

Mace

HMP Werrington Solar Farm

Landscape opinion

Final report

Prepared by LUC
November 2021



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Project Number
11357

Version	Status	Prepared	Checked	Approved	Date
1.	Draft report	I King	L Jewitt	K Davies	22.03.2021
2.	Final report	I King		K Davies	23.03.2021
3.	Final report v2	I King		K Davies	03.11.2021

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Chapter 1

Introduction

1.1 LUC was commissioned by Mace in December 2020 to provide advice on landscape and visual issues in relation to a proposed ground mounted solar farm on a site located within HMP Werrington.

1.2 This report provides a high-level appraisal of the likely changes to landscape and visual amenity associated with the proposed development on the site and its surroundings. The output consists of a short report summarising the process and findings of the assessment and draws broad conclusions on the potential effect from the development proposal.

Methodology

Task 1: Data gathering

1.3 This included collating readily available information on the landscape and visual receptors around each proposed site, including Landscape Character Assessments available from local council online information sources, landscape designations from Natural England's Magic mapping, Ordnance Survey mapping, aerial and street view mapping.

Task 2: Baseline reporting

1.4 This includes setting out the landscape and visual baseline of the study area, against which the proposals will be assessed.

Task 3: Summary of potential effects

1.5 This includes an appraisal of the impact of the solar PV panels and associated infrastructure on:

- landscape character; and
- views and visual amenity experienced by people, particularly local communities and recreational areas and routes.

The report highlights the main landscape and visual issues likely to be encountered and each site is given a rating using a 'traffic light' approach to categorise the likely level of potential unmitigated effects on landscape and visual amenity in relation to the proposed development as follows:

Table 1.1: Potential level of effects on landscape and visual amenity

	Major likely to have major effects on landscape and/or visual amenity
	Moderate may have moderate effects on landscape and/or visual amenity
	Minor likely to have minor effects on landscape and/or visual amenity

1.6 If moderate or major effects are anticipated, then a description of proposed mitigation measures will be included in order to avoid, reduce or offset any potential effects and any residual effects on landscape and visual amenity assessed.

Task 4: Reporting

The remainder of the report is set out below:

- **Chapter 2** sets out a description of the development;
- **Chapter 3** sets out the landscape and visual baseline;
- **Chapter 4** sets out the assessment of the potential landscape and visual effects;
- **Chapter 5** summaries the issues and potential effects.

Limitations of this report

1.7 The assessment is based on an indicative location and design of the solar PV panels and associated infrastructure only. Therefore, only 'in principle' potential issues can be highlighted.

1.8 The work in this report is based entirely on desk review of information. No site visits have been undertaken at this stage.

1.9 The scope of the brief at this stage is only to identify high-level issues in relation to the landscape and visual amenity of the study area. If a more detailed assessment is required, this will be carried out at a later stage.

Chapter 2

Description of the development

HMP Werrington proposed ground mounted PV generation system

Typical Ground Mounted PV Panel Installation

2.1 A ground mounted PV generation system is proposed for HMP Werrington. Generation capacity has been sized for no export of power, with HMP Werrington consuming all energy generated.

2.2 The panels shall be mounted in a portrait configuration, 2 modules on top of each other in groups of 20 panels, facing south. Work angle to be between 20 and 35 degrees. Minimum row separation to be 4 meters. The top of the PV panels in this configuration will be less than 3 meters above ground level.

2.3 The inverters and AC and DC isolators shall be located on a concrete base within the location of the solar panels. A feeder pillar shall be located next to the inverters, housing a distribution board and other electrical switchgear to allow for a single SWA cable connection to the site's main switchboard. The AC SWA cable shall run from the PV generation distribution board to the site's main switchboard underground directly laid on the ground in the soft and in a duct where crossing roads or passing under footpaths, fences, etc.

2.4 On the ground, DC string cables from the solar panels to the inverters shall be contained in dedicated cable trays mounted to the panels mounting system and running on the ground between rows. Load bearing covers shall be used on ground mounted containment. All DC string cables shall have polarised weatherproof connectors.

