WESTON RENGIFO ARCHITECTS PRACTICE

Flood Risk Assessment

19 Luther Road – TW11

March 2023

WRAP

Flood Risk Assessment: 19 Luther Road – Teddington – TW11 8PU

1. The Risk:

The proposal and the subject of this assessment is to build a new ground floor rear extension to extend 1.5m over the garden areas. The site lies within Flood Zone 1 (*) classed as an area of low probability of flooding from rivers and the sea by the EA Flood Map (refer to EA flood map on Appendix 1) The site is also classified as High Risk Surface Water (*) area.

For the purposes of this flood risk assessment The EA recommends that the areas within Flood Zone 1 provide and FRA when one or more of the following points apply: *"its an area of critical drainage problems*" and; *"the site is at risk from other sources of flooding and its development would increase its vulnerability".* On this particular proposal we believe that the marginal increase of extension footprint will not increase any known flood risk for the site, nor incur any know residual risks.

*Flood Zone 1 low probability - land assessed as having less than 1 in 1,000 annual probability of river or sea flooding.

*High Risk Surface Water - High risk means that this area has a chance of flooding of greater than 3.3% each year/

2. Impact

The increase in footprint of the proposed rear extension is of not significant impact in relation to existing condition (increase of 6m2). The boundaries between no 19 and No. 17 and No. 21 will allow water flow between properties.

The rear extension proposed finish floor levels are to be kept in line with existing floor finish levels and no lower (i.e. no basements or lower ground floor accommodation)

3. Mitigation

The proposed works include the following mitigation measures:

- Designed soakaways to allow water to quickly soak into the permeable layers of soil. Constructed like a dry well underground pit dug filled with gravel or rubble. Water will be piped into the soakaway where it will be allowed to gradually seep into the ground. (refer to product reference in appendix 2)
- Perimeter drainage will be installed along proposed extension to ensure surface water drainage to be piped to the proposed soakaways within a minimum distance of 5m from the house. (refer diagram in appendix 5)
- Rain water harvesting storage tank located within soft landscape areas, to store rainwater from new roof areas for garden irrigation.
- All external paving areas to the back of the property to be built with permeable materials (i.e. block paving or Eco-grids allowing the natural absorption of water.

4. Resistance & Resilience

It is recommended that the following measures (in line with CS26-7.66) should be considered, in consultation with the area building control department:

- Use of dry-proofing and wet-proofing building materials where appropriate.
- Water resistant coatings for external walls.
- Standard moveable flood barriers should be available for doors, windows, air bricks and any other apertures in exterior walls. There should be a regime under health and safety precautions that after flooding all external protectors must be removed at the earliest opportunity. (a) for ventilation to dry out any moisture (b) to make sure that any heating vents are not blocked when the heating is switched back on.
- Non-return valves should be considered for sewers to prevent back-flow.
- Electrical wiring feeding low level points and switches should drop from the ceiling rather than be fed from floor level. Switches and points may need to be raised.
- Cracks to doors and render should be repaired to reduce water seepage.
- Use of concrete floors rather than timber
- Location of boilers and electrical white goods above the possible flood level
- No chipboard or MDF, instead using plastic and metal alternatives.

Further considerations:

It is recommended that all property owners seek further advice from the government sponsored web-site, www.direct.gov.uk. This gives comprehensive details on all flood protection provisions which are recommended.

5. Personal Flood Plan

a) Flood Preparation Plan (Flood Watch)

The Flood Preparation Plan is activated on receipt of the Flood Watch warning from the Environment Agency, or from other sources, e.g. TV, Radio, local contacts. Flooding is possible, and the situation could worsen, so:

- Watch water levels on nearby roads in case overtopping does occur.
- Ring Floodline on 0345 988 1188; to confirm time and height of predicted flood levels.
- Make sure you have what you need to put your flood evacuation plan into action.
- Consider when to implement Evacuation Plan.
- Be ready to move important equipment, such as computers, above flood level upon receipt of a flood warning.
- Keep a store of plastic bags (grocery bags are fine) to place around the legs of furniture when you receive a flood warning.
- Identify a suitable location for evacuation of vehicles to higher ground.

