Sumner Consultancy Ltd
Civil Engineering &
Transportation Consultant

FLOOD RISK ASSESSMENT

UNITY HOUSE
LLANDRINIO

FOR

AAT GB LTD

REPORT VERIFICATION

SITE ADDRESS	Unity House Llandrinio
REPORT TITLE	Flood Risk Assessment
JOB NUMBER	148-16
7PREPARED BY	JRS

ISSUE NO.	DATE	STATUS	REPORT VERSION	ISSUED BY
1	29-01-20	For Planning	01	JRS

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1. BRIEF

1.1. Sumner Consultancy has been appointed by AAT GB Ltd to carry out a Flood Risk Assessment in connection with their proposed conversion of an existing Care Home to residential apartments in support a planning application.

2. SITE INFORMATION

2.1. The Site is situated on the southeast side of Llandrinio with an Access Road on the southern side of the B4393. It is rectangular in shape with an approximate area of 0.45ha. The Site Location Plan is in Appendix 1.

2.2. The Site is located at Grid Reference E329474 N317010 with the nearest post code of SY22 6SG.

2.3. The existing use of the Site is a former Care Home, which catered for a maximum of 42 residents. Photographs 1 & 2 in Appendix 2.

2.4. The proposal is for the conversion of the Care Home into 23 residential apartments comprising:

GROUND FLOOR	FIRST FLOOR	SECOND FLOOR
9 No. 1 Bed Apartments	5 No. 1 Bed Apartments	1 No. 2 Bed Apartments
3 No. Studio Apartments	2 No. Studio Apartments	

2.5. 25 parking spaces and 2 disabled will be provided on the northern side of the Site. The site proposal is shown on DGA's Proposed Site Plan drawing 18.004 1.02A in Appendix 3.

2.6. The site is surrounded by either a bund or a wall, the purpose of which is to protect the site from flooding. Photographs 3 & 4.

2.7. From the B4393 a 95m long Access Road leads to the property, The Grange, a redundant building, stables and access to adjoining fields.

2.8. Excluding the bund, the Site has an approximate highest level of 62.68m on the western side and the lowest level of 60.76m to the northeast.

2.9. The bund has a level of between 62.57 & 61.82m, and the wall on the western side has levels between 63.71 & 62.19m.

2.10. From the Access Road entry to the Site is gained via a 20m long ramped drive, starting at a level of 61.18m, rising to a level of between 61.95 & 62.06m, then falling back to a level of 61.10m. The drive is ramped as it forms part of the flood defence around the Site, Photograph 5.

2.11. The existing floor level for the building is between 61.60 & 61.38m.

2.12. It is understood that the surface water from the building drains to soakaways, and the foul to a treatment plant.

2.13. A copy of the Site Survey drawing 148-17-01 is in Appendix 4.

2.14. Approximately 240m to the southeast of the Site is the River Severn.

2.15. There are flood defence embankments on the north western side and south eastern sides of the River Severn. On the north western side from Neath Bridge on the southern side of Rhos to the confluence with the River Vyrnwy, a distance of approximately 4.1 miles. The defence embankments continue along the western side of the River Vyrnwy to Haughton, an approximate distance of 3.7 miles.
Photograph 6 shows the flood defence on the north western side of the River Severn looking towards the B4393 bridge.

2.16. To the east of the Site, the B4393 crosses the River Severn, and at the western end of the bridge on the southern side of the road is the Llandrinio Monitoring Station, Grid Reference SJ2982016980. The Station was opened on 07-12-94, and the highest recorded level was 7.19m on 31-10-00 at 12:30 am.

2.17. The Ordnance Datum for the Monitoring Station is not given with the Monitoring Station information so a freedom of information request was submitted to Natural Resources Wales (NRW) to request the datum level, which was given as 55.0m AOD.

2.18. Based on the datum level of 55.0m, the highest recorded level would be 62.19m AOD.

3. FLOOD INFORMATION

3.1. NRW maps show that all of the Site and surrounding area is in Flood Zones 2 & 3, which are shown on NRW Flood Risk from Rivers or the Sea Flood Zones in Appendix 5.

- The extent of Flood Zone 3 from rivers is defined as a 1% (1 in 100 year) chance or greater of flooding happening in any given year.
- The extent of Flood Zone 3 from the sea is defined as a 0.5% (1 in 200 year) chance or greater of flooding happening in any given year.
- The extent of Flood Zone 2 from rivers or the sea is defined as a 0.1% (1 in 1000 year) chance of flooding happening in any given year.

3.2. The NRW plan in Appendix 6 shows the Flood Risk from Rivers or the Sea, and that the Site is within a High Flood Risk Area. The flood risks take into account the effect of any flood defences that may be in this area. Flood defences reduce, but do not completely stop the chance of flooding as they can be overtopped or fail.

- Low means that each year, this area has a chance of flooding of between 1 in 1000 (0.1%) and 1 in 100 (1%).
- Medium means that each year, this area has a chance of flooding of between 1 in 100 (1%) and 1 in 30 (3.3%).
- A High Flood Risk means that each year, this area has a chance of flooding of greater than 1 in 30 (3.3%).

