Local Development Plan 2021 > 2036

Cardiff Council - January 2025

Background Technical Paper Number 6

Deposit Plan

Minerals

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Cardiff Replacement Local Development Plan Deposit Plan 2021 to 2036

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1. Introduction

1.1 Minerals are a valuable but finite resource. Cardiff is one of the largest producers and consumers of minerals in the region. The minerals produced in Cardiff include quarried hard rock (carboniferous limestone and dolomite) and dredged sand landed at Cardiff Docks. There are also land-based sand and gravel, and sandstone High Specification Aggregate (HSA) resources.

1.2 This background paper will provide information on the range of mineral resources and reserves that exist within Cardiff and a justification of the minerals policies contained within the Replacement LDP. It will provide an explanation of the following:

Limestone
- Limestone resources and landbank
- Buffer zones
- Resource areas given protection
- Limestone resource safeguarding area

Sand and gravel
- Sand and gravel safeguarding area
- Safeguarding of sand wharves

Sandstone HSA
- Sandstone HSA resource safeguarding area

2. Policy Context

2.1 Planning policy relating to minerals is contained in:
- Planning Policy Wales Edition 12 (2024)
- Minerals Technical Advice Note 1: Aggregates (MTAN1) (2004)
- Minerals Technical Advice Note 2: Coal (MTAN2) (2009)
- Interim Marine Aggregates Dredging Policy (IMADP) (2004)

2.2 Specific guidance on minerals landbanks is contained in paragraph 5.14.15 of PPW and paragraph 49 of MTAN1. These state that a minimum 10 year landbank of crushed rock should be maintained throughout the Plan period. Guidance on mineral buffer zones is contained in paragraph 5.14.44 of PPW. This states that buffer zones should provide areas of protection around permitted and proposed mineral workings where new development which would be sensitive to adverse impact, including residential areas, hospitals and schools should be resisted. Paragraph 71 of MTAN1 states that, at hard rock quarries, a minimum buffer zone distance of 200m should be adopted. Guidance on the safeguarding of mineral resources is contained in paragraph 5.14.7-9 of PPW. This states that areas to be safeguarded should be

identified on proposals maps and policies should protect mineral resources from other types of permanent development which would either sterilise them or hinder extraction. Guidance on the safeguarding of land-based sand and gravel is contained in paragraph 32 of MTAN1, stating that whilst it is recognised that land-based extraction is not considered appropriate at the present time, the resources must be safeguarded for potential use by future generations in view of their relatively limited regional availability.

3. Relationship To Other Plans And Publications

3.1 Cardiff is a constituent member of the South Wales Aggregates Working Party (SWRAWP). In 2020 a second review of the Regional Technical Paper (RTS 2nd Review) was published. This provides a strategy for the future supply of aggregates in the region. It projects future demand for aggregates so that mineral development can be planned for in a managed and proportionate way by local planning authorities. The RTS 2nd Review provides specific recommendations to the constituent LPAs regarding the quantities of aggregate which will need to be supplied from each area (apportionments) and the nature and size of any allocations which need to be made within LDPs to ensure that adequate provision is maintained throughout the Plan period.

3.2 For Cardiff, the RTS 2nd Review identifies a nil apportionment for land-won sand and gravel. It states that Cardiff should make provision for 1.411million tonnes of crushed rock aggregates per annum. Taking in to account the existing landbank, there is a shortfall in the amount of crushed rock aggregate. The Replacement LDP should demonstrate how the shortfall of 7.475mt can be met by the end of the Plan period.

3.3 Cardiff is part of the Cardiff City Sub-Region which is comprised of Cardiff, Caerphilly, Vale of Glamorgan, Rhondda Cynon Taff, Bridgend, Merthyr Tydfil and Brecon Beacons National Park. A Statement of Sub Regional Collaboration Position Statement was produced by the sub-region in July 2022. This states that Cardiff should make allocations totalling 7.475mt.

3.4 The SWRAWP also publish an annual report based on the findings of an annual survey of aggregate sales information. The SWRAWP Annual Report 2022 (published September 2024) provides information on patterns in supply of, and demand for, aggregates. The information gathered by the survey is presented in the report in a collated form, rather than as individual quarry or Local Authority returns, in order to protect the commercial confidentiality of individual operators.

