

6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site

Identified

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

| ID | Distance (m) | Direction | NGR | Details |
|----|--------------|-----------|------------------|---|
| 3A | 256 | NW | 375200 443400 | Status: Historical Licence No: 2671309038 Details: Dust suppression Direct Source: Ground Water - North West Region Point: "BANKFIELD QUARRY, CLITHEROE, LANCS" Data Type: Point Name: TARMAC CENTRAL LTD Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 15/12/1976 Expiry Date: - Issue No: 102 Version Start Date: 19/10/2001 Version End Date: |
| 4A | 256 | NW | 375200 443400 | Status: Active Licence No: 2671309038 Details: Dust Suppression Direct Source: Ground Water - North West Region Point: BANKFIELD QUARRY, CLITHEROE, LANCS Data Type: Point Name: Tarmac Trading Limited Annual Volume (m³): 159113 Max Daily Volume (m³): 818 Original Application No: - Original Start Date: 15/12/1976 Expiry Date: - Issue No: 106 Version Start Date: 08/09/2016 Version End Date: |
| 5B | 471 | SE | 375721 442711 | Status: Active Licence No: NW/071/0309/006 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT CLITHEROE AUCTION MART, CLITHEROE Data Type: Point Name: CLITHEROE AUCTION MART COMPANY LTD Annual Volume (m³): 15261 Max Daily Volume (m³): 45 Original Application No: - Original Start Date: 01/04/2013 Expiry Date: 31/03/2028 Issue No: 1 Version Start Date: 26/11/2018 Version End Date: |
| 6B | 471 | SE | 375720 442710 | Status: Historical Licence No: 2671309053 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT CLITHEROE AUCTION MART, CLITHEROE Data Type: Point Name: CLITHEROE AUCTION MART COMPANY LTD Annual Volume (m³): 9977 Max Daily Volume (m³): 28 Original Application No: - Original Start Date: 05/10/2004 Expiry Date: 31/03/2013 Issue No: 1 Version Start Date: 05/10/2004 Version End Date: |

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site

Identified

The following Surface Water Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

| ID | Distance (m) | Direction | NGR | Details |
|-----|--------------|-----------|--------|---|
| Not | 1094 | NW | 374900 | Status: Historical Annual Volume (m³): - |

| ID | Distance (m) | Direction | NGR | Details | |
|-----------|--------------|-----------|------------------|--|---|
| shown | | | 444200 | Licence No: 2671309016 Details: Process water Direct Source: "Surface, Non-Tidal - North West Region" Point: "R RIBBLE AT CLITHEROE, LANCS" Data Type: Point Name: CASTLE CEMENT RIBBLES DALE LTD | Max Daily Volume (m³): - Application No: - Original Start Date: 18/11/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/11/1986 Version End Date: |
| Not shown | 1094 | NW | 374900 444200 | Status: Historical Licence No: 2671309016 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: "Surface, Non-Tidal - North West Region" Point: "R RIBBLE AT CLITHEROE, LANCS" Data Type: Point Name: CASTLE CEMENT RIBBLES DALE LTD | Annual Volume (m³): - Max Daily Volume (m³): - Application No: - Original Start Date: 18/11/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/11/1986 Version End Date: |
| Not shown | 1094 | NW | 374900 444200 | Status: Active Licence No: 2671309016 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Surface, Non-Tidal - North West Region Point: R RIBBLE AT CLITHEROE, LANCS Data Type: Point Name: Castle Cement Limited | Annual Volume (m³): 2.00024 Max Daily Volume (m³): 13092.5 Application No: - Original Start Date: 18/11/1966 Expiry Date: - Issue No: 101 Version Start Date: 18/12/2012 Version End Date: |
| Not shown | 1094 | NW | 374900 444200 | Status: Active Licence No: 2671309016 Details: Process Water Direct Source: Surface, Non-Tidal - North West Region Point: R RIBBLE AT CLITHEROE, LANCS Data Type: Point Name: Castle Cement Limited | Annual Volume (m³): 2.00024 Max Daily Volume (m³): 13092.5 Application No: - Original Start Date: 18/11/1966 Expiry Date: - Issue No: 101 Version Start Date: 18/12/2012 Version End Date: |

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site

None identified

Database searched and no data found.

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site

None identified

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site None identified

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site Identified

| Distance (m) | Direction | Classification | Soil Vulnerability Category | Description |
|--------------|-----------|---------------------------------------|-----------------------------|---|
| 0 | On Site | Minor Aquifer/Low Leaching Potential | L | Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants. |
| 154 | N | Minor Aquifer/High Leaching Potential | H1 | Soils which readily transmit liquid discharges because they are shallow or susceptible to rapid flow directly to rock, gravel or groundwater. |

6.9 River Quality

Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site Identified

Biological Quality data describes water quality in terms of 83 groups of macroinvertebrates, some of which are pollution sensitive. The results are graded from A ('Very Good') to F ('Bad').

