

Graven Hill, Bicester

## Response to Regulation 25 Request



April 2018  
Wood Environment & Infrastructure  
Solutions UK Limited



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## Report for

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## Document revisions

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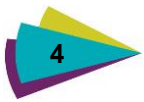
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# 1. Introduction

## 1.1 Background and purpose of this response

- 1.1.1 Graven Hill Village Development Company Limited ('Graven Hill Ltd') submitted a reserved matters planning application (ref. 17/02352/REM) in December 2017 seeking approval of reserved matters in respect of the detailed design, layout, siting and landscaping for the public infrastructure and public areas of landscaping for phase 1b of a development known as Graven Hill, south of Bicester. Outline consent for the wider Graven Hill development was consented in 2013 (ref. 11/01494/OUT). This outline application was accompanied by an Environmental Statement (ES), prepared by Amec Foster Wheeler in 2011.
- 1.1.2 Cherwell District Council (DC) has screened the application in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 ('EIA Regulations').and on the basis of the information available (2011 ES) determined that under Regulation 9 further information is required in order for it to assess the significant effects of the development on the environment.
- 1.1.3 In accordance with Regulation 25 of the EIA Regulations Cherwell DC has requested further information in relation to landscape and visual and ecological effects. In particular, this has considered Graven Hill Ltd.'s proposals to regrade the land at Phase 1B and whether this could alter building heights and the conclusions of the EIA regarding the significance of landscape and visual effects.
- 1.1.4 The purposes of this report is to provide the additional information requested, consider whether there has been any change in effects on those receptors previously assessed as part of the 2011 ES and conclude whether the significance of effects has changed, taking into consideration any measures already implemented or proposed by Graven Hill Ltd to mitigate likely significant effects.



## 2. Regulation 25 Response: Landscape and Visual Effects

### 2.1 Consented and proposed development

- 2.1.1 In the original, approved outline planning application (11/01494/OUT), development above the 80m AOD contour was limited by planning condition to a ridge height of 5.4m. As shown on Glenn Howells Architects drawing no. 1982-A-L-030-rev J) showing building heights, 11 of the properties located on the most elevated, south-eastern edge of the approved development were proposed to have a 5.4m ridge height. As shown on the two most relevant section lines: Sections B and C on Glenn Howells Architects drawing no. 1982-A-L-300 Proposed Site Sections, these properties would have been constructed on existing ground levels between 82m AOD and 83m AOD (i.e. maximum building height would have been 88.4m AOD).
- 2.1.2 Subsequent detailed design for Phase 1b has necessitated changes in the ground levels in the area and the heights of these 11 properties. In the application's current proposal (with amended building heights as shown in Glenn Howells Architects drawing no.1982-A-L-030-rev M), all 12 properties located alongside the section of Elliot Crescent south-east of its junction with Circular Road East on the south-eastern edge of the development are proposed to have maximum ridge heights of 8.1m. Nine of these properties are sited on or above the existing 80m AOD contour line and therefore would exceed the 5.4m ridge height (by 2.7m) as set out in the planning condition relating to outline consent. However, as shown on Glenn Howells Architects drawing no 1982-A-L-300 and Rolton Group drawing no. 3003 S1 rev P1. Proposed Southern Crescent Embankment Cross Sections (Appendix A), existing ground levels in this area have to be modified and would be regraded.
- 2.1.3 The regrading would result in lower ground levels for the plots in which the 11 properties are to be built by between 1m and 2m as well as lower ground levels for the road (Elliot Crescent) and a 1 in 3 slope to link into the existing ground levels higher up the north-western slope of Graven Hill. As shown on the Waterman drawing no. 4000 rev A01. Landscape Works Phase 1b Landscape Cross Section (Appendix A), this slope will meet the existing slope at approximately 87m AOD and will be sown and managed as a wildflower meadow. Therefore although ridge heights would increase, given the proposed regrading works and reduction in ground levels the absolute increase in ridge heights would be between 0.7m and 1.7m. In relation to the outline consent planning condition therefore, those properties above the 80m AOD contour line would exceed the 5.4m ridge height limit by 0.7m and 1.7m.
- 2.1.4 In response to this change, Cherwell DC has requested information with regards to the following:
- ▶ potential effects upon landscape character;
  - ▶ potential effects upon visual receptors; and
  - ▶ detailed levels and sections explaining the changes.
- 2.1.5 These points will be addressed in this report, with reference to site section drawings prepared by Glenn Howells Architects (Drawing no. 1982-A-L-300) and Waterman drawing no. 4000 Rev A01
- ### 2.2 Methodology
- 2.2.1 This technical note has been prepared following review of the following information:
- ▶ Graven Hill Environmental Statement, AMEC Environment & Infrastructure UK Limited, September 2011, Chapter 11 Landscape and Visual.
  - ▶ Proposed Site Sections, Glenn Howells Architects drawing 1982-A-L-300-N.

- ▶ Proposed Graven Hill Building Heights, Glenn Howells Architects drawing 1982-A-L-030, revisions J and N.
- ▶ Construction Phase 1a & 1b Reserved Matters Extent, Glenn Howells Architects drawing 1982-A-L-753, dated 24.07.2017.
- ▶ Proposed Southern Crescent Embankment Cross Sections, Rolton Group 3003 S1 Rev 01, dated November 2017.
- ▶ Landscape Works Phase 1b Landscape Cross Section. Waterman 4000 Rev A01, dated November 2017.
- ▶ Oxfordshire Wildlife and Landscape Study<sup>1</sup>, interactive map.

2.2.2 For continuity with the 2011 LVIA, the same evaluation methodology will be used to assess landscape and visual effects and their significance. Please refer to the 2011 ES appendices for the full LVIA methodology. A summary table is included below.

Table 2.1 Evaluation of Effects for Landscape and Visual Assessment

Magnitude of Change	Landscape and Visual Sensitivity			
	High	Medium	Low	Negligible*
High	Substantial	Moderate / Substantial	Moderate	Slight/ Moderate
Medium	Moderate/Substantial	Moderate	Slight / Moderate	Slight
Low	Moderate	Slight / Moderate	Slight	Negligible
Negligible	Slight	Slight / Negligible	Negligible	Negligible
Key:		Significant in terms of the EIA Regulations		Not significant

## 2.3 Baseline condition

2.3.1 The Graven Hill site forms part of a number of military sites located to the south of Bicester, collectively known as MOD Bicester. The site is located on the southern edge of Bicester, and surrounds the base of Graven Hill. The surrounding landform is largely flat, forming part of the River Ray floodplain, with elevations between 60m and 65m AOD. The Graven Hill landform at the centre of the site rises to approximately 115m AOD, and is one of a series of isolated hills which rise above the surrounding landscape. The site itself is covered by buildings and hard standing associated with military activities, is generally located at or below 75m AOD. From the 80m AOD contour, roughly following the circular road around Graven Hill, the slopes of the hill are undeveloped pasture, meeting woodland at approximately 100m AOD. The summit of Graven Hill is covered by Graven Hill Wood, an 18.42ha Ancient Woodland. As a mature woodland it is reasonable to assume that the woodland has a minimum canopy height of 10m. This assumption is supported by review of the base photography contained in the 2011 ES.

## 2.4 Relevant landscape and visual receptors

2.4.1 Within the 2011 ES, a number of landscape and visual receptors were identified in relation to the proposed development. These receptors have been reviewed, and those which were deemed likely to experience any changes in predicted effects as a result of the Phase 1b detailed proposals have been included in this technical note to assess if the changes to the ground levels and the

<sup>1</sup> Owls.oxfordshire.gov.uk, website accessed 06 March 2018.

proposed increase in the ridgeline heights of the nine properties located on or above the baseline 80m AOD contour line could alter the conclusions reached in the 2011 ES.

## Landscape receptors

2.4.2 The following landscape elements and features found within the site were identified in the 2011 ES.

- ▶ The currently operational MOD land is defined by perimeter security fencing plus further internal security fencing separating different parts of the site, with gated access. The landscape is typical of functional military sites, with large, dispersed, buildings mainly used for storage and distribution of materiel.
- ▶ The open spaces within the site itself typically consist of large areas of amenity grassland with individual trees.
- ▶ The Graven Hill woodland occupies the heart of the site and is surrounded mainly by agricultural fields (both pastoral and arable) that occupy the upper slopes of the Hill. The centrally located Graven Hill woodland and adjacent pastoral fields form around 34% (c. 71ha) of the site.
- ▶ The site and adjacent barracks are served by a main access road that circles the Hill, off which secondary roads provide access to specific buildings. The site is also served by rail. Neither is of particular significance in the context of the wider landscape although both are evident locally.
- ▶ The tree surveys identify that the woodland and tree cover is predominantly in good condition. The majority of woodland within the site is Category 'B'. The woodland covering Graven Hill itself is Category 'A' and an Ancient Semi-Natural Woodland (ASNW). The Tree Survey results for individual trees associated with hedgerows, roads and open spaces show a wide mixture of 'A', 'B' and 'C' Categories.

2.4.3 Of relevance to this study is the landscape within the Phase 1b area, to the south-east of the proposed residential crescent (Elliot Crescent). This landscape is an area of agricultural land (pastoral fields) on the slopes of Graven Hill, which contains no notable features of importance, such as high quality hedgerows or trees, and was considered to be a receptor of Low sensitivity in the 2011 ES. No changes have been identified in the landscape baseline conditions that justify a change to the sensitivity assessment.

