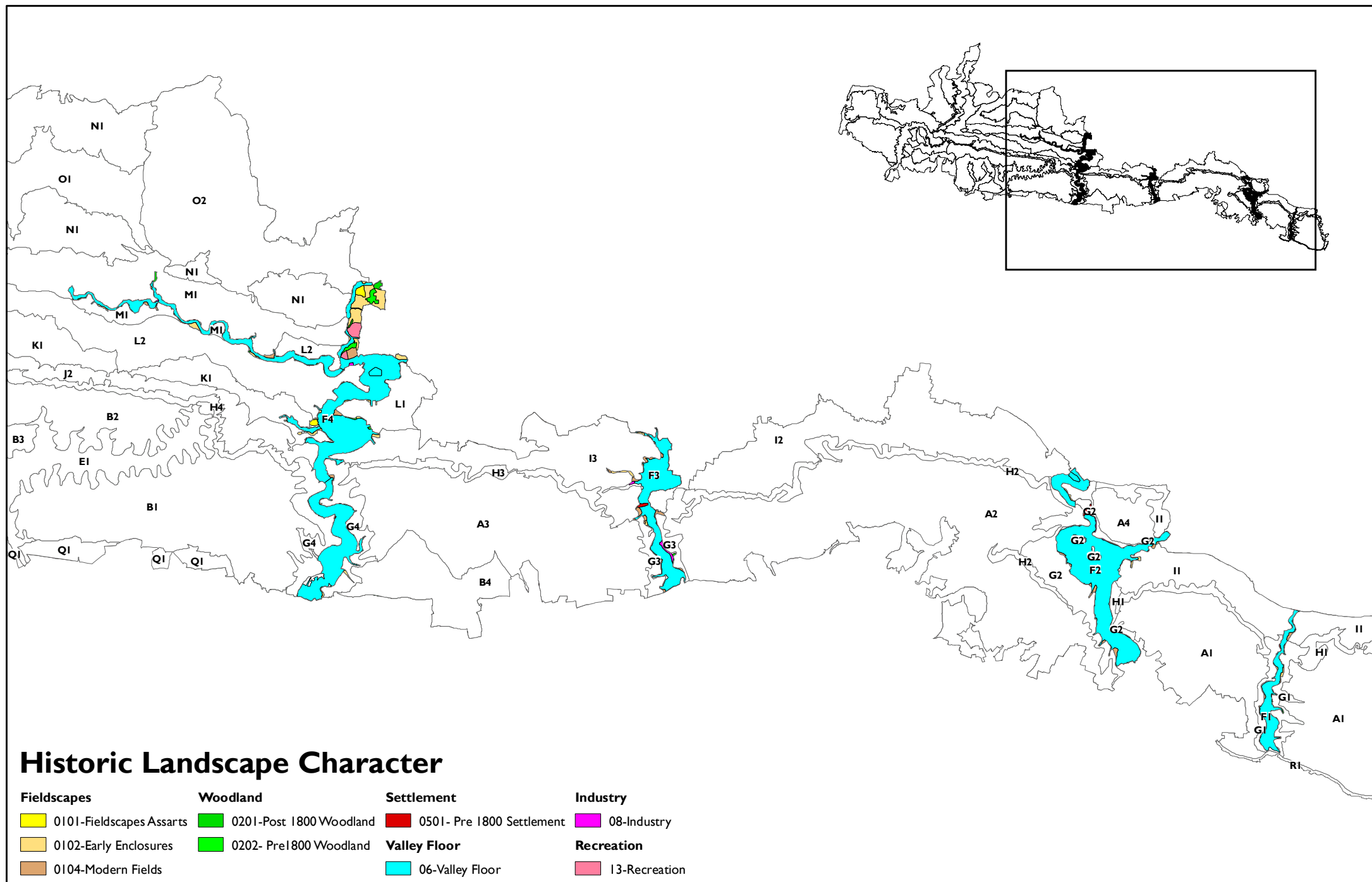


F: Major River Floodplains



F: Major River Floodplains

LANDSCAPE TYPE F: MAJOR RIVER FLOODPLAINS

- F.1 The *major river floodplains* are a distinct lowlying landscape type, in the eastern part of the South Downs. They form the base of valleys that have carved through the chalk uplands and contain rivers flowing towards the coast. They extend from the Arun in the west to the Cuckmere in the east. In addition, the Lower Rother, a tributary of the Arun, has been included in the landscape type.

DESCRIPTION

Integrated Key Characteristics:

- Wide flat valley floodplains forming the base of distinctive U shaped valleys cutting through the chalk - topographically and visually distinct from the sloping valley sides.
- The valleys have historically formed a natural link between the Weald, downland and sea.
- Rivers meander across the floodplains in broad loops. Some sections are embanked with artificially straightened courses. Historically the rivers were navigable.
- Extensive open valley floor, with long views, enclosed and contained by the rising valley sides. Tree and woodland cover frequently mark the edge of the floodplain.
- Land cover of rectilinear small scale grazed pastures, reclaimed from the former marshy margins of the river from the medieval period onwards.
- Remnant areas of wetland, reedbeds, fen, floodplain grassland and marsh – of high biodiversity interest and supporting large numbers of birds.
- Fields are bound by ditches and occasional hedgerows. Groups of willows and alders occur sporadically alongside the river and drainage channels.
- The Arun and Ouse Valley widen out to include a more extensive area of drained pastures and seasonally flooded water meadows – at Amberley Wild Brooks and the Lewes Brooks.
- Roads often mark the boundary of the flat floodplain and valley sides; railways occasionally on embankments within the floodplain.
- General absence of settlement on the floodplain, with small nucleated villages characterising the lower valley sides, with views to church spires being a distinctive feature. Occasionally larger settlements (often former ports) extend onto the valley floor, in lower reaches of the river.
- Important historic attributes include medieval bridges – and water management features including water meadows and mills.

