confirms that the site may experience flood depths of up to 0.03m in the 1:200 year event (2.37mAOD) and 2.54m in the 1:200 year 2115 flood event, based on this model.

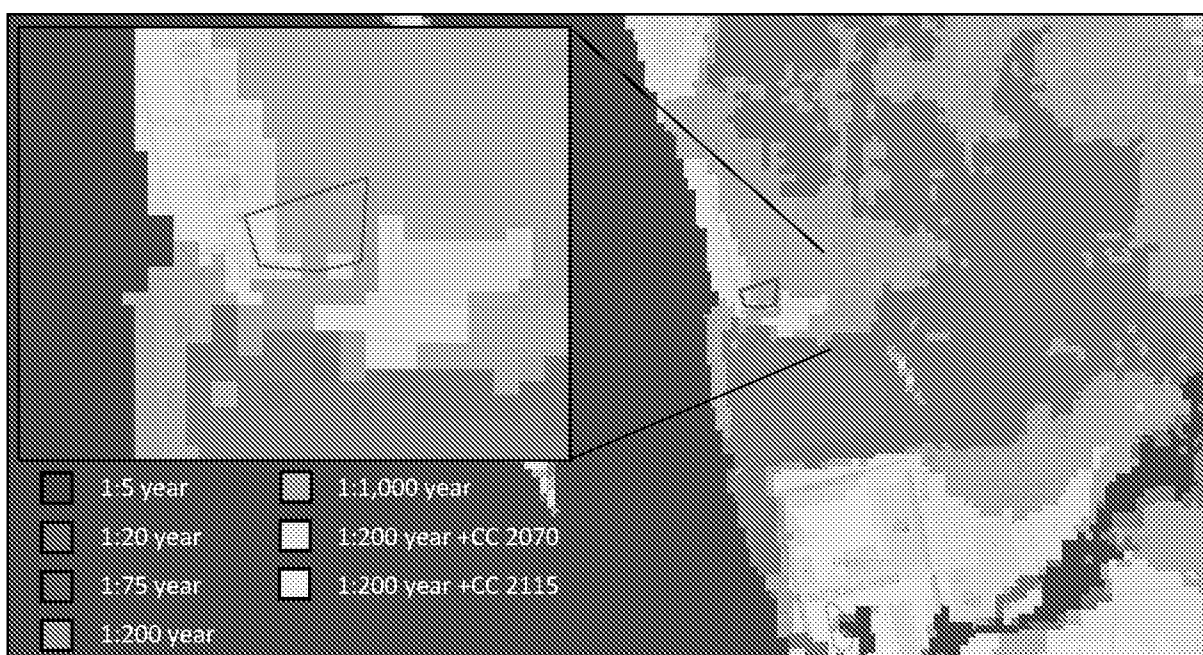


Figure 5 Defended modelled flood extent map (Source: EA; Arun to Adur Modelling study (2012 and 2017))

Table 4 Modelled Flood Plain Levels (Source: Arun to Adur Modelling Study, EA, 2012 and 2017)

Modelled Flood Level for Annual Exceedance Probability (mAOD) Defended					
Node	5% AEP (1:20yr)	0.5% AEP (1:200yr)	0.5% AEP (2070)	0.5% AEP (2115)	0.1% AEP (1:1000yr)
1	0.00	0.00	4.09	4.88	2.94
2	0.00	2.37	4.09	4.88	2.94
3	0.00	2.37	4.09	4.88	2.94

Flood Defences

- 4.12 According to the EA Flood Map for Planning (see Figure 4), the site does not benefit from the presence of defences.
- 4.1 The Arun District Council SFRA (August 2016 Update) has shown that the site does benefit from the presence of defences in the form of a privately owned wall. The estimated design standard for the area is 1:75 year to 1:300 years for the defences along the River Arun and 1:300 along the beach to the south.
- 4.2 The EA have further provided information regarding the flood defences in the area. The EA have stated that the western side of the site is currently protected by a steel sheet pile wall with concrete cap and promenade with Designed Standard of Protection of 1:300. The flood defence wall is in fair condition with a downstream crest level of 4.76mOAD and an upstream crest level of 4.80mAOD.
- 4.3 The scheme to strengthen the defences in the area is stated in the Beachy Head to Selsey Bill Shoreline Management Plan (2006), the management policy for Angmering-on-Sea to Littlehampton (Policy Unit: 4d18) is "Hold the Line" - maintain or upgrade the level of protection provided by defences. The management policy will continue to apply at present day and across the medium (2025 to 2055) to long term (2105).
- 4.4 As such, since flood defences within the vicinity of the site are built to the design Standard of Protection of as low as 1:75 years, parts of the site are shown in the model data provided, to experience flood levels of 2.37mAOD in the present day 1:200 year event.
- 4.5 The EA have provided details of historic flood incidents in the area of the site. Preceding 1985 flooding of properties, roads and industrial areas have been recorded in the vicinity of the site, caused by overtopping mainly through the harbour master's yard where water gates were reported to be left open. Between 40 and 100 houses were affected by this incident. However, flood defences have been improved in the area which has subsequently reduced the risk of flooding in the vicinity of the site.
- 4.6 It is important to note that tidal flooding is generally caused by low pressure weather systems creating storm-surges (or storm tides), chiefly via high speed winds. These winds (and to a certain extent, the low pressure) create a 'bulge' of water which, if it coincides with high tide, can generate very high, stormy, water levels. However, because this mechanism is well understood, it is very likely that an early warning will be issued before such an event strikes. As such, it is very unlikely that the site would be subject to tidal flooding without several hours of early warning.
- 4.7 As such, given that the internal FFLs are unknown at the time of writing, that external ground floor levels range from 2.35mAOD to 3.52mAOD, and that the highest external ground floor level is shown in plans to

be lower than the internal ground floor FFL, the minimum probable elevation of the internal first floor FFLs can be calculated. Using an assumed ground floor to ceiling height of 2.40m, the internal first floor FFL would be set at no lower than 5.92m AOD.

- 4.8 This as such, meets the requirement, that the internal first floor FFL is to be set at now lower than 5.48m AOD, 600mm above the design 1:200 year 2115 flood level provided by the EA.
- 4.9 As such, considering the flood mitigation measures outlined in Section 7, the risk of flooding from all fluvial sources could be considered to be **moderate**.

Surface Water (Pluvial)

- 4.10 The EA Flood Risk from Surface Water website shows the proposed development and its immediate vicinity to be within an area of 'Very Low' risk of flooding from surface water (see Figure 7). Areas identified to be at 'Very Low' risk have a less than 0.1% annual risk of flooding from this source.
- 4.11 The EA Surface Water Flood Depth Map for the Low Risk (1:1,000 year) Scenario (see Figure 8) indicates that the proposed development may avoid flooding in this event. A Low Risk Scenario has a 0.1% to 1% annual risk of occurring.
- 4.12 As such, the risk of flooding to the site from surface water sources could be considered to be **low**.

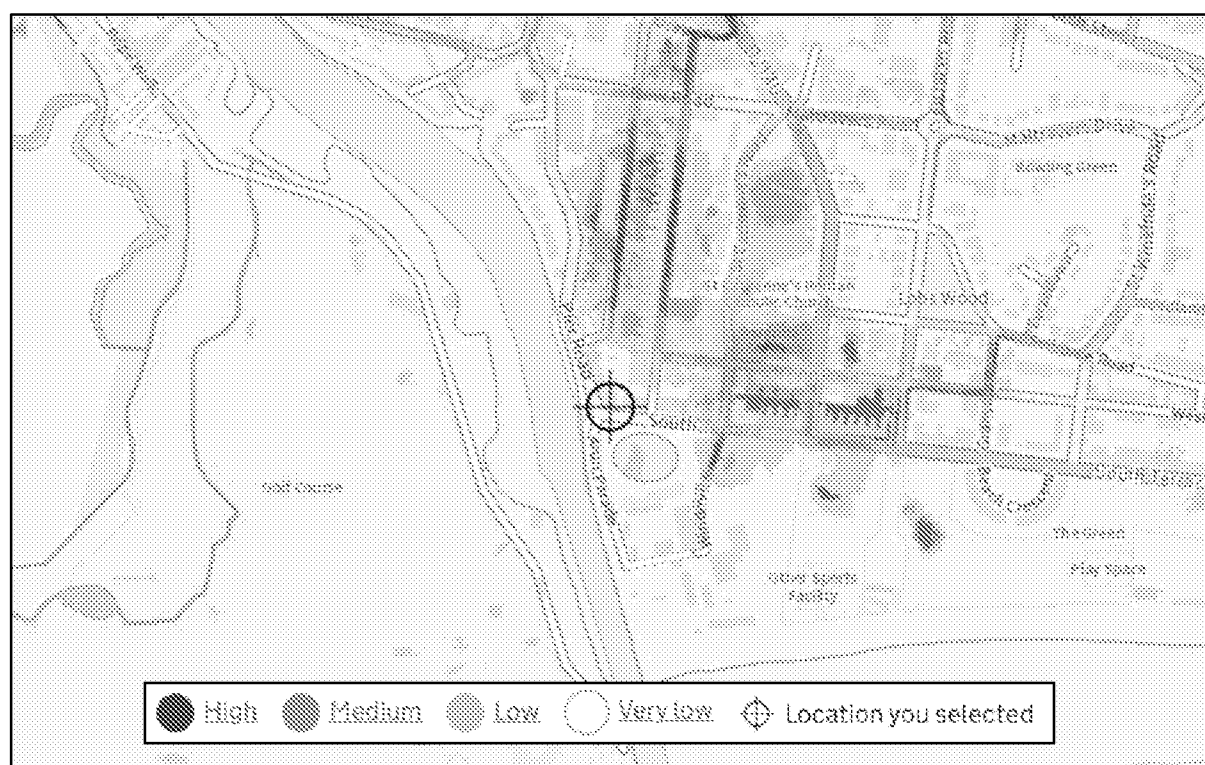


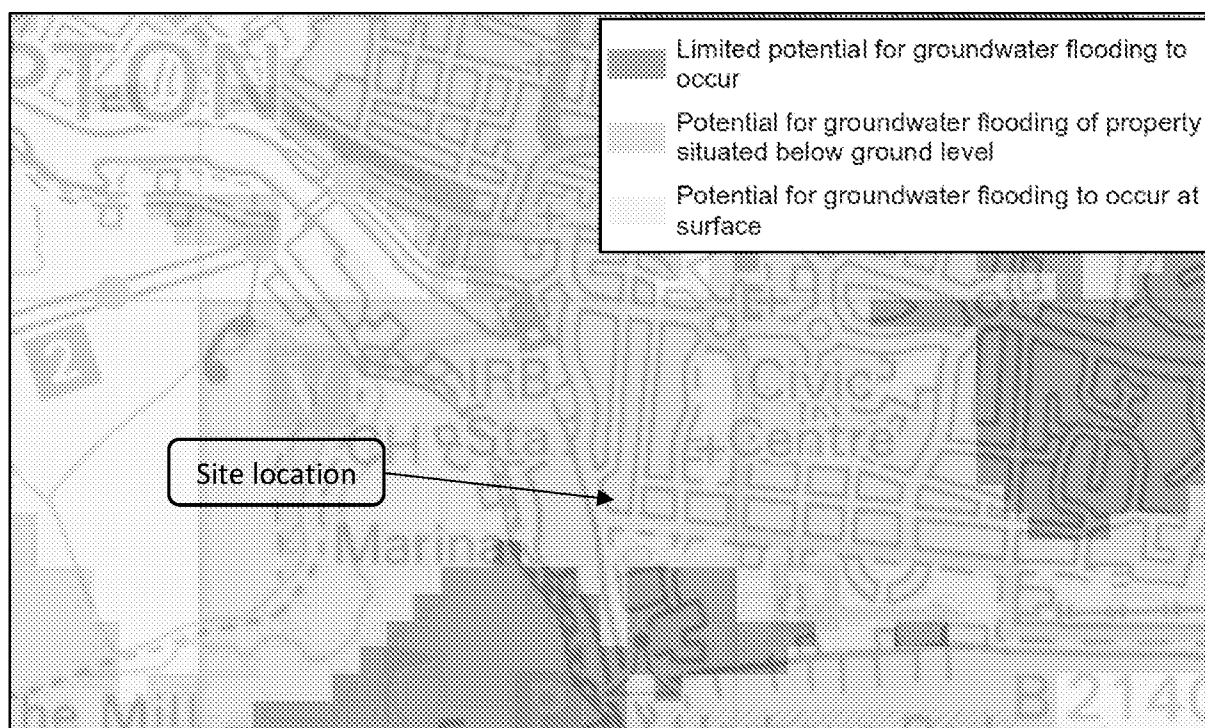
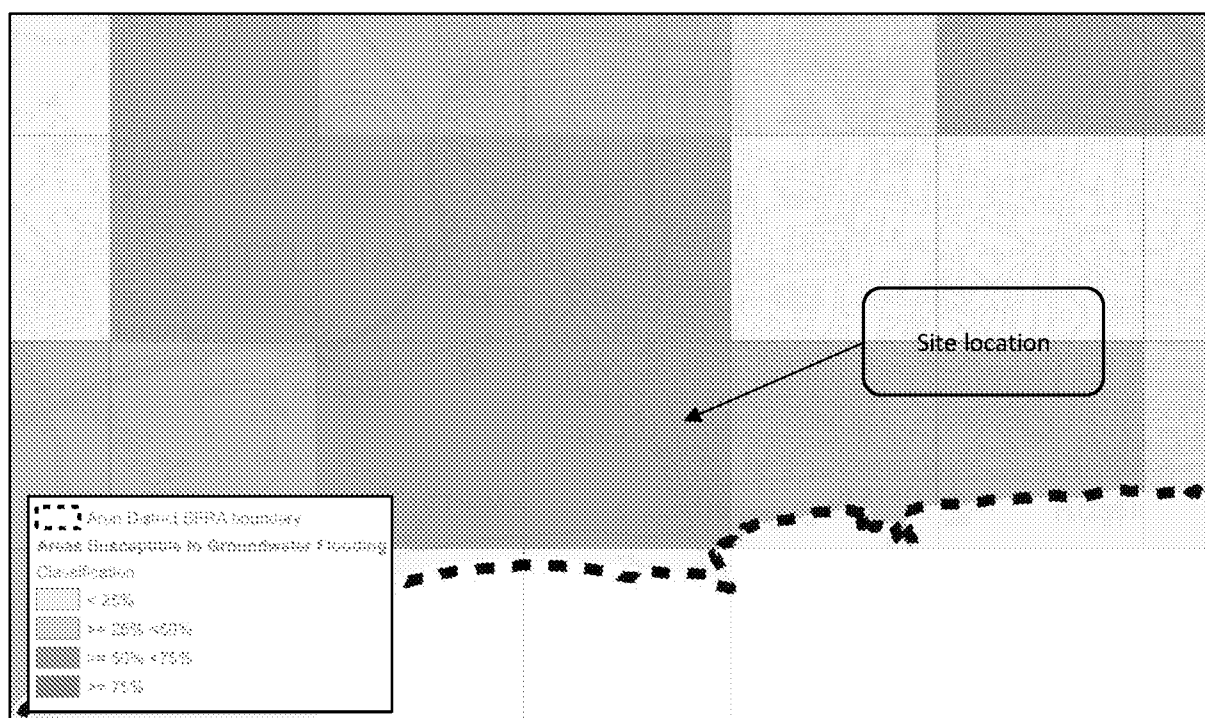
Figure 8 EA Surface Water Flood Risk Map. (Source: EA)



Figure 9 Flood depths for EA RofSW Low Risk (1:1,000 year) pluvial event (Source: EA)

Groundwater

- 4.13 The EA has shown the site to not be located within a groundwater source protection zone. The EA has however identified the site to be located over a major aquifer with high vulnerability.
- 4.14 The Arun District Council SFRA Appendix A (August 2016 Update) Area Susceptible to Groundwater Flooding Map (see Figure 9) shows the site to be located in an area of which, $\geq 75\%$ is classified as susceptible to groundwater flooding.
- 4.15 The BGS Susceptibility to Groundwater Flooding Map (see Figure 10) shows the site to be situated in an area considered by the BGS to have "Potential for groundwater flooding situated below ground level".
- 4.16 The Arun District Council Strategic Flood Risk Assessment (2016 Update) has no records of historical groundwater flooding in the area have been found (see Figure 12).
- 4.17 As such, given that all sleeping quarters will be situated on the first floor or higher, and that the proposed development includes a basement area, the risk of flooding from this source to the basement could be considered to be **moderate**, and **relatively low** to all other floors.