The following Biological Quality records are shown on the Hydrology Map (6e):

| ID | Distance (m) | Direction | NGR | River Quality Grade | Biological Quality Grade | | | | |
|-----------|--------------|-----------|------------------|---|--------------------------|------|------|------|------|
| | | | | | 2005 | 2006 | 2007 | 2008 | 2009 |
| Not shown | 1045 | E | 376500 443500 | River Name: Pimlico Brook Reach: Qsl At Chatburn I.e. To Mearley Bk. End/Start of Stretch: Start of Stretch NGR | C | B | B | B | B |
| Not shown | 1331 | SW | 374600 441900 | River Name: Pimlico Brook Reach: Qsl At Chatburn I.e. To Mearley Bk. End/Start of Stretch: End of Stretch NGR | C | B | B | B | B |

6.9.2 Chemical Quality:

Chemical quality data is based on the General Quality Assessment Headline Indicators scheme (GQAH). In England, each chemical sample is measured for ammonia and dissolved oxygen. In Wales, the samples are measured for biological oxygen demand (BOD), ammonia and dissolved oxygen. The results are graded from A ('Very Good') to F ('Bad').

The following Chemical Quality records are shown on the Hydrology Map (6e):

| ID | Distance (m) | Direction | NGR | River Quality Grade | Chemical Quality Grade | | | | |
|-----------|--------------|-----------|------------------|---|------------------------|------|------|------|------|
| | | | | | 2005 | 2006 | 2007 | 2008 | 2009 |
| Not shown | 1002 | SW | 374583 442339 | River Name: Pimlico Bk. Reach: Qsl At Chatburn I.e. To Mearley Bk. End/Start of Stretch: Sample Point NGR | A | A | A | A | A |
| Not shown | 1045 | E | 376500 443500 | River Name: Pimlico Bk. Reach: Qsl At Chatburn I.e. To Mearley Bk. End/Start of Stretch: Start of Stretch NGR | A | A | A | A | A |
| Not shown | 1331 | SW | 374600 441900 | River Name: Pimlico Bk. Reach: Qsl At Chatburn I.e. To Mearley Bk. End/Start of Stretch: End of Stretch NGR | A | A | A | A | A |

6.10 Ordnance Survey MasterMap Water Network

Ordnance Survey MasterMap Water Network entries within 500m of the study site

This watercourse information is provided by Ordnance Survey MasterMap Water Network. The data provides a detailed centre line following the curve of the waterway precisely, so all distances provided in the report should be understood as measurements to the centreline rather than a measurement to the nearest point of the watercourse. Underground watercourses are inferred from entry and exit points so caution is advised in using these to indicate precise locations of underground watercourses when planning site investigation and development.

The following Ordnance Survey MasterMap Water Network records are represented on the Hydrology Map (6e):

| ID | Distance/ Direction | Name | Type of Watercourse | Additional Details |
|----|------------------------|------|---|---|
| 1 | 0 On Site | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided |
| 2 | 0 On Site | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided |
| 13 | 0 On Site | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided |
| 14 | 0 On Site | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided |
| 3 | 34 NE | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.1 |
| 15 | 34 NE | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.1 |
| 4 | 65 NE | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided |
| 16 | 65 NE | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided |
| 5 | 68 NE | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided |

| ID | Distance/ Direction | Name | Type of Watercourse | Additional Details |
|-----------|------------------------|------|---|---|
| 17 | 68 NE | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided |
| 6 | 319 SW | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.4 |
| 18 | 319 SW | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.4 |
| 7 | 347 NE | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided |
| 19 | 347 NE | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided |
| 8 | 409 NE | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3 |
| 20 | 409 NE | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3 |
| 9 | 422 NE | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided |
| Not shown | 422 NE | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided |
| 10 | 435 SW | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0 |
| 22 | 435 SW | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0 |
| 11 | 436 SW | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.6 |
| 23 | 436 | - | Inland river not influenced by normal tidal action. | Catchment Area: Ribble Relationship to Ground Level: On ground surface |

| ID | Distance/ Direction | Name | Type of Watercourse | Additional Details |
|----|------------------------|------|---------------------|---|
| | SW | | | Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.6 |