Access road, fencing & trenching

2.5 The fencing will be high welded mesh fencing to perimeter of the PV panel installation.

2.6 A gate and crossover for the access road will be located on the north-eastern corner edge of the site. A second gate will be located directly in front of the equipment switchgear. The access route will follow the route of an existing farm track.

2.7 A cable will be laid on the opposite side of the access path to the prison's security fence and connected to the main HMP Werrington switchboard.

Chapter 3

Landscape and visual baseline

3.1 This section describes the proposed development site (the site) and surrounding landscape and visual context, in terms of landscape character, designated landscapes, and the theoretical visibility of the proposed site.

3.2 The assessment has focused on landscape and visual receptors approximately within a 1km radius of the site (the study area), within which significant effects are considered most likely to occur in this landscape.

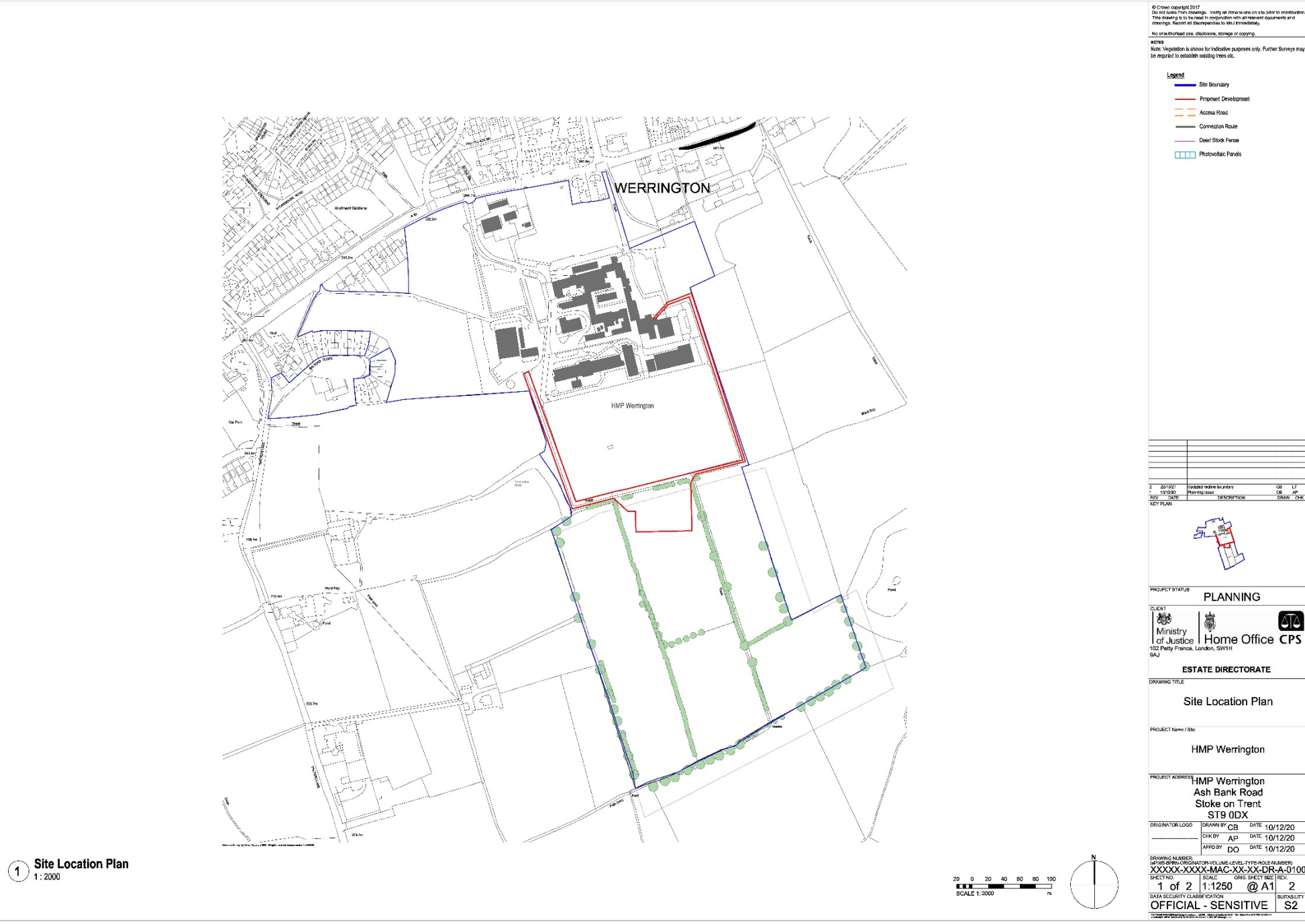
The landscape character of the site

3.3 The site lies 8km to the east of Stoke-On-Trent, on the southern settlement edge of the village of Werrington, south of the A52 Ash Bank Road. The site is located in within the Staffordshire Moorlands District, Staffordshire.

3.4 The proposed development site is located in the north of a small pasture field, directly south of the prison perimeter fence and approximately 150m to the south of the main prison buildings as shown in **Figure 3.1**.

3.5 It is situated at an elevation of around 235m AOD on a gentle south facing slope, but despite its elevated position, the site has a sense of enclosure due the small scale and regular pattern of the surrounding fields and enclosure provided by intact hedgerows and frequent hedgerow trees. A public footpath runs through an adjacent field around 50m east of the site, before crossing fields to the south on lower-lying land.

Figure 3.1: Site location



Landscape character surrounding the site

3.6 The site lies within the Potteries and Churnet Valley National Character Area (NCA 64).

3.7 The Staffordshire Moorlands Landscape Character Assessment identifies the site to be within the 'Settled plateau farmlands' Landscape Character Type¹ (LCT).

3.8 The key characteristics of Settled plateau farmlands LCT are:

- Open large-scale landscapes with extensive views from a rolling plateau;