## Landscape Character Types

2.4.4 The 2011 ES made reference to the Cherwell District Landscape Assessment (CDC, November 1995). This document has since been superseded by the Oxfordshire Wildlife and Landscape Study (OWLS). Although superseded, the descriptions of the landscape character in the 1995 study have been reviewed, and are considered to be largely still relevant to the site.

### Cherwell District Landscape Assessment

2.4.5 This assessment is no longer available online, but was referred to in the 2011 ES. The following text is extracted from the 2011 ES:

*This assessment divides the District into eight landscape character areas, each of which is divided further into landscape character types. The landscape character types are a series of generic areas reflecting the most distinctive combinations of landform and land cover characteristics and are the main determinants of local landscape character across the District.*

*The site and its immediate surroundings lie within the **Otmoor Lowlands** landscape character area.*

*The site lies within Landscape Character Type R5a - **Isolated Hills with Woodland and Mixed Uses**. The main characteristics of this landscape type are as follows.*

- ▶ *Distinct topography which rises up to 50m above the surrounding flat floodplains.*

- ▶ *The brows of the hills are wooded, with farmed slopes below.*
- ▶ *Land at the foot of the hills is mainly used by the MoD and is characterised by depots, warehouses, security fences and goods yards.*
- ▶ *Graven Hill and Arncott Hill are visible for considerable distances across the plain, forming prominent and curious focal points within an otherwise flat and uneventful landscape.*

2.4.6 The Landscape Character Area **Otmoor Lowlands** is considered to be too large an area to sustain any effects from the Phase 1b proposals, and is not considered further as a receptor in this assessment.

2.4.7 The Landscape Character Type **Isolated Hills with Woodland and Mixed Uses**, described above, is considered to be a receptor of Medium sensitivity in this assessment.

### Oxfordshire Wildlife and Landscape Study

2.4.8 At county level, Oxfordshire Wildlife & Landscape Study (OWLS) is the current Landscape Character Assessment for Oxfordshire, undertaken over three years, and completed in 2004. The result of the study was a GIS dataset, written description and management guidelines for 24 landscape character types (LCTs) found across Oxfordshire. The site is located within the **Landscape Character Type Wooded Hills**, which is “...a landscape of prominent hills with large blocks of ancient woodland and small grass fields.”

2.4.9 Key characteristics of this LCT are:

- ▶ Steep-sided, isolated hills in an otherwise low-lying landscape.
- ▶ Large, interlocking blocks of ancient woodland.
- ▶ Mixed land uses, but dominated by pastureland.

2.4.10 Graven Hill is mentioned specifically as “A large block of ancient semi-natural oak and ash woodland dominates the hilltop and small grass fields occupy the lower slopes. Field boundaries are visually insignificant. However, it is the large army depot at the foot of the hill that dominates this area.”

2.4.11 Key recommendations for this LCT include:

- ▶ Maintain and strengthen pattern of ancient semi-natural woodlands, pasture and hedgerows.
- ▶ Ensure that all priority habitats are in favourable condition and management.

2.4.12 The **Wooded Hills** Landscape Character Type described above is considered to be a receptor of Medium sensitivity in this assessment.

### Visual receptors

2.4.13 Visual receptors considered likely to have views to the Phase 1b proposed development areas include:

- ▶ Users of the A41 and the A4095 are considered to be visual receptors of Low sensitivity, as users of these roads are likely to be travelling at high speed, and are not likely to be engaged in appreciation of the landscape as the purpose of their journey.
- ▶ Users of Wendlebury Road, including users of National Cycle Route 51 are considered to be visual receptors of Medium sensitivity, as users of this route will be travelling at a moderate speed, and may benefit from the amenity of the surrounding landscape as part of their journey.

- ▶ Users of PROWs to the north-west of the site are considered to be visual receptors of High sensitivity, as they are likely to be engaged in recreation based upon appreciation of the surrounding landscape.
- ▶ Residential properties include those located to the west and north-west of the site, generally isolated farms and residences. Visual receptors (people) within the curtilage of residential properties are always considered to be receptors of High sensitivity in LVIA.

## 2.5 Assessment of landscape and visual effects

### Landscape effects

- 2.5.1 The proposed development as a whole will consist of large scale changes to the site from military use to mixed-use residential, with an increase in peripheral and amenity planting as part of the proposals. These large scale changes were already considered, evaluated and consented in the 2011 application and are therefore not revisited here.
- 2.5.2 The landscape effects relevant to this study concerning the Phase 1b proposals, are limited to the regrading of landform to the south-east of the proposed residential crescent (Elliot Crescent) and its relationship to Graven Hill. It should be noted that whilst the ridge heights of 11 of the properties are proposed to increase from 5.4m to 8.1m, the footprints of the properties and the plots they are sited within have not changed.

### Changes to existing landscape features and elements

- 2.5.3 Changes caused by the revised Phase 1b proposals to the existing landscape of the site, currently a field of pasture with no notable features (i.e. trees or hedgerows of importance), will be reprofiling of part of the field to provide a 1 in 3 slope covering an area of approximately 20m in width feathering into the existing pasture at a height of approximately 87m AOD. The proposed regraded slope will be sown and managed as a wildflower meadow. The landscape value and function of this area will be improved upon from its existing use as pasture upon establishment of the wild flower meadow.
- 2.5.4 As a result, this assessment considers that the existing pastoral fields are a landscape receptor of **Low** sensitivity, which will undergo changes of **Medium** magnitude, giving rise to a **Slight/Moderate Beneficial** level of effect, which is **Not Significant**.

### Landscape character

- 2.5.5 Landscape Character Type R5a - Isolated Hills with Woodland and Mixed Uses identified in the Cherwell District Landscape Assessment (1995), and Landscape Character Type Wooded Hills as defined in the current OWLS are both assessed to be receptors of **Medium** sensitivity. The landscape character effects sustained by the two LCTs as a result of the Phase 1b proposals, which are essentially the replacement of a small area of pasture with a reprofiled slope to be sown and managed as a wildflower meadow, are considered to have a **Negligible** magnitude of change on the Landscape Character Types, giving rise to a **Slight/Negligible Beneficial** level of effect, which is **Not Significant**.

### Visual effects

- 2.5.6 The proposed development as a whole will consist of large scale changes to the site from military use to mixed-use residential, with an increase in peripheral and amenity planting as part of the proposals. These large scale changes were already considered, evaluated and consented in the 2011 application.
- 2.5.7 The visual effects relevant to this study concerning the Phase 1b proposals, are limited to:
- ▶ the slight increase in ridge height of 11 properties in the proposed built development from 5.4m ridge height to 8.1m ridge height; and



- ▶ the regrading of landform extending approximately 20m to the south-east of the proposed residential crescent (Elliot Crescent) and its relationship to Graven Hill.

- 2.5.8 The Regulation 25 request dated 29 January 2018 from Cherwell District Council (ref. 17/02352/REM) raises particular concerns that the proposed increase in the height of the properties could have upon the “*visual appearance of the tree line of the hill*” and that “*the view of the woodland is not impinged by the development above the 80m contour*”. It specifically requests an assessment of the potential for the proposed works to have an adverse visual impact upon views to Graven Hill and the woodland located on upper slopes in comparison with the visual effects that were assessed and approved under the 2011 application.
- 2.5.9 In undertaking this visual assessment, it is important to note that the proposed increase in ridge height of the properties is proposed in the context of the lowering of the ground levels for these properties that is a consequence of the alterations to the landform required to accommodate the crescent road, verge and swale. The drawings referenced in Section 2.1 of this report, in particular Sections C and D in *Proposed Site Sections*, Glenn Howells Architects drawing 1982-A-L-300-N demonstrate that the proposed reprofiling will reduce the ground level heights of the properties by between 1m and 2m. Consequently, whilst the proposed increase in the ridge height of the properties is 2.7m (the difference between 5.4m and 8.1m), the absolute increase in the height of the properties in the visual context that is of concern to Cherwell District Council is between 0.7m and 1.7m. The review of the visual assessment must therefore consider if this proposed maximum height increase of 1.7m for nine properties is likely to interfere with or undermine the role of the Graven Hill and its woodland in key views available to visual receptors.
- 2.5.10 The 2011 visual assessment has been reviewed to identify which of the range of visual receptors that were included could potentially sustain adverse visual effects of the type postulated by Cherwell DC. This review identified eight groups of visual receptors and five viewpoints.