Sewer

4.18 The Arun District Council SFRA Appendix A (2016 Update) Historic Incidents of Flooding from Sewers Map (see Figure 11) shows the area surrounding the site has had 6 recorded historic sewer flooding incidents. However, there have been no recorded historic sewer flood events on site.

- 4.19 The Arun District Council SFRA (August 2016 Update) does not provide any further information about when the incidents occurred, severity or cause.
- 4.20 As such, the risk to the site from sewer flood sources can be considered **relatively low** given that the development is for a minor extension and refurbishment of the existing property.

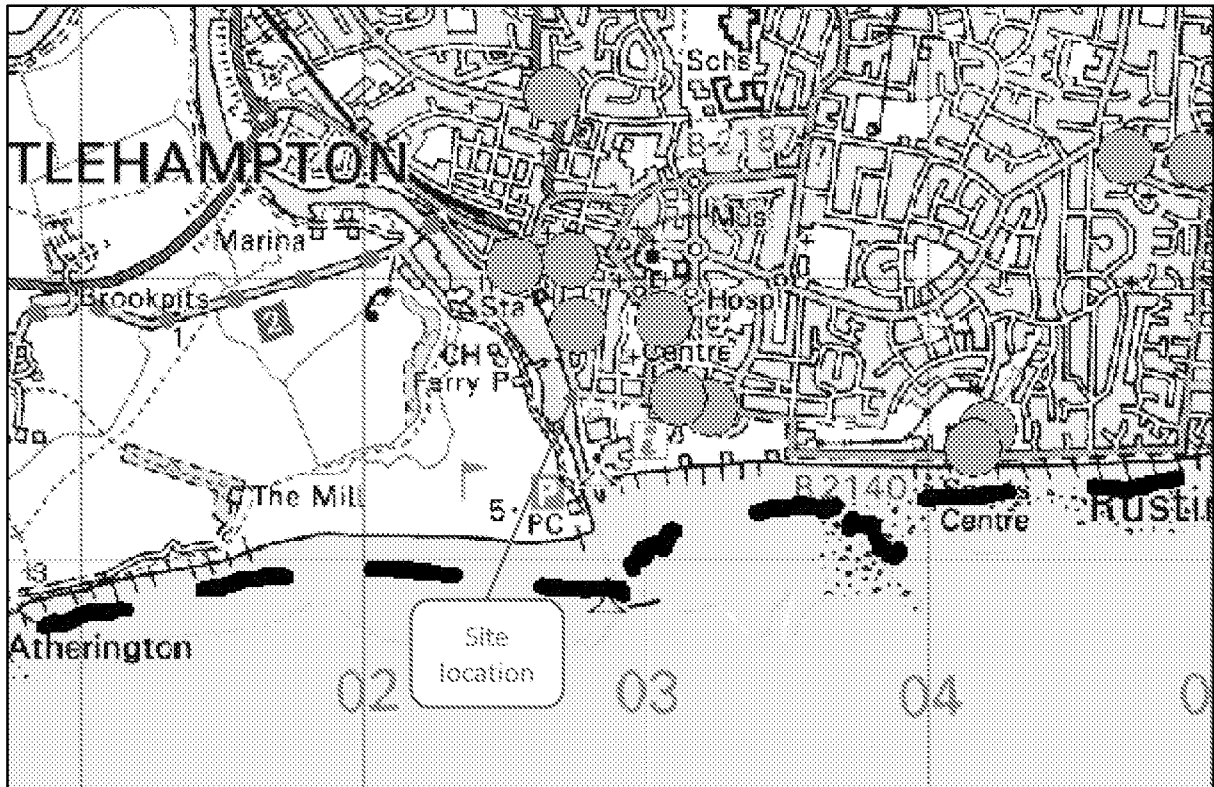


Figure 13 Historic Incidents of Sewer Flooding Map (Source: Arun District Council SFRA).

Surface Water Drainage Strategy

- 4.21 The existing site is developed. The proposed development is for the extension, reconfiguration and refurbishment of the basement, ground and first floor and the construction of a second floor with bedrooms. With all sleeping accommodation located on the first and second floor.
- 4.22 The development is viewed as a minor development, and as such the applicant will discharge surface water by means of the existing management infrastructure associated with the existing property.
- 4.23 Betterment could be provided through incorporation of small scale SuDS such as rainwater planters and water butts.

Records of Historical Flooding

- 4.24 The Arun District Council SFRA (August 2016 Update) Historic Flooding Records Map (see Figure 12) shows one historic flood event approximately 40m north of the development site, however the source of flooding is unknown. One recorded flood outline has been identified in close proximity to the site, approximately 150m north along Pier Road.
- 4.25 The EA have provided historic flood incidents in the area of the site. Preceding 1985 flooding of properties, roads and industrial areas have been recorded in the vicinity of the site, caused by overtopping mainly through the harbour master's yard where water gates were reported to be left open. Between 40 and 100

houses were affected by this incident. However, flood defences have been improved in the area which has subsequently reduced the risk of flooding in the vicinity of the site.

- 4.26 A number of surface water flooding incidents have also been recorded in close proximity to the site along St Catherine's Road and on the junction of Irvine Road and Beach Road. No further information has been provided regarding these incidents, however the SFRA states that the primary source of surface water flooding was attributed to heavy rainfall overloading highway carriageways and paved areas, drains and gullies, as well as blockages and high-water levels impeding free discharge from surface water drains and gullies.

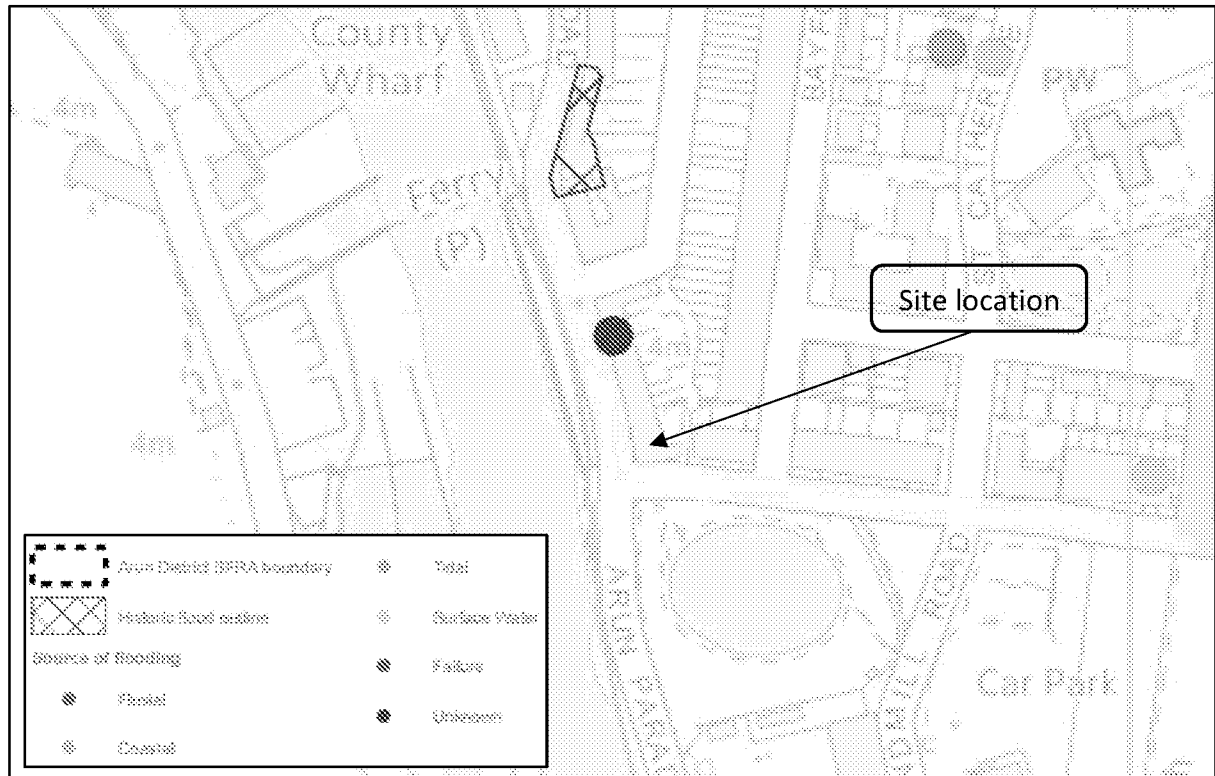


Figure 14 Historic flooding records (Source: Arun District Council SFRA, 2016 update)

5. Probability of Flooding

Flood Zones

- 5.1 According to the EA Flood Map for Planning, the site is located within Flood Zone 3 (High risk of flooding).
- 5.2 The EA Flood Map for Planning has been produced in part using a relatively coarse, national scale flood modelling strategy, and in part by detailed modelling. It is important to note that only the potential floodplain is modelled; **the mitigating effects of any flood defences currently in place are not considered.** For reference, the definition of the NPPF flood risk zones is included below in Table 5.

Table 5 Definition of the NPPF Flood Zones. (Source: EA)

Zone	Description
1	Low Probability. This zone comprises land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%).
2	Medium Probability. This zone comprises land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% – 0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% – 0.1%) in any year.
3a	High Probability. This zone comprises land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.
3b	The Functional Floodplain. This zone comprises land where water has to flow or be stored in times of flood. SFRA's should identify this Flood Zone (land which would flood with an annual probability of 1 in 20 (5%) or greater in any year or is designed to flood in an extreme (0.1%) flood, or at another probability to be agreed between the LPA and the EA, including water conveyance routes).

Climate Change on Site

- 5.3 Climate change is likely to increase flow in rivers, raise sea levels and storm intensity.
- 5.4 Since the site is situated in Flood Zone 3 and is considered as 'More Vulnerable' under the NPPF. It is therefore recommended that Peak Flow Allowances used for the design life expectancy (2080 epoch) are either Central at 25%, or Higher Central 36%, for the Arun and Western Streams Catchment.
- 5.5 The existing site benefits from the presence of defences both, along the River Arun and the seafront. The upstream crest levels vary between approximately 4.12mAOD and 4.80mAOD along the Arun. The design standard of protection varies between 1 in 75 years and 1 in 300 years. This is 0.76m and 0.08m respectively lower than the 1:200 year 2115 design event level (4.88mAOD).
- 5.6 It is assumed that the EA will maintain and upgrade (when necessary) the defences in the area to ensure that flood defence crest heights are adequate, and the 200-year standard of protection is maintained in the future.

6. Residual Risks

Identification of Residual Risks

- 6.1 Residual risks are those remaining after applying the sequential approach to the location of development and taking mitigating actions. Examples of residual flood risk include:
- the failure of flood management infrastructure such as a breach of a raised flood defence, blockage of a surface water conveyance system, overtopping of an upstream storage area, or failure of a pumped drainage system;
 - failure of a reservoir, or;
 - a severe flood event that exceeds a flood management design standard, such as a flood that overtops a raised flood defence, or an intense rainfall event which the drainage system cannot cope with.
- 6.2 The controlling residual flood risk mechanism on site is tidal. Tidal flooding is generally caused by low pressure weather systems creating storm-surges (or storm tides), chiefly via high speed winds. These winds (and to a certain extent, the low pressure) create a 'bulge' of water which, if it coincides with high tide, can generate very high, stormy, water levels. However, because this mechanism is well understood, it is very likely that an early warning will be issued before a tidal flood event occurs. As such, it is very unlikely that the site would be subject to tidal flooding without several hours of early warning.
- 6.3 Given the nature of the tidal cycle flood waters on site will likely recede as in-channel water levels fall.

Defence Breach

- 6.4 The Arun District SFRA (August 2016 Update) has shown that the site does benefit from the presence of defences in the form of a privately owned wall. The estimated design standard for the area is 1:75 for the defences along the River Arun and 1:200 along the beach to the south.
- 6.5 The EA have further provided information regarding the flood defences in the area. The EA have stated that the western side of the site is currently protected by a steel sheet pile wall with concrete cap and promenade with Designed Standard of Protection of 1:300. The flood defence wall is in fair condition with a downstream crest level of 4.76mOAD and an upstream crest level of 4.80mAOD.
- 6.6 The Arun District SFRA (2016) southern 1:200-year breach event map (see Figure 13), shows the site to be situated in an area that remains unaffected by this breach. The site also remains unaffected in breach event scenarios for defences further north also.
- 6.7 The Beachy Head to Selsey Bill Shoreline Management Plan (2006) states that the 'hold the line' strategy will cause no loss of property or land behind the existing defences, but properties may become more exposed and subject to overtopping and flood damage (See Table 6)
- 6.8 As such, the residual risk because of a defence breach is deemed to be **low**.

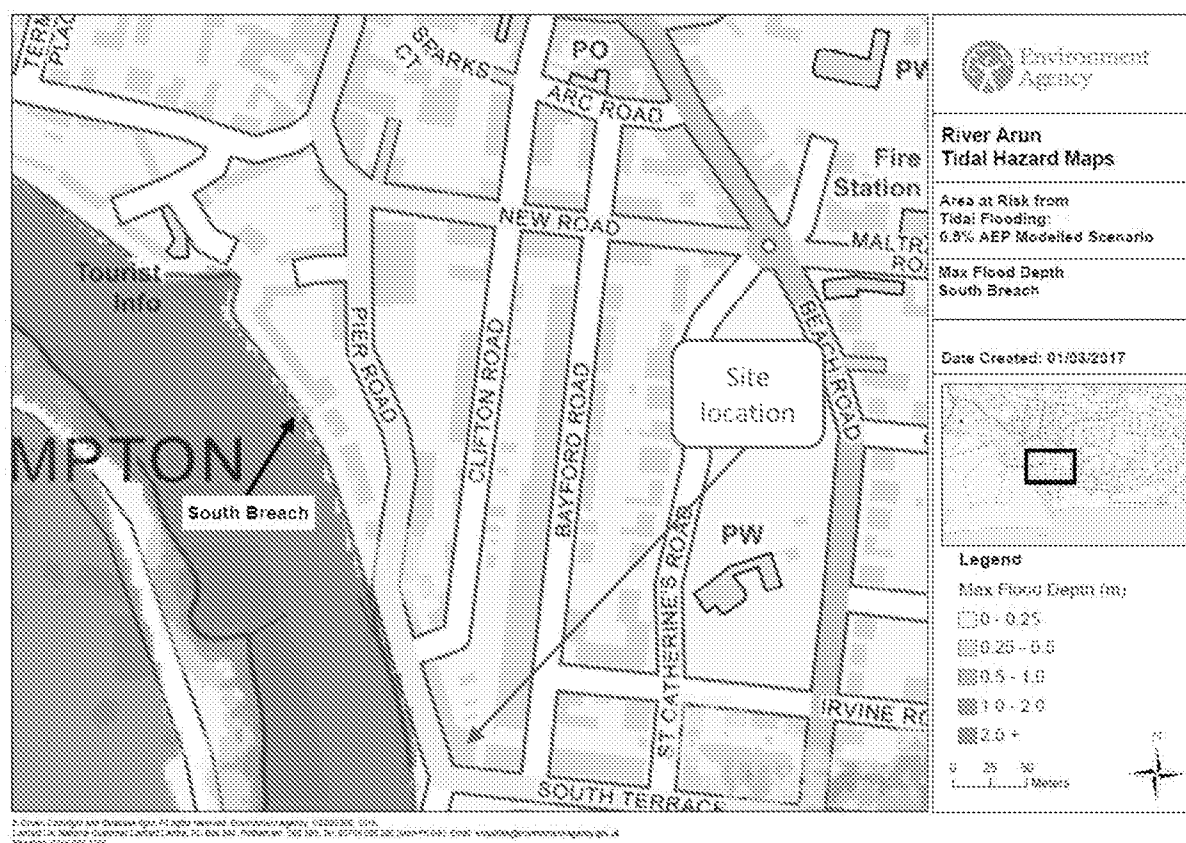


Figure 15 Area at Risk from Tidal Flooding: 0.5% AEP Modelled Scenario, Max Flood Depth South Breach (Source: Arun District SFRA, 2016)

Table 6 Implications of the Preferred Strategy for this location (Source: Beachy Head to Selsey Bill SMP, 2006)

Location reference:	Angmering-on-Sea to Littlehampton
Policy Unit reference:	4d18

IMPLICATIONS OF THE PREFERRED PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2005 – 2025	Continue with current management practices.	No loss of property or land behind the existing defences.	No nature conservation gains or losses.	No loss or gains to landscape character of seafront.	No loss of heritage sites landward of defences.	No loss of community or recreational facilities landward of defences. Narrow beach retained.
2025 – 2055	Increased engineering and beach management practices.	No loss of property or land behind the existing defences.	No nature conservation gains or losses.	Landscape character of seafront may change due to greater defence works, with possible loss of beach habitat.	No loss of heritage sites landward of defences.	No loss of community or recreational facilities landward of defences. Some land may need to be sacrificed to establish new defences. Reduction in beach.
2055 – 2105	Increased engineering and beach management practices. New replacement defences required. Esplanade may need to be relocated/ set back.	No loss of property or land behind the existing defences. Properties may become more exposed and subject to overtopping and flood damage.	No nature conservation gains or losses.	Landscape character of seafront may change due to greater defence works.	No loss of heritage sites landward of defences. Some potential loss of conservation areas.	No loss of community or recreational facilities landward of defences. Blue Flag status may be lost due to reduced beach width.