- Low grade pasture farmland with overgrazed poorly drained fields with rushes and rough grass;
- Large scale regular and irregular field patterns with hedges and dry-stone walls;
- Hedges deteriorated to the extent that field boundaries marked by isolated trees, fencing and remnant thorn and holly;
- Some blocks of mature broadleaf woodland;
- Heathland;
- Parkland;
- Dispersed settlements;
- Developing urban fringe character due to proximity to Stoke-on-Trent; and
- Busy road network surrounds the area; railway line.

3.9 The Staffordshire Moorlands Landscape Character Assessment does not identify any sensitive viewpoints within this character type. However, it notes that the *Planning for Landscape Change Supplementary Planning Guidance to Staffordshire and Stoke on Trent Structure Plan*, identifies this landscape character area, the area south of Werrington as a landscape requiring regeneration.

3.10 Other LCTs located within the study area include the 'Ancient plateau farmlands' to the north of the Werrington and the site, the 'Ancient slope and valley farmlands' LCT to the north-east and the 'Dissected sandstone cloughs and valleys' LCT to the south of the A520 Leek Road. The 'Dissected sandstone cloughs and valleys' LCT, has not however been investigated within this study as only a small portion of this LCT was within the 1km study area and it does not have any direct influence on the site or its surroundings.

3.11 Key characteristics of the Ancient plateau farmlands LCT to the north include: Gentle undulating landform with some steep slopes;

- Heathland including wet heath with rushes and rough grasses;
- Drystone walls with remains of unmanaged hedgerows and isolated trees;
- Fields often demarcated by fencing;
- Dairy farming and horse grazing;
- Small woodlands, broadleaf and conifer;
- Isolated stone farmhouses and buildings converted to residential dwellings; and
- Electricity power lines and substation.

3.12 Key characteristics of the Ancient slope and valley farmlands LCT to the north-east include:

- Strongly undulating or sloping landscape cut by small scale steep sided stream valleys;
- Small scale mainly ancient irregular fields bounded by trees and hedgerows;
- Extensive views from higher ground;
- Intimate wooded valleys;
- Stone buildings and drystone walls towards uplands;
- Isolated properties;
- Narrow winding lanes;
- Parklands; and
- Quarrying.