- Away from transport corridors the valleys retain an unspoilt and tranquil pastoral character.

Physical Landscape

- F.2 The *Major River Floodplains* form the valley floors of the large U-shaped valleys that cut through the eastern part of the South Downs. The landscape type also includes the extensive floodplains north of the chalk beds where the rivers have been unrestricted by landform and have formed a particularly extensive floodplains.
- F.3 The valley floors are underlain by a variety of bedrock – from mudstones in the north to Lower, Middle and Upper Chalk formations towards the south. However, it is the alluvial drift geology which creates the distinctive characteristics of the floodplain landscapes. River alluvial deposits give rise to stoneless clayey, fine and silty soils known as alluvial gley soils. The fluctuating water levels and the low lying nature of the floodplains (under 5m) result in periodic waterlogging. Despite the generally fertile nature of alluvial soils, the fluctuations in water table and waterlogging mean the valley floors are relatively poor in terms of their agricultural land capability and are therefore retained as permanent pasture. The floodplains are criss-crossed by regular man-made drainage ditches and winding tributaries, which subdivide the valley floors into small to medium sized irregular fields, often bordered by post and wire fences, reeds, scrub, or willow/alder trees. There are many areas of marshy ground and pools of water which include some large reed beds.
- F.4 The rivers are generally tidal in their lower reaches and meander across their floodplain between artificial floodbanks which often screen the river from view. There are typically artificially straightened sections of river and isolated meanders, or marshy depressions marking abandoned earlier courses of the river, in the floodplains.

Perceptual/Experiential Landscape

- F.5 This is a landscape of apparent large and expansive scale as a result of the flat landform, lack of vertical elements and far-reaching open views. Views are contained and channelled by the rising valley sides and wooded fringe of the floodplain. It is a simple and uniform landscape type as a result of the consistency in pasture land use. The artificial geometric drainage ditches and canalised sections of the rivers contrast with the natural dendritic tributary streams and large sweeping meanders.
- F.6 Despite the artificial nature of the drainage channels and canalised, embanked courses of the rivers, the floodplains tend to have a strong sense of tranquillity as a result of the low noise levels, pasture land use, infrequent crossing points, and absence of settlement or artificial lighting.
- F.7 There are typically few roads across the floodplain although roads and car parks along the adjacent valley sides provide access to the edges of the floodplain. Public rights of way are typically located along the top of the artificial floodbanks that border the rivers and these provide good access up and down the valley. In addition, there are opportunities for water sports on the rivers.
- F.8 John Ireland's music (1879-1962) was inspired by the landscapes of the South Downs including Amberley Wild Brooks which inspired a composition of the same name.

Constable (1776-1837) was drawn by the floodplain landscape – particularly in the Arun Valley where he painted Arundel Mill and Castle.

Biodiversity

- F.9 The floodplains of these major rivers and their associated alluvial soils support a rich and varied range of wetland habitats including riverine habitat, permanent pasture, water meadows, ditch systems and wet woodland. The river channels themselves also often support fringing willow and alders.
- F.10 Of particular note, are the extensive areas of the floodplain grazing marsh, which together with the ecologically rich ditch systems are of international value. Important sites include Amberley Wild Brooks SSSI, Pulborough Brooks SSSI, both part of the Arun Valley RAMSAR, and Lewes Brooks SSSI. As a whole these grazing marshes and associated wetland habitats, provide a key habitat for a range of wildfowl and over-wintering birds, including nationally important numbers of Bewicks swan and ruff, as well as large numbers of teal, shoveler, wigeon, pintail, lapwing, and mute swan.
- F.11 Aside from their ornithological importance, these floodplain grasslands and marshes also support a number of notable plant species, for example cut grass *Leersia oryzoides*, a plant that is restricted to ten UK locations, and the nationally vulnerable true fox sedge *Carex vulpina*. The ditches also support an important aquatic flora and are rich in invertebrate species.
- F.12 To the south, the Cuckmere and Adur floodplains support habitats that reflect a coastal influence, with nationally important sites such as the Adur Estuary SSSI, extending to the floodplain landscape.

Key Biodiversity Features	Importance
Extensive floodplain habitat, including riverine habitat, permanent pasture, water meadows, ditch systems and wet woodland	<ul style="list-style-type: none"> Nationally important grazing marsh and ditches. The area supports internationally important bird populations, and a number of notable plant species.
Fringing riverside tree	<ul style="list-style-type: none"> Fringing willow and alder provide important features along the river and ditch sides.
Habitats in close proximity to the coastal provide additional diversity	<ul style="list-style-type: none"> Areas of nationally important coastal sites occur within the floodplains.

Historic Character

- F.13 The *Major River Floodplains* have formed natural links between the Weald, downland and sea from the earliest prehistoric periods up to the present day. Numerous finds of Palaeolithic and Mesolithic artefacts have been discovered along the valleys testifying to the passage of hunting bands. The rivers would have once flowed in much larger channels and the alluvial floodplains, although very fertile, were also narrow and vulnerable to flooding, rendering them unsuitable for prehistoric and later settlement and arable agriculture. It is likely that the rich meadows may have

been used for pasture by communities situated on the higher land to either side of the rivers.

- F.14 By the medieval period, the floodplains formed an integral part of a medieval agrarian landscape based on the villages located along the lower slopes of the valleys, and utilising a wide range of resources. The villages were typically surrounded by open fields, with woodland and downland pastures towards the extremities of the parishes. The rich meadowlands on the floodplains would have been an important component in this integrated mixed farming regime.
- F.15 The rivers would have been important routeways from prehistory onwards, and remained navigable until well after the medieval period. Some settlements on the valley sides remained in use as small river ports into the 20th century. Post-medieval changes, including the gradual silting up of the rivers and the competing demands of other interests such as fisheries and the creation of water meadows, reduced the ability of the rivers to support waterborne trade.
- F.16 The floodplains are now occupied by a series of enclosed fields, reclaimed from the former marshy margins of the rivers from the medieval period onwards, and bounded by ditches and occasional hedgerows. Regular systems of watermeadows are evident together with a number of archaeological features characteristic of flood plains, including bridges, weirs and mills.