3.5 The Welsh Government (WG) commissioned Symonds to produce South Wales Sand and Gravel: Appraisal of Land-based Extraction in South Wales (2000). This is an independent study which assesses the nature and

distribution of potential land-based sand and gravel resources and a review of other supply options. It identifies areas of sand and gravel resource which should be safeguarded within LDPs.

3.6 The National Minerals Resource Maps and National Aggregates Safeguarding Maps for Wales show mineral safeguarding areas, which should be safeguarded. The safeguarding areas should be shown on the Proposals Map and policies should protect the mineral resources from other types of permanent development which would sterilise the resource, or hinder extraction in the future.

4. Limestone Resources

4.1 Much of the higher ground in North Cardiff is formed by Carboniferous Limestone, forming a band from Pentyrch eastwards to Tongwynlais. Limestone is a sedimentary rock, composed mainly of calcium carbonate. The limestone has been dolomitised in places to varying degrees i.e. it contains up to 45% magnesium carbonate. The northern outcrop of limestone represents the southern boundary of the South Wales coalfield.

4.2 Taffs Well Quarry is situated on the south side of the Little Garth ridge overlooking Morganstown. The quarry produces carboniferous limestone and is currently active. Planning permission was granted in 2023 to vary the conditions governing the operation of the quarry to allow a 1.8ha extension which will release an additional four million tonnes and extend the operating life of the quarry for an additional seven years to 2035. A current application to deepen the quarry could yield another three million tonnes if approved.

4.3 Ton Mawr Quarry is located on the south side of the Little Garth ridge, adjacent to Taffs Well Quarry. The quarry is currently inactive, although it is worked predominantly on a campaign basis as demand dictates. Its output is restricted to 150,000 tonnes per annum. A planning application to vary conditions to extend the time period for working at the quarry to December 2042 is currently under consideration.

4.4 Creigiau Quarry is located on the hillside east of Creigiau, between the villages of Creigiau and Pentyrch. Planning permission was granted in 2018 for a south eastern extension to the quarry and the consolidation of the extant permissions relating to the site. The south eastern area of Creigiau Quarry was identified as a preferred area in the adopted LDP. The southern and western areas were identified as areas where quarry closure would be appropriate. The 2018 permission resolved these issues.

4.5 Blaengwynlais Quarry is located on the eastern side of Rhiwbina Hill and extends across the county boundary with Caerphilly. The majority of the unworked reserves fall within Caerphilly's administrative area, although the

access and processing areas lie within Cardiff. The quarry is inactive at present.

4.6 Cefn Garw Quarry is located north of Tongwynlais, to the south east of Heol-y-Fforest. The quarry was last worked in 1987 and is currently dormant. A concrete batching plant remains near the entrance to the quarry, although all material used at the plant is imported.

5. Limestone Landbank

5.1 The landbank is made up of reserves of minerals, that is, mineral resources which have planning permission for working. The landbank consists of the sum of all permitted reserves at active and inactive sites. Paragraph 5.14.15 of PPW states that a minimum 10 year landbank of crushed rock should be maintained during the entire Plan period.

5.2 The SWRAWP Annual Report 2022 shows that Cardiff has a landbank of crushed rock of 26 years. However, the RTS 2nd Review states that Cardiff should provide 1.411mt of crushed rock aggregate per annum. Taking in to account the existing landbank, there is a shortfall of 7.475mt which should be met by 2041. The Cardiff City Sub-Region Position Statement also states that allocations should be made to cover a shortfall of 7.475mt. Since the publication of the Position Statement, an application for an additional 4mt at Taffs Well Quarry has been approved. A current application proposes a deepening of Taffs Well Quarry which would yield an additional 4mt, if approved. There is also the Preferred Area for Mineral Working identified in the Replacement LDP at Ton Mawr Quarry should further development be required to meet the identified shortfall.

6. Limestone Buffer Zones

6.1 Buffer zones are defined around limestone mineral reserves and resources in order to provide an area of protection which prevents the encroachment of incompatible development, which could cause sterilisation, and to reduce the environmental impact of quarrying by separating sensitive developments and mineral working. MTAN1 recommends a minimum buffer zone distance of 200m for hard rock quarries. In accordance with this guidance a buffer zone of 200 metres around all limestones reserves and resources limestone resources is shown on the Proposals Map.