3.3. The Site is located within a NRW Flood Alert Area. As meteorological conditions and corresponding flood levels are harder to predict across fluvial catchments for a certain area, sites at risk of fluvial flooding could have a minimum of 2 hours warning before any of the levels of flood warning is issued. The area covered by the Flood Alerts is shown on the NRW Flood Alerts & Warnings plan in Appendix 7.

3.4. According to the Met Office document entitled Together – make a difference with a coordinated response to emergency management dated 2013, EMARC (Environment Monitoring and Response Centre) is one of the forecast production units at the Met Office.

It provides specialist forecasts to the UK emergency services and other government departments, as well as to the international community and has continuous operational capability. This enables the Met Office to provide an immediate response to customers requiring meteorological information to deal with a variety of environmental incidents. These could range from chemical or radiological releases to biological hazards such as foot and mouth disease.

3.5. Flood Alerts, Flood Warnings and Severe Flood Warnings are issued to residents and businesses within flood risk areas by National Recourses Wales, which can be in Welsh or English. Twitter Alerts are also provided for imminent flooding to homes and businesses, pollution that presents a risk to people and failures of waterway structures presenting a hazard to the public or property.

3.6. NRW flood warning duty officers use weather forecasts, along with their local knowledge of community flood risk, to make decisions about issuing warnings to those at risk. They issue three different kinds of flood warning: Flood Alerts, Flood Warnings and Severe Flood Warnings. They ensure that warnings are broadcast on local radio and television. This information can also be obtained through their dedicated Floodline information service (0345 988 1188) and on their website, which is updated every 15 minutes.

The Landlord should be encouraged to confirm their details with National Recourses Wales and to sign up for these warnings if they have not already done so.

3.7. Figure 1 shows National Recourses Wales flood warning categories:

National Recourses Wales Flood Warnings	
	Flood Alert Flooding is possible. Be prepared
	Flood Warning Flooding is expected. Immediate action required
	Severe Flood Warning Severe flooding. Danger to life.

Figure 1

4. FLOOD RISK MITIGATION AND EVACUATION

4.1. Reducing Exposure to the Hazard

4.1.1. Since the building is within Flood Zones 2 & 3 and the highest flood level recorded is 62.19m AOD, the building and surrounding area is susceptible to flooding.

4.1.2. The existing floor level for the building is between 61.38 & 61.60m, and if the highest flood level is reached, could result in a flood depth in the building of 0.81m. It is therefore recommended that any electrical items are located at least 1.0m above the highest existing floor level of 61.60m.

4.1.3. The building already has flood protection around it in the form of a bund and wall, with the bund level between 62.57 & 61.82m, and the wall on the western side between 63.71 & 62.19m. The height of the ramped access drive is between 61.95 & 62.06m.

4.1.4. To safeguard the Site from future flooding it is recommended that the existing flood protection levels of the bund, wall and access drive are raised to at least 600mm above the highest flood level to 62.79m. This will result in raising the level of the bund by a maximum of 970mm, the wall by 600mm and the access drive as it forms part of the bund by 840mm at its highest point, with the drive ramped down either side of the high point.

4.1.5. NRW plans showing the Flood Risk from Surface Water indicate that the Site is not at risk. A copy of NRW Flood Risk from Surface Water plan is in Appendix 8.

4.1.6. It is understood that there are ground water pumps in the basement of the building, and these should be suitably maintained to ensure that any ingress of water can be pumped to outside of the flood defences.

4.2. Reducing Vulnerability to the Hazard

4.2.1. NRW aims to provide up to 2 hours notice before the issue of a Flood Warning for fluvial events. It is likely that the flood levels will be monitored and the corresponding level of flood warning issued depending on the rising flood level.

4.2.2. The Landlord should ensure that all occupants are provided with a flood evacuation plan and all the necessary information on receiving flood warnings.

4.2.3. For flood evacuation plan information, NRW website provides a link to the Gov.uk website: https://www.gov.uk/guidance/flood-risk-management-plans-frmps-responsibilities

4.3. Safe Access/Egress

4.3.1. Vehicular and pedestrian access to the Site will be via the Access Road from the B4393, and the ramped driveway. With the raised levels of the bund, boundary wall and ramped driveway, the immediate area surrounding the building should remain relatively dry.

4.3.2. From the Site, the level of the start of the Access Road is 61.12m, therefore with a maximum flood level of 62.19m, the depth of flood water at the start of the Access Road would be 1.07m.

4.3.3. In DEFRA/Environment Agency's Technical Report FD2320-TRL - Flood Risk Assessment Guidance for New Development, Table 13.1 indicates the danger to people for different combinations of depth and velocity. Table 13.1 is reproduced on the following page.

4.3.4. The Table provides a very simplified guide which has been taken from HR Wallingford (2005) Flood Risks to People Phase 2, The Flood Risk to People Methodology, and shows the groups of people that should be considered as failing into these danger classifications:

- Danger for some – includes children, the elderly and the infirm
- Danger for most – includes the general public
- Danger for all – includes emergency services

4.3.5. Technical Report FD2320-TRL refers to the outputs of the Flood Risk to People project and indicates that flood depths below 0.25m and velocities below 0.5m/s are generally considered low hazard. When designing safe access and exit routes, the combinations of depth and velocity on the routes should correspond to the white boxes in Table 13.1. As flood depth and/or velocity increase the hazard to people increases. Combinations of depths and velocities in the white boxes (below the 'danger for some' class) are 'very low hazard', but a hazard does remain.