6.11 Surface Water Features

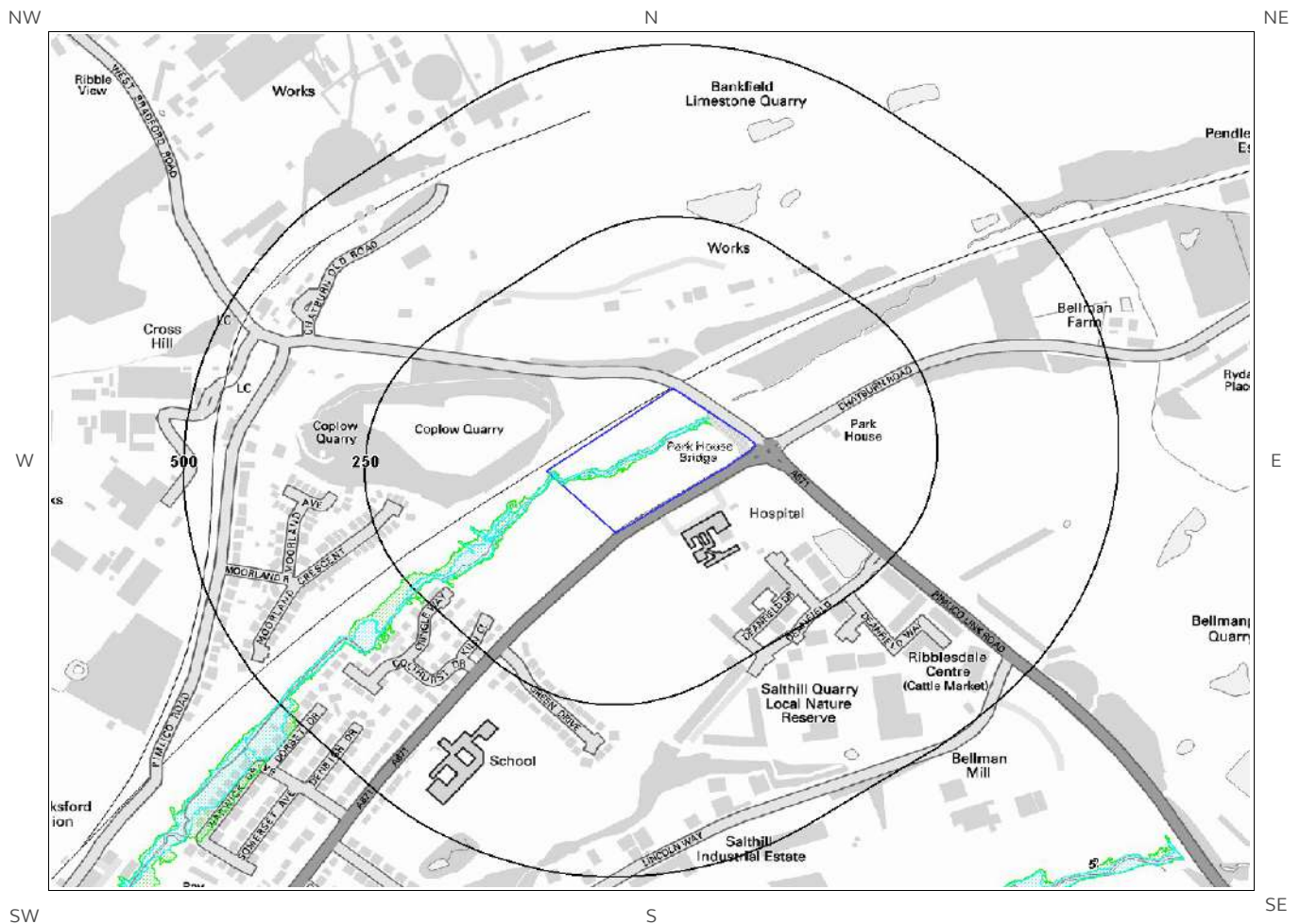
Surface water features within 250m of the study site

Identified

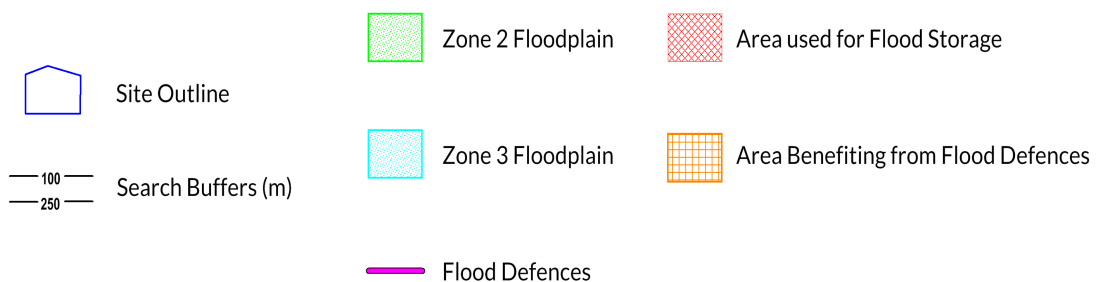
The following surface water records are not represented on mapping:

| Distance (m) | Direction |
|--------------|-----------|
| 0 | On Site |
| 68 | NE |
| 81 | SW |
| 145 | SW |
| 150 | SE |