Key Features of the Historic Environment	Importance
Absence of settlement	Evidence of the unsuitability of the floodplain for settlement.
Remnant features relating to water management and agricultural/industrial use of the river including watermeadows, bridges, weirs and mills	Evidence of the importance of the river and its margins in the local economy throughout history.

Settlement Form and Built Character

- F.17 The *major river floodplains* are notable for their absence of settlement. Built structures are small scale and comprise individual buildings such as mills and pumping stations, and other structures such as bridges and weirs.
- F.18 Building materials are typically red brick, concrete, timber and clay tiles.

EVALUATION

Sensitivity

- F.19 This landscape type has many sensitive natural, cultural and aesthetic/perceptual features that are vulnerable to change. Key landscape sensitivities include:
- The flat, open and undeveloped character of the valley floors, which are particularly vulnerable to introduction of built elements, particularly large scale linear/vertical developments such as transmission lines or changes/extensions to development on the valley sides.

- The remnant meandering, natural channels of the rivers and the natural dendritic tributary streams that provide a sense of naturalness in an otherwise regimented pattern of artificial drainage channels.
- The unified pastoral character of the floodplains, which are vulnerable to changes in land use and management including the introduction of horse paddocks.
- Riverside willows and alders which mark the courses of the rivers and contribute to the biodiversity of the floodplain landscapes.
- Natural floodplain habitats such as ponds, reedbeds, meadows, and grazing marsh, which contribute to the natural character of the floodplains and provide a rich biodiversity.
- Remnant watermeadows.
- The tranquillity of the floodplain arising from low noise levels, infrequent river crossing points, and absence of settlement or artificial lighting.

F.20 This flat and open nature of this landscape type means that it is particularly visually sensitive to change. In addition, the floodplains are highly visible from the adjacent settled valley sides and downs. This inter-visibility with adjacent landscapes enhances the visual sensitivity of the *Major River Floodplains*.

Change – Key Issues and Trends

Past Change

F.21 The most notable past change was the draining of the floodplains through artificial drainage channels and canalisation of sections of the river courses. Other past changes include:

- Reduction in waterborne trade during the post-medieval period as a result of the gradual silting up of the river, competing demands of other interests such as fisheries, and the creation of water meadows.
- Introduction of artificial drainage channels to enable agriculture on the floodplain.
- More recently the sea has begun to regularly overtop the flood banks of the lower reaches of the rivers.

Future Landscape Change

F.22 In the short term (5 years) it is likely that there will continue to be damage to floodbanks along the lower reaches of the rivers. Maintaining the flood defences at their current height is not a long term sustainable option in the light of sea level rises and more frequent and fiercer storms as a result of climate change.

Climate Change: One impact of climate change will be the effect on the wet woodland, watermeadows, and grazing marsh where drier, warmer summers may reduce damp conditions needed for the survival of these habitats. Drying of the floodplains in summer could result in replacement of pasture with dry grassland species. On the other hand, increases in water levels related to sea level rises, and

increases in winter precipitation, may result in further breaching of river floodbanks and increased flooding. In the past engineered responses such as building up of flood embankments and walls has adversely affected the open character of the floodplain landscape and there may be a future opportunity to reverse these changes. It could also mean that new developments, which are currently outside the flood risk area, could be at risk of flooding in the future, requiring a clear balancing of priorities. Increased temperatures may also result in more prolific vegetation growth within rivers and on banks. Increased rainfall could mean soil erosion in adjacent downland areas could have knock-on effects on water quality within the rivers.

In response to climate change, areas of drier land may be under pressure for growth of biomass crops. While *Miscanthus* and willow plantations could, in theory, blend with the character of the floodplains' reed beds and wet woodlands, it is important that crops such as these do not adversely affect the fundamentally open and pastoral character of the floodplains.

Agricultural Change and Land Management: Agricultural management will be driven by the changes in the world market and the CAP. In this floodplain landscape, where soils are seasonally waterlogged, it is possible that marginal farms may cease grazing - the land is already suffering as a result of under grazing. In addition to lack of management, there may be further pressures for introduction of horse paddocks, which may affect their open rural character.

Pollution from agriculture is seen as one of the biggest challenges to meeting the requirements of the Water Framework Directive. The correct implementation of existing legislation will, in the future, have a major role to play in ensuring high water quality.

Development: The floodplains are characterised by the absence of development - any development within the floodplains or lower valley sides could be at increased flood risk as a result of changes in future water flows and flooding patterns.

Broad Management Objective and Landscape Guidelines

- F.23 **The overall management objective should be to conserve the tranquil, pastoral, undeveloped character of the floodplains and to support opportunities to increase natural floodplain habitats such as grassland, reedbeds, watermeadows, and grazing marsh.**

Landscape Management Considerations

- Conserve the meandering, tranquil character of the rivers and, where practical, explore opportunities to restore a more natural character by removal of floodbanks to enable seasonal flooding and open up views of the river.
- Ensure that solutions to flood management are compatible with the character of the floodplains. Provision of flood storage, flood relief channels, and increased channel maintenance are preferable to building up of flood embankments and walls in these open landscapes.
- Encourage seasonal grazing to maintain the pastoral character of the floodplains.