3.13 The study area surrounding the site expresses some of the characteristics of these LCTs as follows:

- The study area is situated in an area of rolling landform with steep slopes, elevated above the surrounding landscape of cloughs and valleys to the south. This sloping landform is cut by a minor stream to the south-east.
- Fields within the study area tend to be large scale, identified by the national HLC to be of 19th Century to early 20th Century *Planned fields*. Although many in the study area (most notably to the south west) have a weakened field structure where hedgerow boundaries have been replaced with fencing. The site contrasts with the key characteristics of the LCT, lying within a small,

¹Staffordshire Moorlands District Landscape Character Assessment (2008),

regular pasture field enclosed by mature hedgerows containing frequent mature trees.

- Typical of its type, fields in the study area are pasture grazed, with many exhibiting signs of overgrazing and rough grass.
- Woodland is limited, except for a small area of remnant (non-designated) parkland at Foxearth², approximately 800m to the south-east of the site. Although, the parkland character here seems slightly degraded.
- Two parallel overhead power lines cross around 800m to the east of the site, with the pylons visually prominent in skylines throughout the local area.
- The prison buildings at H.M. Young Offender Institution Werrington are an incongruous feature of the local landscape with the large scale, white, or light grey-roofed buildings visually prominent from low-lying surrounding areas, as well as the village of Hulme around 1.7km to the south-west (beyond the study area).
- The study area retains its rural character but its location close to the settlement edge of Stoke-on-Trent results in a prevalence of busy transport routes and land used for horse pasture.
- As stated in the Settled plateau farmlands LCT, settlement in the study area is dispersed, limited to small towns, villages and hamlets such as Werrington, Cellarhead, Hulme and Foxearth as well as scattered individual farms.
- A network of public footpaths cross through the study area between farms and settlements.

Landscape Designations

3.14 The site does not lie within any national or local landscape designations.

3.15 Despite not being formally designated the landscape here is locally valued as an area of traditional rurality of the edge of urban development³

Visual baseline

3.16 The proposed site is visually contained by the surrounding hedgerow boundaries with mature hedgerow trees.

3.17 The study area has a slightly open character, owing to the sloping topography, with some degraded hedgerow boundaries or field boundaries replaced by fencing.

3.18 The existing prison buildings, the urban form of Werrington and the flattening of the landform on the edge of the plateau prevent the site from being visible from more elevated land to the north and north east. Views are therefore restricted to the houses on the settlement edge of Werrington (e.g. Salters Close around 450m to the north-west and those along the south side of the A52 Ash Bank Road) which may have glimpsed views.

3.19 A public footpath runs approximately 50m to the east of the proposed development site. Views into the site may be possible, over or between the one hedgerow boundary separating the site and footpath.

3.20 Other public footpaths which surround the site, include one ascending the slope to the south from Hulmerdale Farm, another to the west ascending the slope between Salthouse Farm and High Coppice Farm, and a third running across the slope from Salthouse Farm to the south-west of the site. From these footpaths, there may be more distant views towards the site, over or between hedgerow boundaries.

3.21 Despite being situated on a sloping landform, the site is not visually distinctive from roads on the lower-lying areas to the south, Salters Lane to the west or the A52 Ash Bank Road to the north as intervening hedgerow boundaries and some buildings screen views. There may be some glimpsed views of the site from eastern parts of the A52 as well as from the north-eastern extent of the A520 Leek Road over or between gaps in hedgerow boundaries. However, where present, these views would be distant, oblique and fleeting.

3.22 Several farms are situated in the surrounding agricultural land, including High Coppice Farm around 350m to the west, Upperhouse Farm around 300m to the south west, Hulmedale Farm around 550m to the south and Domain Farm around 650m to the south-east. There may be some glimpsed views from these properties between hedgerow boundaries to the site from these properties, however due to their distance and intervening vegetation this is unlikely.