- Consider the height at which goods are fixed, stored or displayed - the higher the goods, the less chance of damage.
- Copy vital hard copy and electronic records and store them in a safe place. This includes financial and insurance records, product lists, formulas and specifications, staff, customer and supplier databases and staff files.
- Obtain or construct sandbags or other items to protect lower lying entrances to the site.

b) Evacuation Plan (Flood Warning)

The flood evacuation plan should be implemented when a Flood Warning is received. Flood Warning means flooding is now expected, so put your flood evacuation plan into action. The actions are as with Flood Watch plus:

- Move vehicles to other locations. Flooding may be expected in less than 2 hours so with a large number of vehicles on site this may have to be implemented sooner, or smaller vehicles (cars, vans) moved before larger vehicles (trucks etc).
- Move valuables and other items to safe locations such as upper floor, attic space or other locations. Put sandbags or flood boards in place.
- Turn off gas and electricity.
- Initiate evacuation of the premises.
- Follow dry escape route. (refer to flooding escape routes in Appendix 5)

c) Evacuation Plan (Severe Flood Warning)

The flood evacuation plan should be implemented as a matter of urgency when a Severe Flood Warning is issued. Severe Flood Warning means severe flooding is now expected. The actions are as with Flood Warning plus:

- Be prepared to lose power supplies - gas, electricity, water, telephone
- Power cuts are common during a flood so carry a torch with you if at night (torches to be available)
- Co-operate with emergency services and local authorities
- Security procedures - Lock windows, doors and set the alarm.
- Try to keep calm, and to reassure others, and evacuate the site
- Live electricity and gas can be extremely dangerous. Turn off gas and electrical appliances immediately and always turn off building services before water enters the building.

The local council Emergency Planner and the county's Emergency Planning Department/Civil Protection Unit can help you determine the conditions under which a flood evacuation would be necessary, and offer advice.

Refer to Appendix 4 for the Escape Route Plan detailing a map of the route the owner/occupiers would take when leaving their home in order to reach a safer locality in a flood event.

d) All Clear

An all clear will be issued when flood watches or warnings are no longer in force.

1. Flood water levels receding.
2. Check all is safe to return.
3. Seek advice.

e) Flood Evacuation Procedures (for domestic property)

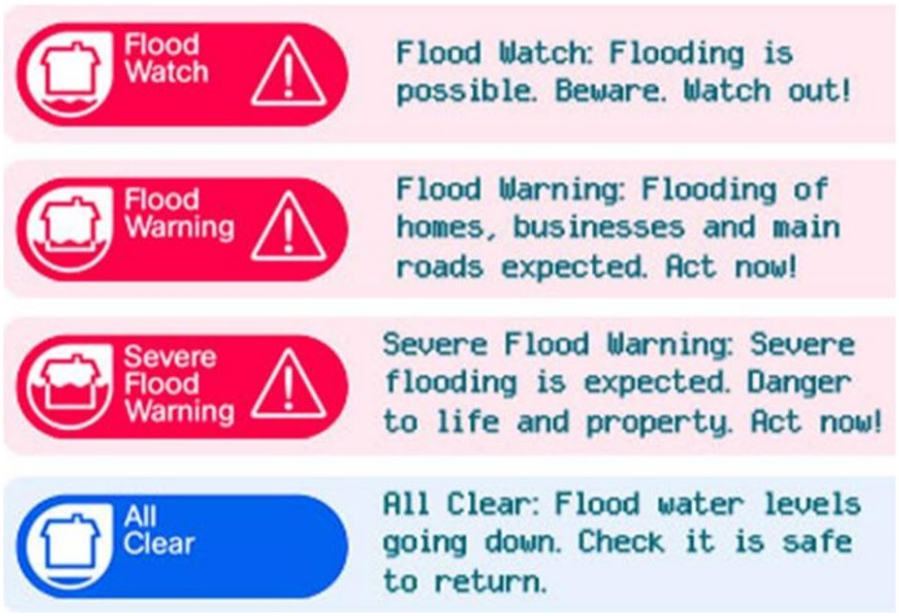
Take into account the 3x Bs

- BE PREPARED
- BE VIGILANT
- BE CAREFUL.