Reservoir Failure

- 6.9 The EA Risk from Reservoir Map demonstrates that the site is outside all flood extents in the event of reservoir flooding for all wet day, dry day and fluvial contribution scenarios.

Drainage Exceedance

- 6.10 The development will be required to have both surface water and foul water sewer connections to be agreed with relevant sewer authority.
- 6.11 In the event of drainage failure/exceedance, overland flows would be dictated by site topography, which slopes to the east and to a slight depression in topography to the east of the site. Refuge from such an event could be provided from the basement and ground floors on the first and second floors of the site. As such, and considering that the site is considered to be at 'Ver Low' risk of surface water flooding, the flood risk from drainage exceedance could be considered to be **low**.

7. Flood Risk Management Measures

Flood Risks

- 7.1 The site is located in Flood Zone 3 (High Risk of flooding as defined in the NPPF) according to the EA Flood Map for Planning, as such the proposed development will require flood mitigation measures.
- 7.2 The controlling residual flood risk mechanism on site is tidal. Tidal flooding is generally caused by low pressure weather systems creating storm-surges (or storm tides), chiefly via high-speed winds. These winds (and to a certain extent, the low pressure) create a 'bulge' of water which, if it coincides with high tide, can generate very high, stormy, water levels. However, because this mechanism is well understood, it is very likely that an early warning will be issued before such an event strikes. As such, it is very unlikely that the site would be subject to tidal flooding without several hours of early warning.
- 7.3 Given the nature of the tidal cycle and fluvial channel setting flood waters on site will likely recede as the in-channel water levels fall.
- 7.4 It is understood that the development is for the extension, reconfiguration and refurbishment of the basement, ground and first floor and the construction of a second floor to provide additional hotel rooms with all sleeping accommodation located on the first and second floor.
- 7.5 As discussed above, the FRA will be required to comply with relevant EA Standing Advice (Minor Developments Standing Advice) which states:

Use the advice for minor extensions to complete an assessment for a minor extension in flood zone 2 or 3. A minor extension is a household or non-domestic extension with a floor space of no more than 250 square metres.

Make sure the floor levels are either no lower than existing floor levels or 300 millimetres (mm) above the estimated flood level. If they are not, ask your local planning authority if you also need to consider extra flood resistance and resilience measures.

- 7.6 As such, the following mitigation measures are recommended to be incorporated into the proposed extension:
- Finished floor levels of the extension should be set no lower than existing Developer should also investigate the possibility of retrofitting flood doors onto the existing dwelling to minimise the ingress of water during an overland flow scenario;
 - Non-return valves on any new sewer connections to prevent back flow;
 - Bringing down electrical services from ceilings, where possible;
 - All plumbing insulation to be of closed-cell design;
 - Locate all sleeping accommodation on the first floor and above;
 - Any kitchen units to be of solid, water resistant material;
 - Subscribe to the EA Flood Warning Service and ensure that this service is made available to all site users, future owners and residents, and;
 - Formulate an evacuation plan to be implemented in the event of severe flood or weather warnings

- 7.7 Due to the nature of tidal flooding internal access from the ground floor to the upper floors of the building should be maintained for the lifetime of the property; thereby providing safe refuge. All sleeping accommodation will be located on the first floor of the proposed development. The proposed building itself provides an area of safe refuge above modelled flood levels and potential breach flood levels at the site (first floor and second floor).
- 7.8 As such, the proposed development will be set at an appropriate level and be of flood resilient design.

Flood Warning Service

- 7.9 The EA operate a 5 day county-wide forecast in relation to flood risk. It is recommended that this service is regularly checked to ensure occupants/residents are aware of any possible risks: <https://flood-warning-information.service.gov.uk/5-day-flood-risk>.
- 7.10 The EA operate a Flood Information service which identifies whether any flood warnings or alerts have been issued for a specific postcode or place in England or Wales: <https://flood-warning-information.service.gov.uk/>.
- 7.11 The Met Office issues weather warnings up to 5 days in advance, through the National Severe Weather Warning Service, when severe weather has the potential to bring impacts to the UK. It is also possible to stay up to date with weather warnings through the Met Office app (available on both android and apple), social media (twitter, Facebook) or email alerts. More information can be found at <https://www.metoffice.gov.uk/weather/guides/warnings>.
- 7.12 During periods of bad weather, site users should monitor local weather reports and sign up for the Met Office UK weather warnings. Warnings can be monitored through an Apple/Android app, Twitter or directly via emails. Further information can be found at <https://www.metoffice.gov.uk/>.
- 7.13 The proposed development site is located within an EA Flood Warning Service Area; Littlehampton East Bank (see Figure 14). As such, it is recommended that site users sign up to this service.
- 7.14 Upon receipt of a Flood Warning, site users are advised to evacuate the site to a designated place of safe refuge within Flood Zone 1.
- 7.15 If flood waters along the proposed evacuation route have exceed 25cm, site users are advised if possible to seek refuge at the upper floors on site.

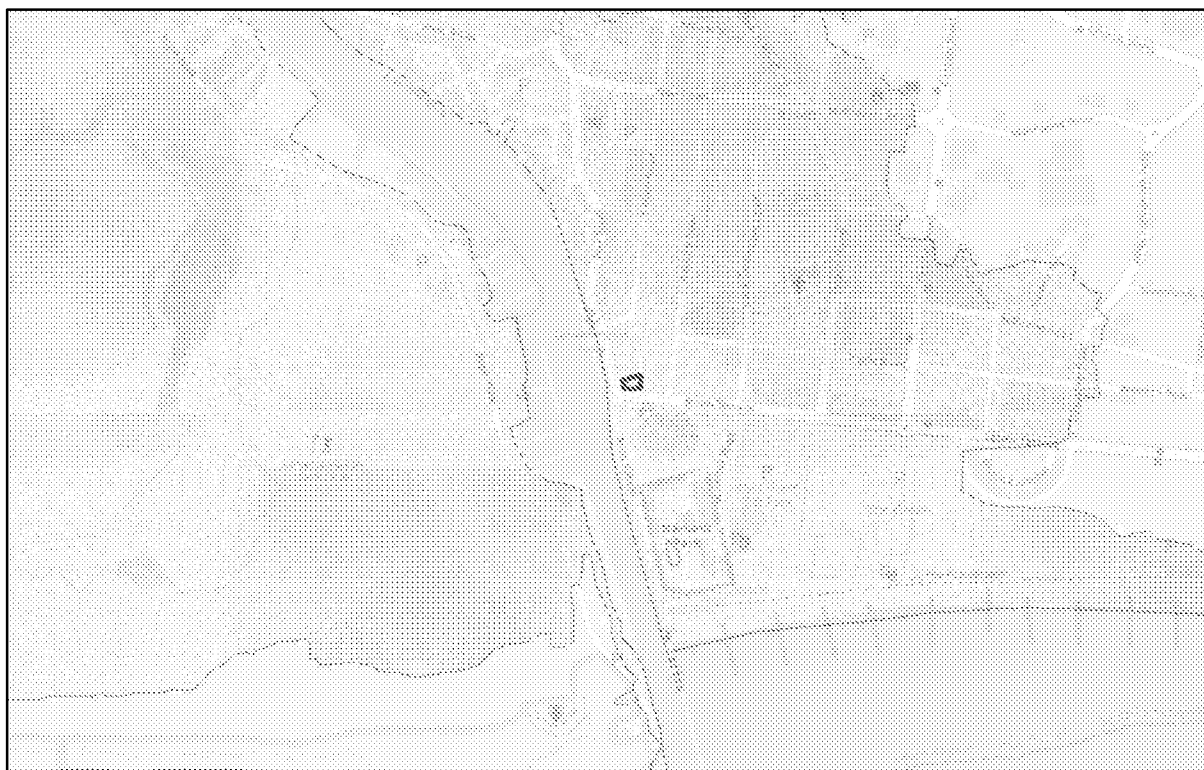


Figure 16 Site location with regard to EA Flood Alert/Warning Areas (Note: Flood Warning Service Areas are shown in purple dashing) (Source OS and EA)

Flood Evacuation Plan

What to do if you receive a Flood Alert

A flood alert means you need to prepare, flooding is possible. You should:

- check your flood risk - <https://flood-warning-information.service.gov.uk/long-term-flood-risk>
- sign up for flood warnings - <https://www.gov.uk/sign-up-for-flood-warnings>
- keep up to date with the latest situation - call Floodline on 0345 988 1188 or follow @EnvAgency and #floodaware on Twitter for the latest flood updates
- have a bag ready with vital items like insurance documents and medications in case you need to leave your home
- check you know how to turn off your gas, electricity and water mains supplies
- plan how you'll move family and pets to safety



What to do if you receive a Flood Warning

A flood warning means you need to act, flooding is expected. You should do all the actions for a flood alert but also:

- move vehicles to higher ground if it's safe to do so
- move family and pets to safety
- move important items upstairs or to a safe place in your property, starting with cherished items and valuables, then furniture and furnishings



- turn off gas, electricity and water supplies if it's safe to do so; never touch an electrical switch if you're standing in water
- if you have property protection products such as flood barriers, or air brick covers, use them now
- keep track of the latest situation - <https://flood-warning-information.service.gov.uk/warnings>

What to do if you receive a Severe Flood Warning

A severe flood warning means there is danger to life: you must act now:



- call 999 if you're in immediate danger
- follow advice from the emergency services and evacuate if you're told to do so
- make sure you have an emergency kit including a torch, spare batteries, mobile phone and charger, warm clothes, important numbers like your home insurance, water, food, first aid kit and any medicines and baby care items you may need
- alert neighbours and offer help if it's safe to do so
- avoid driving or walking through flood water: just 30cm (1 foot) of fast flowing water could move your car and even shallow moving water can knock you off your feet
- keep your family and pets away from floodwater – it may contain heavy debris, sharp objects, open manhole covers, sewage and chemicals
- wash your hands if you've been in contact with flood water which may contain toxic substances

- 7.16 Upon receipt of a flood warning, and following liaison and agreement with the Emergency Services, the site should be evacuated.
- 7.17 All occupants should be advised not to return to the site until the site is deemed to be safe for return by the Emergency Services. If flood waters have receded the site can be accessed provided it is safe to do so.
- 7.18 If the flooding has already occurred before prior evacuation, it is advised site users return to the property and await evacuation. No evacuation should be sought if flood depths exceed 25cm, evacuation should only be sought with the assistance of the emergency services in these circumstances.
- 7.19 It is recommended that occupants move to the upper floors of the building for safe refuge during an unexpected flood event, this internal access to upper floors will be maintained for the lifetime of the development.
- 7.20 Tidal flooding is generally caused by a low pressure weather system creating storm-surges (or storm tides), chiefly via high speed winds. These winds (and to a certain extent, the low pressure) create a 'bulge' or water which, if it coincides with high tide, can generate very high, stormy water levels. However, because this mechanism is well understood, it is very likely that early warning will be issued several hours before such an event occurs.
- 7.21 If flood waters along the proposed evacuation route have exceed 25cm, site users are advised to seek refuge at the upper floors on the site. It is anticipated that site users would not be required to seek refuge for an extended period of time as the flood waters should recede as the tide recedes.
- 7.22 It is the responsibility of the site owners(s) to keep the evacuation routes and procedures known to site users and visitors.

8. Off Site Impacts

Impact to Flood Risk Elsewhere

8.1 It is understood that the development is for the extension, reconfiguration and refurbishment of the basement, ground and first floor and the construction of a second floor to provide additional hotel rooms with all sleeping accommodation located on the first and second floor.

8.2 The site is located within tidal Flood Zone 3 and under the NPPF:

“Unless the development is located in an area which is subject to tidal flooding and which serves no conveyance function, land raising must be accompanied by compensatory provision of flood storage either on- or off-site.”

8.3 Given that the dominant source of flooding to the site is tidal, there is no requirement to provide compensatory flood storage.

Generation of Runoff

8.4 The existing site is developed. It is understood that the development is for the extension, reconfiguration and refurbishment of the basement, ground and first floor and the construction of a second floor to provide additional hotel rooms with all sleeping accommodation located on the first and second floor.

8.5 It should be noted that the proposed extension development will likely result in minimal changes in surface water runoff rate in post development conditions, since the extension is thought to be onto surfaces which are understood to currently be impermeable.

8.6 The development is viewed as a minor development, and as such the applicant will discharge surface water by means of the existing management infrastructure associated with the existing property.

8.7 Betterment could be provided through the provision of small-scale SuDS such as rainwater planters and water butts.

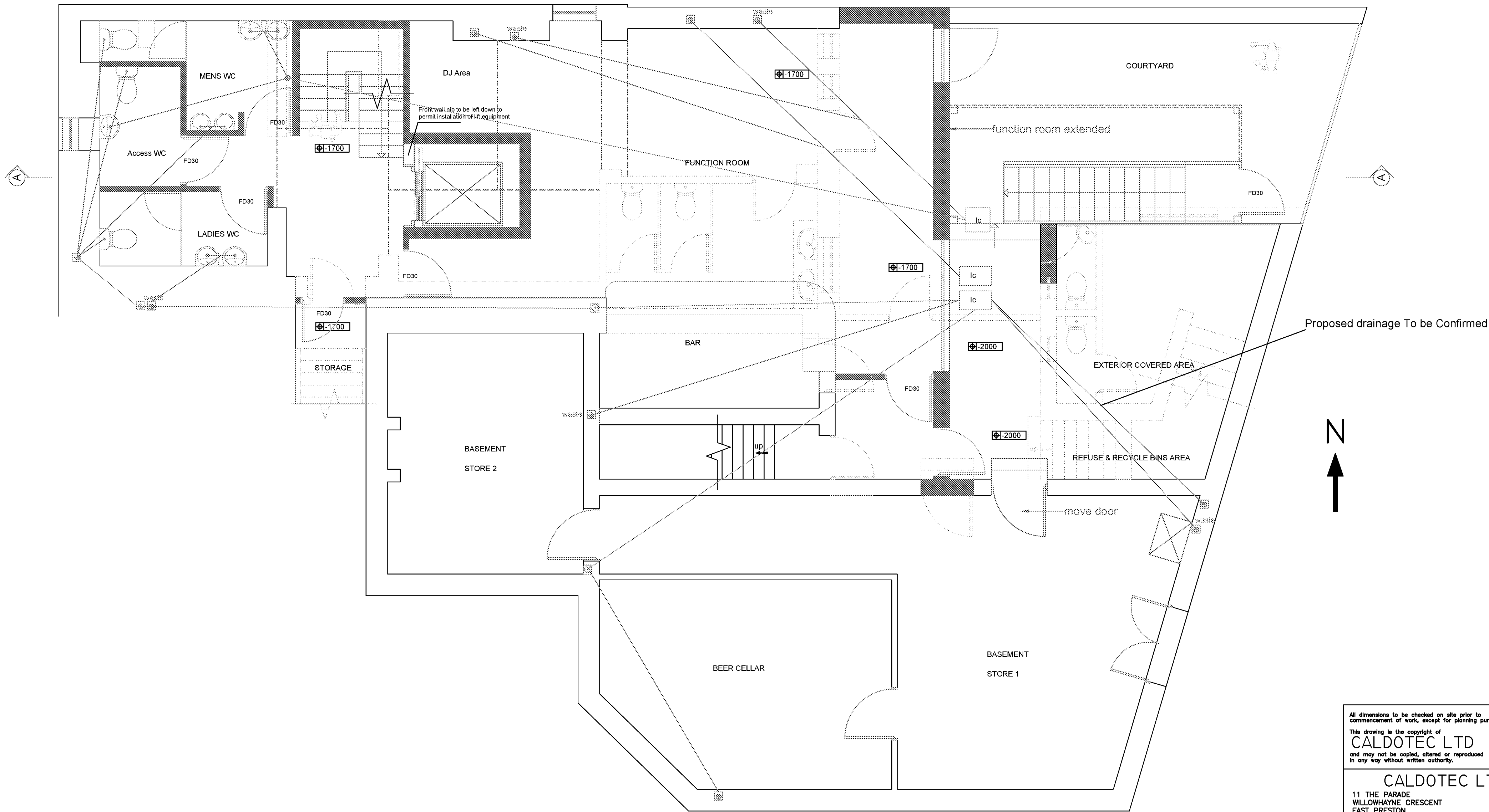
9. Conclusion

- 9.1 Ambiental Technical Solutions Limited has been appointed by Caldotec Ltd to undertake a National Planning Policy Framework (NPPF) compliant Flood Risk Assessment (FRA) a development at The Nelson, Pier Road, Littlehampton, West Sussex, BN17 5LP.
- 9.2 It is understood that the development is for the extension, reconfiguration and refurbishment of the basement, ground and first floor and the construction of a second floor to provide additional hotel rooms with all sleeping accommodation located on the first and second floor.
- 9.3 With reference to the Environment Agency (EA) Flood Map for Planning, the proposed development is located within Flood Zone 3 (High Risk; having a 1 in 200 or greater, >0.5%, annual probability of flooding from the sea. The proposed development is considered "More vulnerable" under the NPPF.
- 9.4 The proposed development falls within the 'Minor Development' guidelines (commercial extensions under 250m²) and therefore should follow EA Standing Advice for Minor Developments.
- 9.5 Under the NPPF, the proposed development should not be subject to the Sequential Test, since the NPPF states:

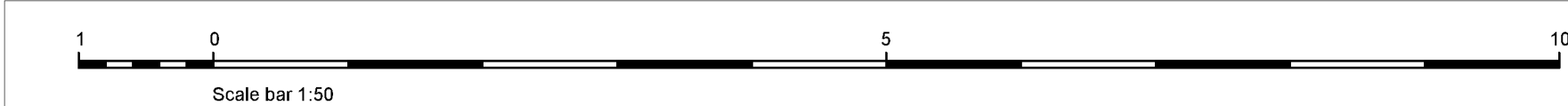
"Applications for some minor development and changes of use should not be subject to the sequential or exception tests but should still meet the requirements for site-specific flood requirements"
- 9.6 The site is 35m west of the River Arun and 320m north of the English Channel. The EA have provided information regarding the flood defences in the area. The EA have stated that the site is currently protected from the west, by a steel sheet pile wall with concrete cap and promenade with Designed Standard of Protection of 1:300. The flood defence wall is in fair condition with a downstream crest level of 4.76mOAD and an upstream crest level of 4.80mOAD.
- 9.7 The scheme to strengthen the defences in the area is stated in the Beachy Head to Selsey Bill Shoreline Management Plan (2006), the management policy for Angmering-on-Sea to Littlehampton (Policy Unit: 4d18) is "Hold the Line" - maintain or upgrade the level of protection provided by defences. The management policy will continue to apply at present day and across the medium (2025 to 2055) to long term (2105). It can therefore be assumed the improvements in defences will be maintained and upgraded in the future.
- 9.8 Topographic levels across site vary between approximately 2.34m AOD and 3.51m AOD (Source: 2m LiDAR). EA modelled flood levels confirms the site partially resides within the extreme tidal flood extent for the present day 1:200 year event (2.37m AOD) and the 1:1000 year flood event (2.94m AOD). Possible maximum flood depth, based on the minimum topographic level on site (2.34m AOD), for the present day 1:200 year and 1:1000 year flood events has been shown to be 0.03m and 0.60m, respectively.
- 9.9 The entire site is shown to be affected by the 1:200 year 2115 design event (4.88m AOD), 2.54m above the minimum site topography of 2.34m AOD. As such, and assuming that all sleeping quarters will be located on the first floor or second floor levels, the site could be considered to be at **moderate risk** of flooding from tidal/fluvial sources.
- 9.10 The site is could be considered to be at **low risk** of flooding from surface water and at **relatively low risk** of flooding from sewer sources. The proposed basement extension could be considered to be at **moderate risk** of flooding from groundwater sources, while the rest of the proposed development could be considered to be at **relatively low risk** of flooding from this source.

- 9.11 The site is shown by EA modelling to be outside of the present day 1:200 year defence breach events. As such, the risk of flooding from this source could be considered to be relatively low.
- 9.12 It is recommended that residents are aware of the EA Flood Information service which identifies whether any flood warnings or alerts have been issued for a specific postcode or place in England or Wales: <https://flood-warning-information.service.gov.uk/>.
- 9.13 The Met Office issues weather warnings up to 5 days in advance, through the National Severe Weather Warning Service, when severe weather has the potential to bring impacts to the UK. It is also possible to stay up to date with weather warnings through the Met Office app (available on both android and apple), social media (twitter, Facebook) or email alerts. More information can be found at <https://www.metoffice.gov.uk/weather/guides/warnings>.
- 9.14 During periods of bad weather, site users should monitor local weather reports and sign up for the Met Office UK weather warnings. Warnings can be monitored through an Apple/Android app, Twitter or directly via emails. Further information can be found at <https://www.metoffice.gov.uk/>.
- 9.15 Refuge on the first and second floors is recommended in the case of any flooding. As such, access between all proposed basement and ground floor extension, to the first floor should be maintained.
- 9.16 Following the guidelines contained within the NPPF, and given that:
- The development is for the extension, reconfiguration and refurbishment of the basement, ground and first floor and the construction of a second floor to provide additional hotel rooms with all sleeping accommodation located on the first and second floor. **It should be considered to be a minor extension (<250m²).**
 - The flood level for the site in the 1:200 year 2115 design event (4.88mAOD).
 - It is recommended that internal ground floor FFLs are built no lower than existing ground floor levels.
 - The site is situated in an EA Flood Warning Area.
 - Betterment can be provided by the formalisation of a flood warning and evacuation plan.
 - Residents sign up to the EA Flood Warning systems and monitor weather warnings regularly during periods of bad weather.
- 9.17 Following the guidelines contained within the NPPF, the proposed development is **considered to be suitable** assuming appropriate mitigation (including adequate warning procedures) can be maintained for the lifetime of the development.

Appendix I - Site Plans



BASEMENT FLOOR PLAN 1:50



All dimensions to be checked on site prior to commencement of work, except for planning purposes.
 This drawing is the copyright of
CALDOTE LTD
 and may not be copied, altered or reproduced in any way without written authority.

CALDOTE LTD
 11 THE PARADE
 WILLOWHAYNE CRESCENT
 EAST PRESTON
 WEST SUSSEX BN16 1NS Telephone 01903 859176

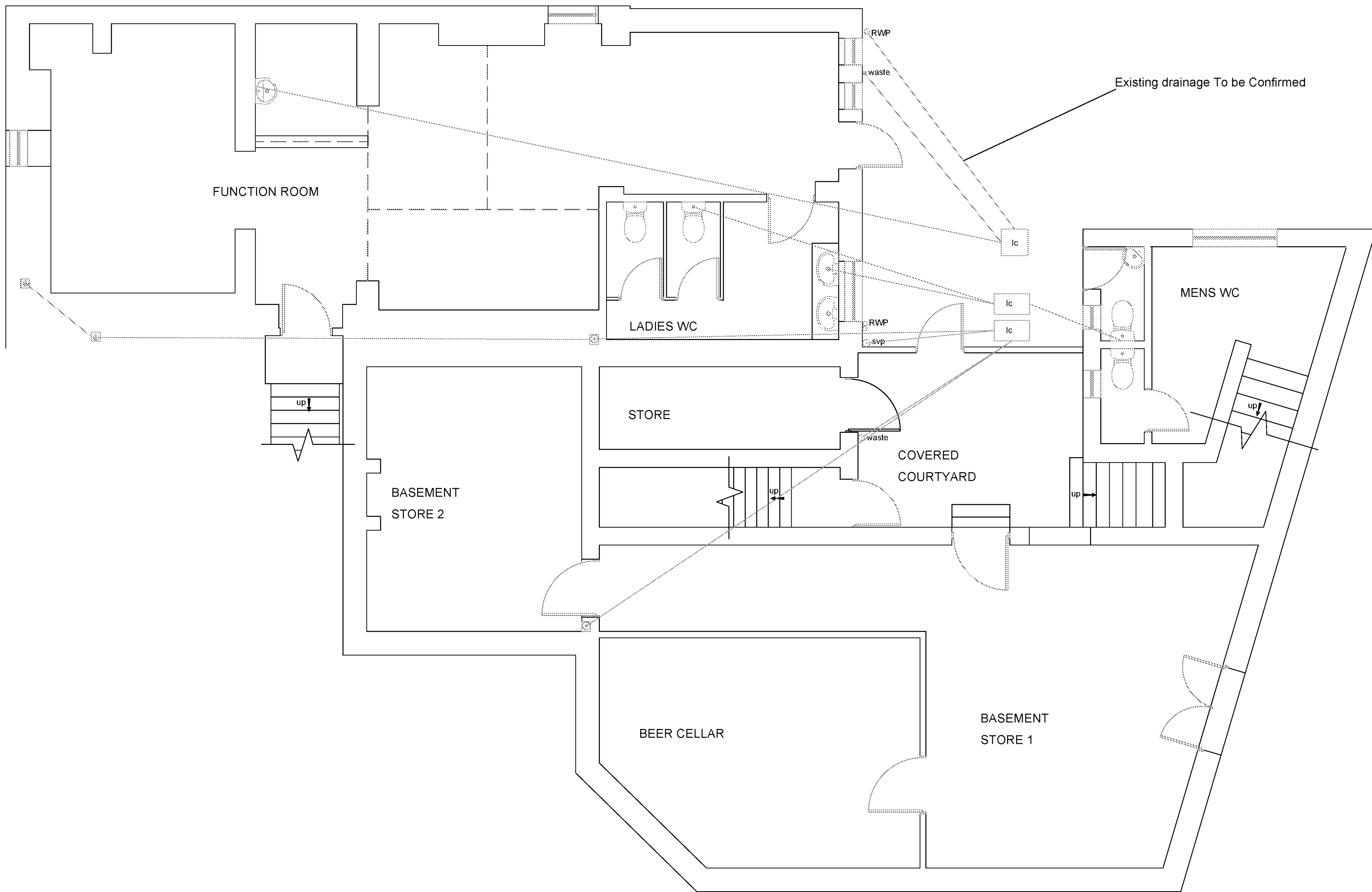
PROPOSED BASEMENT FLOOR PLAN

The Nelson
 Pier Road
 Littlehampton
 West Sussex

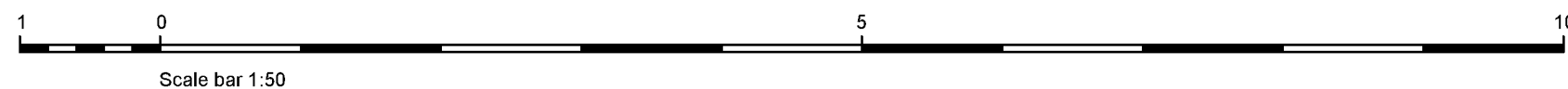
CLIENT Mr & Mrs Stojanovski

R4	Amendments for Planning	JM	07/03/2017
R3	Amendments for Planning	JM	09/02/2017
R2	Amendments Planning	JM	17/01/2017
R1	Amendments client request	JM	01/09/2016
Issue	Details	By	Date

SCALE A5 SHOWN ON A2
 DATE 07/03/17
 DRAWING NUMBER 15216/026R4



BASEMENT FLOOR PLAN 1:50



All dimensions to be checked on site prior to commencement of work, except for planning purposes.

This drawing is the copyright of
CALDOTECH LTD
 and may not be copied, altered or reproduced in any way without written authority.

CALDOTECH LTD
 11 THE PARADE
 WILLOWHAYNE CRESCENT
 EAST PRESTON
 WEST SUSSEX BN16 1NS Telephone 01903 859176

EXISTING BASEMENT FLOOR PLAN

The Nelson
 Pier Road
 Littlehampton
 West Sussex

CLIENT Mr & Mrs Stojanowski

R2	Amendments for Planning	JM	09/02/2017
R1	Amendments drainage	JM	01/09/2016
Issue	Details	By	Date

SCALE AS SHOWN ON A2
 DATE 09/02/17
 DRAWING NUMBER 15219/016R2



SIDE ELEVATION
WEST

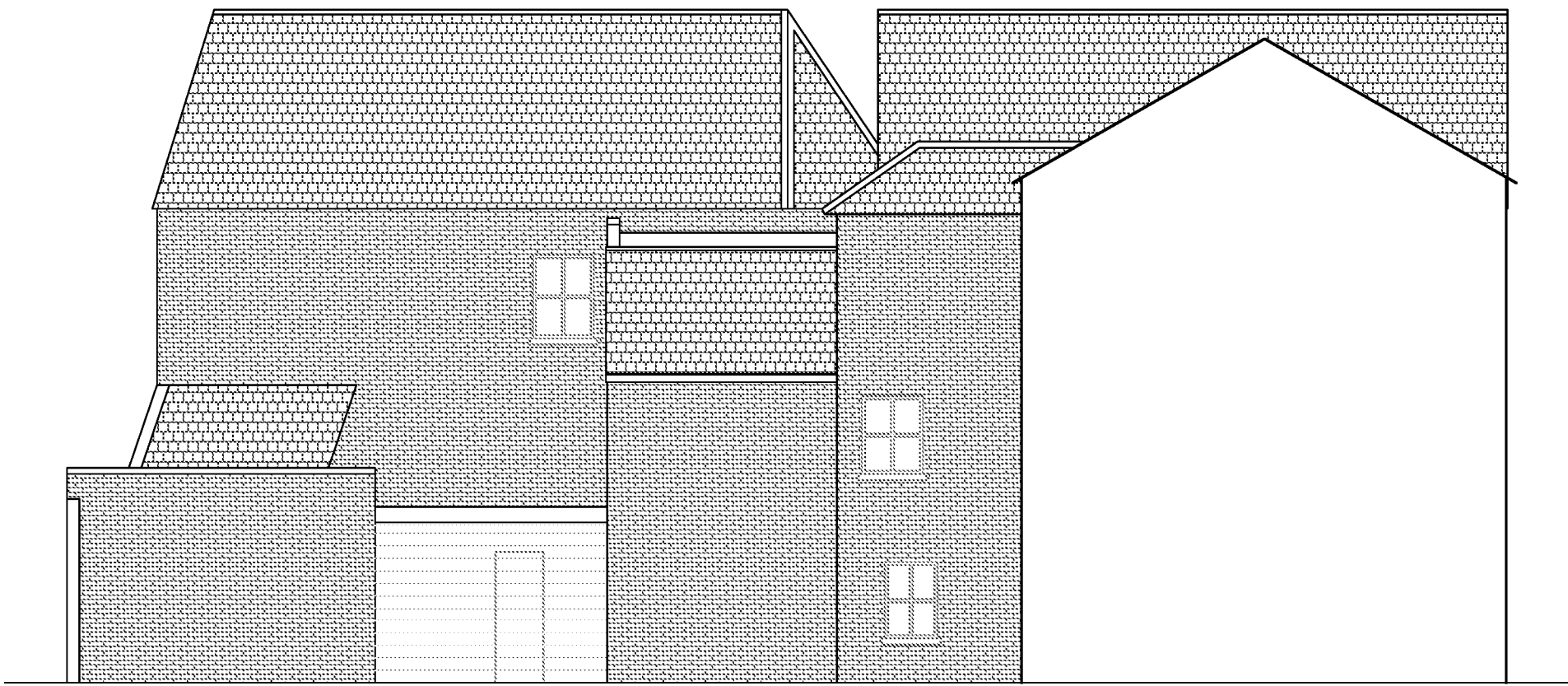


FRONT ELEVATION
SOUTH

EXISTING ELEVATIONS 1:100



SIDE ELEVATION
EAST



REAR ELEVATION
NORTH

EXISTING ELEVATIONS 1:100



Scale bar 1:100



Scale bar 1:50

All dimensions to be checked on site prior to commencement of work, except for planning purposes.
This drawing is the copyright of
CALDOTECH LTD
and may not be copied, altered or reproduced
in any way without written authority.