Velocity (m/s)	Depth of flooding (m)											
	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.80	1.00	1.50	2.00	2.50
0.00												
0.10												
0.25												
0.50												
1.00												
1.50												
2.00												
2.50												
3.00												
3.50												
4.00												
4.50												
5.00												

Key:
Danger for some
Danger for most
Danger for all

Table 13.1 - Danger to people for different combinations of depth and velocity

4.3.6. The Table suggests that a depth of flooding of 1.0m with a velocity of up to 0.5m/s is in the orange area and therefore does constitute a danger for most people, and a velocity of greater than 0.5m/s is a danger for all.

4.3.7. If the depth of the flood is only 0.5 – 0.6m, then it should still be possible to walk through this depth of flood water.

4.3.8. If the flood defences around the building are breached, then the first floor would provide a dry refuge until the water subsides.

4.4. Extra Flood Resistance and Resilience Measures

4.4.1. When developments cannot be located in a lower flood risk area, then consideration needs to be given to flood resistance and resilience measures if the development's ground floor levels cannot be raised above the estimated flood level for the Site.

4.4.2. Which flood resistance and resilience measures need to be considered depends on the estimated depth in metres (m) that flood water will reach in the building.

4.4.3. Water depth up to 0.3m.
Design the building or development to keep water out as much as possible. Do this by using materials that have low permeability (ie materials that water cannot pass through such as impermeable concrete).

4.4.4. Water depth from 0.3m to 0.6m.
Design the building or development to keep water out (unless there are structural concerns) by:

a) Using materials with low permeability to at least 0.3m.

b) Using flood resilient materials (for example lime plaster) and design (raised electrical sockets).

c) Making sure there's access to all spaces to enable drying and cleaning.

4.4.5. Water depth above 0.6m.
Design the building or development to allow water to pass through the property to avoid structural damage by:

a) Using materials with low permeability to at least 0.3m.

b) Making it easy for water to drain away after flooding.

c) Making sure there's access to all spaces to enable drying and cleaning

4.4.6. The existing floor level for the building is between 61.60 & 61.38m, and with a maximum flood level of 62.19m this will result in a depth of flood water of between 0.59 & 0.81m. Therefore it is recommended that Flood Resistance and Resilience Measures for water a depth of above 600mm should be implemented.

5. OTHER SOURCES OF FLOODING

5.1. Ground Water Flooding

5.1.1. According to Cobby et al (2009), groundwater flooding can be defined as flooding caused by the emergence of water originating from subsurface permeable strata. The greatest risks of groundwater flooding are considered to be from either:

- A rise of groundwater in unconfined permeable strata, such as Chalk, after prolonged periods of extreme rainfall;
- A rise of groundwater in unconsolidated, permeable superficial deposits, which are in hydraulic continuity with local river water levels and where the hydraulic gradient of the water table is low.

5.1.2. Groundwater flooding from Chalk aquifers, for example, mainly occurs when the surface of the Chalk is close to, or outcrops at the ground surface. The rise in the water table during prolonged and extreme rainfall can be significant, especially if the Chalk aquifer is unconfined and if the original water level in the aquifer is high. Flooding from such aquifers may occur within a few hours or days of the rainfall or up to a few weeks after.

5.1.3. Deposits comprising a mixture of permeable and impermeable soils can lead to a presence of perched water. Perched water tables are located above less permeable deposits such as clay and are located within water-bearing soils such as sand and gravel. If perched water is unconfined then the potential for recharge and groundwater flooding can be high. If the perched water is confined by less permeable clay deposits, then the clay deposits will have a buffering effect on percolating surface water and thus the recharge potential and rise in the water table is low.

5.1.4. It is common for groundwater flooding from water-bearing superficial deposits to occur within the vicinity of watercourses, as the water table is generally in hydraulic continuity with the water levels in the watercourse. Therefore, if the watercourse floodplain is flat and low-lying, the water table is likely to have a low hydraulic gradient and will rise to the equivalent water level within the watercourse. This, in turn, can cause the water table to breach the ground surface. This is more prominent in winter during which groundwater flooding often precedes fluvial flooding.

5.2. Groundwater Flooding Potential at the Site

5.2.1. The online BGS Geology Viewer shows a borehole No. SJ21NE11 BH21/E2/05 which is within 250m of the Site. The depth of the borehole is 8.85m and no ground water was encountered.

5.2.2. It is considered that the evidence suggests an overall low risk of groundwater flooding.

5.3. Surface Water Flooding and Sewer Flooding

5.3.1. Surface water and sewer flooding across urban areas is often a result of high intensity storm events which exceed the capacity of the sewers thus causing them to surcharge and flood. Poorly maintained sewer networks and blockages can also exacerbate the potential for sewer flooding.

5.3.2. NRW plans showing the Flood Risk from Surface Water and show that the Site is not at risk. A copy of NRW Flood Risk from Surface Water plan is in Appendix 8.

5.3.3. NRW Flood Risk from Reservoirs in Appendix 9, indicates that most of the Site is at risk to a depth of between 0.3 & 2.0m.