It is recommended that all house-holders who could be threatened by flooding use best practise procedures to protect inhabitants and property from the effects of a possible flood.

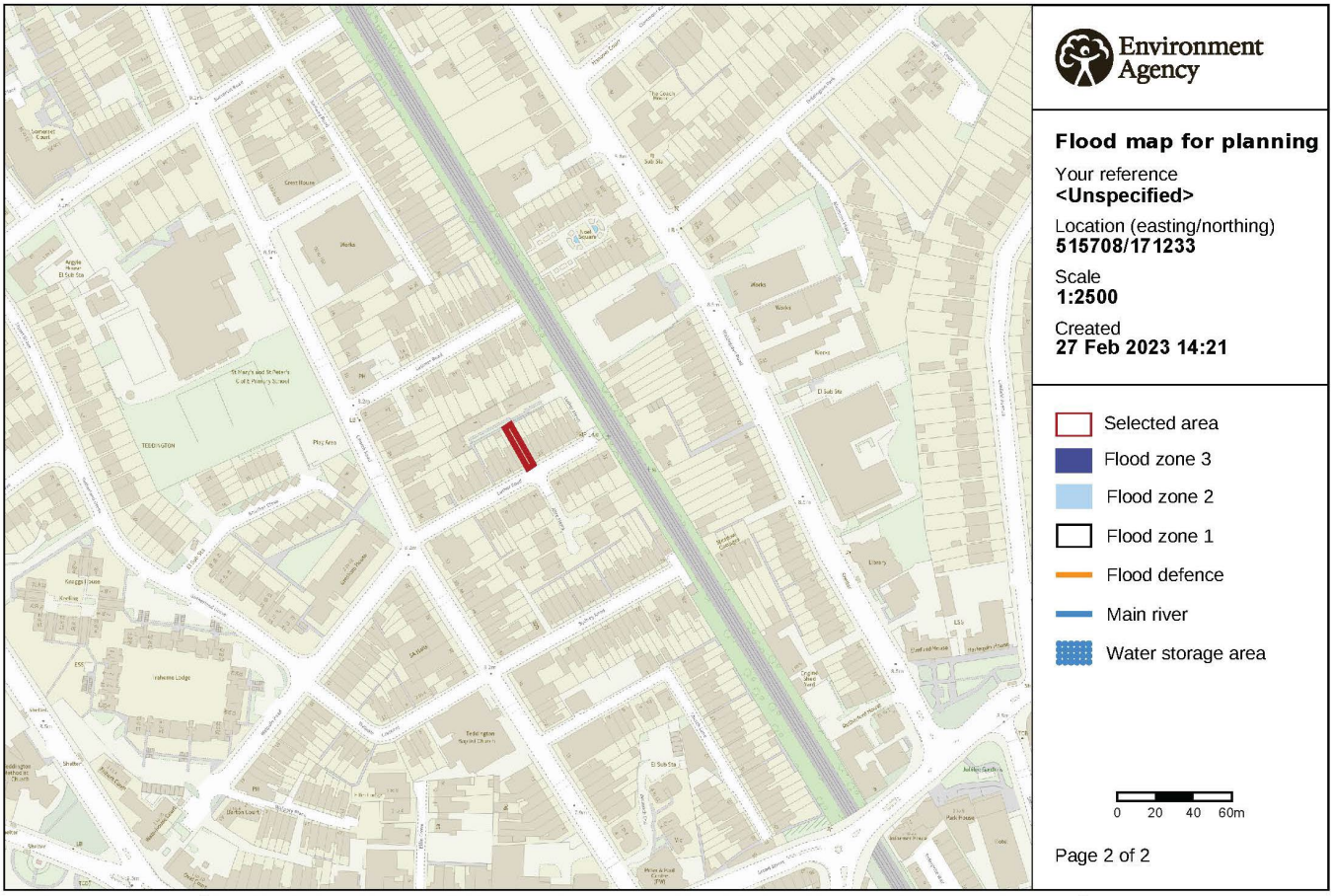
f) Environment Agency's Flood Warning Codes