CALDOTECH LTD
11 THE PARADE
WILLOWHAYNE CRESCENT
EAST PRESTON
WEST SUSSEX BN16 1NS Telephone 01903 859176

EXISTING ELEVATIONS

The Nelson
Pier Road
Littlehampton
West Sussex

CLIENT Mr & Mrs Stojanowski

R2	Amendments for Planning	JM	09/02/2017
R1	Amendments drainage	JM	01/09/2016
Issue	Details	By	Date
SCALE	AS SHOWN ON A2		
DATE	09/02/17		
DRAWING NUMBER	15219/01eR2		



SIDE ELEVATION
WEST

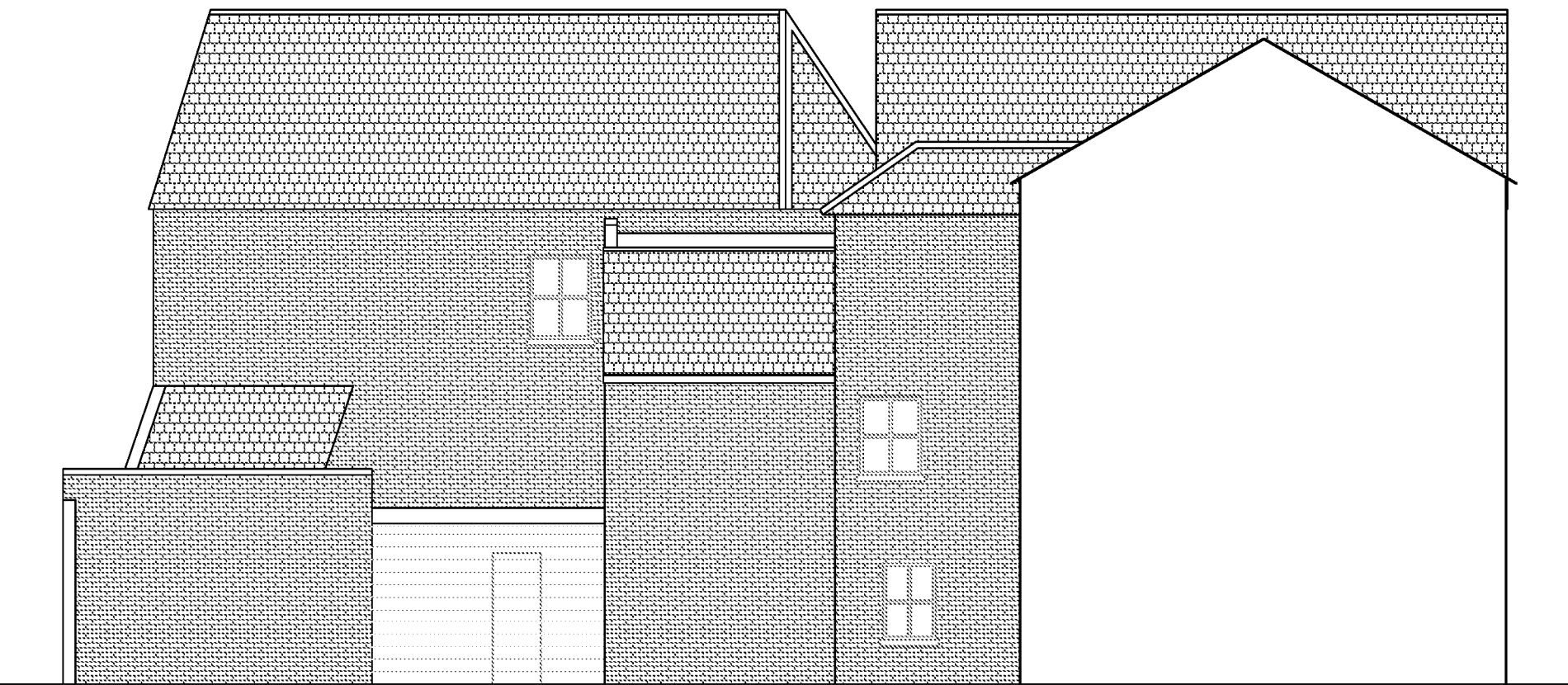


FRONT ELEVATION
SOUTH

EXISTING ELEVATIONS 1:100



SIDE ELEVATION
EAST



REAR ELEVATION
NORTH

EXISTING ELEVATIONS 1:100



Scale bar 1:100



Scale bar 1:50

All dimensions to be checked on site prior to commencement of work, except for planning purposes.
This drawing is the copyright of
CALDOTECH LTD
and may not be copied, altered or reproduced
in any way without written authority.

CALDOTECH LTD
11 THE PARADE
WILLOWHAYNE CRESCENT
EAST PRESTON
WEST SUSSEX BN16 1NS Telephone 01903 859176

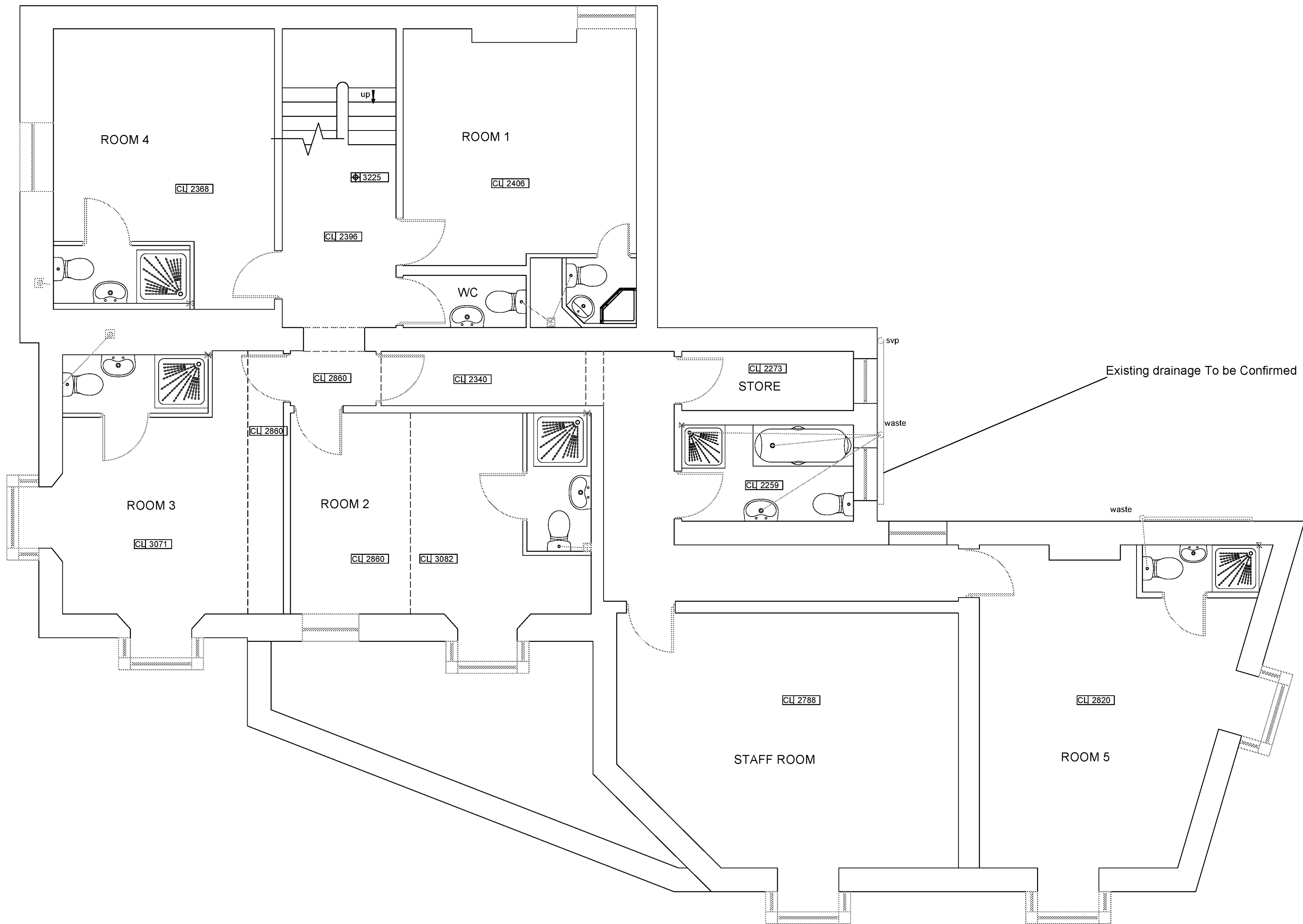
EXISTING ELEVATIONS

The Nelson
Pier Road
Littlehampton
West Sussex

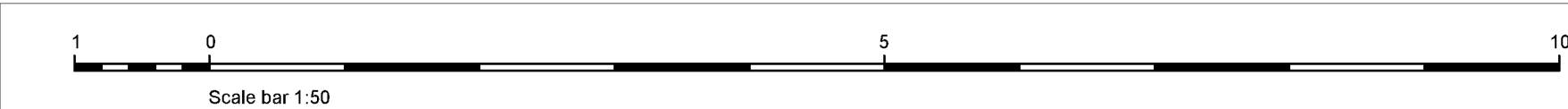
CLIENT Mr & Mrs Stojanowski

R2	Amendments for Planning	JM	09/02/2017
R1	Amendments drainage	JM	01/09/2016
Issue	Details	By	Date

SCALE AS SHOWN ON A2
DATE 09/02/17
DRAWING NUMBER 15219/01eR2



FIRST FLOOR PLAN 1:50



All dimensions to be checked on site prior to commencement of work, except for planning purposes.
This drawing is the copyright of
CALDOTECH LTD
and may not be copied, altered or reproduced
in any way without written authority.

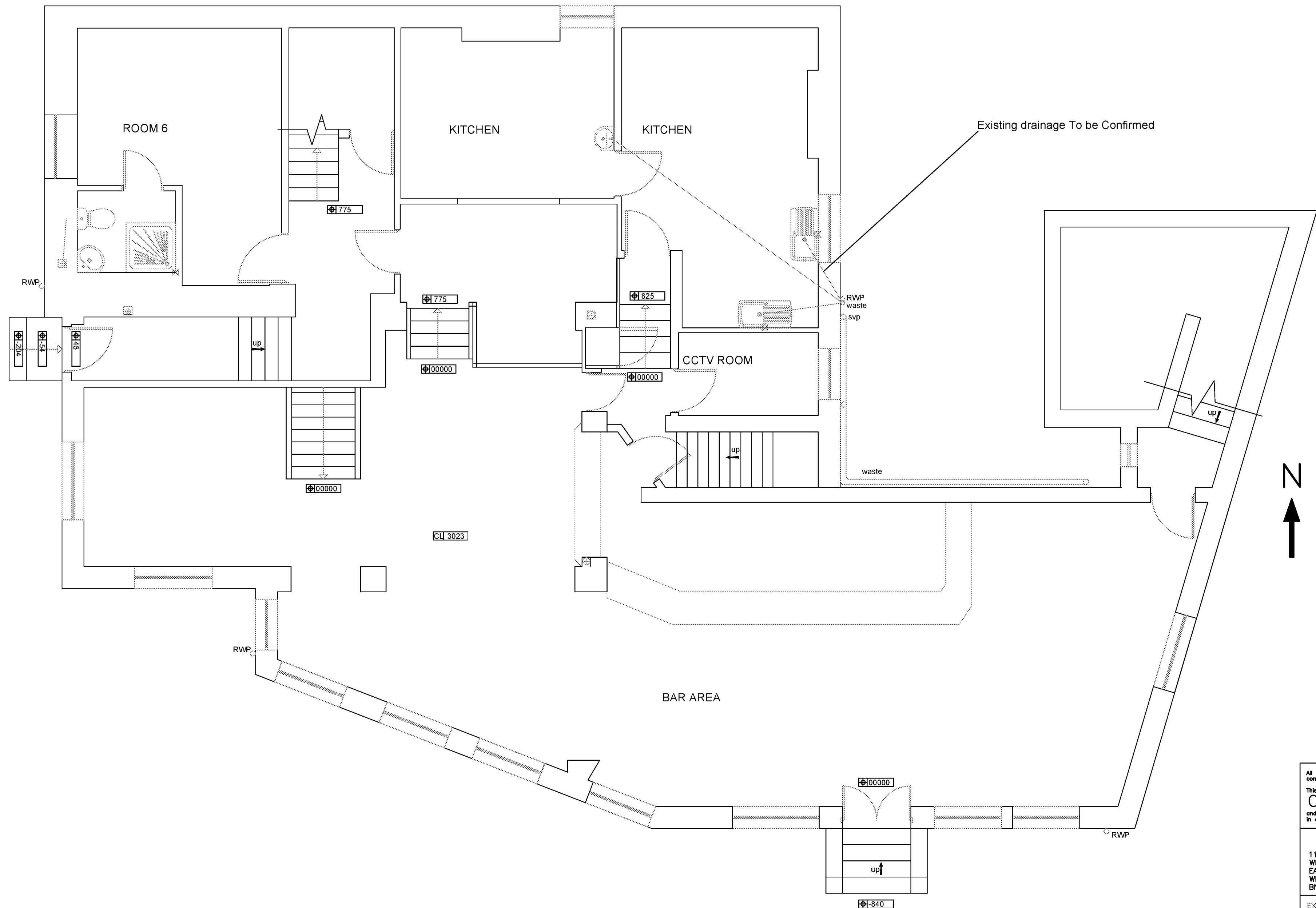
CALDOTECH LTD
11 THE PARADE
WILLOWHAYNE CRESCENT
EAST PRESTON
WEST SUSSEX BN16 1NS Telephone 01903 859176

EXISTING FIRST FLOOR PLAN

The Nelson
Pier Road
Littlehampton
West Sussex

CLIENT Mr & Mrs Stojanowski

R2	Amendments for Planning	JM	09/02/2017
R1	Amendments drainage	JM	01/09/2016
Issue	Details	By	Date
SCALE	AS SHOWN ON A2		
DATE	09/02/17		
DRAWING NUMBER	15219/G1cR2		



GROUND FLOOR PLAN 1/50

All dimensions to be checked on site prior to commencement of work, except for planning purposes.
This drawing is the copyright of
CALDOTECH LTD
and may not be copied, altered or reproduced
in any way without written authority.

CALDOTECH LTD
11 THE PARADE
WILLOWHAYNE CRESCENT
EAST PRESTON
WEST SUSSEX BN16 1NS
Telephone 01903 859176

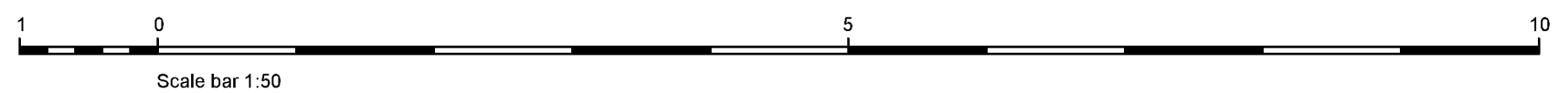
EXISTING GROUND FLOOR PLAN

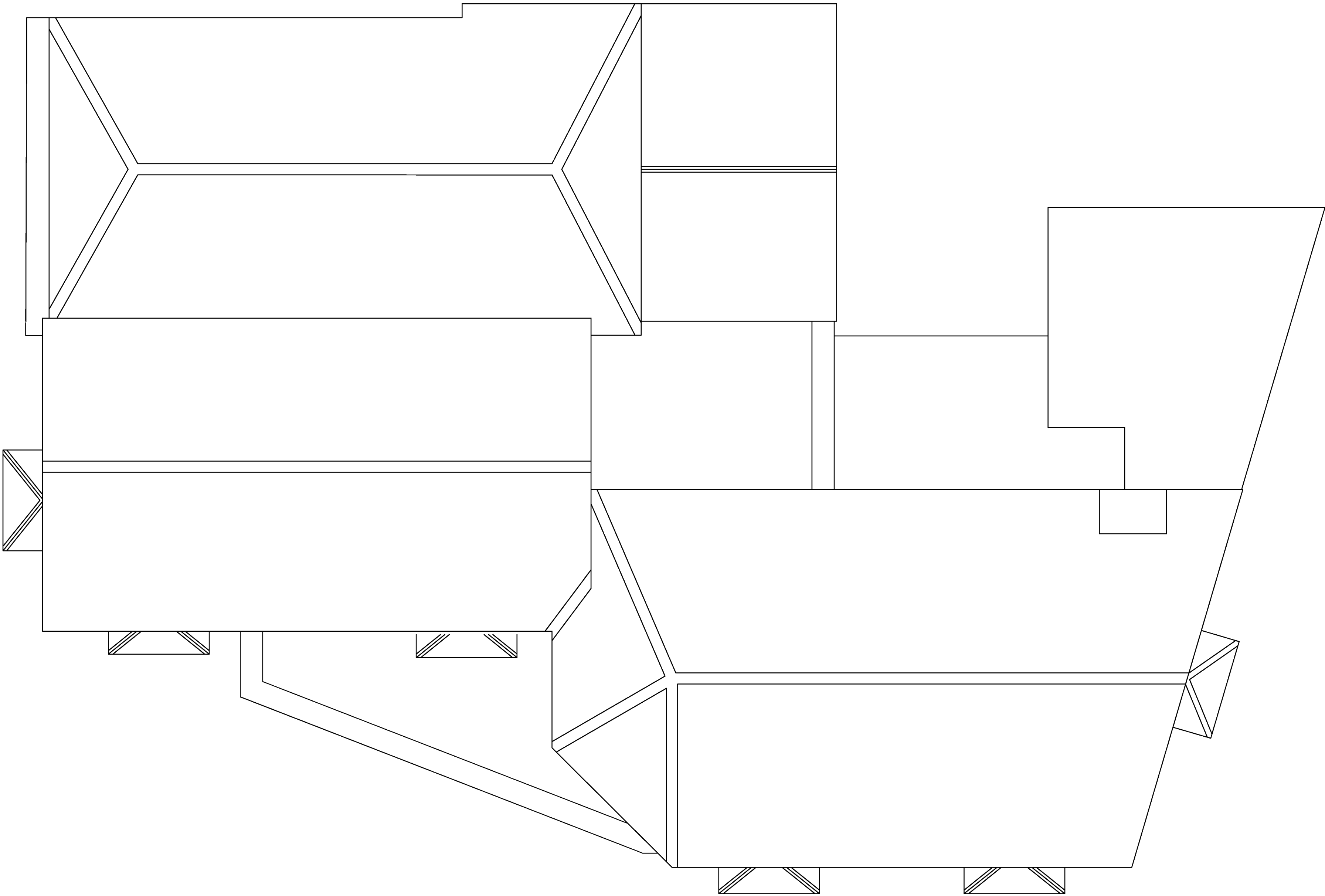
The Nelson
Pier Road
Littlehampton
West Sussex