6. SURFACE WATER DRAINAGE

6.1. Information.

6.1.1. Planning policy recommends the maximum practical use of Sustainable Drainage Systems (SUDS) for new development sites. There is a requirement that SUDS be installed where appropriate, in order to limit the amount of surface water runoff entering drainage systems and to return surface water into the ground to follow its natural drainage path.

6.1.2. Planning Policy Wales Technical Advice Note (TAN) 15 Development and Flood Risk requires that the effects of climate change to be considered in any assessment of flood risk for developments. An allowance of 30% for climate change should be included in the calculations.

6.2. Existing Surface Water Drainage

6.2.1. It is understood that the surface water from the existing buildings drains to soakaways,

6.2.2. The existing parking area has a small area of tarmac and the remainder is stone.

6.3. Proposed Surface Water Drainage

6.3.1. There is no proposal to extend the building or have any additional impermeable areas, however it is recommended that the existing soakaways are checked to see if they are functioning as they should be.

6.3.2. The proposed parking area should be constructed using a permeable surfacing such as permeable block paving, porous tarmac or similar where a permeable sub-base is utilised for infiltration.

7. FOUL WATER DRAINAGE

7.1.1. It is understood that the foul water drainage from the building drains to a treatment plant, however there is no information available as to the location of the soakaway or drainage field.

7.1.2. The existing use of the Site is a former Care Home, which catered for a maximum of 42 residents, and the proposal is to convert it into 23 residential apartments. Therefore the foul discharge from the 23 residential apartments should not be more that it was from the Care Home.

7.1.3. It is however recommended that the size and capacity of the treatment plant is checked to ensure it can accommodate the number of residential units based on the current design standards.

7.1.4. It is also recommended that the location and size of the soakaway or drainage field from the treatment plant is checked to establish if it has sufficient capacity to accommodate the discharge from the treatment plant and that it is working correctly.

7.1.5. It is further recommended that the treatment plant is surrounded by a walled area in excess of 62.19m in height to protect it as much as possible from any rising flood water should the site flood defences be breached.

7.1.6. In the event that flood water reaches the walled area, consideration should be given to switching the pump off to avoid the pump being overloaded. If this is the case, then the use of the foul water appliances should be restricted and possibly limited to only minimal use of just the toilets.

8. CONCLUSION

8.1. NRW maps show that all of the Site and surrounding area is in Flood Zones 2 & 3, and that it is in a High Flood Risk Area.

- The extent of Flood Zone 3 from rivers is defined as a 1% (1 in 100 year) chance or greater of flooding happening in any given year.
- The extent of Flood Zone 3 from the sea is defined as a 0.5% (1 in 200 year) chance or greater of flooding happening in any given year.
- The extent of Flood Zone 2 from rivers or the sea is defined as a 0.1% (1 in 1000 year) chance of flooding happening in any given year.
- A High Flood Risk means that each year, this area has a chance of flooding of greater than 1 in 30 (3.3%).

8.2. The Site is also located within a NRW Flood Alert Area, where NRW aims to provide up to 2 hours notice before the issue of a Flood Warning for fluvial events. It is likely that the flood levels will be monitored and the corresponding level of flood warning issued depending on the rising flood level.

8.3. The Landlord should be encouraged to confirm their details with National Recourses Wales and to sign up for these warnings if they have not already done so.

8.4. Since the building is within Flood Zones 2 & 3 and the highest flood level recorded is 62.19m AOD, the building and surrounding area is susceptible to flooding.

8.5. The existing floor level for the building is between 61.38 & 61.60m, and if the highest flood level is reached, could result in a flood depth in the building of 0.81m. It is therefore recommended that any electrical items are located at least 1.0m above the highest existing floor level of 61.60m.

8.6. To safeguard the Site from future flooding it is recommended that the existing flood protection levels of the bund, wall and access drive are raised to at least 600mm above the highest flood level to 62.79m. This will result in raising the level of the bund by a maximum of 970mm, the wall by 600mm and the access drive as it forms part of the bund by 840mm at its highest point, with the drive ramped down either side of the high point.

8.7. It is understood that there are ground water pumps in the basement of the building, and these should be suitably maintained to ensure that any ingress of water can be pumped to outside of the flood defences.

8.8. The Landlord should ensure that all occupants are provided with a flood evacuation plan and all the necessary information on receiving flood warnings.

8.9. For flood evacuation plan information, NRW website provides a link to the Gov.uk website.

8.10. Vehicular and pedestrian access to the Site will be via the Access Road from the B4393, and the ramped driveway. With the raised levels of the bund, boundary wall and ramped driveway, the immediate area surrounding the building should remain relatively dry.

8.11. From the Site, the level of the start of the Access Road is 61.12m, therefore with a maximum flood level of 62.19m, the depth of flood water at the start of the Access Road would be 1.07m.

8.12. In DEFRA/Environment Agency's Technical Report FD2320-TRL - Flood Risk Assessment Guidance for New Development, Table 13.1 indicates the danger to people for different combinations of depth and velocity.

8.13. The Table provides a very simplified guide which has been taken from HR Wallingford (2005) Flood Risks to People Phase 2, The Flood Risk to People Methodology, and shows the groups of people that should be considered as failing into these danger classifications:

- Danger for some – includes children, the elderly and the infirm
- Danger for most – includes the general public
- Danger for all – includes emergency services

8.14. The Table suggests that a depth of flooding of 1.0m with a velocity of up to 0.5m/s is in the orange area and therefore does constitute a danger for most people, and a velocity of greater than 0.5m/s is a danger for all.