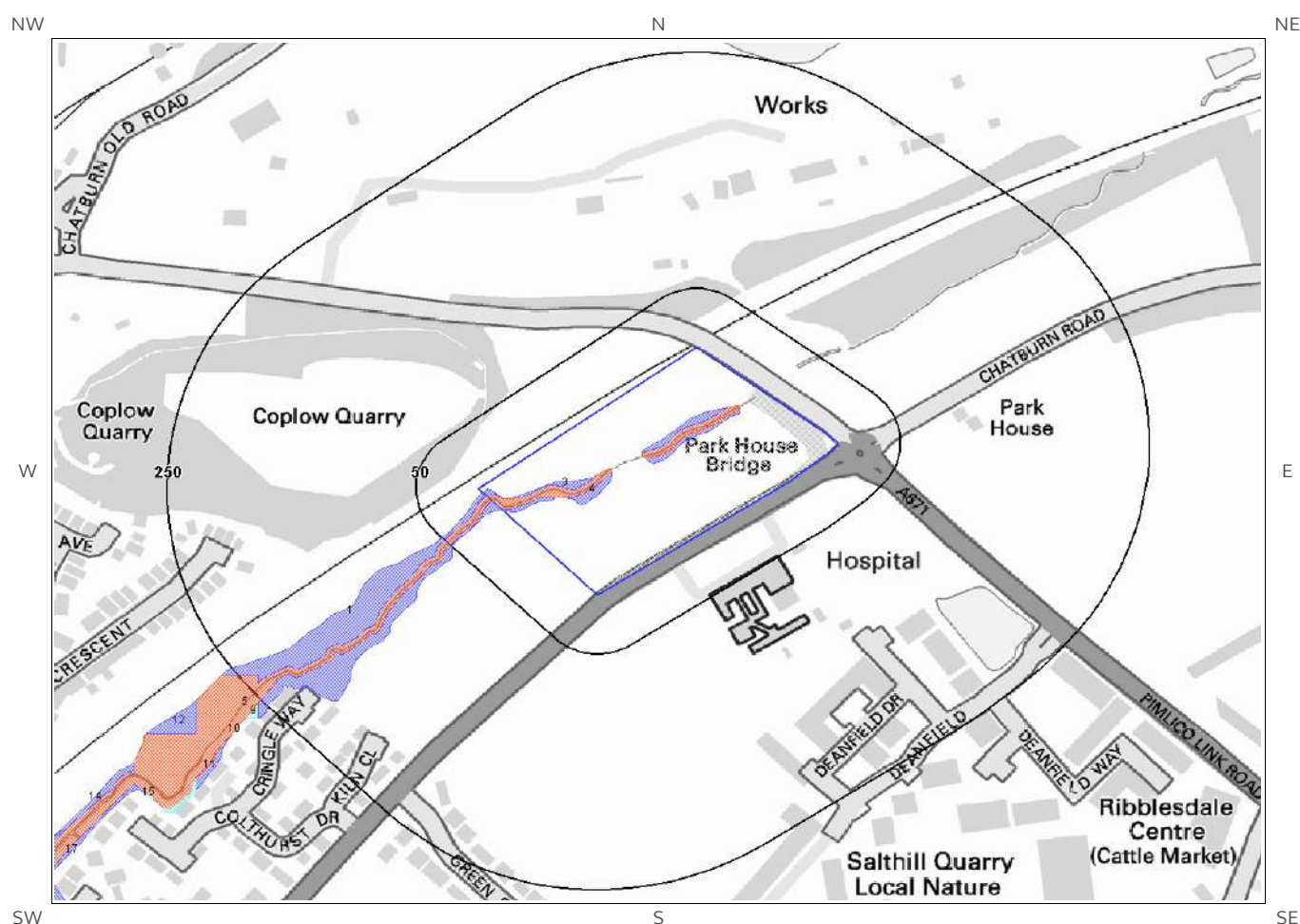
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



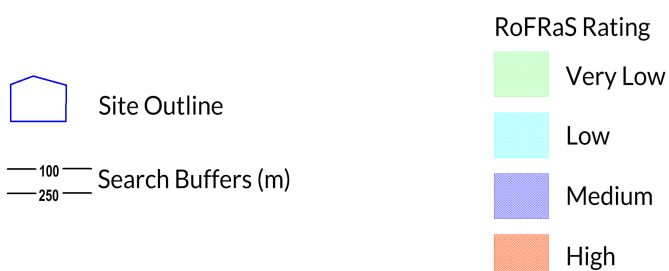
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7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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7 Flooding