- Ensure sympathetic integration of horse paddocks.
- Conserve the natural dendritic tributary streams which provide a sense of naturalness to an otherwise regimented pattern of artificial drainage channels. Continue to manage all drainage ditches and allow buffer zones alongside the ditches to enhance biodiversity.
- Conserve and extend characteristic floodplain habitats such as riverside willows and alders, reedbeds, unimproved meadows, and grazing marsh, which contribute to the natural character of the floodplain. Consider using flood relief schemes to enhance landscape character by re-creating and extending areas of flood meadows.
- Conserve remnant historic water meadow systems which are of historic and archaeological interest as well as ecological value.
- Monitor the impact of climate change on riverside trees, wetland scrub, flood meadows, and grazing marsh.
- Monitor water quality in the rivers. Seek to minimise water pollution from agriculture through the CAP cross-compliance rules and support for the production of Nutrient, Manure and Crop Protection Management Plans. Seek to restore a buffer strip along margins of watercourses to limit run off.
- Ensure future pressures for biomass crops (such as *Miscanthus* and willow plantations) do not adversely affect the fundamentally open and pastoral character of the floodplains.

Development Considerations

- Conserve the tranquil, pastoral and undeveloped character of the floodplains.
- Conserve historic built structures associated with the river – mills, weirs, bridges etc.
- The floodplains are generally unsuitable for any built development. Any development in the floodplains could both increase flood risk and itself be at risk of flooding.
- Consider views to and from the adjacent valley sides and higher downland downs in relation to any change.

Character Areas

There are four *Major River Floodplains* in the South Downs. These are all located within the valley bottoms of the large U shaped valleys that cut through the eastern half of the South Downs.

F1:	Cuckmere Floodplain
F2:	Ouse Floodplain
F3:	Adur Floodplain
F4:	Arun and Lower Rother Floodplain

FI: CUCKMERE FLOODPLAIN

Location and Boundaries

- FI.1 *The Cuckmere Floodplain* occupies the flat valley floor of the Cuckmere Valley, the easternmost of the wide gaps that cut through the South Downs. It extends to the designated National Park boundary to the north and south represented by the A27(T) and the coastal edge, respectively. The boundaries of the floodplain are clearly defined by the break of slope between the flat floodplain and rising valley sides. This boundary also coincides with the extent of underlying river alluvium. The Cuckmere floodplain is relatively narrow, with greater enclosure and containment compared to those of the wider valleys of the Adur, Ouse and Arun.

Integrated Key Characteristics:

- Flat valley floor of the large U-shaped Cuckmere Valley.
- A landscape of apparent large and expansive scale as a result of the flat landform, consistent pasture land cover, lack of vertical elements and far-reaching views across the open floodplain. Views are contained by the valley sides.
- Contains the meandering course of the tidal Cuckmere River which flows between artificial flood banks supporting a number of fringing willow and alders. Public rights of way provide public access along the tops of the floodbanks.
- Periodically waterlogged silty soils support permanent pasture, within fields reclaimed from the marshy margins of the River Cuckmere, giving the floodplain a lush, pastoral character and of high biodiversity interest.
- Fields are bound by ditches and occasional hedgerows. Groups of willows and alders occur sporadically alongside the river and drainage channels which are important ecological features.
- The floodplain is etched by contrasting patterns of natural dendritic tributary streams and artificial geometric drainage ditches.
- Extensive floodplain habitat, including grazing marsh, ponds and reedbeds. An extensive and well-preserved system of watermeadows and grazing marsh survive at Cuckmere Haven.
- Notable for the absence of settlement, with built development confined to occasional bridges, weirs, mills and pumping stations. A well-preserved system of anti-invasion defences, including pillboxes, anti-tank walls and an anti-tank ditch exist at Cuckmere Haven.
- The absence of woodland and generally low incidence of trees results in an open landscape with extensive, open views across the floodplain. Views are contained by the rising slopes of the valley sides and the strong wooded edge to the floodplain.

- A tranquil landscape as a result of the low noise levels, few roads, infrequent crossing points, and absence of settlement or artificial lighting.

Specific Characteristics Unique to the Cuckmere Floodplain

- FI.2 The physical characteristics of this landscape character area are generally typical of its landscape type, exhibiting a flat valley floor prone to periodic waterlogging with land predominantly in permanent pasture.
- FI.3 The floodplain contains the tidal River Cuckmere which, typical of the rivers in the *Major River Floodplains*, meanders across the floodplain between artificial floodbanks which screens the river from view. The Cuckmere is artificially straightened south of Exceat Bridge, leaving a large isolated meander in the floodplain which is now part of the Seven Sisters Country Park. Downstream of this the river follows its original course through Cuckmere Haven - to the west of the river lies lowland meadow and to the east lies coastal floodplain and grazing marsh, both habitats that are typical of the landscape type albeit relatively rare. This forms part of the Seaford to Beachy Head SSSI, a nationally important site which extends outside the floodplain to the east, stretching out along the Sussex coast to Beachy Head.
- FI.4 The area is characterised by a rich and varied range of wetland habitats, especially in its broader low reaches where the ecological character reflects its coastal influence. The majority of the floodplain comprises permanent pasture grassland, which together with regular ditches and drains support an interesting flora, including the critically endangered red star-thistle *Centaurea calcitropa*. The river channel itself is largely canalised and tidal inundation of the floodplain is not common. However the channel has retained its meandering course and its banks together with associated ditches support a number of fringing willow and alders.
- FI.5 The *Cuckmere Floodplain* has a strong sense of tranquillity as a result of the low noise levels, pasture land use, infrequent crossing points, and absence of settlement or artificial lighting. Most notable in terms of access are the public rights of way along the top of the artificial floodbanks that border the river, extending from Alfriston in the north to Cuckmere Haven at the entrance to the sea. The South Downs Way national trail follows the eastern floodbank of the river between Alfriston and Litlington. In addition, there are opportunities for canoeing and cycling within Seven Sisters Country Park.
- FI.6 The Cuckmere River was an important routeway from prehistory onwards - Alfriston, on the valley side, is notable for its historic use as a small river port into the 20th century.
- FI.7 The Cuckmere floodplain contains a particularly extensive and well-preserved system of watermeadows at Cuckmere Haven. Other historic features unique to this character area are a well-preserved system of anti-invasion defences, including pillboxes, anti-tank walls and an anti-tank ditch at Cuckmere Haven, together with remains of the industrial history of the valley, including remnants of a former light railway associated with chalk quarrying.
- FI.8 The floodplain is typical of its type, being notable for the absence of settlement.