8.15. If the depth of the flood is only 0.5 – 0.6m, then it should still be possible to walk through this depth of flood water.

8.16. If the flood defences around the building are breached, then the first floor would provide a dry refuge until the water subsides.

8.17. When developments cannot be located in a lower flood risk area, then consideration needs to be given to flood resistance and resilience measures if the development's ground floor levels cannot be raised above the estimated flood level for the site.

8.18. The existing floor level for the building is between 61.60 & 61.38m, and with a maximum flood level of 62.19m this will result in a depth of flood water of between 0.59 & 0.81m. Therefore it is recommended that Flood Resistance and Resilience Measures for water a depth of above 600mm should be implemented, which involves:

Designing the building or development to allow water to pass through the property to avoid structural damage by:

a) Using materials with low permeability to at least 0.3m.

b) Making it easy for water to drain away after flooding.

c) Making sure there's access to all spaces to enable drying and cleaning

8.19. The online BGS Geology Viewer shows a borehole No. SJ21NE11 BH21/E2/05 which is within 250m of the Site. The depth of the borehole is 8.85m and no ground water was encountered.

8.20. NRW plans showing the Flood Risk from Surface Water indicate that the Site is not at risk.

8.21. NRW Flood Risk from Reservoirs, indicates that most of the Site is at risk from flooding to a depth of between 0.3 & 2.0m.

8.22. It is understood that the surface water from the existing buildings drains to soakaways, and the existing parking area has a small area of tarmac and the remainder is stone where the water drains into the ground.

8.23. There is no proposal to extend the building or have any additional impermeable areas, however it is recommended that the existing soakaways are checked to see if they are functioning as they should be.

8.24. The proposed parking area should be constructed using a permeable surfacing such as permeable block paving, porous tarmac or similar where a permeable sub-base is utilised for infiltration.

8.25. It is understood that the foul water drainage from the building drains to a treatment plant, however there is no information available as to the location of the soakaway or drainage field.

8.26. The existing use of the Site is a former Care Home, which catered for a maximum of 42 residents, and the proposal is to convert it into 23 residential apartments. Therefore the foul discharge from the 23 residential apartments should not be more that it was from the Care Home.

8.27. However it is recommended that the size and capacity of the treatment plant is checked to ensure it can accommodate the number of residential units based on the current design standards.

8.28. It is also recommended that the location and size of the soakaway or drainage field from the treatment plant is checked to establish if it has sufficient capacity to accommodate the discharge from the treatment plant and it is working correctly.

8.29. It is further recommended that the treatment plant is surrounded by a walled area in excess of 62.19m in height to protect it as much as possible from any rising flood water should the site flood defences be breached.

8.30. In the event that flood water reaches the walled area, consideration should be given to switching the pump off to avoid the pump being overloaded. If this is the case, then the use of the foul water appliances should be restricted and possibly limited to only minimal use of just the toilets.

8.31. Since the building is existing and constructed as a Care Home within a flood risk area, any evacuation of the residents would have been more difficult than would be the case with the proposed residential apartments where there is over a 50% reduction in the number of rooms and the occupants of the apartments will be more mobile.