Theoretical Visibility

3.23 Google Earth and Street View has been used to identify the theoretical visibility of the proposed site and indicative areas from where the proposed development may be visible. The position of the site on a sloping landform, may increase the distance in which the site is visible. Although, the nature and small scale of the proposed development combined with intervening features such as field boundary hedgerows would limit views to the site from the wider landscape. For these reasons, it is anticipated the proposed solar farm would be

² Waterhouses and Werrington Settlement Character Assessment (2008)

³ Wind Turbine Landscape Sensitivity Study For Staffordshire Moorlands District (2015)

relatively imperceptible from views beyond 2km. However, this is indicative only and has not been verified by site visits.

3.24 The key receptors with potential impacts are identified as:

- Users of public footpaths crossing fields to the south, east and west of the proposed development site.
- Residential receptors at surrounding farms including High Coppice Farm, Upperhouse Farm, Hulmedale Farm and Domain Farm.
- Residential receptors on the southern settlement edge of Werrington.
- Motorists using parts of the A52 to the north-east and the A520 Leek Road to the east.

Residential Visual Amenity

3.25 With regards to developments other than wind energy proposals, the Landscape Institute's Residential Visual Amenity Assessment (RVAA) Technical Guidance Note 2/19 states that "*...other development types including potentially very large but lower profile structures and developments such as road schemes and housing are unlikely to require RVAA, except potentially of properties in very close proximity (50-250m) to the development*".

3.26 No residential properties are situated within 50m of the proposed development site and therefore in terms of the RVAA none would be considered in 'close proximity' to the development.

Chapter 4

Landscape and visual constraints and mitigation opportunities

Potential effects

4.1 The following table sets out key landscape and visual receptors within the study area; provides commentary in relation to potential landscape and visual effects in relation to the proposed solar farm development; and provides a broad level of likely effect in accordance with the traffic light scoring system identified in the methodology.

Table 4.1: Ratings of potential unmitigated effects on landscape and visual amenity

Receptor	Commentary	Rating of potential unmitigated effects
	Likely Landscape effects	
Settled plateau farmlands LCT	The proposed development will result in unavoidable direct landscape effects through the change in land use from open farmland to a solar farm development, and the removal of vegetation to accommodate access tracks. However, these direct effects will be localised due to the small extent and height (3m) of the proposed solar development and surrounding high weld mesh fencing.	Minor
Ancient plateau farmlands LCT	There will be no direct landscape effects on the Ancient plateau farmlands LCT to the north, as the site will be screened by properties within Werrington.	Minor
Ancient slope and valley farmlands LCT	There will be no direct landscape effects on the Ancient slope and valley farmlands LCT to the north-east as the site will be screened by properties within Cellarhead.	Minor
Dissected sandstone cloughs and valleys LCT	There will be no direct landscape effects on the Dissected sandstone cloughs and valleys LCT to the south-east. There may be some very limited and distant views towards the site from more elevated parts on the edge of the LCT, including from the route of a public footpath south-west of Mount Pleasant where elevation reaches 280m AOD. However, these views are likely to be partially or totally screened by intervening vegetation. Indirect effects are therefore anticipated to be very limited.	Minor