Sensitivities Specific to the Cuckmere Floodplain

- FI.9 All of the landscape and visual sensitivities listed in the landscape type evaluation apply to this character area. Specific to this character area are:
- Nationally important grazing marsh and associated habitats that form part of the Seaford to Beachy Head SSSI.
 - Extensive and well-preserved system of watermeadows at Cuckmere Haven.
 - Well-preserved, and historically important, system of anti-invasion defences, including pillboxes, anti-tank walls and an anti-tank ditch, at Cuckmere Haven.
 - Remains of the industrial history of the valley, including remnants of a former light railway associated with chalk quarrying.

Change Specific to the Cuckmere Floodplain

- FI.10 In addition to the generic changes listed in the landscape type evaluation, specific changes to this area include the artificial straightening of the Cuckmere south of Exceat Bridge in the nineteenth century to facilitate drainage.
- FI.11 Since the Cuckmere is the only river which reaches the sea within the study area, breaching of the sea flood defences is a key future issue in this floodplain. Maintaining the defences within the Cuckmere Valley at their current height is not a long term sustainable option in the light of sea level rises and more frequent and fiercer storms as a result of climate change. There are current plans to re-create intertidal habitats at Cuckmere Haven, within the Seven Sisters Country Park, as part of the 'Cuckmere Estuary Restoration Project'. This will involve flooding to transform areas of pasture into saltmarsh with creeks and areas of inter-tidal mudflat that will act as natural defences to further storm events.

Landscape Management/Development Considerations Specific to the Cuckmere Floodplain

- FI.12 In addition to the generic landscape management and development considerations for this landscape type, the following landscape management considerations are specific to this character area:
- Conserve the extensive and well-preserved system of watermeadows at Cuckmere Haven.
 - Conserve the well-preserved, and historically important, system of anti-invasion defences, including pillboxes, anti-tank walls and an anti-tank ditch, at Cuckmere Haven.
 - Support plans to re-create intertidal habitats and transformation of areas of pasture into saltmarsh with creeks and areas of inter-tidal mudflat that will act as natural defences to future storm events.
 - Celebrate the industrial history of the valley, including preserving remnants of a former light railway associated with chalk quarrying and providing interpretation.



Footpaths along the river banks provide opportunities for recreational use.



An absence of settlement and built form on the floodplain.



A landscape of apparently large and expansive scale as a result of the flat form and consistent landuse.



The river meanders across the floodplain in broad loops.



The floodplain is etched by artificial geometric drainage ditches.



Away from transport corridors the floodplain retains a tranquil, unspoilt character.

F2: OUSE FLOODPLAIN

Location and Boundaries

- F2.1 The *Ouse Floodplain* occupies the flat valley floor of the Ouse Valley, a particularly wide valley that cuts through the South Downs between Lewes and Newhaven. The eastern and western boundaries of the floodplain are clearly defined by the break of slope between the flat floodplain and rising valley sides. These boundaries also coincide with the extent of underlying river alluvium. The *Ouse Floodplain* continues beyond the boundary of the designated National Park northwards, into the Low Weald, and southwards, to meet the sea at Newhaven.

Integrated Key Characteristics:

- Flat valley floor of the large U-shaped Ouse Valley occupying the wide gap cut into the open chalk downs between Lewes and Newhaven. Small elevated 'islands' at Upper Rise and The Brooks.
- A landscape of apparent large and expansive scale as a result of the flat landform, consistent pasture land cover, lack of vertical elements and far-reaching views across the open floodplain. Views are contained by the valley sides.
- Contains the meandering course of the tidal River Ouse which flows between artificial flood banks. Public rights of way provide public access along the tops of the floodbanks.
- Artificially straightened sections of river associated with industrial history – including the paper industry and chalk quarrying.
- Periodically waterlogged silty soils support permanent pasture, within fields reclaimed from the floodplain, giving the floodplain a lush, pastoral character and supporting an important ecological flora.
- The floodplain is etched by a geometric grid of narrow channels ('wet fences') which divide pastures.
- Groups of willows and alders occur sporadically alongside the river and drainage channels providing important visual and ecological features.
- Lewes Brooks is a distinctive area where ditch systems and wet grasslands have a particularly rich flora and attract nationally important populations of winter birds.
- Mostly absent of settlement, with the exception of the ancient ford settlement of Cliffe, and settlement on the edge of the former port of Lewes.
- The absence of woodland and generally low incidence of trees results in a large scale, open landscape with extensive views across the floodplain.
- Tranquillity affected by proximity of built development, trains on the mainline railway and traffic on the A27 (T) that crosses the floodplain.