### Visual receptors

- ▶ Users of the A41 network to the north and west of the site are visual receptors of **Low** sensitivity. In the 2011 ES, the likely operational effects upon these receptors were described as: “*Existing glimpsed views (through small gaps in A41 planting) of the Graven Hill woodland and upper slopes and upper parts of large storage buildings will be replaced with open views of new residential built form located within the northern and western parts of the site. There will be an increase in built form within the view although this will be of a smaller scale, interspersed between new tree planting associated with streets and open spaces; views of the Graven Hill wooded brow and upper pastoral fields will be retained. Structural planting (along with replacement planting on the A41) will mature to screen views of the site with potential glimpsed views retained at bridge or access points.*” The findings of the 2011 ES considered the magnitude of change to be **Low**, with the level of effect being **Slight Beneficial**, and therefore **Not Significant**. This assessment of effects is considered to remain valid with regard to the Phase 1b proposed development, as the slight increase in building ridgeline height and reprofiling of the landform will not cause a notable difference in the views available from the A41 to Graven Hill. Based on more recent Google Streetview imagery (dated August 2015), tree planting surrounding the A41 appears to have very few gaps, allowing only very minor, filtered views to Graven Hill. Where available, views will be perceived while travelling at speed. The distinctive pattern of pasture and woodland on Graven Hill will be recognisable, and will not be influenced by the slight increase in built form height and landform regrading proposed in the Phase 1b plans.
- ▶ Users of the A4095, located approximately 2.7km to the north-west of site are considered to be visual receptors of **Low** sensitivity. In the 2011 ES, the likely operational effects upon these receptors were described as: “*[...] an increase in the extent of built form within the view although it will be small in scale and interspersed with tree cover associated with streets and open space. The view of Graven Hill and upper pastoral fields will be retained. These views will be oblique.*” The findings of the 2011 ES considered the magnitude of change to be **Low**, with the level of effect being **Slight Adverse**, and therefore **Not Significant**. This assessment of effects is considered to remain valid with regard to the Phase 1b proposed development, as the

slight increase in building ridgeline height and reprofiling of the landform will not cause a notable difference in the views available from the A4095 to Graven Hill. Where available, views will be perceived while travelling at speed. The distinctive pattern of pasture and woodland on Graven Hill will be recognisable, and will not be influenced by the slight increase in built form height and landform regrading proposed in the Phase 1b plans.

- ▶ Users of Local Lanes to the west of site are considered to be visual receptors of **Low** sensitivity. These receptors are represented in Viewpoint 22. In the 2011 ES, the likely operational effects upon these receptors were described as: *"Glimpsed views will be available of new residential built form located within the more elevated areas of the site although these views will intermittent; the view of Graven Hill Woodland will be retained."* These receptors are likely to experience a **Low** magnitude of change to their visual amenity, giving rise to a **Slight Adverse** level of effect, which is **Not Significant**. It is noted that the local lanes are generally located in the surrounding flat, agricultural landscape, and many have frequent and substantial screening by vegetation and built form along their lengths, limiting clear views to Graven Hill. Where views to Graven Hill are available, the distinctive pattern of pasture and woodland will be recognisable, and will not be influenced by the slight increase in built form height and landform regrading proposed in the Phase 1b plans. This assessment of effects is considered to remain valid with regard to the Phase 1b proposed development, as the slight increase in building ridgeline height and reprofiling of the landform will not cause a notable difference in the views available from the Local Lanes to Graven Hill in comparison with the approved 2011 proposals.
- ▶ Users of National Cycle Route 51 were not included in the 2011 ES, but are considered to be visual receptors of **Medium** sensitivity in this assessment, as the purpose of their journey is likely to include landscape appreciation. These receptors are represented in Viewpoint 22. Relying upon the above descriptions of visual effects experienced from local lanes, which host the Cycle Route in this area, these receptors are likely to experience a **Low** magnitude of change to their visual amenity, giving rise to a **Slight Adverse** level of effect, which is **Not Significant**. This assessment of effects is considered to remain valid with regard to the Phase 1b proposed development, as the slight increase in building ridgeline height and reprofiling of the landform will not cause a notable difference in the views available from the National Cycle Route 51 to Graven Hill in comparison with the approved 2011 proposals.
- ▶ Users of the public footpath north-east of Chesterton (PRoW 161/1 and 129/7) are considered to be visual receptors of **High** sensitivity in this assessment, as the purpose of their journey is likely to be focussed on landscape appreciation. In the 2011 ES, the likely operational effects upon these receptors were described as: *"There will be an increase in the extent of built form within the view although it will be small in scale and interspersed with tree cover associated with streets and open space. The view Graven Hill and upper pastoral fields will be retained. These views will be oblique."* These receptors are likely to experience a **Low** magnitude of change to their visual amenity, giving rise to a **Slight/Moderate Adverse** level of effect, which is **Not Significant**. This assessment of effects is considered to remain valid with regard to the Phase 1b proposed development, as the slight increase in building ridgeline height and reprofiling of the landform will not cause a notable difference in the views available from this PRoW to Graven Hill in comparison with the approved 2011 proposals.
- ▶ Users of public bridleway near Bucknell (PRoW 148/4 and 129/9) are considered to be visual receptors of **High** sensitivity in this assessment, as the purpose of their journey is likely to be focussed on landscape appreciation. In the 2011 ES, the likely operational effects upon these receptors were described as: *"Short sections of the bridleway (associated with the elevated areas near Bucknell) experience panoramic views across a predominantly low lying agricultural landscape. Within these views Graven Hill forms a noticeable element (with the upper parts of Arncliffe Hill and Muswell Hill visible beyond Graven Hill). The upper parts of a storage building associated with the northern part of the site is visible due to its light colour and scale and is viewed in context of other large buildings on the edge of Bicester. The replacement of this building with residential built form that is smaller in scale will introduce a finer grain of built form interspersed with tree cover (and new boundary planting. Whilst there will be an increase in built form within the view it will be barely discernible at these distances and the Graven Hill wooded hill top and upper pastoral fields will remain visible."* These receptors are likely to

experience a **Low** magnitude of change to their visual amenity, giving rise to a **Slight/Moderate Adverse** level of effect, which is **Not Significant**. This assessment of effects is considered to remain valid with regard to the Phase 1b proposed development, as the slight increase in building ridgeline height and reprofiling of the landform will not cause a notable difference in the views available from this PRow to Graven Hill in comparison with the approved 2011 proposals.

- ▶ Residents of the Promised Land Farm are visual receptors within the curtilage of residential properties, and as such are always considered to be receptors of **High** sensitivity in LVIA. In the 2011 ES, the likely operational effects upon these receptors were described as: *“The presence of intervening vegetation associated with field boundaries, a small stream corridor and woodland located within the western part of the site predominantly screen views into the lower parts of the site – with views being restricted to the upper parts of the Graven Hill woodland. Potential views of the upper parts of large storage buildings would be removed and it is predicted that smaller scale residential built form that replaces would be heavily filtered and screened by intervening vegetation and views of the wooded hill top would remain.”* These receptors are likely to experience a **Negligible** magnitude of change to their visual amenity, giving rise to a **Slight Adverse** level of effect, which is **Not Significant**. This assessment of effects is considered to remain valid with regard to the Phase 1b proposed development, as the slight increase in building ridgeline height and reprofiling of the landform will not cause a notable difference in the views available from this residence to Graven Hill in comparison with the approved 2011 proposals.
- ▶ Isolated residents near Bucknell are visual receptors of **High** sensitivity. In the 2011 ES, the likely operational effects upon these receptors were described as: *“A number of isolated residential properties associated with the elevated areas near Bucknell experience panoramic views across a predominantly low lying agricultural landscape. Within these views Graven Hill forms a noticeable element (with the upper parts of Arcott Hill and Muswell Hill visible beyond Graven Hill). The upper parts of a storage building associated with the northern part of the site is visible due to its light colour and scale and is viewed in context of other large buildings on the edge of Bicester. The replacement of this building with residential built form that is smaller in scale will introduce a finer grain of built form interspersed with tree cover (and new boundary planting). Whilst there will be an increase in built form within the view it will be barely discernible at these distances and the Graven Hill wooded hill top and upper pastoral fields will remain visible.”* These receptors are likely to experience a **Negligible** magnitude of change to their visual amenity, giving rise to a **Slight Adverse** level of effect, which is **Not Significant**. This assessment of effects is considered to remain valid with regard to the Phase 1b proposed development, as the slight increase in building ridgeline height and reprofiling of the landform will not cause a notable difference in the views available from these residences to Graven Hill in comparison with the approved 2011 proposals.

## Viewpoint assessment

2.5.11 Viewpoints considered likely to be relevant to the Phase 1b proposals include:

- ▶ **Viewpoint 22** represents views experienced by users of Wendlebury Road, taken from a point where gaps in hedgerow boundaries along the eastern side of the road allow open views to the south-east. In the foreground of views, an open field of pasture is bounded by post-and-rail fences, with lines of mature trees located along field boundaries in the middle ground of views. Views to development around the base of Graven Hill, within the proposed development site, are largely screened and heavily filtered. In the background of views the wooded summit of Graven Hill forms a notable feature on the skyline. It is considered likely that the distinctive pattern of pasture and woodland on Graven Hill will be recognisable, and will not be influenced by the slight increase in built form height and the landform regrading proposed in the Phase 1b plans. The magnitude of change to this view as a result of the Phase 1b proposals is considered to be **None** in comparison with the approved 2011 proposals.
- ▶ **Viewpoint 23** represents views experienced by users of the A4095, and isolated residences and users of local footpaths in the vicinity of Bignell Park, looking south-east. In the foreground of views is a field, in arable cultivation at the time of visit, and with large gaps in the hedgerow

boundary in the foreground of views. In the middle ground of views, the built form of Whitelands Farm is discernible, with the landform of Graven Hill forming the background of views, partially screened and filtered by mature trees located around Whitelands Farm. The pastoral fields on the slopes of Graven Hill are partially visible, and the wooded ridgeline is a notable feature along the skyline. Only the tallest structures within the proposed development site are visible, including a structure presumed to be a water tower. It is considered likely that the distinctive pattern of pasture and woodland on Graven Hill will be recognisable, and will not be influenced by the slight increase in built form height and the landform regrading proposed in the Phase 1b plans. It is also noted that more recent Google Streetview imagery (dated May 2017) suggests that vegetation in both the foreground, middle ground and background of views has matured and has largely screened or filtered many views to Graven Hill from the A4095 and surrounding area. The magnitude of change to this view as a result of the Phase 1b proposals is considered to be **None** in comparison with the approved 2011 proposals.