Detailed below are the steps we recommend to set up a flood risk evacuation plan (*).



(*) Source: Environmental Agency's flood Warning codes:

Appendix 1: Environmental Agency flood map for 11 Park Way - KT8 1TE



Zone 1 Low Probability

Land assessed as having less than 1 in 1,000 annual probability of river or sea flooding.

(Land shown in white on the Flood Map)

Surface water flooding – High Risk

High risk means that this area has a chance of flooding of greater than 3.3% each year. Surface water flooding can happen when heavy rain cannot drain away; is difficult to predict as it depends on rainfall volume and location; can happen up hills and away from rivers and other bodies of water; Is more widespread in areas with harder surfaces like concrete.

Appendix 2: Modular Soakaway product reference for 19 Luther Road – TW11 8PU

Polystorm-R Modular Cell

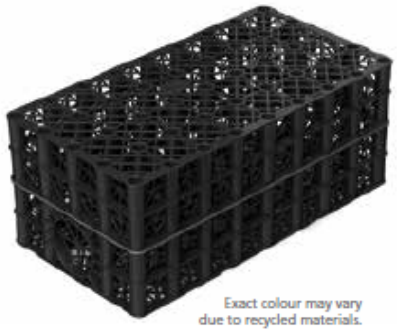
Data Sheet

PRODUCT INFORMATION **P1** **ISSUE 4 - SEPT 2017**

Product code: PSM1A

The Polystorm-R modular cell is ideally suited for loaded applications at greater depths, such as housing, commercial and infrastructure projects and has a compressive strength of up to 61 tonnes/m². It offers all the proven performance of the Polystorm cell, with the added benefits of being manufactured from over 90% recycled material content.

Wherever performance criteria and standards allow, we will always maximise the sustainability of our products by using post consumer plastics in their manufacture. By sourcing and carefully controlling the quality of the recycled material we use our precision injection moulding. Therefore we are able to guarantee consistent quality in our recycled plastic, giving you the confidence and the performance levels you expect from the market leader.



Exact colour may vary due to recycled materials.

Key Benefits

- Made from specially selected and controlled recycled materials
- Environmentally friendly, sustainable solution
- Has undergone stringent testing to ensure product performance
- Compressive strength of 61 tonnes/m²
- Ideal for retention, attenuation and infiltration applications with a suitable geomembrane or geotextile
- BBA approved
- Allow flexibility of shape - ideal for shallow excavation systems, narrow strips or use in restricted areas
- Can be used as part of a value engineered hybrid system with Polystorm, Polystorm Lite and Polystorm Xtra
- Integrated inlet and outlet
- 3D flow throughout the structure
- 95% void ratio
- Light weight yet robust - excellent Health and Safety and installation benefits
- 60 years creep limited life expectancy

Technical Support

Detailed guidance and assistance is available.
For further information, please contact our Technical Team on **+44 (0) 1509 615100** or email **civils@polypipe.com**

