

1 PLYMSTOCK QUARRY

1.1 Development Proposal

Plymstock Quarry to the north of Plymstock is planned for mixed use development. The development proposal could have up to 1650 residential units by 2016, a primary school, retail, food store and 2.5ha of employment. Access to the site is proposed from the A379 and also from an eastern access link. The site is referenced as NP01 in the Plymouth City Council local development framework document and includes the Wakehams Quarry, which is located adjacent to the River Plym and referenced as NP03. See attached extract from the local development framework document.

1.2 Flood Risk Zones

The Environment Agency maps of flood zones identify that a small part of the Plymstock Quarry site is affected by areas at high risk of flooding (Zone 3) and Medium Risk (Zone 2). Whilst the majority of the site remains free from flood risk (Zone 1) the existing access alongside the River Plym is vulnerable as shown in Figure 1 and the proposed access off the A379 is also shown to be within Flood Zone 3 (see Figure 1).

1.3 Strategic Flood Risk Assessment

A Level 1 Strategic Flood Risk Assessment (SFRA) and a SFRA have been undertaken for three areas of Plymouth; however these did not specifically include the Plymstock Quarry. This report considers the quarry in more detail.

1.4 Flood Risk

The majority of the site is at a low flood risk and the main issues for Flood Risk Assessment will therefore be the discharge of surface water. This will need to be limited to the existing Greenfield run-off from the site and ideally aim for a 20% reduction in peak flows from existing.

Reducing the flood risk to the existing access alongside the River Plym into the Wakeham Quarry site will be difficult as protecting the road with flood defences along the Plym will be costly and there will be issues of floodplain loss to consider if the road is protected. It is proposed that there is a second (and primary) access to the Wakeham Quarry site from the Plymstock Quarry as shown on Figure 1 and as such a dry access to the development will be available at all times. Therefore protecting the existing access alongside the River Plym is not considered necessary.

To assess the detailed flood risk to the proposed access points to the Plymstock Quarry from the A379, as shown on Figure 1, will require a detailed hydraulic model study to determine the actual flood risk from the Billacombe Brook that is culverted under the A379. However, based on levels obtained from LIDAR and preliminary calculations the capacity of the culverted length of the Billacombe Brook is considered to be adequate to contain a 1 in 100-year return period flood without flooding. Adding a 20% increase in flow to allow for climate change over the next 50 years will reduce the protection provided by the culvert and the culvert may not be of sufficient size to cater for this increase in flow.

If water escapes from the culverted watercourse due to a blockage it is considered that the water depth along the road will be shallow due to the fairly steep gradient of the road. No flooding has been known from the culvert and no problems of collapse or damage have occurred in the last 30 years

The Environment Agency Flood Risk Maps are considered to be incorrect over the culverted length of the Billacombe Brook. Calculations based on LiDAR ground level data and a flow estimate undertaken

using Flood Estimation Handbook methods show that the Billacombe Road will not flood at a 1 in 100-year return period flood and as such the road is considered to be in Flood Zone 1 or 2.

1.5 Sequential Test

Applying the PPS25 Sequential Test to sites within Plymouth it is considered that the Plymstock Quarry, including the Wakeham Quarry, is a low flood risk site and is suitable for development before other sites that are located within Flood Zone 3. The only parts of the site that are within Zone 3 are the access points and these have been covered in 1.4.