- ▶ **Photomontage Viewpoint 23** illustrates the likely extent of the proposed development in the views described above, at Phase 3 Completion (Figure Lea-265), and at 15 Years Post-Planting (Figure Lea-266). Both photomontages indicate largely the same extent of built form visible, with rooftops and some upper portions of built form partially visible, viewed in combination with the built form of Whitelands Farm in the middle ground of views. Detailed reviews of the photomontage show that whilst the proposed Phase 1b development will encroach slightly upon the pastoral fields on the slopes of Graven Hill, the roofs of the 8.1m ridge height properties located alongside Elliot Crescent would not be individually discernible at this distance. The combined upper edge of the Phase 1b development would be unlikely to extend as far up the north-western slope of the hill so as to be seen against the woodland (notwithstanding that from this precise viewpoint it would be likely to be screened by the tree copse in the middle ground). The integrity of the wooded rounded horizon formed by Graven Hill would be unaffected. The magnitude of change to this view as a result of the Phase 1b proposals is considered to be **None** in comparison with the approved 2011 proposals.
- ▶ **Viewpoint 24** represents views to the site from the roundabout at the junction of the A4421, the A4095 and the B4030, at the western edge of Bicester. In the foreground of views is the road curtilage and signage, with an arable field occupying the middle ground of views. Groupings of mature trees are emergent from hedgerows, both along the field boundaries along the B4030, and its middle distance field boundaries. The existing built form within the proposed development site is discernible in the background of views, largely screened and filtered by intervening vegetation. The landform of Graven Hill, including the pastoral fields on the slopes, and the wooded ridgeline, are prominent features on the skyline in this view. It is notable that a section of hedgerow has been recently removed in the photograph, dated March 2011. In more recent Google Streetview imagery, dated May 2017, the hedge has been reinstated and there appear to be no views to Graven Hill possible from this location. Even if the hedgerow were to be removed or severely trimmed, at a separation distance of approximately 3 km the slight increase in the ridge heights of 11 Phase 1b properties would not be visible. The integrity of the wooded rounded horizon formed by Graven Hill would be unaffected. The magnitude of change to this view as a result of the Phase 1b proposals is considered to be **None** in comparison with the approved 2011 proposals.
- ▶ **Viewpoint 25** is representative of views experienced by users of Middleton Road. This view is an elevated view from Middleton Road overpass on the eastern side of the M40, looking south-east across large scale arable fields. Foreground views take in the gappy hedge and post-and-rail fence surrounding an arable field, with the planted embankment descending to the M40 at the southern edge of the view. In the middle distance of views hedgerows, groups of trees and individual trees provide layering and screening of views across the generally flat, agricultural landscape. To the south, woodland at Bignell Park provides dense tree cover in the background of views. The landform of Graven Hill is visible, slightly below distant ridgelines to the south-east that are visible as silhouettes on the skyline. Large rooftops of existing MOD buildings on the proposed development site are discernible below the fields of pasture and the wooded summit of Graven Hill. The housing in Phase 1b will represent only a minor component of the limited changes within the view arising from the Graven Hill development. In this context, with a separation distance of over 5 km, an increase of a maximum of 1.7m in the heights of 11



properties would not be discernible in comparison with the approved development. The integrity of the wooded rounded horizon formed by Graven Hill would be unaffected. The magnitude of change to this view as a result of the Phase 1b proposals is considered to be **None** in comparison with the approved 2011 proposals.

## 2.6 Conclusions

- 2.6.1 The 2011 ES and the concerns raised in the Cherwell DC Regulation 25 request from January 2018 demonstrate that the landform of Graven Hill and its distinctive wooded upper slopes combine to form a valued landscape and visual component in the Bicester area. The maintenance of views to the woodland and the integrity of the rounded wooded horizon should not be adversely impacted by the detailed design of the Phase 1b development. .
- 2.6.2 The approved proposals in the 2011 application for the most elevated part of the Phase 1b development located around the 80m AOD contour on the north-western slope of Graven Hill were for properties with a ridge height of 5.4m that would be built upon the existing ground levels that are approximately 83m AOD for the most elevated property. The detailed design of the crescent road, verge and swale have necessitated that the ground levels on the south-eastern edge of Phase 1b be reprofiled. As a consequence the ground levels in the plots of the 11 properties previously proposed to have a ridge height of 5.4m have been reduced by 1-2m. An approximate 20m width of the existing pasture slope up to a height of approximately 87m AOD will be reprofiled with a subsequent land use of a wild flower meadow. The detail design proposes to increase the ridge height of the 11 properties to 8.1m which is a maximum net height gain of 1.7m.
- 2.6.3 The review of the proposed detailed design of this part of Phase 1b with regard to the landscape assessment contained in the 2011 ES concludes that the establishment of a strip of wild flower meadow would have a slight/moderate beneficial effect with regard to landscape elements. At the scale of the host LCTs as defined under the now no longer available District Landscape Character Assessment (as used in the 2011 LVIA) and the still extant County Landscape Character Assessment, the review concludes that the landscape magnitude of change remains negligible and not significant.
- 2.6.4 The Regulation 25 request is focused upon the need to demonstrate that the proposed increase in the ridge heights of the 11 properties fronting onto the crescent road (Elliot Crescent) would not result in increased adverse visual effects with regard to groups of visual receptors to the north-west and views available from this area in which the upper slopes, woodland and the prominent elevated horizon formed by Graven Hill are valued visual attributes. The review of the visual assessment takes into account the detailed proposals, especially the minor (maximum 1.7m) increases in the height of the most elevated properties, and has reviewed a number of cross sections produced by the applicant's consultants and five of the photographic and photomontage viewpoints utilised in the 2011 ES visual assessment.
- 2.6.5 The review of the visual assessments for eight groups of visual receptors and at the five viewpoints concludes that the minor increase in the heights of the 11 properties would not alter the conclusions reached in the 2011 visual assessment. No additional significant visual effects would be generated by the detailed design proposals for the relevant part of Phase 1b. Although the ridge height of residential properties above the 80m AOD contour line is proposed to increase, the proposed reduction in existing ground levels will reduce the overall increase in the height of the properties in relation to the key considerations of the upper pasture slope, the woodland and the overall visual role of the elevated wooded horizon formed by Graven Hill in many views. The proposed properties would not be seen against the woodland nor would they extend above the elevated wooded horizon, hence the visual integrity of this valued feature would be unaffected. In all of the views from the five viewpoints it is assessed that **the magnitude of visual change would not change in comparison with that assessed for the 2011 outline proposals.**



## 3. Regulation 25 Response: Ecological effects

### 3.1 Overview of potential changes in ecological effects

- 3.1.1 Table 3.1 summarises the predicted effects of the development on each biodiversity receptor as set out in the 2011 ES, focusing on those receptors/effects that were scoped-in to EIA. It also updates and where necessary revises the assessment, taking into account the detailed Phase 1b proposals and the additional survey work undertaken in 2014 and 2015 (Waterman 2015<sup>2</sup>). It includes a brief rationale for the updated/revised assessment and concludes whether the effects are predicted to be Significant or Not Significant. Any additional environmental measures that are to be incorporated into the development proposals, for example to enable a conclusion of 'Not Significant' to be reached are also included. The revised assessment is desk-based and based on the assumption that the habitats within the site remain generally unchanged from those detailed in the 2011 ES.

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<sup>2</sup> Waterman Infrastructure and Environment Ltd (2015). MoD Graven Hill, Bicester: Protected Species Report.

Table 3.1 Redevelopment of MoD Bicester – Review of predicted effects on Biodiversity

Receptor	Predicted Effect	Impact Assessment (2011)	2011 ES Environmental measures	Changes in effect (Phase 1b)	Environmental measures additional to 2011 ES	Impact Assessment (2018)
<b>Graven Hill Wood</b>	Graven Hill Wood: Disturbance/damage to CWS through increased levels of dust, noise and pollution arising through construction process	-NS	Implementation of standard pollution prevention measures to prevent pollution during the construction phase.  A low level lighting strategy is to be incorporated within the proposed development design to minimise light pollution during both the construction and operation phases of development.	Earthworks will encroach further south, into species-poor semi-improved grassland and closer to Graven Hill Wood, increasing the risk of woodland disturbance/damage. However, there will remain a stand-off between the development platform and Graven Hill Wood that will be a minimum of 25m wide and so the risk of damage/disturbance of the outer edge of the woodland remains minimal.	The >25m stand-off around Graven Hill Wood will be clearly demarcated in chestnut pale fences or similar throughout the enabling works and construction phases. This zone will be treated as 'no access' to plant or contractors, other than for the purpose of woodland planting and gate installation. Lighting strategy to be informed by the most recent Bat Conservation Trust (BCT) guidance.	NS
	Graven Hill Wood: Disturbance through opening public access to CWS	-NS	Access restricted to northern parts of the wood. Information boards installed to notify recreational users of the nature conservation interest of the area and to request dogs are kept on leads.	No change – the number of residential units has not increased from the outline consent	No additional measures required	-NS
	Graven Hill Wood: Increased coverage of adjoining woodland habitat	-NS	Additional planting of 1.9ha of broad-leaved woodland to contribute to biodiversity targets outlined in the Ray Conservation Area.	The planting proposals are detailed in the Habitat Creation and Management Plan (Waterman 2015 <sup>3</sup> ), which includes promoting the regeneration of woodland around the edges of Graven Hill Wood, as well as woodland planting elsewhere within the site.	No additional measures required	+ NS
<b>Bicester Wetland Reserve</b>	Bicester Wetland Reserve: Potential changes to hydrology affecting sensitive flora	- NS	Implementation of standard pollution prevention measures to prevent pollution during the	No change	No additional measures required	- NS