7.1 River and Coastal Zone 2 Flooding

Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m

Identified

Environment Agency/Natural Resources Wales Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 7a – Flood Map for Planning:

| ID | Distance (m) | Direction | Update | Type |
|----|--------------|-----------|-------------|----------------------------------|
| 1 | 0 | On Site | 20-Jun-2019 | Zone 2 - (Fluvial /Tidal Models) |

7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m

Identified

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 7a – Flood Map for Planning.

| ID | Distance (m) | Direction | Update | Type |
|----|--------------|-----------|-------------|---------------------------|
| 1 | 0 | On Site | 20-Jun-2019 | Zone 3 - (Fluvial Models) |
| | 73 | SW | 20-Jun-2019 | Zone 3 - (Fluvial Models) |

7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

Highest risk of flooding onsite

High

The Environment Agency/Natural Resources Wales RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a High (1 in 30 or greater) chance of flooding in any given year.

Any relevant data within 250m is represented on the RoFRaS Flood map. Data to 50m is reported in the table below.

| ID | Distance (m) | Direction | RoFRaS flood Risk |
|----|--------------|-----------|-------------------|
|----|--------------|-----------|-------------------|

| | | | |
|----|-----|---------|--------|
| 1 | 0.0 | On Site | Medium |
| 2 | 0.0 | On Site | Medium |
| 3 | 0.0 | On Site | Medium |
| 4 | 0.0 | On Site | Medium |
| 5 | 0.0 | On Site | High |
| 6A | 0.0 | On Site | Medium |
| 7A | 0.0 | On Site | High |
| 8 | 0.0 | On Site | Medium |

7.4 Flood Defences

Flood Defences within 250m of the study site None identified
Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Areas benefiting from Flood Defences within 250m of the study site None identified

7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site None identified

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site Identified

Clearwater Flooding or Superficial Deposits Flooding Superficial Deposits Flooding

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

7.7.2 Highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions

Potential at Surface

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result

High

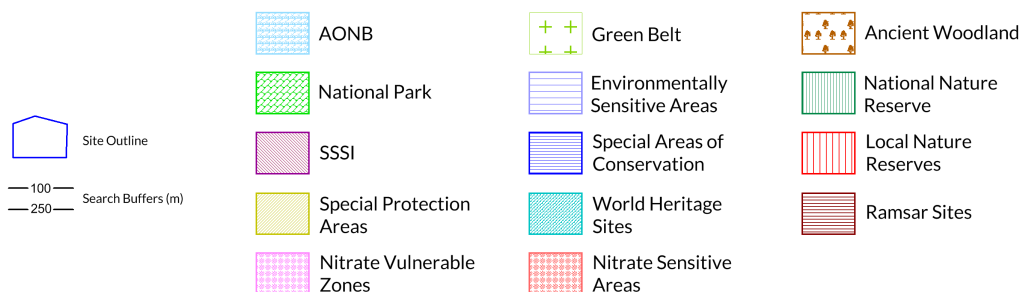
Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

8. Designated Environmentally Sensitive Sites Map



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8. Designated Environmentally Sensitive Sites

Designated Environmentally Sensitive Sites within 2000m of the study site

Identified

8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

6

The following Site of Special Scientific Interest (SSSI) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

| ID | Distance (m) | Direction | SSSI Name | Data Source |
|-----------|--------------|-----------|-----------------------------------|-----------------|
| 1 | 18 | NW | Coplow Quarry | Natural England |
| 2 | 306 | S | Salthill and Bellmanpark Quarries | Natural England |
| 3 | 468 | SE | Salthill and Bellmanpark Quarries | Natural England |
| 4 | 594 | SE | Salthill and Bellmanpark Quarries | Natural England |
| 5 | 1214 | E | Clitheroe Knoll Reefs | Natural England |
| Not shown | 1722 | E | Clitheroe Knoll Reefs | Natural England |

8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

0

Database searched and no data found.

8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

0

Database searched and no data found.

8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

0

Database searched and no data found.

8.5 Records of Ramsar sites within 2000m of the study site:

0

Database searched and no data found.