Specific Characteristics Unique to the Ouse Floodplain

- F2.2 The physical characteristics of this landscape character area are generally typical of its landscape type, exhibiting a flat valley floor prone to periodic waterlogging with land use predominantly permanent pasture. This character area is particularly notable for its extremely wide floodplain at the convergence of the Glynde and Ouse. During the 16th century, this area was a shallow lake for much of the year, until drainage was introduced in the 18th century. Small 'islands' at Upper Rise and The Brooks are the remnants of the eroded chalk uplands.
- F2.3 The extensive low-lying floodplain contains a number of ecologically rich wetland areas, including Lewes Brooks SSSI and Offham Marshes SSSI. These wetland sites are particularly notable for their ditch systems and wet grasslands, and have an especially rich aquatic flora, and support a number of notable invertebrate species. Beddingham Grazing Marsh and Glynde Reach is also of provides a further example of a wetland site of particular ecological interest as reflected in its designation as a SNCI.
- F2.4 The Ouse Floodplain's tranquil character is affected on its edges by urban development (including the former port of Lewes), major roads (including the A27), the mainline railway, sewage works and transmission lines which all contribute to the perception of a busy landscape. However, for many centuries the Ouse was a major transport route for Lewes's businesses and there has historically been a significant amount of activity in the river floodplain.
- F2.5 Most notable in terms of access today are the public rights of way along the top of the artificial floodbanks that border the river, extending from Lewes to Newhaven. The South Downs Way national trail crosses the valley at Southease providing access from the station to the surrounding downs.
- F2.6 This character area is dominated by a series of enclosed fields that are now subject to modern farming, but a small portion of the traditional landscape of grassland meadows and wet woodland survives at the Railway Land nature reserve in Lewes. Remnant systems of watermeadows are also evident. Evidence of the industrial history of the valley survives north of Lewes, where the channels around the Papermill Cut served both the paper industry and chalk quarrying.
- F2.7 The *Ouse Floodplain* is different from other *major river floodplains* in that it contains a number of areas of settlement – including the historic village of Cliffe, which developed as an ancient ford, and The Brooks Industrial Estate. Lewes is a former port, positioned at the junction between the Downs and Weald.

Sensitivities Specific to the Ouse Floodplain

- F2.8 All of the landscape and visual sensitivities listed in the landscape type evaluation apply to this character area. Specific to this character area are:
- Lewes Brooks where ditch systems and wet grasslands have a particularly rich flora and attract nationally important populations of winter birds;
 - The area of grassland meadows and wet woodland at the Railway Land nature reserve in Lewes.

- Remains of the industrial history of the valley, including the channels around the Papermill Cut which served both the paper industry and chalk quarrying.

Change Specific to the Ouse Floodplain

- F2.9 In addition to the generic changes listed in the landscape type evaluation, specific changes to this area include the introduction of the mainline railway in 1846. Other more recent changes include the introduction of transmission lines into the floodplain, the building of the A27 across the floodplain south of Lewes, and new built development within the floodplain on the outskirts of Lewes (including The Brooks Industrial Estate and the Fujitsu offices).
- F2.10 Future change is likely to see more frequent flooding, affecting the historic settlement of Cliffe and Lewes as well as other more recent development in the floodplain.

Landscape Management/Development Considerations Specific to the Ouse Floodplain

- F2.11 In addition to the generic landscape management and development considerations for this landscape type, the following landscape management considerations are specific to this character area:
- Conserve and enhance the tranquil character and habitats of Lewes Brooks whose ditch systems and wet grasslands which have a particularly rich flora and attract nationally important populations of winter birds.
 - Conserve, and expand the traditional landscape of grassland meadows and wet woodland on the floodplain.
 - Promote new habitat creation and enhancement as part of managed retreat and flood management regimes.
 - Celebrate the industrial history of the valley, preserving the channels which served both the paper industry and chalk quarrying, and consider providing interpretation.
- F2.12 The following development considerations are specific to this character area:
- Ensure that solutions to flood management, particularly in relation to Cliffe, are sustainable in the long term and compatible with the character of the floodplain.
 - Limit further development in the floodplain - any development in the floodplain could both increase flood risk and be at risk of flooding.



The wide valley of the Ouse cuts through the chalk.



The absence of woodland and generally low incidence of trees, results in a large scale, open landscape.



Artificially straightened sections of the river's course are associated with its industrial history.



The historic village of Cliffe developed around an ancient ford.



Although the landscape has a generally pastoral character, there are blocks of arable cultivation.



Mallings Industrial Estate is a new area of built development on the floodplain at Lewes.

F3: ADUR FLOODPLAIN

Location and Boundaries

- F3.1 The *Adur Floodplain* occupies the flat valley floor of the Adur Valley, a deep U shaped valley that cuts through the South Downs between Bramber and Old Shoreham. The eastern and western boundaries of the floodplain are clearly defined by the break of slope between the flat floodplain and rising valley sides. These boundaries also coincide with the extent of underlying river alluvium. The *Adur Floodplain* continues beyond the boundary of the designated National Park northwards into the Low Weald, and southwards, to Shoreham Harbour.

Integrated Key Characteristics:

- Flat valley floor of the deep U-shaped Adur Valley between Bramber (a former port) and Old Shoreham.
- A landscape of apparent large and expansive scale as a result of the flat landform, consistent pasture land cover, lack of vertical elements and far-reaching views across the open floodplain. Views are contained by the valley sides.
- Contains the meandering course of the tidal River Adur which flows between artificial flood banks. Public rights of way provide access along the tops of the floodbanks.
- Saltern mounds provide evidence of the medieval salt-extraction industry.
- Periodically waterlogged silty soils support permanent pasture, within fields reclaimed from the floodplain, giving the floodplain a lush, pastoral character and supporting an important ecological flora.
- Groups of willows and alders occur sporadically alongside the river and drainage channels providing important visual and ecological features.
- A large area of water meadows and wet woodland survives north of Bramber.
- A small area of the Adur Estuary (designated as a SSSI) extends into the character area, supporting ecologically important saltmarsh and intertidal mudflats, of high value to wading birds.
- Typically absent of settlement, with the exception of the ancient settlement of Beeding (a medieval port).
- The absence of woodland and generally low incidence of trees results in a large scale, open landscape with extensive views across the floodplain.
- Tranquillity affected by proximity of built development on the valley sides, the A283 and A27.
- Views to the landmarks of Bramber Castle and Lancing College on the adjacent valley sides – Lancing College is a particularly distinctive building at the ‘entrance’ to the Adur valley.