<sup>3</sup> Waterman Energy, Environment and Design Ltd (2015). MoD Graven Hill – Habitat Creation and Management Plan

Receptor	Predicted Effect	Impact Assessment (2011)	2011 ES Environmental measures	Changes in effect (Phase 1b)	Environmental measures additional to 2011 ES	Impact Assessment (2018)
	Disturbance to birds utilising site from increased levels of noise and light		<p>construction phase. Water levels within the wetland reserve are maintained by the outfall from the STW not via run-off and surface water from the development site. As such, changes to the hydrology of the development site will not affect water levels within the wetland reserve.</p> <p>Incorporation of a lighting strategy to minimize pollution from increased lighting during the construction and operation phase.</p>			
<b>Badgers</b>	Badger: Permanent loss of setts	- NS	Provision of two artificial setts. Where necessary, sett closures will be carried out under a Natural England badger development licence.	No change – the badger survey was updated in 2014 and no additional sett locations will be lost/disturbed. The final mitigation scheme will be informed by a further update to the badger survey in advance of mobilising enabling works/ construction.	No additional measures required – the final mitigation scheme will be informed by a further update to the badger survey in advance of mobilising enabling works/ construction	- NS
	Badger: Permanent loss of foraging habitat	-NS	<p>Provision of enhanced areas of habitat for foraging badger including additional planting of fruit and nut bearing trees.</p> <p>Provision of green corridors linking badger setts across the Site to the wider countryside.</p>	The additional loss of potential badger foraging habitat will be limited (<0.5 ha of species poor semi-improved grassland) and temporary (to be reinstated as wildflower meadow). The badger survey was updated in 2014 and no additional main setts were recorded. This limited, temporary additional loss of potential foraging habitat is unlikely to bring neighbouring badger groups into conflict or have significant effects on badgers	No additional measures required – the final mitigation scheme will be informed by a further update to the badger survey in advance of mobilising enabling works/ construction	- NS
	Badger: Increased levels of disturbance from noise and light	- NS	A low level lighting strategy is to be incorporated within the proposed development designed to minimise light pollution during both the construction and operational phases. A noise abatement strategy will also be incorporated within the proposed	No change – none of the proposed slope regrading works will take place within 50 m of a badger sett	No additional measures required.	- NS

Receptor	Predicted Effect	Impact Assessment (2011)	2011 ES Environmental measures	Changes in effect (Phase 1b)	Environmental measures additional to 2011 ES	Impact Assessment (2018)
			development design during the construction phase.			
	Badger: Increased risk of persecution of badgers by new local population	-NS	New setts to be located in 'quiet areas' of CWS. Where appropriate, retained setts located in the vicinity of developed areas will be surrounded by dense scrub planting to make them less visible and less accessible to the general public.	No change - the badger survey was updated in 2014 and no additional main setts were recorded.	No additional measures required.	-NS
<b>Bats (roosting)</b>	Bats (roosting): Permanent loss of maternity and summer roosts	-NS	The provision of alternative roosting habitat through the inclusion of bat tiles and bricks within the commercial buildings. Bat boxes will also be installed on the mature standard trees and in the broad-leaved woodland. All work to be subject to a Natural England mitigation licence.	No change – the bat surveys were updated in 2014/15 and there will be no additional loss of known or potential roost habitat	No additional measures required.	-NS
<b>Bats (foraging)</b>	Bats (foraging): Permanent loss of sub-optimal foraging habitat and disturbance through increased levels of lighting during both construction and operation.	-NS	<p>Much of the 80ha of mostly sub-optimal foraging habitat will be replaced with 55.4h of residential areas. Urban gardens provide a good foraging resource for the two most commonly occurring bats on-site.</p> <p>Enhancement of retained existing habitat and additional planting of 8.6ha of broad-leaved woodland.</p> <p>Inclusion of a low level lighting strategy to minimise the effects on bats through increased levels of lighting during the construction and operational phases.</p>	<p>The bat activity surveys were updated in 2014. The survey approach was not fully consistent with the latest survey guidance (Collins 2016<sup>4</sup>), however combined with the surveys detailed in the 2011 ES it is likely to be sufficiently robust to inform the revised assessment of impacts on bats.</p> <p>The bat assemblage recorded in 2014 compared closely to that detailed in the 2011 ES, with the exception that a single foraging barbastelle bat was also recorded. This is one of the rarest UK bat species and tends to forage over a wide area.</p> <p>The additional loss of potential bat foraging habitat associated with slope regrading will be limited (&lt;0.5 ha of species poor semi-</p>	No additional measures required.	-NS

<sup>4</sup> Collins, J. ed. (2016) Bat Surveys for Professional Ecologists: Good Practise Guidelines (3rd edn). The Bat Conservation Trust, London

Receptor	Predicted Effect	Impact Assessment (2011)	2011 ES Environmental measures	Changes in effect (Phase 1b)	Environmental measures additional to 2011 ES	Impact Assessment (2018)
<b>Dormouse</b>	Dormouse: Permanent loss of small areas of potential dormouse habitat resulting in an increased risk of contravening the legislation relevant to dormice.	-NS	Provision of additional areas of broad-leaved woodland and hedgerow incorporating a number of fruit and nut bearing species suitable as a foraging resource for dormice. Existing hedgerows will also be enhanced for dormice through the incorporation of hazel and fruit and nut bearing species. All habitat to be lost will be replaced on a 'like for like' basis, and where appropriate a phased approach to the removal of dormouse habitat will be adopted.  50 dormouse nesting boxes are to be installed within Graven Hill Wood.  All works affecting potential dormouse habitat will be subject to a Natural England development licence in respect of this species.	improved grassland) and temporary (to be reinstated as wildflower meadow).  No change – the dormouse survey was updated in 2014 and no dormice were recorded. The slope regrading works will not result in loss of dormouse habitat.	No additional measures required.	-NS
	Dormouse: Enhanced connectivity of dormouse habitat.	+NS	Provision of green corridors linking areas of dormouse habitat across the Site to the wider countryside.	No change	No additional measures required.	+NS
<b>Great crested newt</b>	Great crested newt: Permanent loss of sub-optimal aquatic and terrestrial habitat and increased risk of contravening the legislation relevant to GCN.	-NS	The provision of up to 15 waterbodies as mitigation within 23ha of habitat for GCN. GCN excluded from the area of works and translocated to areas of newly created habitat. All work to be carried out under a Natural England mitigation licence	The great crested newt survey was updated in 2014. The slope regrading works will take place approximately 200m to 250m from waterbodies that support a population of great crested newts that is within Natural England's 'Medium' size class. This population was recorded as 'low' in 2011. The additional loss of potential great crested newt terrestrial habitat associated with slope re-grading will be limited (<0.5 ha of species poor semi-improved grassland) and temporary (to be reinstated as wildflower	No additional measures required - the ponds to be created as part of the habitat creation plan (Waterman 2015) and GCN mitigation scheme will be located to avoid the area of slope regrading.	-NS



Receptor	Predicted Effect	Impact Assessment (2011)	2011 ES Environmental measures	Changes in effect (Phase 1b)	Environmental measures additional to 2011 ES	Impact Assessment (2018)
				meadow) and will be towards the upper limit of the distance that great crested newts commonly disperse to terrestrial habitats. Furthermore the area was subject to a trapping exercise for great crested newt in 2016 under licence from Natural England.		
<b>Reptiles</b>	Reptiles: Permanent loss of predominantly sub-optimal foraging habitat, increased disturbance to reptiles through noise and light during the construction phase and increased risk of killing and injury during construction.	-NS	<p>Creation of areas of optimal habitat for reptile species.</p> <p>A low level lighting strategy is to be incorporated within the proposed development designed to minimise light pollution during both the construction and operational phases. Noise abatement strategy to be incorporated within the proposed development design during the construction phase.</p> <p>All works to be subject to a reptile mitigation method statement to be agreed with Natural England and implemented in advance of the works.</p>	<p>The reptile survey was updated in 2014. The site continues to support populations of grass snake and common lizard. A low population of both species was recorded in 2014, whereas the previous surveys recorded a 'medium' population and 'low' population of common lizard and grass snake respectively.</p> <p>The slope re-grading works will result in limited (&lt;0.5 ha) loss of species poor semi-improved grassland, which is relatively poor reptile habitat. This habitat loss will be temporary (to be reinstated as wildflower meadow). No reptiles have been recorded at the location of the proposed slope re-grading works.</p>	No additional measures required - the ponds to be created as part of the habitat creation plan (Waterman 2015) will be located to avoid the area of slope regrading.	-NS
	Reptiles: Increased risk of predation by cats.	-NS	Provision of adequate cover/refugia for reptiles in newly created areas of habitat. Leaflet drop to new residential areas highlighting conflict between cats and wildlife, and suggesting domestic cats wear bells.	No change	No additional measures required.	-NS
Key: NS = Not significant, S = significant, - = negative, + = positive						

## 3.2 Conclusions Regarding Significance of Effects

- 3.2.1 As set out in Table 3.1 the proposed slope re-grading works that form part of the detailed Phase 1b proposals will lead to minor changes in the predicted effects of the development on biodiversity. However the scale/magnitude of these changes is limited and it is therefore concluded that this does not alter the overall conclusions (Significant or Not Significant) of the assessment of the effects of the proposed development on biodiversity.