John Sumner IEng MICE
Director
Sumner Consultancy Ltd
January 2020

APPENDIX 1

SITE LOCATION PLAN

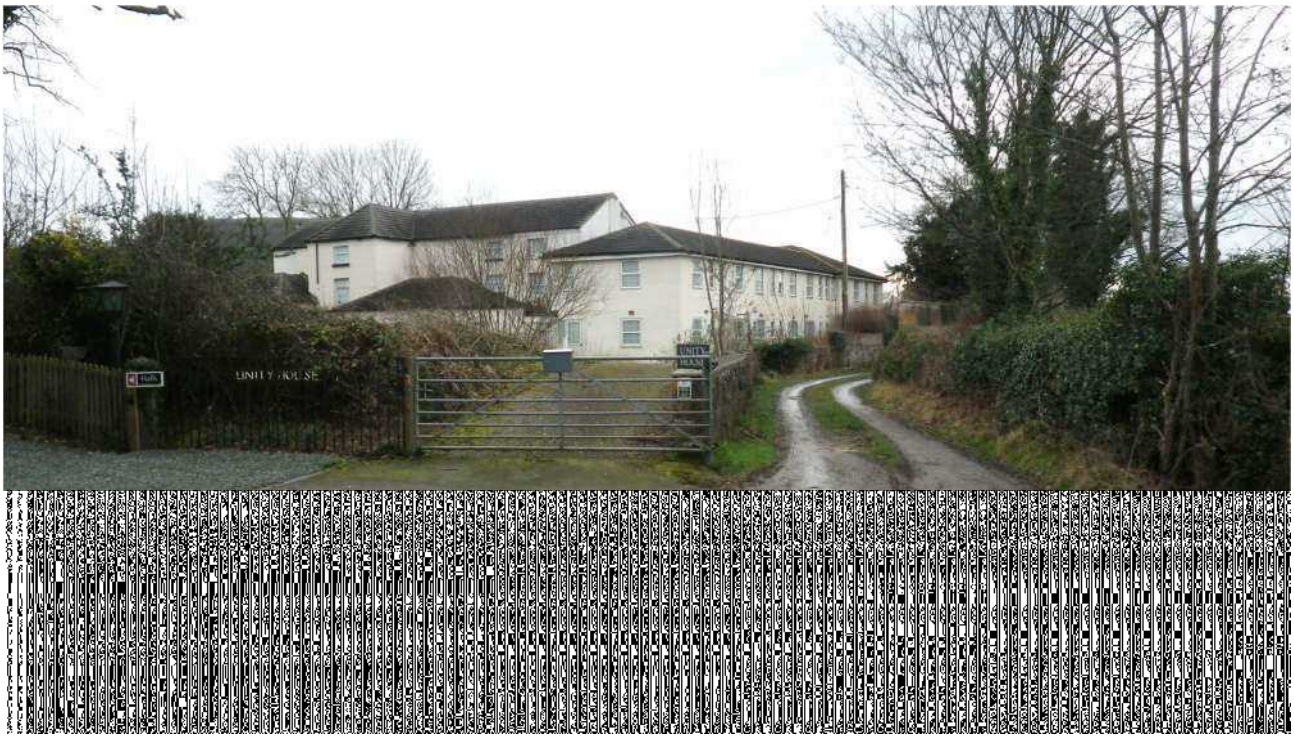
SITE LOCATION PLAN

Nearest Post Code SY22 6SG
Grid Reference SJ 29474 17010

Sumner Consultancy Ltd
info@sumnerconsultancy.co.uk www.sumnerconsultancy.co.uk

APPENDIX 2

PHOTOGRAPHS



PHOTOGRAPH 1
Access to Unity House

PHOTOGRAPH 2
Northern frontage of Unity House with the existing parking area and bund

PHOTOGRAPH 3
Bund on the northern side of Unity House

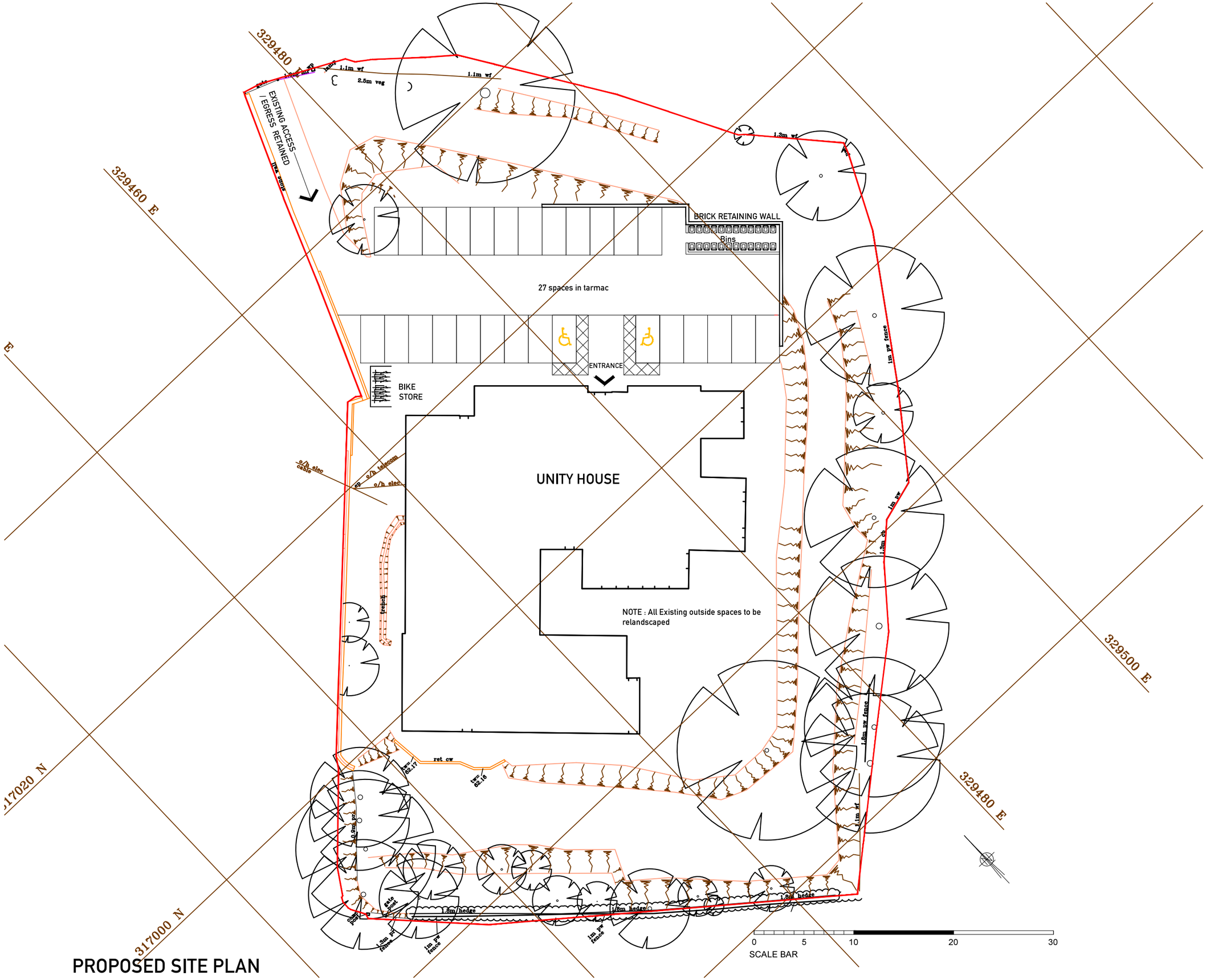
PHOTOGRAPH 4
Boundary wall on the western side