6.2 A quarry can affect its surroundings in a variety of ways. Day to day operations can generate noise, dust pollution and general disturbance in the immediate vicinity. These are relatively localised in their effect. Disturbance

from traffic can be experienced along routes leading to a quarry, although the effect on amenity is likely to diminish with distance from the site.

6.3 In Cardiff, every quarry is permitted to operate using explosives, and all active quarries do so. Blasting operations do not occur continuously, but when blasting does take place the disturbance it creates can be felt over a substantial area. The relative infrequency of disturbance due to blasting operations is taken into account when determining whether blasting is likely to cause an unacceptable loss of amenity. Blasting is the cause of most of the concerns raised about quarrying, with the other effects rarely giving rise to public concern.

6.4 The major sources of disturbance from blasting can be identified in terms of four parameters:

- Ground vibration;
- Noise;
- Air over-pressure (shock wave); and
- Risk of fly-rock.

Other effects of blasting, such as dust, are unlikely to affect areas outside the quarry on sufficient occasions so as to be considered unacceptable.

6.5 The objective of the buffer zone is to protect land uses that are most sensitive to these impacts by establishing a separation distance between potentially conflicting land uses. Research undertaken by Welsh Government has indicated that people living close to mineral workings consider dust to be the main impact of mineral extraction and any processing operations, followed by traffic, and noise and vibration from blasting.

6.6 Within these buffer zones, no new sensitive development or mineral extraction should be approved. Sensitive development is any building occupied by people on a regular basis and includes housing areas, hostels, meeting places, schools and hospitals where an acceptable standard of amenity should be expected. Sensitive development could also include specialised high technology industrial development where operational needs require high standards of amenity.

Housing Already Located Within Buffer Zones

6.7 Within some buffer zones, there is existing housing. It is impractical to remove either the housing or the quarry, but the issue should not be intensified by permitting more houses or an extension to the quarry.

6.8 Within buffer zones, three types of residential development can occur:

- A large built-up area;
- A small group of houses; or
- A single house.

Examples of single houses occur in every buffer zone, but the existence of a single house cannot justify the building of more houses around it within the buffer zone. The issues caused by small groups of existing houses within the

buffer zones should not be compounded by allowing more. Conversely, it would also be unreasonable to prevent infilling, or redevelopment, of a site within an existing built-up area, for example, one additional house within an existing development. An extension on the far side of an existing built-up area would have no greater detrimental impact upon the mineral reserves than the built-up area itself. However, an extension of development closer to the quarry would lead to greater inhibitions being placed upon quarrying operations which would not be favoured.

7. Limestone Area Identified For Protection

7.1 Policy MW1 identifies a preferred area of known resource suitable for future working of limestone at Ton Mawr Quarry. This resource was identified in the adopted LDP and remains suitable for future working. The methodology by which this resource was identified for safeguarding is outlined below. A two-stage sieve technique was used. Firstly, all parts of the County subject to a primary set of constraints were removed from consideration, and secondly, those areas remaining (study areas) were analysed in depth against a secondary set of constraints.

Primary Constraints

7.2 Mineral working is only possible where commercially useful materials exist and is only feasible where those minerals are accessible. Planning permission for mineral working is not likely to be granted where it would cause significant harm to the environment, or where it would be likely to inhibit other important land uses.

7.3 The following primary constraints were used to identify those parts of Cardiff which:

a) Lie within outcrops of potentially useful limestone resources;
b) Do not contain land of high agricultural quality (Grades 1, 2 and 3a)
c) Are not occupied by permanent buildings, except non-residential farm buildings;
d) Are not within 200m of any residential property;
e) Do not contain or affect areas designated for special protection;
f) Do not contain or lie close to land with a valid permission for incompatible development.

Constraint A

7.4 The primary data source for the identification of potentially useful limestone resources was the BGS/DETR ‘Mineral Resource Information for Development Plans in South Wales’ which identified all potential commercially useful carboniferous and Liassic limestone resources. In many areas,

limestones underlie deposits of boulder clay and other younger material. The cost of removing the overlying material can diminish the commercial viability of working. For the purpose of this exercise, the prospect of such working was discounted. The commercial value of the limestone resources was not assessed.

Constraint B

7.5 Agricultural land of grades 1,2 and 3a as classified by the Agricultural Land Classification is considered to be the best and most versatile. This constraint protects such land. The underlying mineral would remain available for future generations, but currently agricultural quality is given priority.