# Appendix A

## Supporting plans



## Glenn Howells Architects drawing no. 1982-A-L-300 rev N





NOTES:  
DIMENSIONS NOT TO BE SCALED FROM THIS  
DRAWING. CONTRACTORS TO NOTIFY  
ARCHITECTS OF SITE VARIATIONS  
AFFECTING INFORMATION ON THIS  
DRAWING. THIS DRAWING IS COPYRIGHT OF  
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**KEY**

..... 80.0m Contour  
Total Site Boundary  
Land Transfer 1 Proposed  
Boundary  
Masterplan 5D Area Comparison

Commercial / Mixed Use

Max. Height - 9m  
Max. Height 9m  
Max. Height 12m  
Max. Height 15m

Residential

Max. Height - 5.4m  
Max. Height - 8.1m  
Max. Height 8.5m  
Max. Height 10.5m  
Max. Height 11.2m  
Max. Height 13.5m

Date	Rev	By	Details
02.12.13	-	MB	Drawing issued
09.01.14	A	MB	Site Boundary Updated
22.01.14	B	JS	Building Heights Amended
03.02.14	C	MB	Masterplan updated (5D)
25.11.14	D	RS	Masterplan (6) and height boundaries updated
30.01.15	E	RS	Masterplan (7) and height boundaries updated
20.02.15	F	KV	Masterplan (5D) area comparison added
02.04.15	G	RS	4 Storey height boundary adjusted to Block E3
25.06.15	H	KV	Building Heights Amended
04.08.15	I	KV	Masterplan (9) and height boundaries updated
02.09.15	J	KV	10.5m height restriction zone added.
18.04.17	K	TA	Masterplan updated.
13.11.17	L	SA	Masterplan updated. Phase 1b Bungalow height restriction zone revised to 8.1m
15.01.18	M	LH	Masterplan updated. Phase 2 Bungalow height restriction zone revised to 8.1m
27.03.18	N	SC	Masterplan updated. Phase 2 Bungalow height restriction zone revised to 5.4m

LOCATION KEY

PLANNING

**GLENN HOWELLS ARCHITECTS**  
321 Bradford St, Birmingham, B5 6ET  
Tel. 0121 666 7640 F. 0121 666 7641  
mail@glennhowells.co.uk

Project  
Graven Hill  
Redevelopment of MOD Bicester

Client  
Graven Hill Village Development Company

Drawing Title  
Proposed Graven Hill Building Heights

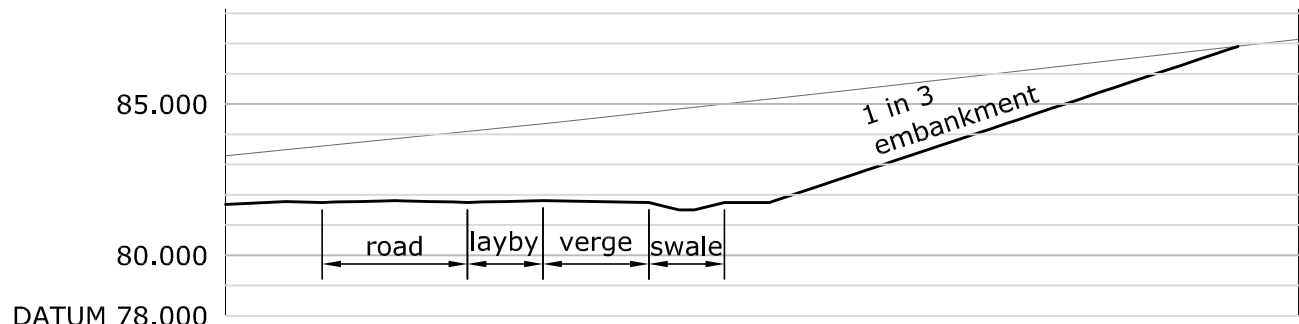
Date	Scale	Checked
02.12.13	1:2500@A1 1:5000@A3	JS
Project Ref.	Drawing No.	Revision
1982	A-L-030	N





## **Rolton Group drawing no. 3003 S1 rev P1**

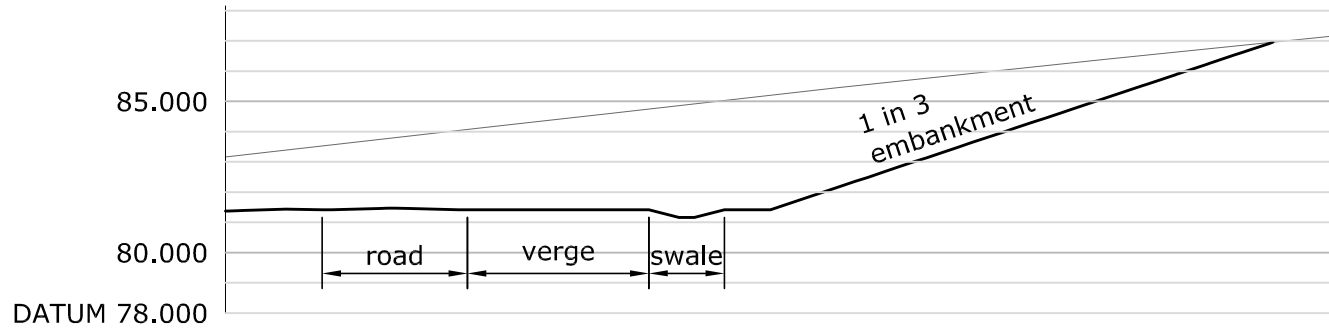
- NOTES.
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ENGINEER'S, ARCHITECT'S OR OTHER RELEVANT DRAWINGS AND SPECIFICATIONS.
  2. ALL DIMENSIONS AND LEVELS ARE TO BE CHECKED ON SITE BY THE CONTRACTOR PRIOR TO PREPARING ANY WORKING DRAWINGS OR COMMENCING ON SITE.
  3. THE CONTRACTOR MUST ENSURE AND WILL BE HELD RESPONSIBLE FOR THE OVERALL STABILITY OF THE BUILDING/STRUCTURE/EXCAVATION AT ALL STAGES OF THE WORK.
  4. ALL WORK BY THE CONTRACTOR MUST BE CARRIED OUT IN SUCH A WAY THAT ALL REQUIREMENTS UNDER THE HEALTH AND SAFETY AT WORK ACT ARE SATISFIED.
  5. ALL WORK IS TO BE CARRIED OUT IN COMPLIANCE WITH THE REQUIREMENTS OF THE RELEVANT STATUTORY AUTHORITIES AND REGULATIONS.
  6. CARRIAGEWAY FOUNDATION BASED ON ANTICIPATED CBR OF 5%. SOFT SPOTS TO BE DEALT WITH BY THE USE OF ADDITIONAL CAPPING UP TO 600MM DEPTH, SUBJECT TO AGREEMENT WITH THE OCC CLERK OF WORKS



CHAINAGE	0.000	5.000	10.000	15.000	20.000	25.000	30.000	33.486	35.000
EXISTING GROUND LEVEL	83.293	83.797	84.301	84.838	85.384	85.949	86.515	87.097	87.688
PROPOSED GROUND LEVEL	81.676	81.783	81.798	81.498	82.415	84.082	85.748	86.910	87.997

### Section C

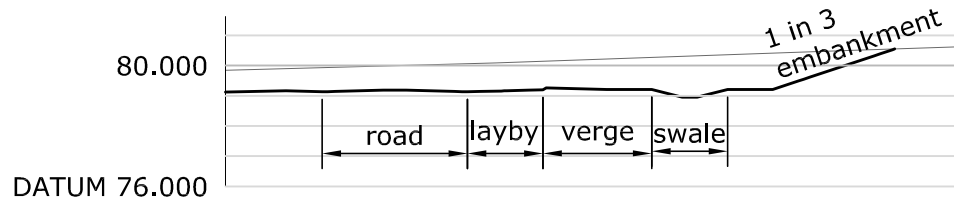
Scale 1:250@A1



CHAINAGE	0.000	5.000	10.000	15.000	20.000	25.000	30.000	34.606	36.636
EXISTING GROUND LEVEL	83.167	83.733	84.299	84.863	85.424	85.957	86.485	86.996	87.163
PROPOSED GROUND LEVEL	81.377	81.458	81.413	81.163	82.079	83.746	85.412	86.958	87.163