8.6 Records of Ancient Woodland within 2000m of the study site:

1

The following records of Designated Ancient Woodland provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

| ID | Distance (m) | Direction | Ancient Woodland Name | Data Source |
|-----------|--------------|-----------|-----------------------|-----------------------------------|
| Not shown | 1904 | N | UNKNOWN | Ancient and Semi-Natural Woodland |

8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

4

The following Local Nature Reserve (LNR) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

| ID | Distance (m) | Direction | LNR Name | Data Source |
|----|--------------|-----------|-------------------|-----------------|
| 7 | 306 | S | Salthill Quarry | Natural England |
| 8 | 469 | SE | Salthill Quarry | Natural England |
| 9 | 471 | W | Cross Hill Quarry | Natural England |
| 10 | 478 | SE | Salthill Quarry | Natural England |

8.8 Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

2

The following Area of Outstanding Natural Beauty (AONB) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

| ID | Distance (m) | Direction | AONB/NSA Name | Data Source |
|-----------|--------------|-----------|-------------------|-----------------|
| Not shown | 1605 | NW | Forest Of Bowland | Natural England |
| Not shown | 1958 | NE | Forest Of Bowland | Natural England |

8.11 Records of National Parks (NP) within 2000m of the study site:

0

Database searched and no data found.

8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

0

Database searched and no data found.

8.14 Records of Green Belt land within 2000m of the study site:

0

Database searched and no data found.

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a **Groundsure Geo Insight**, available from our **website**. The following information has been found:

9.1.1 Shrink Swell

Maximum Shrink-Swell** hazard rating identified on the study site Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

| Hazard |
|--|
| Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays. |

9.1.2 Landslides

Maximum Landslide* hazard rating identified on the study site Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

| Hazard |
|--|
| Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property no significant increase in insurance risk due to natural slope instability problems. |

9.1.3 Soluble Rocks

Maximum Soluble Rocks* hazard rating identified on the study site Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

| Hazard |
|---|
| Significant soluble rocks are present. Low possibility of subsidence occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow. Consider implications for stability when changes to drainage or new construction are planned. For new build site investigation should consider potential for dissolution problems on the site and its surroundings. Care should be taken with local drainage into the bedrock. Some possibility groundwater pollution. For existing property possible increase in insurance risk due to soluble rocks. |

* This indicates an automatically generated 50m buffer and site.

9.1.4 Compressible Ground

Maximum Compressible Ground* hazard rating identified on the study site Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

| Hazard |
|--|
| No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits. |

9.1.5 Collapsible Rocks

Maximum Collapsible Rocks* hazard rating identified on the study site Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

| Hazard |
|---|
| Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits. |

9.1.6 Running Sand

Maximum Running Sand** hazard rating identified on the study site Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

| Hazard |
|--|
| Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand. |

* This indicates an automatically generated 50m buffer and site.

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The site is in a Radon Affected Area, as between 10 and 30% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? Full radon protective measures are necessary.

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site

None identified

Database searched and no data found.

10.2 Non-Coal Mining

Non-Coal Mining areas within 50m of the study site boundary

Identified

The following non-coal mining information is provided by the BGS:

| Distance (m) | Direction | Name | Commodity | Assessment of likelihood |
|--------------|-----------|---------------|--------------|--|
| 0.0 | On Site | Not available | Vein Mineral | Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered |

Past underground mine workings may occur. The rock types present in these areas are such that small mineral veins may be present on which it is possible that small scale mining has been undertaken and/or it is possible that limited underground extraction of other materials may have occurred. All such occurrences are likely to be of minor localised extent and infrequent. It should be noted, however, that there is always the possibility of the existence of other sub-surface excavations, such as wells, cess pits, follies, air raid shelters/bunkers and other military structures etc. that could affect surface ground stability but which are outside the scope of this dataset. However, if in a coalfield area you should still consider a Coal Authority mining search for the area of interest.

10.3 Brine Affected Areas

Brine affected areas within 75m of the study site

None identified

Guidance: No Guidance Required.

APPENDIX D

Potential Pollutant Linkages

| POTENTIAL RECEPTOR | COMMENTS | Include in PCM |
|---|---|----------------|
| PROPERTY: Other | | |
| On Site | | |
| Crops | None intended on site | x |
| Domestic Produce | May be grown in residential gardens | ✓ |
| Livestock | None anticipated on site | x |
| Domestic Animals | May be owned by residents | ✓ |
| Game | None on site | x |
| Off Site | | |
| Crops | Possibly in fields in surrounding area | ✓ |
| Domestic Produce | Possibly in houses in surrounding area | ✓ |
| Livestock | None adjacent to the site | x |
| Domestic Animals | May belong to adjacent residents | ✓ |
| Game | Not applicable | x |
| PROPERTY: Buildings | | |
| On Site | | |
| | Residential properties, services, flora | ✓ |
| Off Site | | |
| | Residential properties, services, flora | ✓ |
| HUMANS | | |
| On Site | | |
| Residents | Future Residents | ✓ |
| Construction workers | During ground excavations | ✓ |
| Employees | Not applicable | x |
| Surface water users | Stream/brook flows through the site | ✓ |
| Off Site | | |
| Residents | Residents adjacent to the site | ✓ |
| Recreational users | Possible walkers using the public footpaths close by | ✓ |
| Groundwater users | Not applicable | x |
| Controlled Waters | | |
| On Site | | |
| Surface Waters | A stream on site | ✓ |
| Groundwater | The site is overlain with laterally continuous impermeable superficial deposits which will inhibit vertical migration of contamination to the underlying bedrock. | x |
| Off Site | | |
| Controlled Waters | No significant water features identified | ✓ |
| Ecological Systems | | |
| On/Off Site | | |
| SSSIs, national nature reserves, SACs etc | Not applicable to the site | x |