PHOTOGRAPH 5
Ramped drive to Unity House

PHOTOGRAPH 6
Flood defence on the north western side of the River Severn looking towards the B4393 bridge

APPENDIX 3

DGA'S PROPOSED SITE PLAN
DRAWING 18.004 1.02A



PROPOSED SITE PLAN

IMPORTANT GENERAL NOTES:

THIS DRAWING SHALL NOT BE SCALED.

ALL DIMENSIONS SHALL BE CHECKED ON SITE PRIOR TO COMMENCING THE WORKS WITH ANY ERRORS OR OMISSION REPORTED TO THE ARCHITECT IMMEDIATELY.

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE NOTED.

THIS DRAWING MAY INCORPORATE INFORMATION FROM OTHER PROFESSIONS, DGA CANNOT ACCEPT RESPONSIBILITY FOR THE INTEGRITY AND ACCURACY OF SUCH INFORMATION.

IF IN DOUBT ASK !!

Revision

Rev		Date	By	App
A	CAR PARKING ADDED	14.08.18	ED	BP

DGA ARCHITECTURE INTERIOR DESIGN

DGA Architects Ltd . The Studio . 125 Belle Vue Road
Shrewsbury . Shropshire . SY3 7NJ

01743 272265 . design@dgaltd.co.uk . www.dgaltd.co.uk

Client
MR TRANJ SINGH

Project
CONVERSION OF UNITY HSE TO FORM APARTMENTS LLANDRINIO SY22 6SG

Drawing
PROPOSED SITE PLAN

Drawing status
PLANNING

Scale	Drawn by	Date
1:350 @ A3	ED	JUL 18

Project number	Drawing number	Revision
18.004	1.02	A

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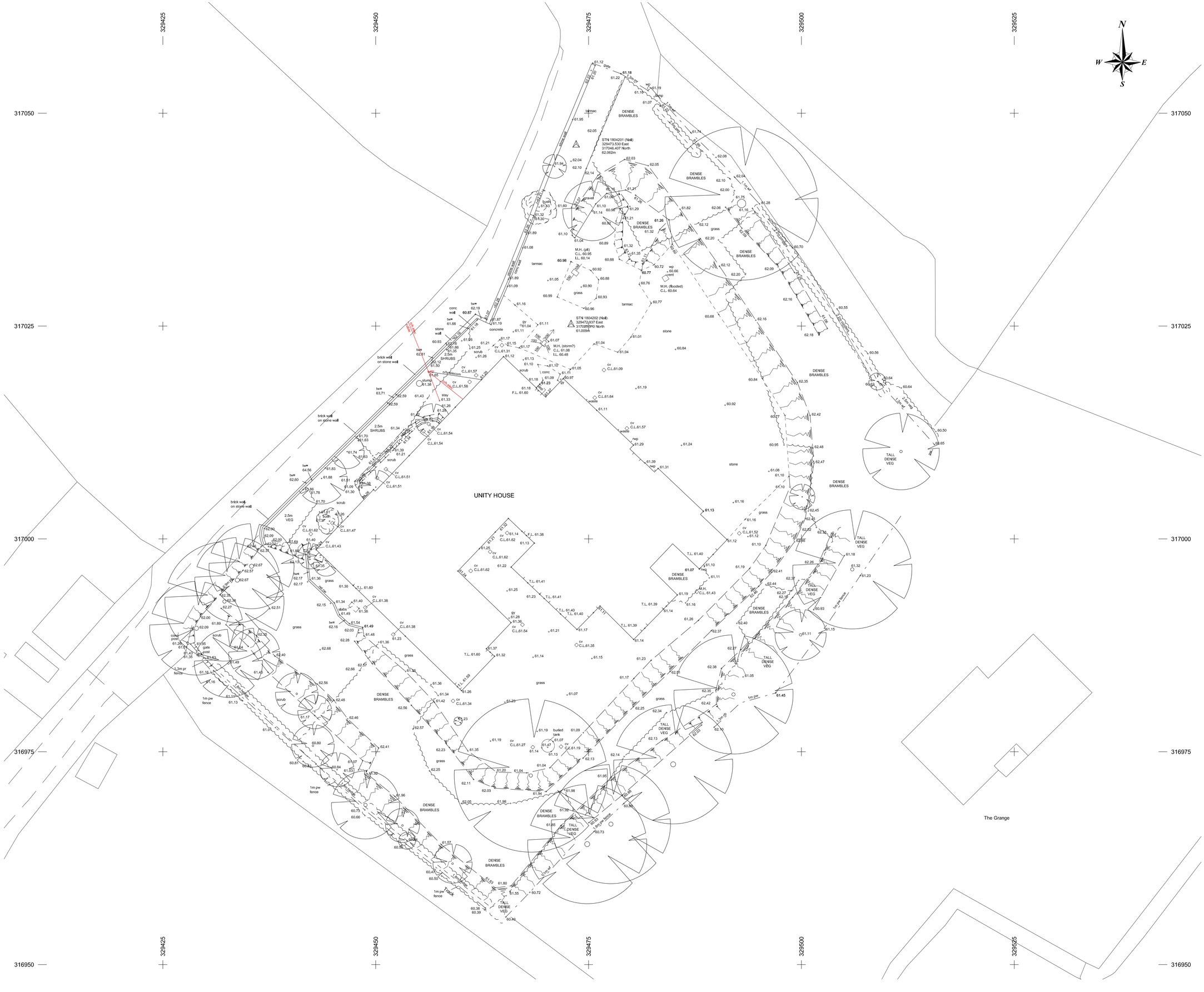
APPENDIX 4