CLIENT Mr & Mrs Stojanowski

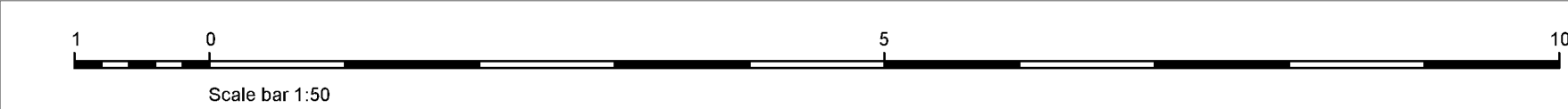
R2	Amendments for Planning	JM	09/02/2017
R1	Amendments drainage	JM	01/09/2016
Issue	Details	By	Date

SCALE AS SHOWN ON A2
DATE 09/02/17
DRAWING NUMBER 15219/016R2





ROOF PLAN 1:50



All dimensions to be checked on site prior to commencement of work, except for planning purposes.

This drawing is the copyright of
CALDOTECH LTD
and may not be copied, altered or reproduced
in any way without written authority.

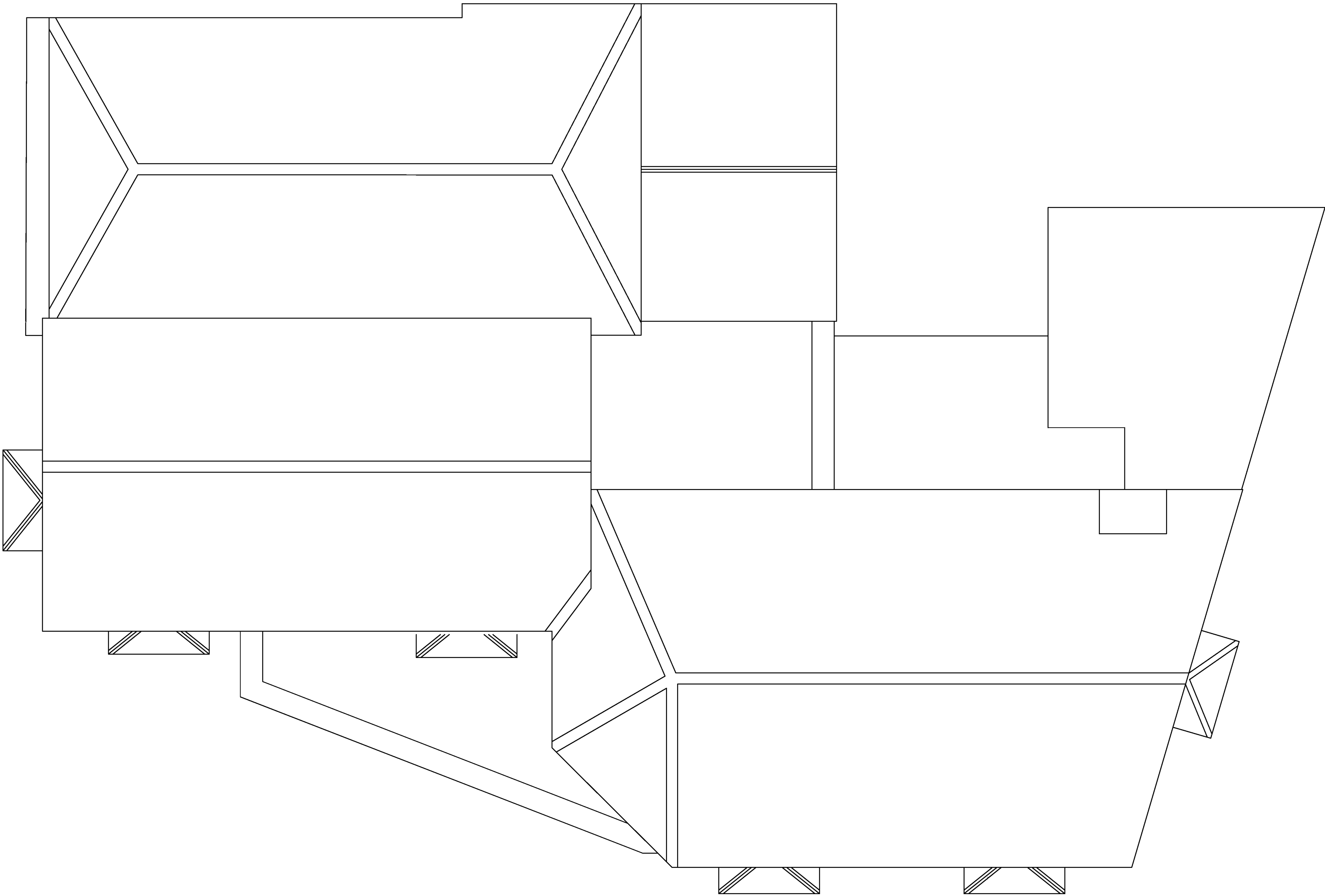
CALDOTECH LTD
11 THE PARADE
WILLOWHAYNE CRESCENT
EAST PRESTON
WEST SUSSEX BN16 1NS Telephone 01903 859176

EXISTING ROOF PLAN

The Nelson
Pier Road
Littlehampton
West Sussex

CLIENT Mr & Mrs Stojanowski

Issue	Details	By	Date
SCALE	AS SHOWN ON A2		
DATE	18/08/16		
DRAWING NUMBER	15219/01d		



ROOF PLAN 1:50

All dimensions to be checked on site prior to commencement of work, except for planning purposes.

This drawing is the copyright of
CALDOTECH LTD
and may not be copied, altered or reproduced
in any way without written authority.

CALDOTECH LTD
11 THE PARADE
WILLOWHAYNE CRESCENT
EAST PRESTON
WEST SUSSEX BN16 1NS Telephone 01903 859176

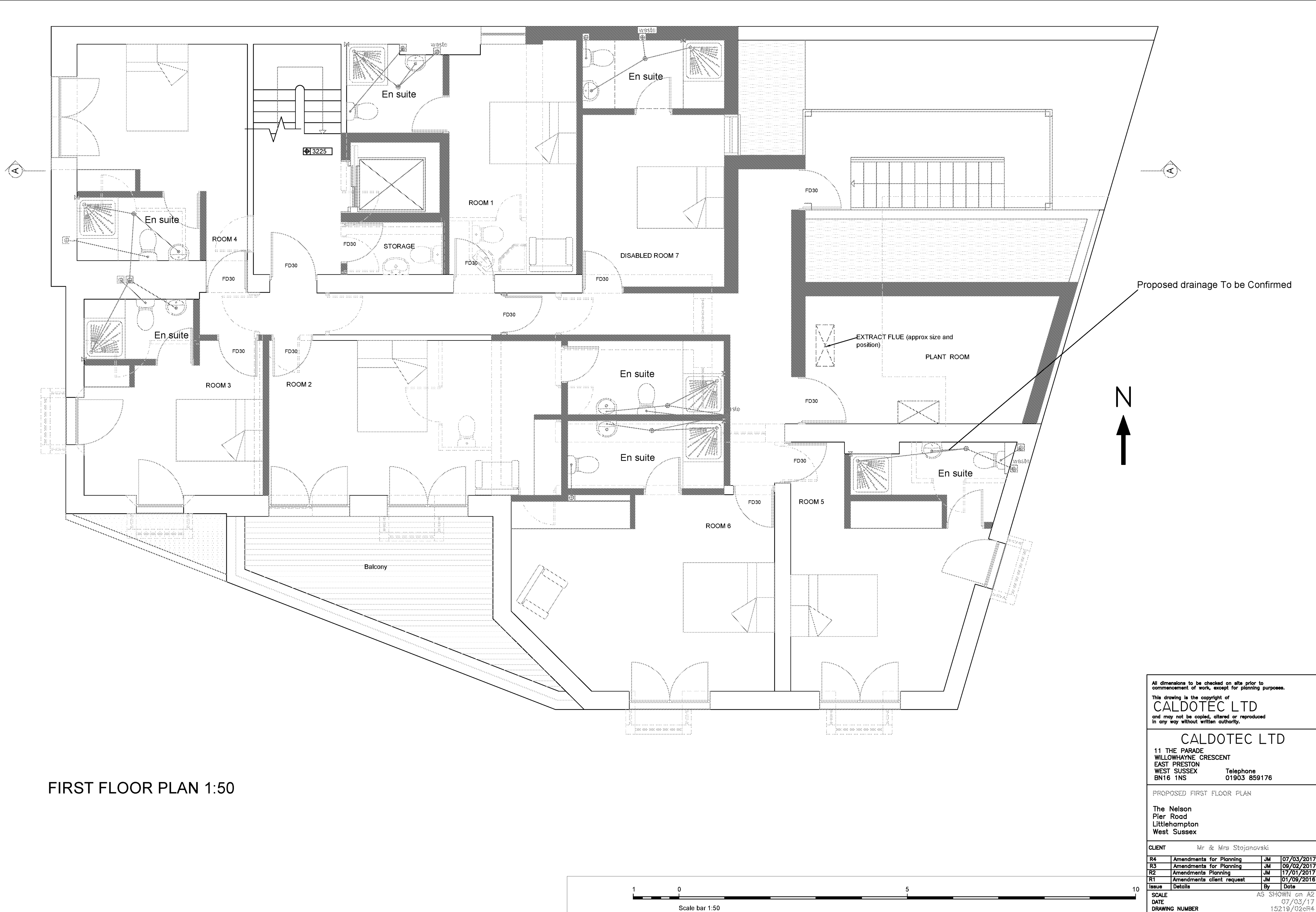
EXISTING ROOF PLAN

The Nelson
Pier Road
Littlehampton
West Sussex

CLIENT Mr & Mrs Stojanowski

Issue	Details	By	Date
SCALE	AS SHOWN ON A2		
DATE	18/08/16		
DRAWING NUMBER	15219/01d		





FIRST FLOOR PLAN 1:50

All dimensions to be checked on site prior to commencement of work, except for planning purposes.
This drawing is the copyright of
CALDOTECH LTD
and may not be copied, altered or reproduced
in any way without written authority.

CALDOTECH LTD
11 THE PARADE
WILLOWHAYNE CRESCENT
EAST PRESTON
WEST SUSSEX
BN16 1NS
Telephone
01903 859176

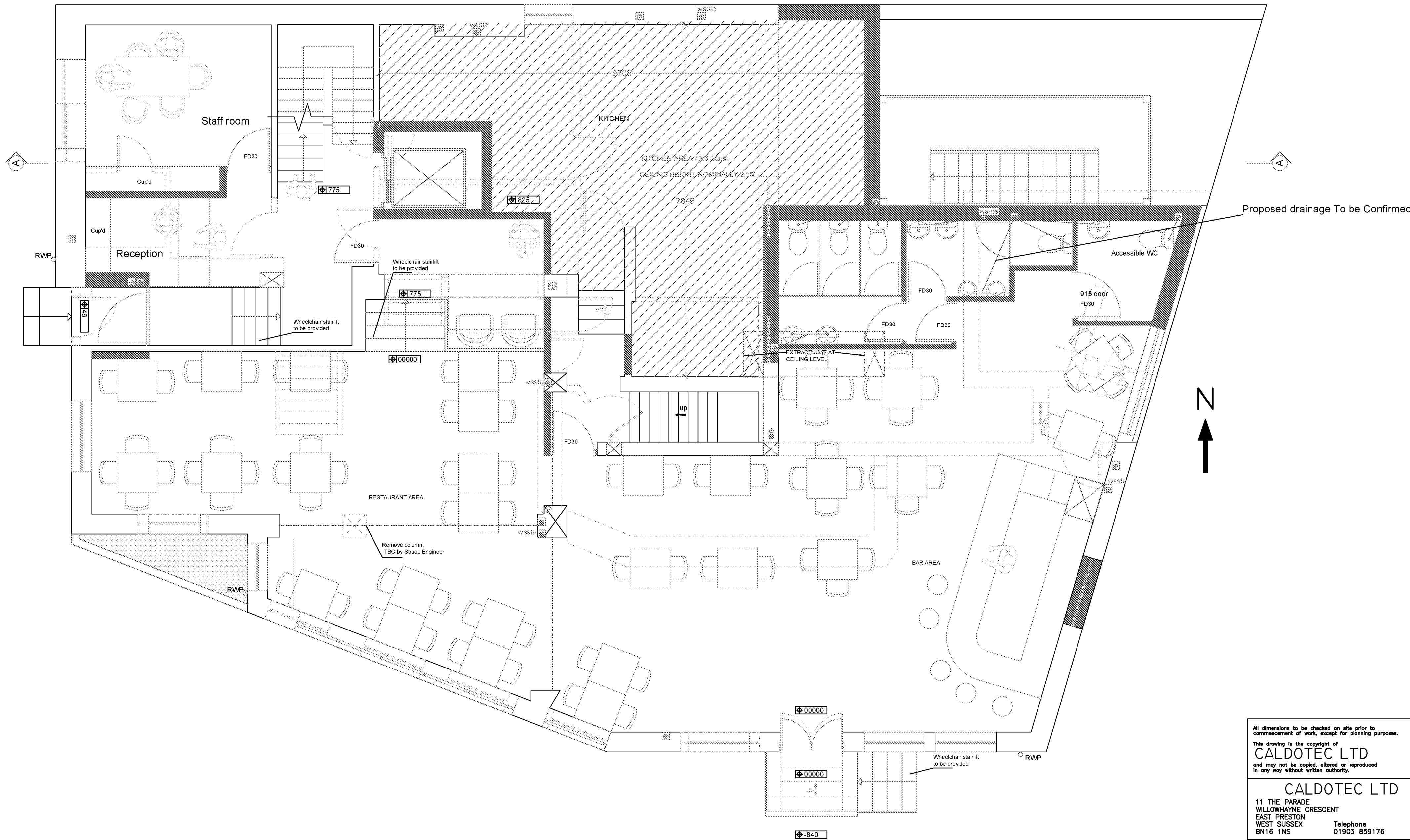
PROPOSED FIRST FLOOR PLAN

The Nelson
Pier Road
Littlehampton
West Sussex

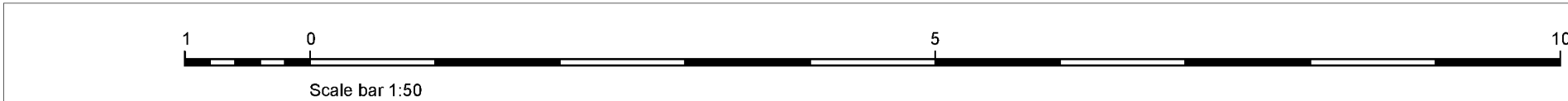
CLIENT *Mr & Mrs Stojanovski*

R4	Amendments for Planning	JM	07/03/2017
R3	Amendments for Planning	JM	09/02/2017
R2	Amendments Planning	JM	17/01/2017
R1	Amendments client request	JM	01/09/2016
Issue	Details	By	Date

SCALE A5 SHOWN ON A2
DATE 07/03/17
DRAWING NUMBER 15219/02cR4



GROUND FLOOR PLAN 1:50



All dimensions to be checked on site prior to commencement of work, except for planning purposes.
This drawing is the copyright of
CALDOTE LTD
and may not be copied, altered or reproduced
in any way without written authority.