Specific Characteristics Unique to the Adur Floodplain

- F3.2 The physical characteristics of this landscape character area are generally typical of its landscape type, exhibiting a flat valley floor prone to periodic waterlogging with land use predominantly permanent pasture. This character area is particularly notable for its salt extraction industry – this was a major industry in the valley throughout the medieval period, with salt extracted from tidal marshland, and is mentioned in the Domesday Survey. Evidence of the medieval salt-extraction industry survives in various places along the floodplain today as saltern mounds.
- F3.3 The *Adur Floodplain's* tranquil character is affected by the proximity of urban development (at Steyning and Upper Beeding), a major chalk quarry and cement works (Shoreham Cement Works), major roads (including the A283 and A27), and transmission lines. Many of these are located in adjacent character areas, but affect the perception of the landscape of the floodplain.
- F3.4 Most notable in terms of access today are the public rights of way along the top of the artificial floodbanks that border the river, extending from the Low Weald to Shoreham. A Sustrans cycle route (no. 79) runs along the eastern bank of the River Adur. The South Downs Way national trail crosses the Adur and follows the 'Downs Link' (a dismantled railway that now links the North Downs and South Downs) to Steyning.
- F3.5 This character area is dominated by a series of enclosed fields that are now subject to modern farming, but a large area of the traditional landscape of water meadows and wet woodland survives north of Bramber – this area is designated as the River Adur Water Meadows & Wyckham Wood SNCI. To the south, are small areas of saltmarsh and tidal mudflats along the bank of the river – these habitats form part of the Adur Estuary SSSI.
- F3.6 The *Adur Floodplain* is typical of the *major river floodplains* in that settlement is generally absent. The only built development is at Beeding Bridge where St Mary's House (an outstanding medieval house c.1470) is located close to the old port of Steyning (which itself is located in the adjacent *Scarp Footslopes* landscape type).

Sensitivities Specific to the Adur Floodplain

- F3.7 All of the landscape and visual sensitivities listed in the landscape type evaluation apply to this character area. Specific to this character area are:
- Traditional water meadows and wet woodland habitats, for example those within the open floodplain north of Bramber.
 - The small areas of saltmarsh and tidal mudflats along the banks of the river that form part of the Adur Estuary SSSI.
 - Saltern mounds which provide evidence of the medieval salt-extraction industry survives.
 - The medieval settlement at Beeding Bridge associated with the old port of Steyning.

- Impressive views of the landmarks of Bramber Castle and Lancing College would be sensitive to change.

Change Specific to the Adur Floodplain

- F3.8 In addition to the generic changes listed in the landscape type evaluation, specific changes to this area include the creation of the 'Downs Link' along the dismantled railway line, the introduction of transmission lines into the floodplain and the building of the A27 and its elevated junction with the A283.
- F3.9 Drier, warmer summers may affect the wet woodland, watermeadows, and grazing marsh habitats of the open floodplain, for example north of Bramber. There could also be flood risk issues associated with medieval settlement at Beeding Bridge – properties which are currently outside the flood risk area could be at risk of flooding in the future, requiring a clear balancing of priorities. The saltern mounds could be at risk from ploughing, encroachment by woody scrub, or sea-level rise which could bury them beneath silt.

Landscape Management/Development Considerations Specific to the Adur Floodplain

- F3.10 In addition to the generic landscape management and development considerations for this landscape type, the following landscape management considerations are specific to this character area:
- Conserve, and expand the traditional landscape of grassland meadows and wet woodland on the floodplain, particularly linking to the area north of Bramber.
 - Celebrate the industrial history of the valley and conserve the saltern mounds and their settings which provide evidence of the medieval salt-extraction industry. Avoid ploughing or and protect from encroachment by woody scrub to maintain them as visual features in the floodplain.
- F3.11 The following development considerations are specific to this character area:
- Ensure that solutions to flood management, particularly in relation to properties at Bramber Bridge, are sustainable in the long term and compatible with the character of the floodplain.
 - Limit further development in the floodplain - any development in the floodplain could both increase flood risk and be at risk of flooding.
 - Conserve views of the landmarks of Bramber Castle and Lancing College.



The meandering course of the River Adur.



In places, paddocks have subdivided the open floodplain.



Views to the landmark building of Lancing College forms a distinctive entrance to the Adur Valley.



The A283 and A27 both cross the river and detract from the sense of tranquility.



A major chalk quarry and cement works at Shoreham is a highly visible landscape feature.



The floodplain includes a network of tidal channels.

F4: ARUN AND LOWER ROTHER FLOODPLAINS

Location and Boundaries

- F4.1 The *Arun and Lower Rother Floodplains* are located on the flat valley floors of the Arun and its tributary - the lower Rother. The floodplain extends from the designated National Park boundary at Pallingham Manor in the north to Arundel in the south. The character area also includes the lower Rother floodplain up to Midhurst. The eastern and western boundaries of the floodplain are clearly defined by the break of slope between the flat floodplain and surrounding land - these boundaries also coincide with the extent of underlying river alluvium. The floodplain continues beyond the boundary of the designated National Park northwards into the Low Weald, and southwards, to Littlehampton and the sea.

Integrated Key Characteristics:

- Flat valley floor of the large U-shaped Arun Valley that forms a gap in the South Downs at Arundel, and including the floodplain of the Lower Rother up to Midhurst.
- A landscape of apparent large and expansive scale as a result of the flat landform, consistent pasture land cover, lack of vertical elements and far-reaching views across the open floodplain. Views are contained by the adjacent valley sides.
- Contains the meandering course of the tidal River Arun, which flows between artificial flood banks, and the lower reaches of the River Rother.
- Artificially straightened sections of river associated with an industrial history.
- Historic stone bridges across the River.
- Periodically waterlogged silty soils support permanent pasture, within fields reclaimed from the floodplain, giving the floodplain a lush, pastoral character and supporting an important ecological flora.
- The floodplain is etched by a geometric grid of narrow channels ('wet fences') which divide pastures.
- Groups of willows and alders occur sporadically alongside the river and drainage channels providing important visual and ecological features.
- Amberley Wild Brooks is an especially distinctive area where the ditch systems and wet grasslands have a particularly rich flora and attract nationally important populations of winter birds.
- General absence of settlement, with the exception of modern development on the edge of Arundel (a former port).
- The low incidence of woodland and trees results in a large scale, open landscape with extensive views across the floodplain.
- Impressive views to Arundel Castle at the 'mouth' of the valley.