SITE SURVEY
DRAWING 148-17-01



Notes

1. Do not scale from this drawing.
2. All drawings are to be checked by the contractor and setting out engineer and read in conjunction with one another to ensure they are mutually compatible with each other before any setting out or construction commences.
   In the event of apparent ambiguity or contradiction the engineer and/or architect shall be notified immediately. Sumner Consultancy accepts no liability in the event of not being so notified and where construction work has commenced.
3. The site survey was produced by Ruxton Surveys
   Reference 1804201, Date March 2018.
   Grid and levels to ordnance survey Grid based on station 1804201 (329473.530E 317046.407N)
   Sumner Consultancy have not undertaken, nor have been instructed to undertake, any special investigations to verify the information provided. The Principle Contractor, sub contractors and others who may need to rely on this information must ascertain its accuracy before commencing the works. Sumner Consultancy accept no responsibility or liability for the accuracy of this information .
4. The Ordnance Survey details are reproduced with the permission of the Controller of Her Majesty's Stationery Office, © Crown Copyright. Sumner Consultancy Ltd Ordnance Survey Paper Mapping Licence Number 100059047.
5. The Ordnance Survey details have been aligned as as accurately as possible to the site survey. Sumner Consultancy accept no responsibility or liability for the accuracy of this information.

Revisions

Rev	Date	Description

Sumner Consultancy Ltd
Civil Engineering & Transportation Consultant
The Old School
Astley
Shrewsbury
SY4 4BP
Tel: 01939 210 786
Email: info@sumnerconsultancy.co.uk
Web: www.sumnerconsultancy.co.uk

Client: AAT GB LTD

Project: UNITY HOUSE CARE HOME LLANDRINIO

Drawing Title: SITE SURVEY

Scale: 1:200 | Drawn by: JRS | Date: November 2019

Drawing Number: 148-17-01 | Revision:

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Drawing Size: A1

APPENDIX 5

NRW FLOOD RISK FROM RIVERS OR THE SEA FLOOD ZONES

NATURAL RESOURCES WALES
FLOOD RISK FROM RIVERS AND SEA FLOOD ZONES

Nearest Post Code SY22 6SG
Grid Reference X329474 Y317010

Sumner Consultancy Ltd
info@sumnerconsultancy.co.uk www.sumnerconsultancy.co.uk

Zone 3

Zone 2

Main River

Flood Defence

Flood Storage Area

Areas Benefiting from Flood Defences

Location of the Site or Post Code

APPENDIX 6

NRW FLOOD RISK FROM RIVERS OR THE SEA

NATURAL RESOURCES WALES
FLOOD RISK FROM RIVERS OR THE SEA

Nearest Post Code SY22 6SG
Grid Reference X329474 Y317010

FLOOD RISK

High | Medium | Low | Very low | Location of the Site or Post Code

Sumner Consultancy Ltd
info@sumnerconsultancy.co.uk www.sumnerconsultancy.co.uk

APPENDIX 7

NRW FLOOD ALERTS & WARNINGS

NATURAL RESOURCES WALES
FLOOD ALERTS & WARNINGS

Nearest Post Code SY22 6SG
Grid Reference X329474 Y317010

FLOOD ALERTS & WARNINGS

Flood Warning Area

Flood Alert Area

Location of the Site or Post Code

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info@sumnerconsultancy.co.uk www.sumnerconsultancy.co.uk

APPENDIX 8

NRW FLOOD RISK FROM SURFACE WATER

NATURAL RESOURCES WALES
FLOOD RISK FROM SURFACE WATER

Nearest Post Code SY22 6SG
Grid Reference X329474 Y317010

FLOOD RISK FROM SURFACE WATER

High Medium Low Location of the Site or Post Code

Sumner Consultancy Ltd
info@sumnerconsultancy.co.uk www.sumnerconsultancy.co.uk

APPENDIX 9

NRW FLOOD RISK FROM RESERVOIRS

NATURAL RESOURCES WALES
FLOOD RISK FROM RESERVOIRS

Nearest Post Code SY22 6SG
Grid Reference X329474 Y317010

RESERVOIR FLOOD RISK DEPTHS

> 2.0m | 0.3 – 2.0m | 0 – 0.3m | Location of the Site or Post Code

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info@sumnerconsultancy.co.uk www.sumnerconsultancy.co.uk