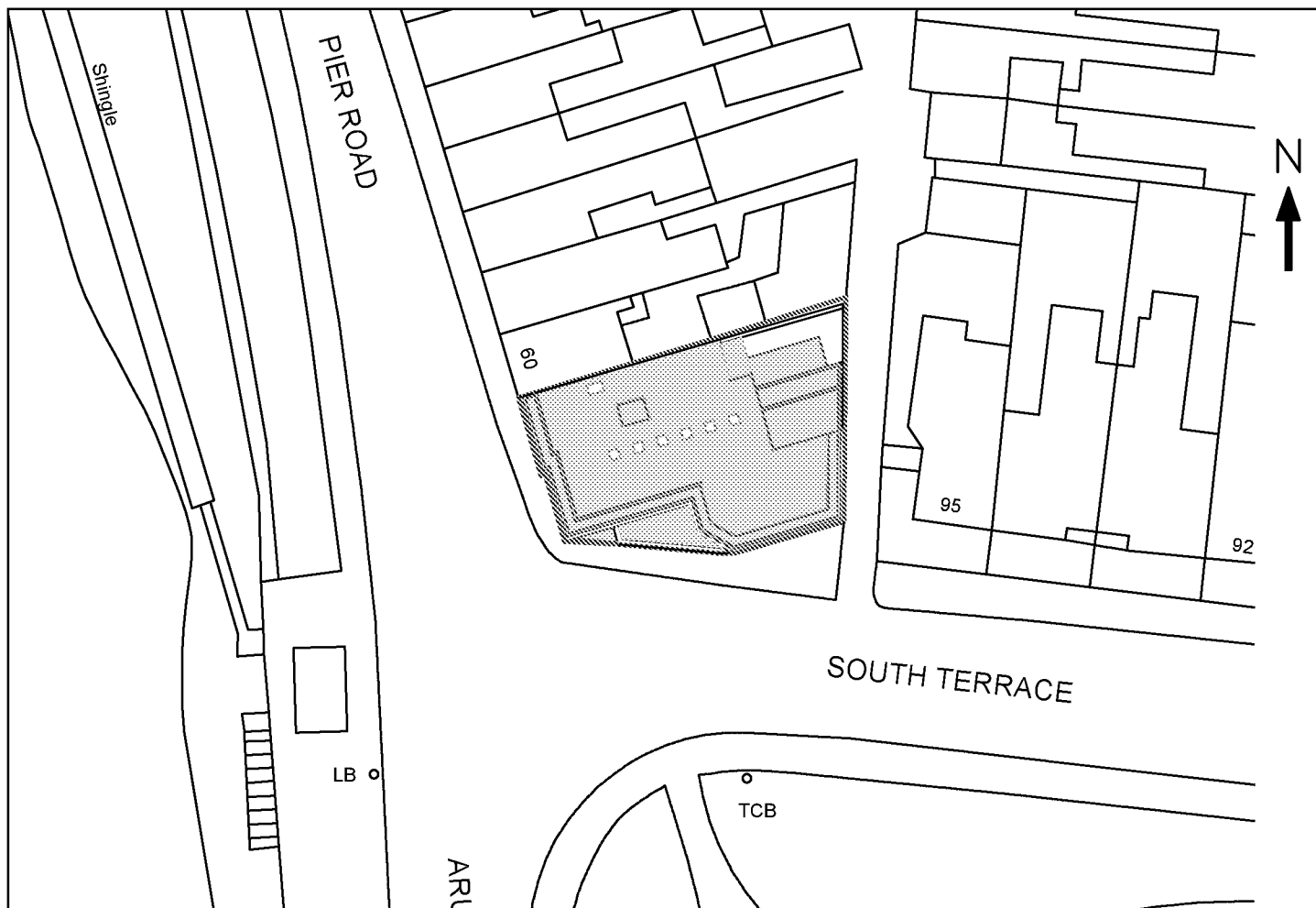
CALDOTE LTD
11 THE PARADE
WILLOWHAYNE CRESCENT
EAST PRESTON
WEST SUSSEX BN16 1NS Telephone 01903 859176

PROPOSED GROUND FLOOR PLAN
The Nelson
Pier Road
Littlehampton
West Sussex

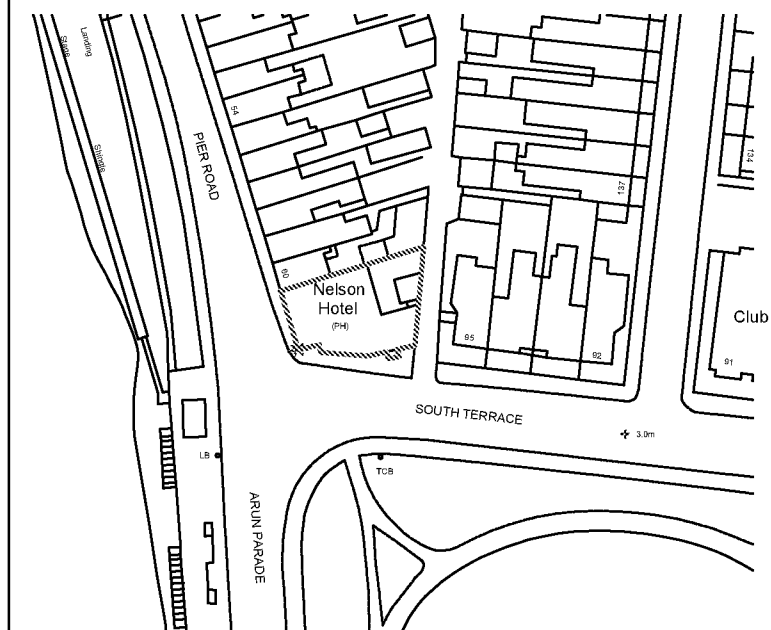
CLIENT Mr & Mrs Stojanovski

Issue	Details	By	Date
R4	Amendments for Planning	JM	07/03/2017
R3	Amendments for Planning	JM	09/02/2017
R2	Amendments Planning	JM	17/01/2017
R1	Amendments client request	JM	01/09/2016

SCALE A5 SHOWN ON A2
DATE 07/03/17
DRAWING NUMBER 15218/02bR4

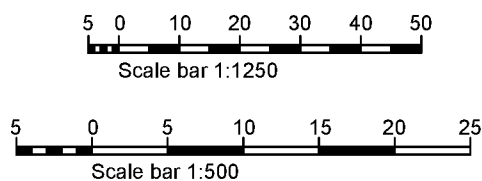


BLOCK 1:500



Ordnance Survey (c) Crown Copyright 2011. All rights reserved. Licence number 100020449

LOCATION 1:1250



All dimensions to be checked on site prior to commencement of work, except for planning purposes.

This drawing is the copyright of
CALDOTECH LTD
and may not be copied, altered or reproduced
in any way without written authority.

CALDOTECH LTD

11 THE PARADE
WILLOWHAYNE CRESCENT
EAST PRESTON
WEST SUSSEX
BN16 1NS
Telephone
01903 859176

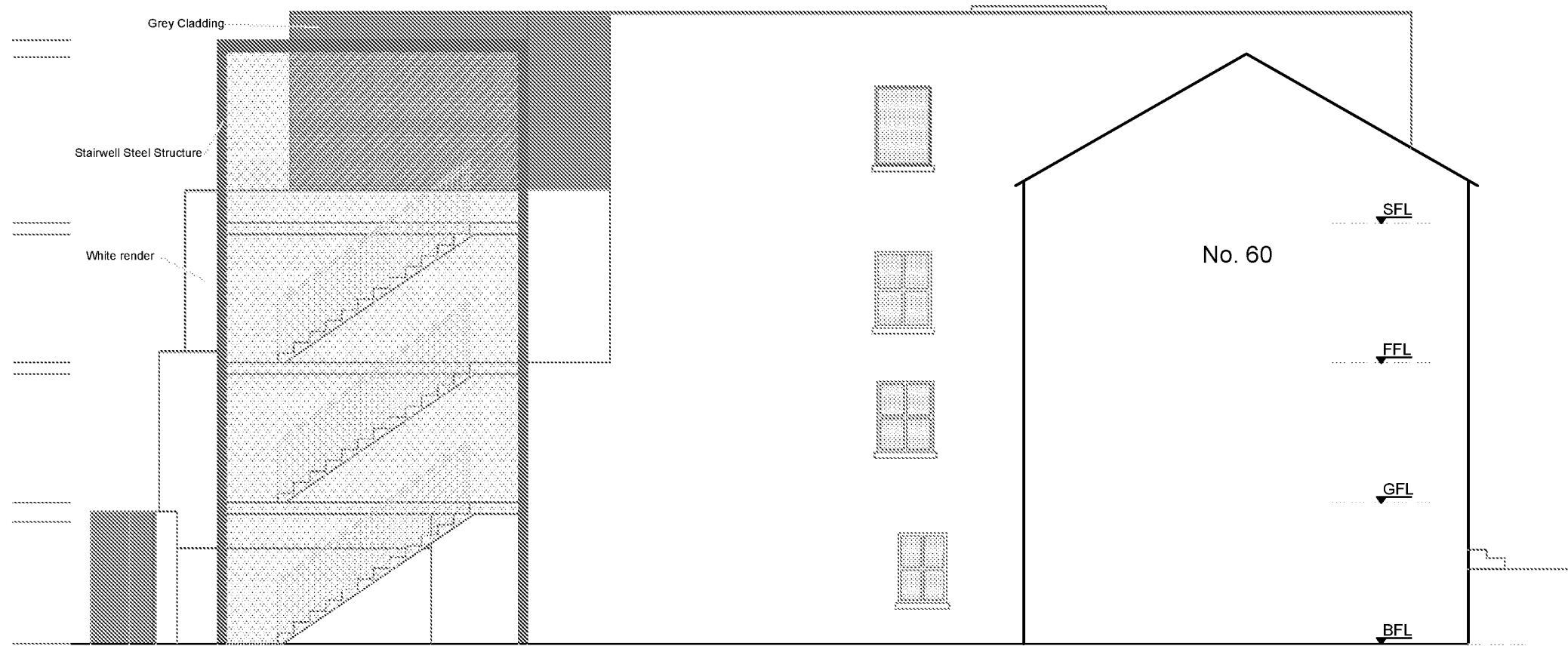
BLOCK & LOCATION PLAN

The Nelson
Pier Road
Littlehampton
West Sussex

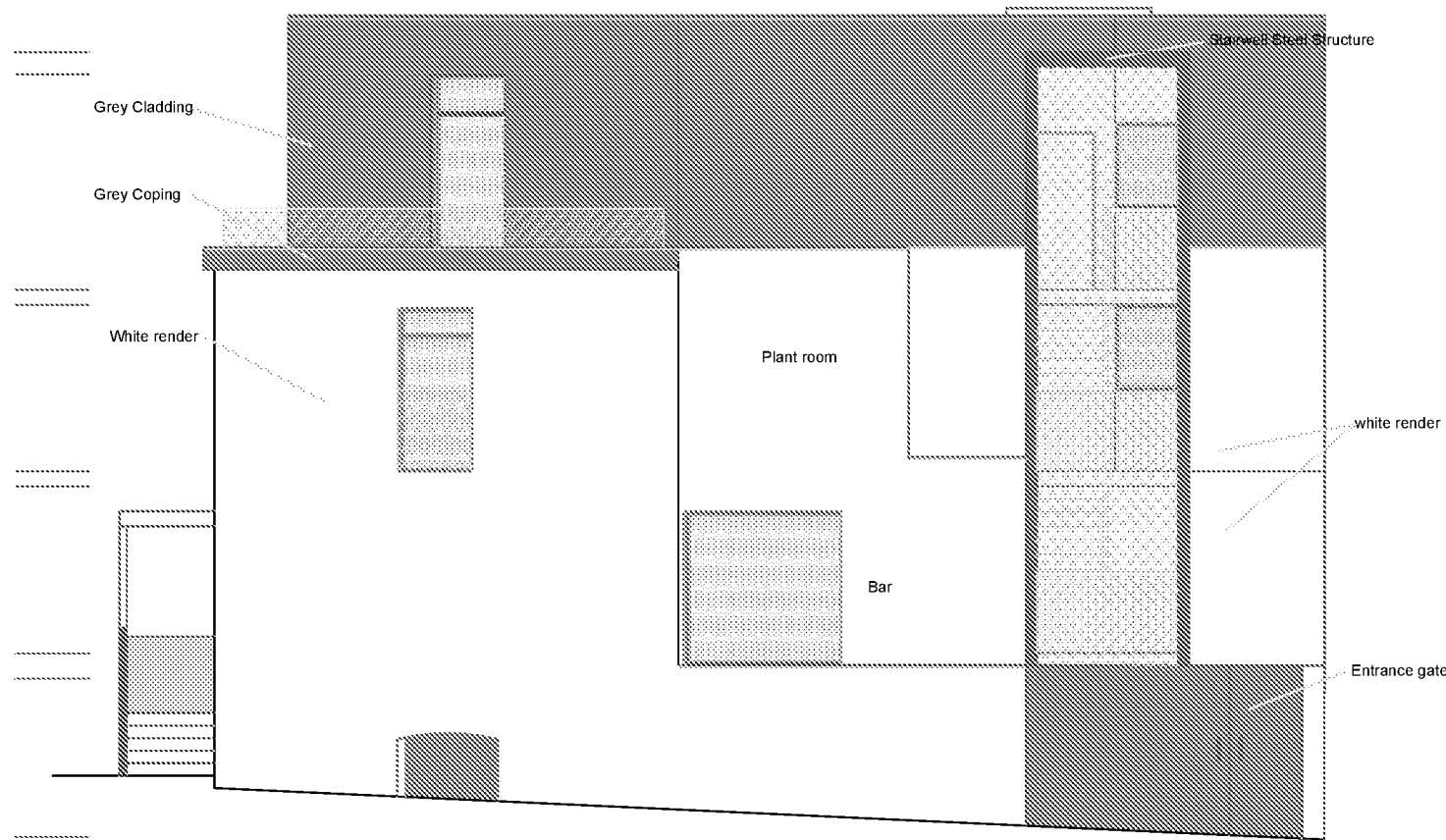
CLIENT Mr & Mrs Stojanovski

R2	Amendments for Planning	JM	09/02/2017
R1	Amendments client request	JM	01/09/2016
Issue	Details	By	Date

SCALE AS SHOWN on A4
DATE 09/02/17
DRAWING NUMBER 15219/01AR2



REAR ELEVATION NORTH



SIDE ELEVATION EAST

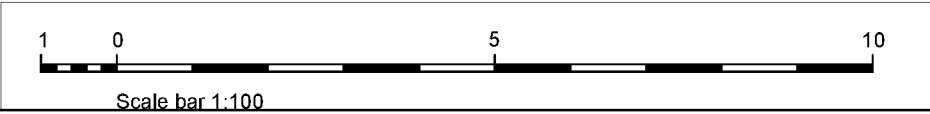


FRONT ELEVATION SOUTH



SIDE ELEVATION WEST

PROPOSED ELEVATIONS 1:100



All dimensions to be checked on site prior to commencement of work, except for planning purposes.

This drawing is the copyright of
CALDOTECH LTD
and may not be copied, altered or reproduced in any way without written authority.