Table A: Potential Receptors to be Considered in the Preliminary Conceptual Model

| Link | Source | Hazard | Transport Mechanism | Pathway | Medium of Exposure | Receptor | Risk Summary* |
|------|--------------------|---|--|---|--------------------|--|---------------|
| 1 | Contaminated soils | Direct contact /ingestion of soil or dust | Direct contact with contaminated soil | Dermal contact/ingestion of soil at surface | Soil | Humans (on-site/off-site), domestic pets | Low |
| 2 | Contaminated soils | Ingestion of homegrown vegetables | Ingestion of plants affected by contamination | Ingestion | Pore Waters | Humans (On-site) | Low |
| 3 | Contaminated soils | Particulate inhalation | Wind blown particulates | Inhalation of particulates | Air | Humans (on-site/off-site), domestic pets | Low |
| 4 | Contaminated Soils | Impaired produce growth | Uptake of contaminants by homegrown produce resulting in loss | Uptake during growth | Vegetable produce | Property (domestic produce) | Low |
| 5 | Contaminated Soils | Damage to property/services | Direct contact of contaminants with building structure/services | Direct Contact | Soil/Water | Flora, services | Low |
| 6 | Contaminated Soils | Degradation of water quality | Dissolution or suspension of contaminants into surface watercourse | Dissolution or suspension | Water | Watercourse | Low |
| 7 | Contaminated Soils | Ground Gas Inhalation | Degradation of contaminants generating ground gas through unsaturated zone of soil leading to inhalation | Inhalation of gases | Air | Humans (on-site/off-site) domestic pets | Low-Medium |
| 8 | Natural Strata | Inhalation of Radon Gas | Diffusion of natural radon gas through shallow strata and accumulate in confined spaced in buildings | Inhalation of Radon | Air | Humans (on-site/off-site, domestic pets) | Low-Medium |




Table B: Preliminary Conceptual Model

***Relative Risk Screening and Prioritisation for further Investigation & or Assessment**

| | |
|---------------|--|
| High | Higher probability of occurrence and identification of primary sources of contamination with respect to most sensitive receptors. |
| Medium | Pollutant linkage generally dependent on the presence of other primary pollutant linkages and/or where pollutant linkage generally associated with less sensitive receptors. |
| Low | Lower probability of occurrence such as based on requirement for significant migration pathway or where pollutant linkage requires the presence of source contaminants at concentration likely to be much higher than other identified pollutant linkages. |

APPENDIX E




Photographs




| | | |
|--|--|---|
| |  | <p>The south-eastern site boundary, marked by Chatburn Road which is approximately 1-2 m higher than the site. Taken from the southern corner of the site, facing north-east.</p> |
| |  | <p>The south-eastern site boundary, marked by Chatburn Road which is approximately 1-2 m higher than the site. Taken from the eastern corner of the site, facing south-west.</p> |
| |  | <p>Access to the site in the northern part of the south-eastern site boundary via a grassy access track which gently slopes onto the site.</p> |




Photograph 1

Photograph 2




Photograph 3

| | | |
|--|--|--|
| |  | <p>Access to the site in the northern part of the south-eastern site boundary via a grassy access track which gently slopes onto the site. A telephone mast can be seen.</p> |
| | | <p>Photograph 4</p> |
| |  | <p>The north-east of the site.</p> |
| | | <p>Photograph 5</p> |
| |  | <p>The open field which occupies the south-east of the site. Taken from the eastern corner of the site, facing west. The overhead telephone line can be seen.</p> |
| | | <p>Photograph 6</p> |

| | | |
|--|--|---|
| |  | <p>The centre of the site. The two different sections of the site can be distinguished, with dense woodland and an open field, separated by a stream. Taken from the south-western site boundary, facing north</p> <p>Photograph 7</p> |
| |  | <p>The stream which flows north-east to south-west through the site.</p> <p>Photograph 8</p> |
| |  | <p>The north-west of the site, occupied by dense woodland.</p> <p>Photograph 9</p> |