Constraint C

7.6 This constraint recognises that underlying mineral resources are usually lost for good once they have been built over with permanent development. Agricultural buildings can generally be re-sited more readily than other buildings and do not necessarily permanently inhibit mineral working.

Constraint D

7.7 Nearby sensitive development can prevent mineral working taking place. Paragraph 71 of MTAN1 sets a minimum distance of 200m for buffer zones around hard rock quarries.

Constraint E

7.8 This embraced all the statutorily designated areas including Special Protection Areas, Special Areas of Conservation, Sites of Special Scientific Interest, National Nature Reserves, Conservation Areas, Ancient Monuments and Listed Buildings.

Constraint F

7.9 Some land may already have planning permission for development which would conflict with mineral development. Adequate protection from the effects of mineral working was given to land which will be developed for an incompatible use.

Secondary Constraints

7.10 The resultant Study Areas were then analysed in detail. A secondary set of constraints were applied to the Study Areas to eliminate areas which:
G) Straddle important highways;
H) Are in visually prominent areas;
I) Contain Ancient Woodlands, woodlands important to the landscape or subject to a Tree Preservation Order;
J) Contain or form part of a Local Nature Reserve or a Site of Importance for Nature Conservation;

K) Contain, or form part of, important landscape features;
L) Are of insufficient size or configuration;
M) Are particularly difficult to access;
N) Are of significant recreational value.

These Secondary Constraints were applied to the study areas identified as a result of the Primary Constraints being applied. The process resulted in two limestone areas being identified. These adjoin existing quarries at Creigiau Quarry and Ton Mawr Quarry. In the intervening period between the adopted LDP and the Replacement LDP, an extension to Creigiau Quarry has been granted planning permission. Therefore, in the Replacement LDP only Ton Mawr Quarry is identified as a preferred area of known resource.

8. Safeguarding Areas

8.1 Paragraphs 5.14.7 to 5.14.9 of Planning Policy Wales state that it is important that access to mineral resources which society may need is safeguarded in order to prevent sterilisation by other forms of permanent development, or the hindrance of future extraction. Areas to be safeguarded should be identified and shown on the Proposals Map and policies should protect potential mineral resources. Safeguarding areas of known mineral resources does not give an indication that the prospect of mineral working has been accepted there.

8.2 The National Minerals Resource Maps and National Aggregates Safeguarding Maps for Wales indicate areas which should be safeguarded on Proposals Maps and protected from development. These are:

- Limestone resource safeguarding area;
- Land-based sand and gravel safeguarding area;
- Sandstone HSA safeguarding area.

Limestone Resource

8.3 All potential commercially useful limestone resources were identified by the BGS/DETR ‘Mineral Resource Information for Development Plans in South Wales’. These have been shown on the Proposals Map and will be protected against all forms of permanent development under policy MW7.

Land-Based Sand And Gravel Resource

8.4 Cardiff has small areas of sand and gravel resource in the north and east of the City. It is unlikely that it would prove commercially viable to work these resource areas at the present time, as marine dredged aggregate sources provide an adequate supply to meet the majority of the demand in Cardiff. However, given concerns regarding the long-term sustainability of supplying aggregates from marine sources, it is necessary to safeguard these land-based resources for potential future use. The sand and gravel resources

have been identified on the Proposals Map and Policy MW7 provides a long-term strategy to protect what may become a strategic resource in the future.

Sandstone High Specification Aggregate

8.5 There are areas of sandstone high specification aggregate (HSA) in the north of the county. The HSA areas are identified on the Proposals Map and Policy MW7 provides a long-term strategy to protect the resource and maintain its potential for use in the future, should this prove necessary.

Marine Dredged Sand And Gravel

8.6 Advice contained in both Interim Marine Aggregates Dredging Policy (2004) and the Regional Technical Statement 2nd Review advise that existing and potential wharves should be identified for protection in the LDP to safeguard the existing and potential flows of marine sand and gravel, hard rock and secondary aggregate. Existing wharves are, therefore, shown on the Proposals Map and safeguarded by policy MW6.

Coal Resources

8.7 Since the adoption of the existing LDP, national policy guidance relating to coal resources has changed. Paragraph 5.10.17 of PPW states that the safeguarding of primary coal resources is not required. It is also no longer necessary to indicate areas where coal operations would not be acceptable.