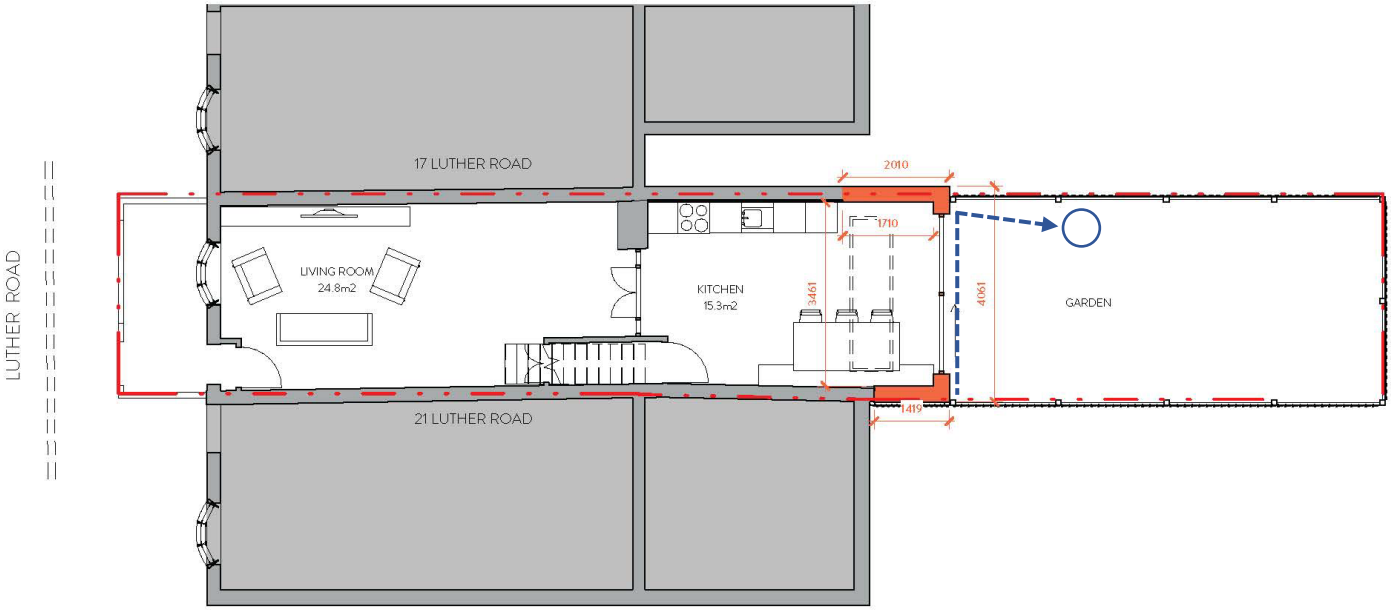
ELEMENT	VALUE
PHYSICAL PROPERTIES	
Length	1m
Width	0.5m
Depth	0.4m
Total volume	0.2m³
Unit weight	9kg (approx)
Unit storage volume	0.19m³ (190 litres)
Void ratio	95%
SHORT TERM COMPRESSIVE STRENGTH	
Vertical	610 kN/m² **
Lateral	63 kN/m² **
SHORT TERM DEFLECTION	
Short-term vertical deflection	60 kN/m² per mm
LONG TERM DEFLECTION	
Estimated long term vertical deflection (creep)	0.2798 Ln (design life in hrs) +0.485 [Based on an applied test load = 162 kN/m²] Creep data limit 60 years
Estimated long term lateral deflection (creep)	1.0192 Ln (design life in hrs) -3.864 [Based on an applied test load = 30.8 kN/m²] Creep data limit 60 years

Note: Polystorm-R is ideal for use in trafficked and pedestrian applications subject to a structural design check and suitable installation conditions

* Each unit includes 4 Clips and 2 Shear Connectors.