| | | |
|--|--|---|
| |  | <p>The centre of the site. The two different sections of the site can be distinguished, with dense woodland and an open field, separated by a stream. Taken from the centre of the site, facing south-west.</p> <p>Photograph 10</p> |
| |  | <p>The centre of the site. The two different sections of the site can be distinguished, with dense woodland and an open field, separated by a stream. Taken from the centre of the site, facing north.</p> <p>Photograph 11</p> |
| |  | <p>The stream which flows north-east to south-west through the site. The dense woodland that occupies the north-west of the site can be seen.</p> <p>Photograph 12</p> |

| | | |
|--|--|---|
| |  | <p>The steepness of the site along the northern site boundaries.</p> <p>Photograph 13</p> |
| |  | <p>The culvert in the north-eastern site boundary through which the stream enters the site.</p> <p>Photograph 14</p> |
| |  | <p>The steepness of the site along the northern site boundaries.</p> <p>Photograph 15</p> |

| | | |
|--|--|--|
| |  | <p>The steepness of the site along the northern site boundaries.</p> <p>Photograph 16</p> |
| |  | <p>The north-east of the site with a strip of dense vegetation along the site boundary and possible location of a second stream.</p> <p>Photograph 17</p> |
| |  | <p>The north-east of the site with a strip of dense vegetation and possible location of a second stream.</p> <p>Photograph 18</p> |



A culvert located in the easternmost corner of the site, although the flow was negligible and it was unclear as to the direction the water flows.

Photograph 19

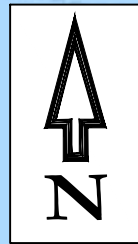


The surface water discharged from the culvert in the easternmost corner of the site, although the flow was negligible and it was unclear as to the direction the water flows.

Photograph 20

APPENDIX F

Drawings



LEGEND

— SITE LOCATION

| REV | DESCRIPTION | DATE | BY |
|-----|-------------|------|----|
| | | | |



GEO-ENVIRONMENTAL CONSULTING ENGINEERS
Suite One, No 3 Mitton Road Business Park, Mitton Road,
Whalley, Lancashire BB7 9YE
Tel: 01254 377622 Mob: 07906753583
Email: mbuckley@bekenviro.co.uk
Web: www.bekenviro.co.uk

CLIENT.



JOB TITLE.

LAND OFF CHATBURN ROAD,
CLITHEROE

DRAWING TITLE.

SITE LOCATION PLAN

| | | | |
|------------------------|-------------------|----------------------|-------------------|
| SCALE © A3. N/T'S | DRAWN BY. D.E. | APPROVED BY. M.B. | DATE. 24/07/19 |
| DRAWING No. 19595-1 | | | REV. - |



LEGEND

— SITE FOOTPRINT

| | | | |
|-----|-------------|------|----|
| | | | |
| | | | |
| REV | DESCRIPTION | DATE | BY |



Suite One, No 3 Mitton Road Business Park, Mitton Road,
Whalley, Lancashire BB7 9YE
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Web: www.bekenviro.co.uk

CLIENT.



JOB TITLE.

LAND OFF CHATBURN ROAD,
CLITHEROE

DRAWING TITLE.

SITE LAYOUT PLAN

| | | | |
|------------------------|-------------------|----------------------|-------------------|
| SCALE © A3. N'TS | DRAWN BY. D.E. | APPROVED BY. M.B. | DATE. 24/07/19 |
| DRAWING No. 19595-2 | REV. - | | |

| Housetype Schedule | | | |
|--------------------|----------------------|------------------------------------|--------|
| Ref | Housetype | Description | Number |
| Bow | Bowfell | 4 Bed detached house | 9 |
| Bow-Spl | Bowfell Split Level | 4 Bed split level detached house | 2 |
| Cal | Caldew | 1 Bed terraced house | 2 |
| Enn | Ennerdale | 4 Bed detached house | 2 |
| Gras | Grasmere | 4 Bed detached house | 4 |
| Griz | Grizedale | 2 Bed semi detached bungalow | 2 |
| Hon | Honister | 4 Bed detached House | 1 |
| Kirk | Kirkstone | 4 Bed detached house | 2 |
| Low | Lowther | 3 Bed semi detached/terraced house | 3 |
| Roth | Rothay | 2 Bed semi/terraced house | 6 |
| Thir1 | Thrimere | 4 Bed detached house | 3 |
| Thir1-Spl | Thrimere Split Level | 4 Bed Split level detached house | 1 |
| Was-Spl | Wasdale Split Level | 4 Bed Split level detached house | 2 |
| | | | 39 |



REV DATE DESCRIPTION



PROJECT TITLE
CHATBURN ROAD NORTH
CLITHEROE

DRAWING TITLE
Site Layout - PLANNING

DRAWING NUMBER
067/P/01

DATE
06/19

REVISION
SCALE
1:500@A1



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