Specific Characteristics Unique to the Arun and Lower Rother Floodplains

- F4.2 The physical characteristics of this landscape character area are generally typical of its landscape type, exhibiting a flat valley floor prone to periodic waterlogging with land use predominantly permanent pasture. The upper valley floodplains (i.e. the Arun north of Stopham Bridge and the Rother) are relatively narrow. However, south of Stopham Bridge the *Arun Floodplain* widens into an extensive valley floor where the river has carved into the Upper Greensand exposing a steep, minor cliff at Amberley. It is in this wide floodplain that the 'wild brooks' have developed - extensive areas of flood meadows and wet woodland divided by ditch systems that have a particularly rich flora and attract nationally important populations of winter birds.
- F4.3 The extensive areas of wetland habitat that border the River Arun and lower River Rother are of high ecological value, supporting a range of riverine and associated floodplain habitats. Habitat diversity is partly influenced by underlying geology, with southern parts of the valley being fed by calcareous springs, while to the north underlying greensand creates more acidic conditions. The floodplains support a range of habitat types, including grazing marsh, fen, scrub and woodland. In addition, ditches intersect grazing marsh fields and support important habitat for aquatic flora and invertebrates. This ecological interest is reflected in a number of designated sites. Of particular note is the Arun Valley RAMSAR, which comprises a number of composite SSSIs, and is an internationally important site for wildfowl and over-wintering birds.
- F4.4 There are many historic bridges along the Arun River – a fine example is Stopham Bridge which was built in 1423 to replace a ferry. In 1822, when the Wey and Arun Canal was constructed further upriver the central arch was raised. The canal, however, was never successful and is now disused.
- F4.5 The tranquil character of parts of the floodplain is affected by the proximity to urban development (including the former port of Arundel which declined in the 19th century in favour of Littlehampton), major roads (including the A27), Arundel Station, and the mainline railway erode the tranquillity of the floodplain on its edges. However, deeply tranquil areas are still present, particularly in the extensive wetland areas of Amberley Wild Brooks.
- F4.6 Most notable in terms of access today are the public rights of way along the top of the artificial floodbanks that border the river, extending between the crossing points of the South Downs Way national trail at Amberley and the Monarch's Way at Arundel. The South Downs Way and Monarch's Way provide access to the surrounding downs. The Wey South Path is a further long distance recreational route that starts at Amberley, crosses Amberley Wild Brooks and heads north to Stopham Bridge. The area around Arundel Castle is a key recreation area with boating on the Arun, a popular activity on the lower reaches of the river. The Rother floodplain is generally less accessible although there are some public rights of way along the river.
- F4.7 The *Arun and Lower Rother Floodplains* are typical of the *major river floodplains* in that settlement is largely absent. The only built development is on the outskirts of Arundel where the historic Arundel Mill, as well as more recent development, is

located close to the old port of Arundel (which itself is located on the adjacent valley side).

Sensitivities Specific to the Arun and Lower Rother Floodplains

- F4.8 All of the landscape and visual sensitivities listed in the landscape type evaluation apply to this character area. Specific to this character area are:
- Amberley and Pulborough Wild Brooks whose ditch systems and wet grasslands which have a particularly rich flora and attract nationally important populations of winter birds.
 - Historic bridges along the Arun River including Stopham Bridge, a fine medieval bridge.
 - Impressive views of Arundel Castle would be sensitive to change.

Change Specific to the Arun and Lower Rother Floodplains

- F4.9 In addition to the generic changes listed in the landscape type evaluation, specific changes to this area include the introduction of the mainline railway in 1863, building of a new bridge for the A283 adjacent to Stopham Bridge in the 1980s, and new built development on the edge of Arundel.
- F4.10 In the future drier, warmer summers may affect the wet woodland, watermeadows, swamp, and grazing marsh habitats of the Wild Brooks. There could also be flood risk issues associated with settlement around Arundel Mill – properties which are currently outside the flood risk area could be at risk of flooding in the future. The historic bridges may be threatened by increases in traffic and road widening schemes.

Landscape Management/Development Considerations Specific to the Arun and Lower Rother Floodplains

- F4.11 In addition to the generic landscape management and development considerations for this landscape type, the following landscape management considerations are specific to this character area:
- Conserve the tranquil character and wetland habitats of Amberley and Pulborough Wild Brooks, where ditch systems and wet grasslands which have a particularly rich flora and attract nationally important populations of winter birds. Ensure remnant marshy habitats such as Amberley Swamp are not at risk from drying, drainage or erosion.
- F4.12 The following development considerations are specific to this character area:
- Ensure that solutions to flood management, particularly in relation to Arundel, are sustainable in the long term and compatible with the character of the floodplain.
 - Limit further development in the floodplain - any development in the floodplain could both increase flood risk and be at risk of flooding.

- Conserve the historic bridges and features of the floodplain landscape and ensure any road improvements or bridge re-building respects the fabric and setting of these bridges.
- Conserve views of Arundel Castle on the valley side.



In places, a natural, tranquil, pastoral river floodplain landscape.



Some sections of the river are artificially straightened.



The flat landscape is enclosed by the surrounding valley sides and scarp.



Historic stone and white wood bridges provide river crossing points.



The floodplain is etched by a geometric grid of narrow channels or 'wet fields' which divide pastures.



Impressive views to Arun Castle at the mouth of the river.