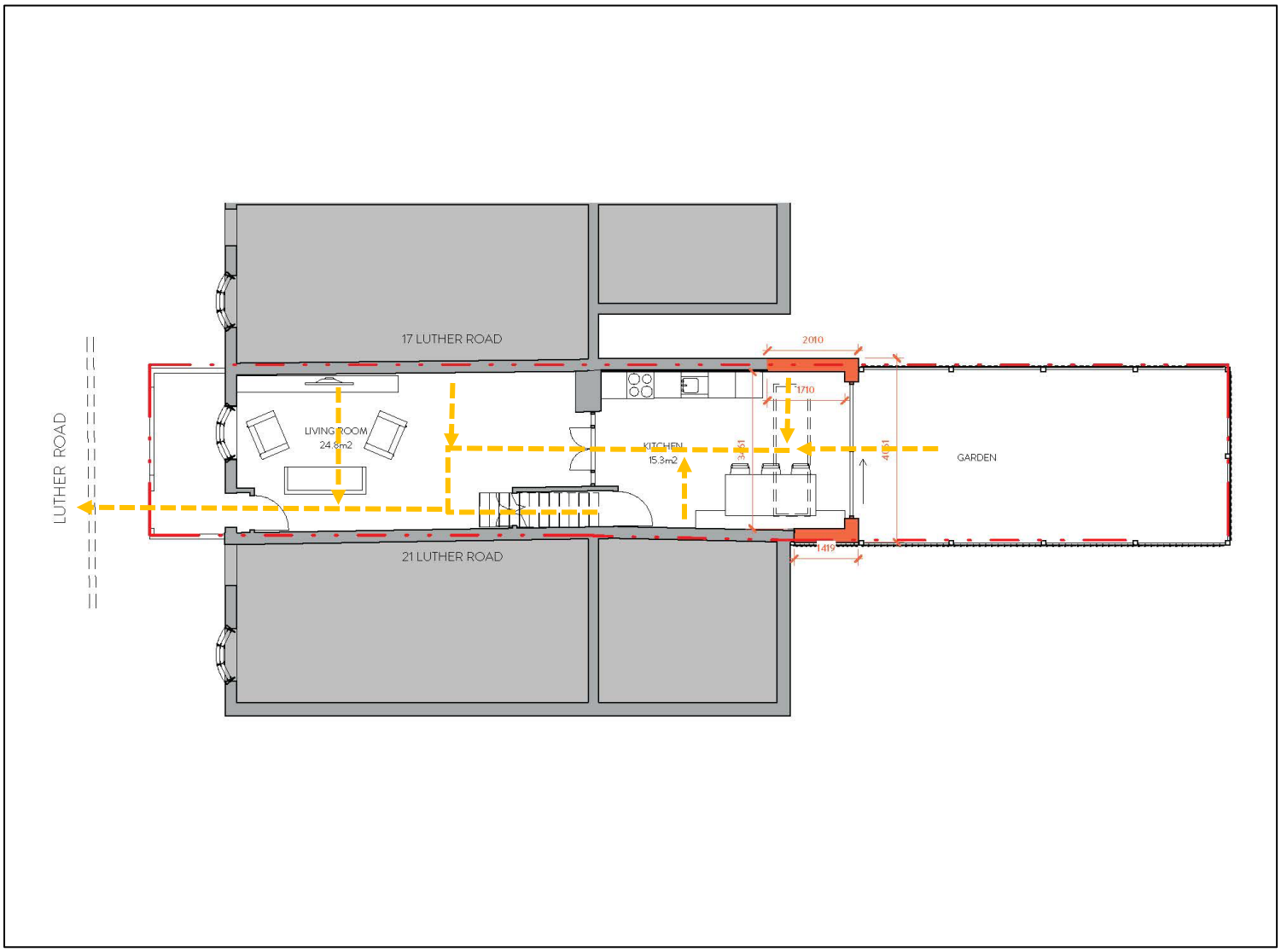
** Compressive strength at yield, maximum recommended value for design purposes.

Appendix 3: Perimeter Drainage for 19 Luther Road – TW11 8PU



Perimeter drainage to be connected to proposed soakaways or existing chamber (blue circle)

Appendix 4: Flooding escape routes plan for 19 Luther Road – TW11 8PU



Flood escape routes in the event of flooding