### Section B

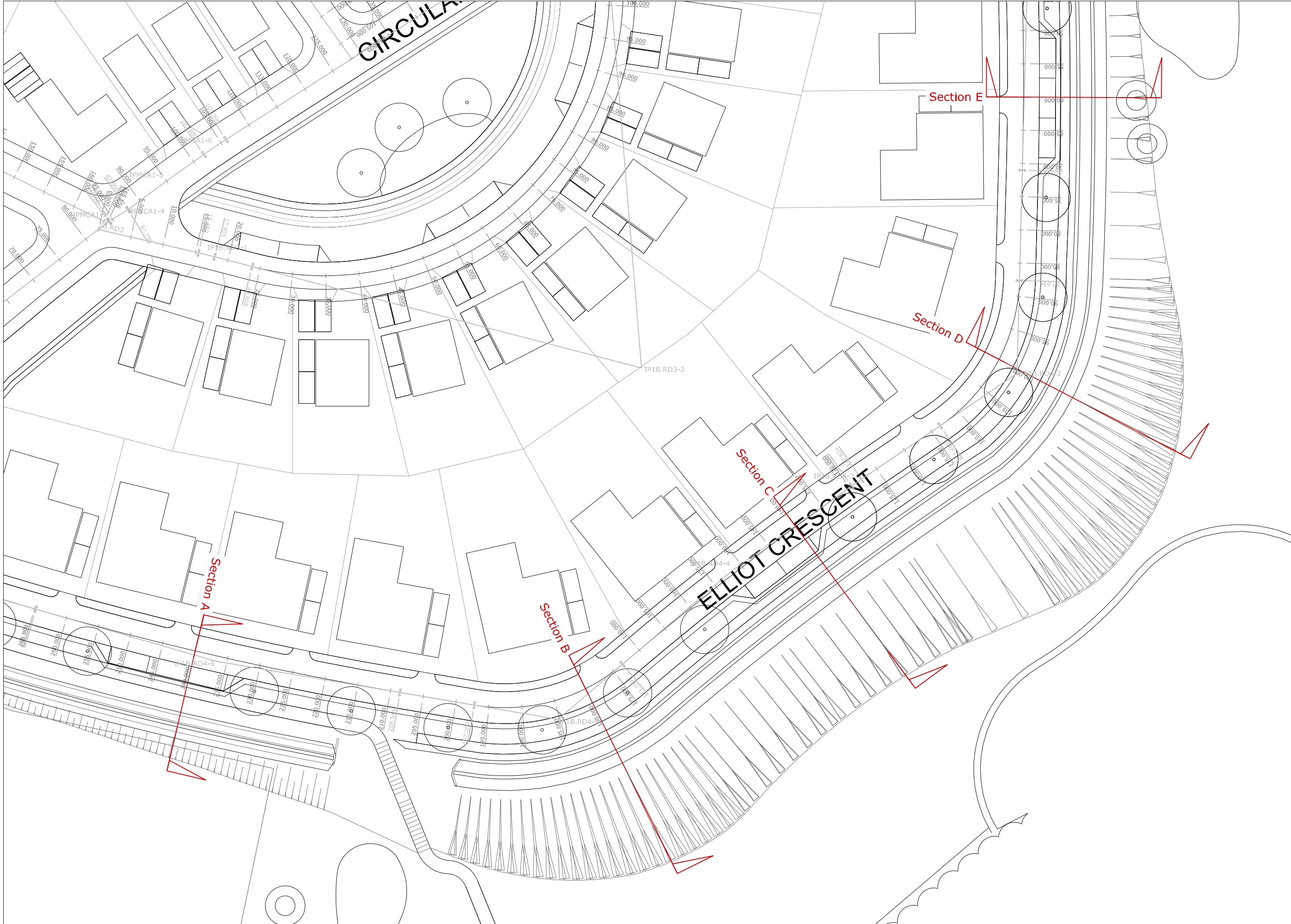
Scale 1:250@A1



CHAINAGE	0.000	5.000	10.000	15.000	20.000	22.133	24.133
EXISTING GROUND LEVEL	79.842	79.976	80.120	80.298	80.477	80.549	80.616
PROPOSED GROUND LEVEL	79.123	79.174	79.179	78.980	79.838	80.549	80.616

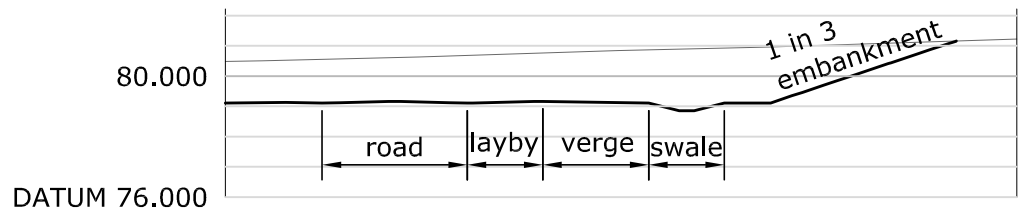
### Section A

Scale 1:250@A1



### Location Plan

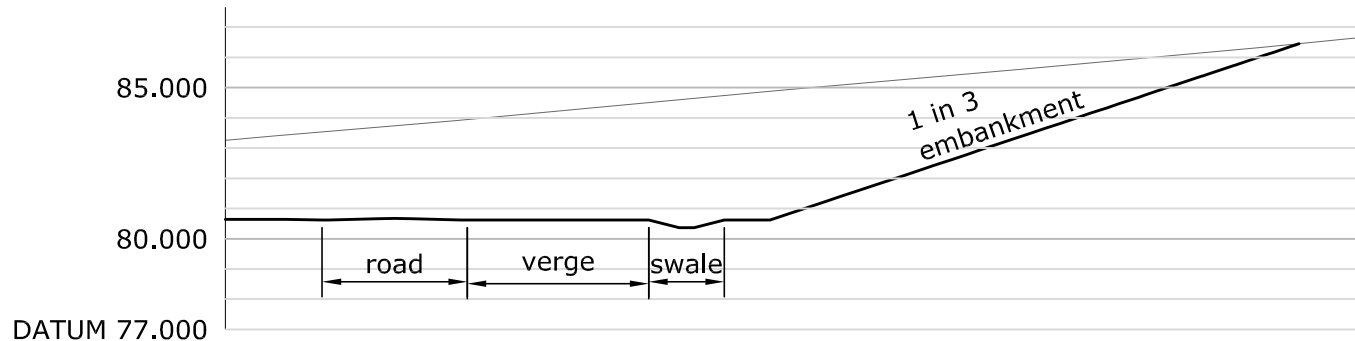
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CHAINAGE	0.000	5.000	10.000	15.000	20.000	24.165	25.000	26.165
EXISTING GROUND LEVEL	80.486	80.600	80.752	80.893	81.024	81.187	81.226	81.226
PROPOSED GROUND LEVEL	79.106	79.150	79.155	78.855	79.772	81.160	81.226	81.226

### Section E

Scale 1:250@A1



CHAINAGE	0.000	5.000	10.000	15.000	20.000	25.000	30.000	35.909	37.507
EXISTING GROUND LEVEL	83.253	83.683	84.129	84.599	85.057	85.491	85.941	86.401	86.647
PROPOSED GROUND LEVEL	80.645	80.659	80.615	80.365	81.281	82.948	84.615	86.279	86.647

### Section D

Scale 1:250@A1

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Standard construction hazards that a competent contractor would be aware of have not been identified on this drawing. Risks that may not be immediately apparent are listed below:

- Groundwater
- Existing Services

Rev	Date	Revision Description	Chkd
P1	30.11.17	Preliminary Issue	SP

ALL WORKS TO  
CONFORM TO HA SPEC  
FOR HIGHWAYS

SUBJECT TO SECTION 38  
TECHNICAL APPROVAL



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Project:  
Graven Hill Development  
Bicester  
Phase 1B

Drawing Title:  
Proposed Southern Crescent  
Embankment Cross Sections

Drawn By: CB  
Checked By: SDP  
Scales: 1:250 @A1, 1:500 @A3  
Date: Nov.17

RGL Project Ref: 16-0069

Specification(s):