Receptor	Commentary	Rating of potential unmitigated effects
	Likely Visual effects	
Residential receptors at High Coppice Farm (around 350m to the west) and Upperhouse Farm (around 300m to the south west) – high sensitivity	There may be glimpsed views of the proposed development from the residential properties at High Coppice Farm, which lies at a slightly higher elevation than the site (240m AOD) and Upperhouse Farm (230m AOD). However, vegetation surrounding the site and in field boundaries offers significant screening of the proposed development for these receptors, particularly in summer months when the trees are in leaf. Given the proximity of the receptors to the proposed development, there will be a minor change to the landscape within views, as the field will be overlaid by an array of PV panels. However, these changes will be seen in the context of the existing prison buildings and therefore it is unlikely to be more than a minor effect on visual amenity from these properties.	Minor
Residential receptors at Hulmedale Farm around 550m to the south and Domain Farm (around 650m to the south-east) – high sensitivity	There may be glimpsed views of the proposed development from the residential properties at Hulmedale Farm and Domain Farm, which lie at a lower elevation than the site (215m AOD). However, vegetation surrounding the site and in field boundaries offers significant screening of the proposed development for these receptors, particularly in summer months when the trees are in leaf. Given the proximity of the receptors to the proposed development, there will be a minor change to the landscape within views, as the field will be overlaid by an array of PV panels. However, these changes will be seen in the context of the existing prison buildings and therefore it is unlikely to be more than a minor effect on visual amenity from these properties	Minor
Residential receptors on the southern settlement edge of Werrington including properties along the southern side of the A52 Ash Bank Road – high sensitivity	There may be glimpsed and oblique views of the proposed development from second storey windows of residential properties on the settlement edge of Werrington which are situated at the top of the ridge, at a slightly higher elevation (between 240m AOD and 260m AOD) to the proposed site. However, vegetation surrounding the site and on field boundaries offers significant screening of the proposed development, particularly in summer months when the trees are in leaf. Given the proximity of the receptors to the proposed development, there will be a minor change to the landscape within views, as the field will be overlaid by an array of PV panels. However, these changes will be seen in the context of the existing prison buildings and therefore it is unlikely to be more than a minor effect on visual amenity from these properties.	Minor

Receptor	Commentary	Rating of potential unmitigated effects
Users of the public footpath, around 50m to the east of the site – high sensitivity	It is likely there will be filtered views of the proposed development from the public footpath situated around 50m to the east of the site, over the hedgerow boundary between gaps. Recreational receptors have a high sensitivity to change, however, these changes will be seen in the context of the large-scale prison buildings and the nature of the visual effect will diminish with distance from the site.	Moderate
Users of the public footpaths to the west of the site (between High Coppice Farm and Salthouse Farm) to the south of the site, ascending slopes from Hulmedale Farm and to the south-west from Salthouse Farm running east – high sensitivity	There may also be some more distant or glimpsed views to the site from footpaths in the local area. However, vegetation surrounding the site and in field boundaries offers significant screening of the proposed development for these receptors, particularly in summer months when the trees are in leaf. Where the development is visible it will be seen in the context of the existing prison buildings and therefore it is unlikely to be more than a minor effect on visual amenity.	Minor
Motorists using parts of the A52 to the north-east and the A520 Leek Road to the east - medium sensitivity	There may be very occasional glimpsed views of the proposed development through gaps in field boundaries when travelling along the A520 Leek Road to the east of the site or along A52 as it leaves Werrington to the north-east. However, these views if present would be distant and fleeting. Intervening field boundaries containing hedgerow trees and farms and their associated buildings, will limit views.	Minor

Chapter 5

Conclusions

5.1 The receptors at greatest risk of adverse effects from the proposed development are visual receptors in close proximity to the site. This includes users of the footpath to the east of the site, from which there may be a noticeable change to the landscape within views, however these changes will be seen in the context of the large-scale prison buildings.

Proposed mitigation

5.2 Potential moderate level of effects on visual receptors will be reduced to **minor** through appropriate mitigation. This includes:

- Existing mature hedgerow boundaries surrounding the site, which contribute towards mitigating effects by providing screening to the proposed development, will be retained.
- Additional hedgerow planting to the south of the proposed development will help integrate the PV panels and high weld fencing surrounding them, into the surrounding landscape.
- New tree planting along the existing boundary hedgerow to the east of the site will provide additional screening from the footpath which runs 50m to the east of the site. tree planting should use species which are common and characteristic of the area including beech, birch, oak and holly trees⁴.
- Existing grassland will be re-instated and land around the solar PV panels will be seeded with species-rich grassland.

Residual Effects

5.3 There will be an inevitable change to the external appearance of the field in which the solar farm is proposed. However, once the additional hedgerow and tree planting has established and begun to mature there will be no material change to the premises when viewed from outside the site.

⁴ Staffordshire Moorlands Landscape and Settlement Character Assessment (2008).