CALDOTECH LTD
11 THE PARADE
WILLOWHAYNE CRESCENT
EAST PRESTON
WEST SUSSEX
BN16 1NS
Telephone 01903 859176

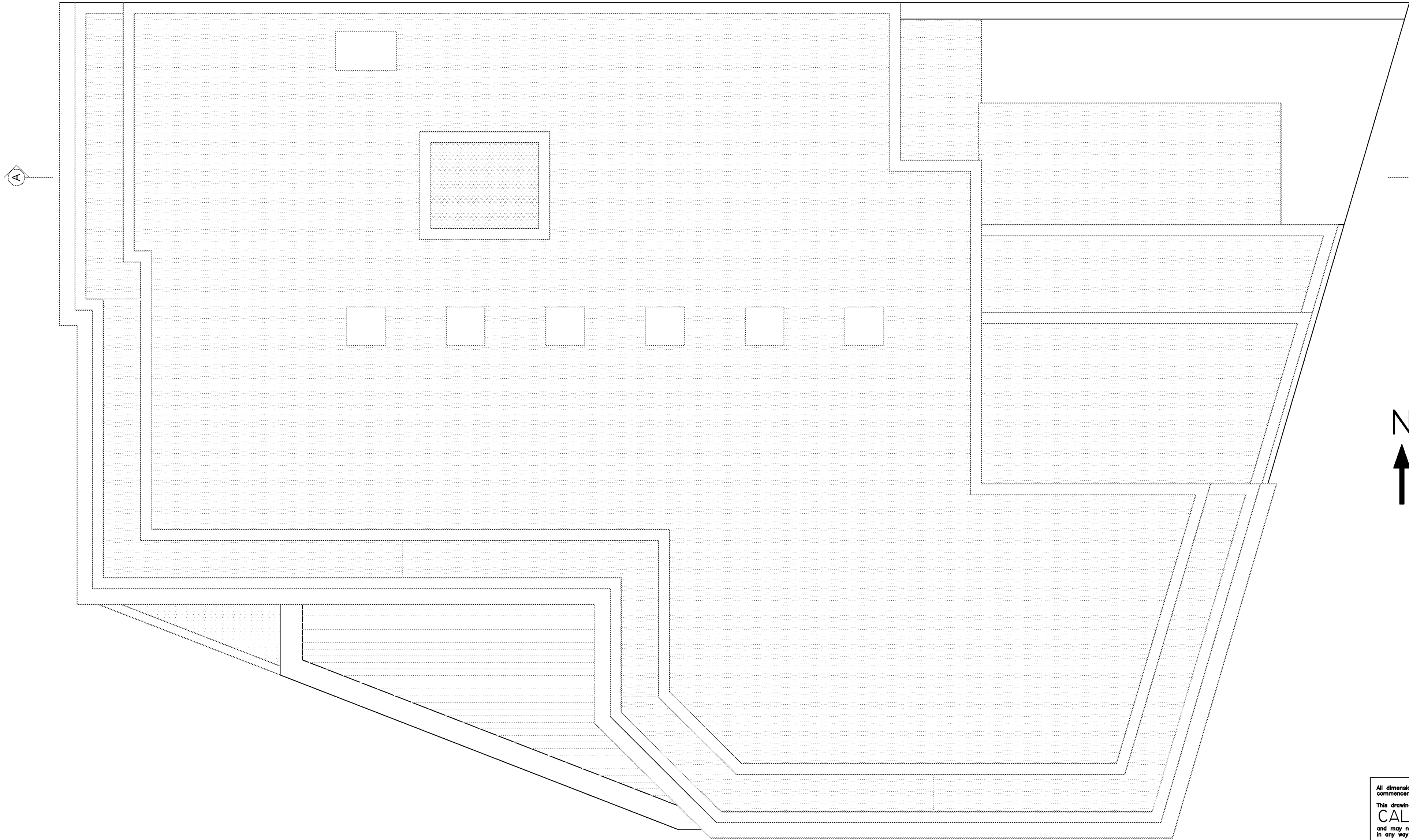
PROPOSED ELEVATIONS

The Nelson
Pier Road
Littlehampton
West Sussex

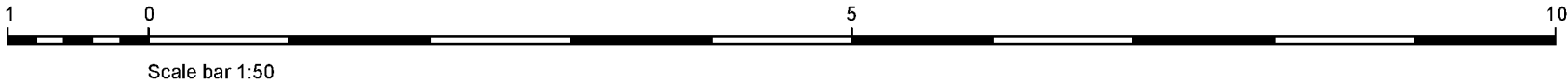
CLIENT Mr & Mrs Stojanovski

Issue	Details	By	Date
R5	Amendments for Planning	JM	07/03/2017
R4	Amendments for Planning	JM	09/02/2017
R3	Amendments Planning	JM	17/01/2017
R2	Amendments client request	JM	15/09/2016
R1	Amendments client request	JM	01/09/2016

SCALE AS SHOWN on A2
DATE 07/03/17
DRAWING NUMBER 15219/02/RS



ROOF PLAN 1:50



All dimensions to be checked on site prior to commencement of work, except for planning purposes.
This drawing is the copyright of
CALDOTECH LTD
and may not be copied, altered or reproduced in any way without written authority.

CALDOTECH LTD
11 THE PARADE
WILLOWHAYNE CRESCENT
EAST PRESTON
WEST SUSSEX
BN16 1NS
Telephone
01903 859176

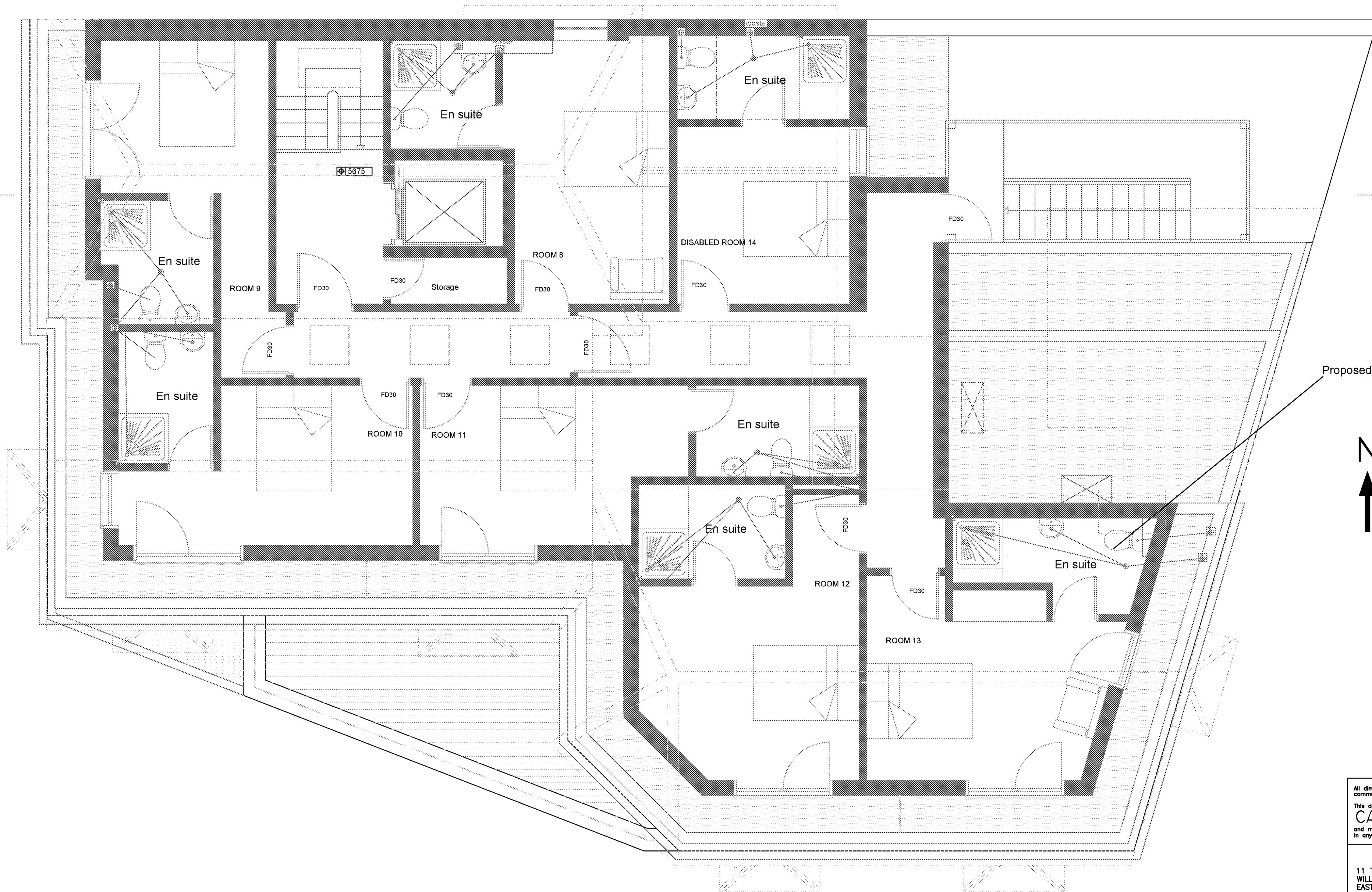
PROPOSED ROOF PLAN

The Nelson
Pier Road
Littlehampton
West Sussex

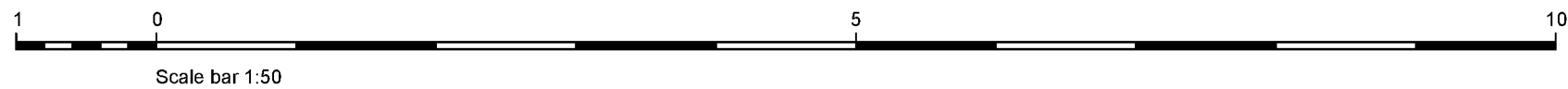
CLIENT Mr & Mrs Stojanovski

R4	Amendments for Planning	JM	07/03/2017
R3	Amendments for Planning	JM	09/02/2017
R2	Amendments Planning	JM	17/01/2017
R1	Amendments client request	JM	01/09/2016
Issue	Details	By	Date

SCALE AS SHOWN on A2
DATE 07/03/17
DRAWING NUMBER 15219/G2eR4



SECOND FLOOR PLAN 1:50



All dimensions to be checked on site prior to commencement of work, except for planning purposes.
This drawing is the copyright of
CALDOTECH LTD
and may not be copied, altered or reproduced in any way without written authority.

CALDOTECH LTD
11 THE PARADE
WILLOWHAYNE CRESCENT
EAST PRESTON
WEST SUSSEX BN16 1NS Telephone 01903 859176

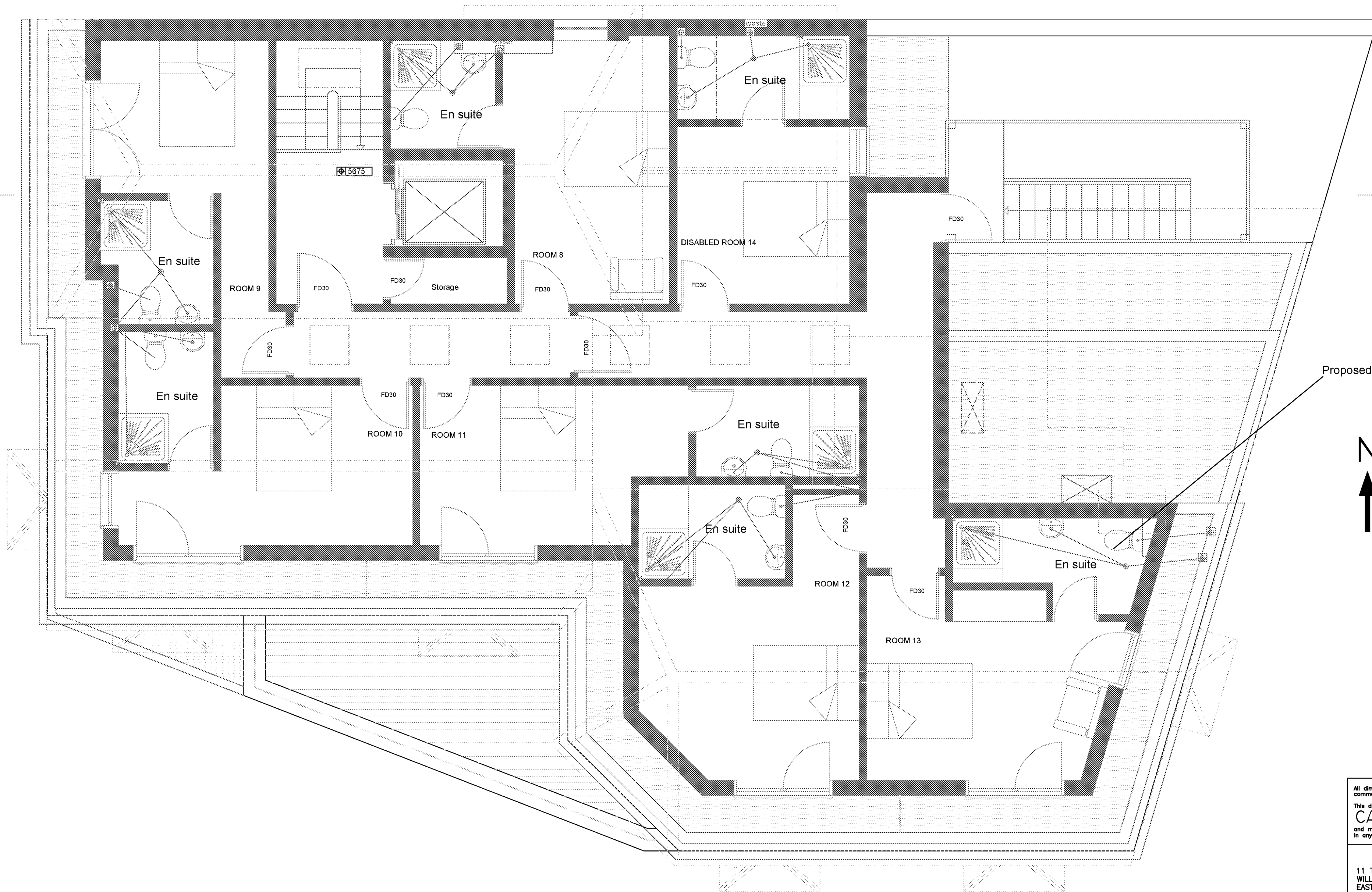
PROPOSED SECOND FLOOR PLAN

The Nelson
Pier Road
Littlehampton
West Sussex

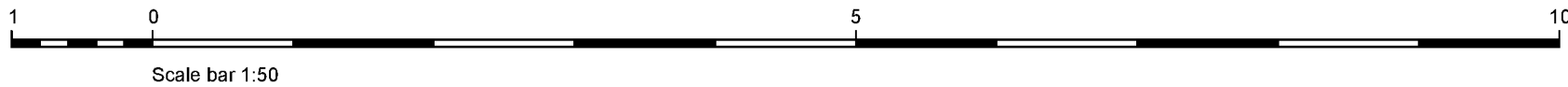
CLIENT Mr & Mrs Stojanovski

R4	Amendments for Planning	JM	07/03/2017
R3	Amendments for Planning	JM	06/02/2017
R2	Amendments Planning	JM	17/01/2017
R1	Amendments client request	JM	01/09/2016
Issue	Details	By	Date

SCALE A5 SHOWN ON A2
DATE 07/03/17
DRAWING NUMBER 15218/02DR4



SECOND FLOOR PLAN 1:50



All dimensions to be checked on site prior to commencement of work, except for planning purposes.
This drawing is the copyright of
CALDOTECH LTD
and may not be copied, altered or reproduced in any way without written authority.

CALDOTECH LTD
11 THE PARADE
WILLOWHAYNE CRESCENT
EAST PRESTON
WEST SUSSEX BN16 1NS Telephone 01903 859176

PROPOSED SECOND FLOOR PLAN

The Nelson
Pier Road
Littlehampton
West Sussex

CLIENT Mr & Mrs Stojanovski

R4	Amendments for Planning	JM	07/03/2017
R3	Amendments for Planning	JM	09/02/2017
R2	Amendments Planning	JM	17/01/2017
R1	Amendments client request	JM	01/09/2016
Issue	Details	By	Date

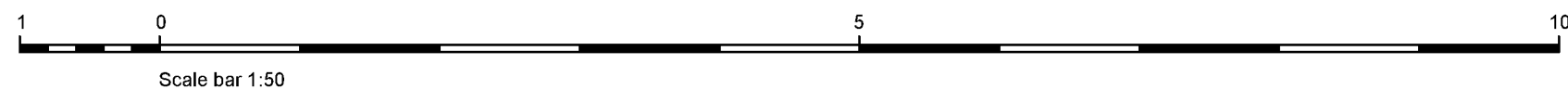
SCALE A5 SHOWN ON A2
DATE 07/03/17
DRAWING NUMBER 15218/026R4



EXISTING STREET SCENE - SOUTH



PROPOSED STREET SCENE - SOUTH



All dimensions to be checked on site prior to commencement of work, except for planning purposes.

This drawing is the copyright of
CALDOTECH LTD
and may not be copied, altered or reproduced
in any way without written authority.

CALDOTECH LTD
11 THE PARADE
WILLOWHAYNE CRESCENT
EAST PRESTON
WEST SUSSEX BN16 1NS Telephone 01903 859176

EXISTING & PROPOSED STREET SCENE FROM
SOUTH TERRACE
The Nelson
Pier Road
Littlehampton
West Sussex

CLIENT Mr & Mrs Stojanowski

R2	Amendments for Planning	JM	07/03/2017
R1	Amendments for Planning	JM	08/02/2017
Issue	Details	By	Date

SCALE AS SHOWN ON A2
DATE 07/03/17
DRAWING NUMBER 15219/08R2