Issue Purpose:  
PRELIMINARY

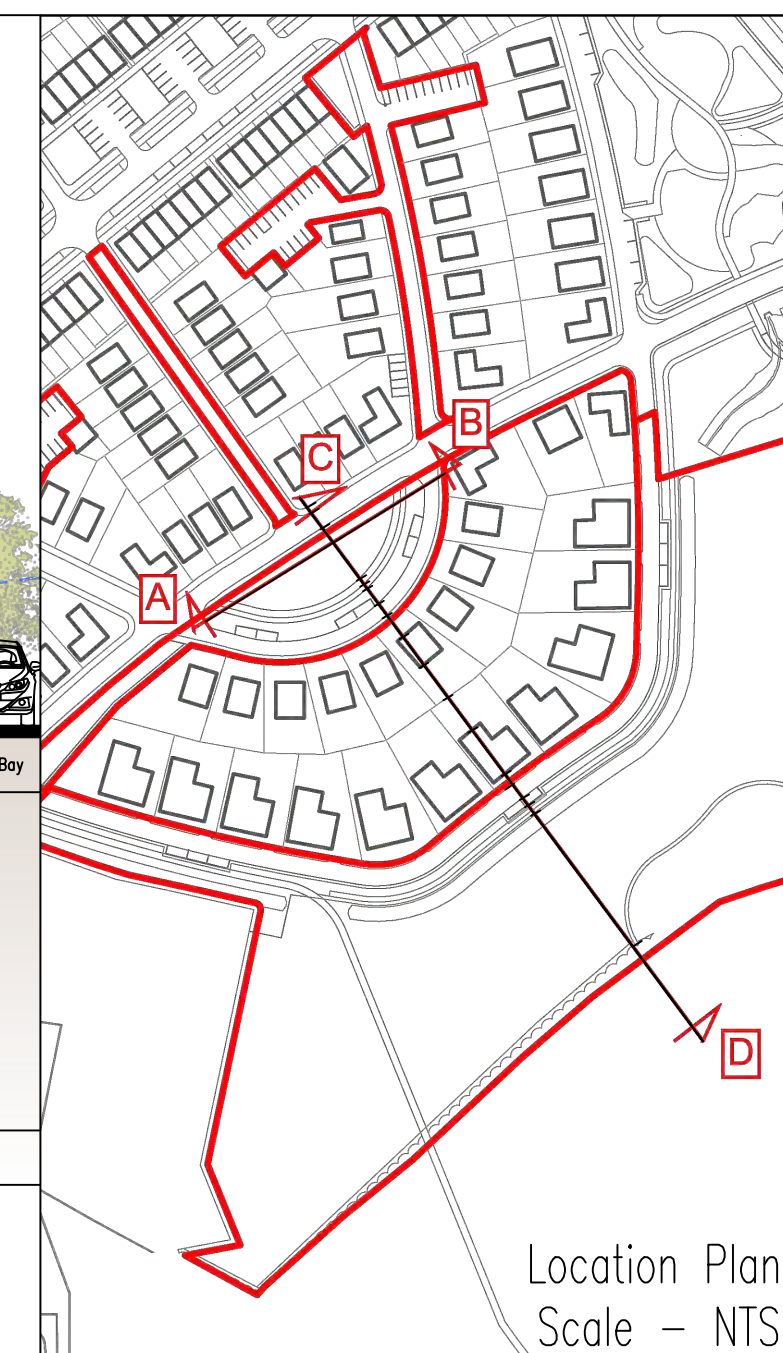
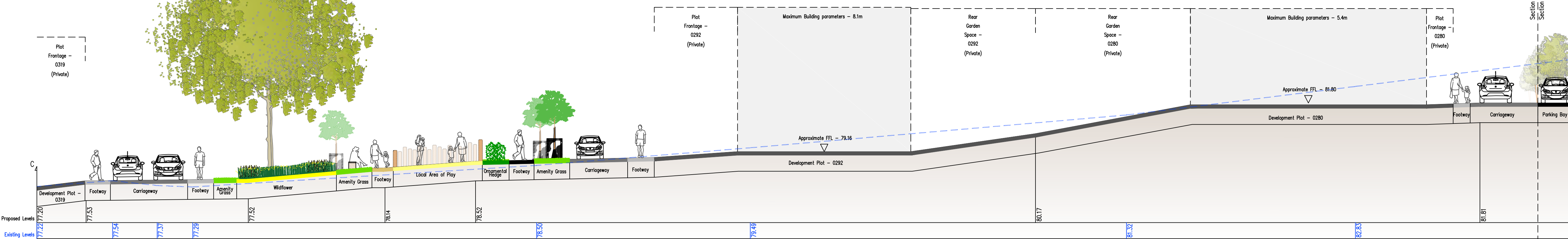
GHD	RGL	00	00	DR
Project	Originator	Zone	Level	Type
D	130	3003	S1	P1
Role	Classification	Number	Suitability	Revision



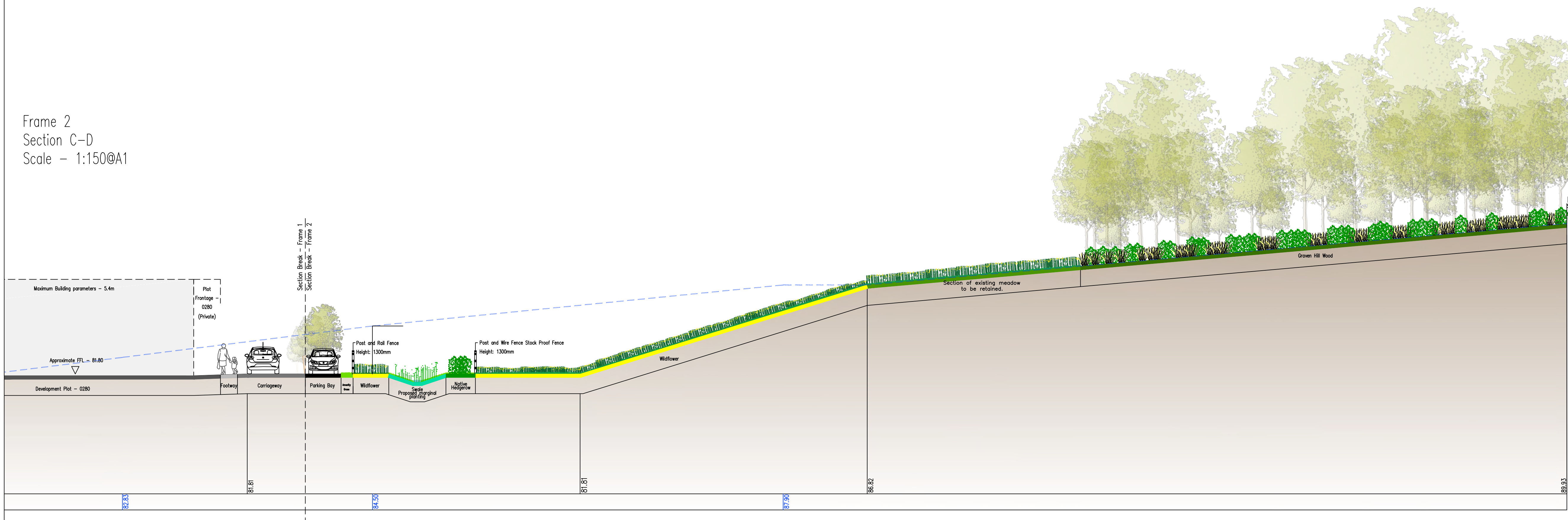
## Waterman drawing no. 4000 rev A01. Landscape Works Phase 1b Landscape Cross Section



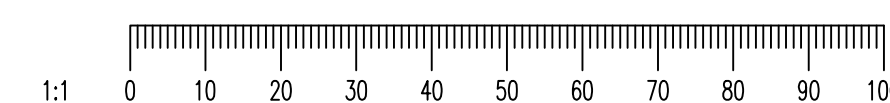
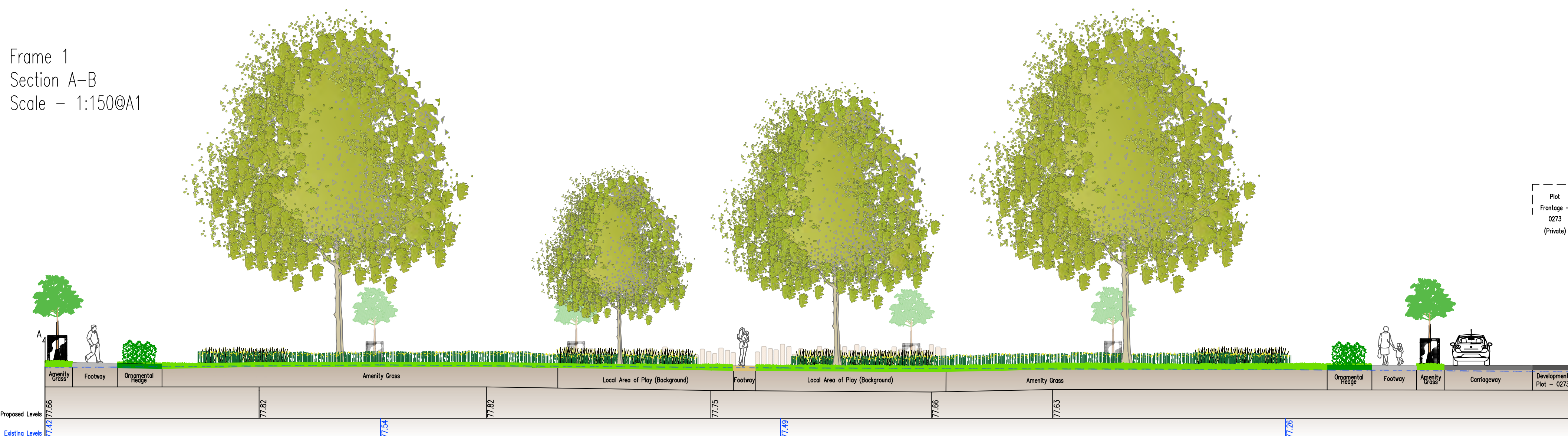
Frame 1  
Section C-D  
Scale - 1:150@A1



Frame 2  
Section C-D  
Scale - 1:150@A1



Frame 1  
Section A-B  
Scale - 1:150@A1



REV	03.11.17	PLANNING ISSUE	OJ
Rev	Date	Description	By

Amendments
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Project	GRAVEN HILL, BICESTER
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Title	<p>LANDSCAPE WORKS</p> <p>PHASE 1b</p> <p>LANDSCAPE CROSS SECTION</p>
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Client



Graven Hill Village Development Company Limited



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Drawing Status	PLANNING
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Designed by	LB/TA	Checked by	LB/TA	Project No <b>13522</b>
Drawn by	QJ	Date	NOVEMBER 2017	

Scales @ A1 work to figured dimensions only	1:150	Work Order No 100
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Publisher	Zone	Category	Number	Revision

WIE	AA	74	4000	A01
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