

Barnham and Eastergate Neighbourhood Plan

Flooding and Drainage

September 2013

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1. Introduction

The two adjoining Parishes of Barnham and Eastergate, with their associated villages and settlements, are situated on a coastal plain extending from the foot of the South Downs to the present sea coast. Historically the coast lay further inland and the region is effectively the remains of ancient beaches and alluvial flats. The area is characterised by a flat, low lying and undulating landscape, criss-crossed by a network of ancient watercourses or drainage channels known as "rifes". The Parish boundaries are in part defined by these rifes. To the west, between the neighbouring Parishes of Eastergate and Aldingbourne, there is the Eastergate Rife which runs into the Lidsey Rife and the boundary between Barnham and Eastergate Parishes is marked by the Barnham Rife (See Appendix Map of Barnham and Eastergate). The Lidsey Rife runs southwards to Lidsey Waste Water Treatment Works (LWWTW) where it is joined by the Barnham Rife, before continuing southward to the confluence with the Aldingbourne Rife just to the east of the railway line north of Bognor Regis. The Aldingbourne Rife drains into the sea at Felpham (near Butlins) either through a series of tidal sluices or, at times of high tide and high flow, through a major pumping station. There are other substantial "drains" which feed into the rifes, some of these being substantial permanent watercourses in their own right, e.g. the southern boundary of Barnham Parish is defined by the south-westerly drain which joins the Lidsey Rife south of Lidsey WWTW. This drain is crossed by the Barnham to Flansham cycle way and is sometimes referred to as the Yapton Rife.

The topography within the two Parishes reflects the low lying coastal plain of the surrounding landscape. The Barnham Rife flows through a culvert system beneath the railway embankment just east of Barnham Station and the elevation of the road at this point is the same as high tide at the pumping station at Felpham - about 3m. This compares to an elevation of approximately 10m AOD at the roundabout at the junction of Fontwell Avenue/Barnham Road/Nyton Road ("The Lion War Memorial"). South of the course of the old Chichester-Arundel Canal (south of Barnham and Eastergate Parishes) the land falls to an elevation of generally between 0-3m AOD or lower, characterised by low lying farmland and drainage ditches towards Flansham. This land is the main flood plain although it has been reclaimed and drained since late mediaeval times, when there were tidal creeks, salt marshes and salt meadows in the south of this area. There are three significant man-made obstacles to the general north-to-south flow of surface water across this section of the coastal plain (from the South Downs to the sea), namely the A27, the railway and the Chichester-Arundel Canal. In the near future the Bognor Relief Road, which is currently under construction to the north of the town, could present a fourth man-made barrier to the north south flow.

2. Geology and Hydrogeology

Barnham lies over the Chichester syncline. The geology consists of London Clay overlain by a complex and variable series of superficial deposits, including alluvium, brickearth, head gravels and raised beach deposits. A typical progression might be 1 to 3 metres of brickearth (silt) underlain by 3 to 5 metres of raised beach deposits (sands and gravels), in turn underlain by London Clay. The London Clay is in turn underlain by Reading Beds which confine the Chalk beneath. This means that, normally, local groundwater levels are unrelated to those in the Chalk aquifer to the north. See Appendix Map – British Geological Survey Extract.

The superficial deposits form a minor aquifer, hydraulically isolated from the Chalk by the London Clay. Both are recharged by precipitation: falling on the South Downs in the case of the Chalk and by local rainfall in the case of the superficial

deposits. In addition, there may be some overflow of groundwater from the Chalk into the superficial deposits at the point where the Chalk becomes confined by the Reading Beds clays (just to the north of Barnham village). This only occurs during periods of high groundwater levels. Under most conditions it is likely that groundwater will feed the watercourses.

The Parishes of Barnham and Eastergate lie at the southern end of a 9.1 square kilometre catchment area (or drainage basin), whose northern boundary is marked by the A27 at Fontwell, whose western boundary runs from Fontwell Park southwards across Northfields Farm to the junction of Nyton Road, Fontwell Avenue and Barnham Road, and whose eastern boundary runs roughly from the A27 to Walberton Village and southwards to Lake Lane. The drainage basin includes both the watercourses that convey the water as well as the land surfaces from which water drains into those channels and is separated from adjacent basins by a drainage divide.

The drainage basin may be considered to act as a funnel by collecting all the water within the catchment area covered by the basin and channelling it southwards to the village of Barnham, where it has to find exit routes beneath the railway embankment that runs east-to west across the southern boundary of the catchment. The main exit route (or sink) is the culvert system beneath the railway embankment just east of Barnham Station. Groundwater overflowing from the Chalk into the superficial deposits (where the Chalk becomes confined by the Reading Beds clays) produces natural springs where water flows to the surface from underground, i.e. at sites where the aquifer surface meets the ground surface. There are a number of such springs in the area, most notably (but not exclusively), near the junction of Level Mare Lane with Fontwell Avenue and in the gardens of properties at the western end of Wandleys Lane.

3. Overview of Flooding and Drainage Problems

The Parishes of Barnham and Eastergate are located within the Lidsey wastewater catchment area as identified on **Plan No. NP_006**. The Lidsey wastewater catchment includes flows from Barnham, Woodgate, Norton, Westergate, Eastergate, Walberton, Fontwell, Yapton, Blisham, Ford, Climping, Flansham, east Middleton-On-Sea and Elmer. Flow originating from these areas discharge to Lidsey WWTW via a combination of pumped and gravity flow.

It is acknowledged by WSCC, ADC, EA and SWS that communities within the catchment area of Lidsey WWTW, including those within Barnham and Eastergate Parishes and the surrounding area, have a long standing history in experiencing problems with both surface water flooding and foul water flooding of roads and property which has in turn led to the pollution of adjacent watercourses.

It is acknowledged that the Lidsey catchment is adversely affected following periods of prolonged heavy rainfall due to deficiencies in the public and private sewer network and land drainage systems. The Barnham and Eastergate/Westergate trunk sewers, transferring flow to the Lidsey WWTW are extensively overloaded in wet weather causing flooding and pollution problems. The overloading of the sewer system is

considered to be caused mainly through ground water infiltration and inundation within the catchment.

The resultant effects of these deficiencies within the public and private sewer network and the inability to cope with peak rainfall events are clearly recorded in the recent flooding events of June 2012 and December 2012. In particular the flood events of June 2012 were of such magnitude as to attract media attention at a national level.

In addition to peak rainfall events, the following issues are considered to contribute to flood risk within the Parishes of Barnham and Eastergate.

- Overland flow from the local watercourses entering the foul water system causing it to become overloaded during peak events.
- Infiltration/inundation of surface water and groundwater into the foul water system through structural deficiencies in the water infrastructure pipe work.
- Run-off from impermeable hard surfaces (roof and hard standing) that are not connected to positive public surface water drainage. These elements may drain to soakaways, local watercourse or may in some cases be connected via lateral and direct connections to the foul water system.
- High groundwater levels in the area due to the low lying nature of the surrounding landscape.
- Poor land drainage and maintenance of field ditches.

Inevitably, there are serious concerns within the Parishes about the impacts of flooding and drainage, not only in respect of the current properties which are at risk but also the impact from future development within the Parishes which is not sustainable.

Indeed, Southern Water has acknowledged in their response to a recent planning application for approximately 100 housing units that;

"Following initial investigations, there is currently inadequate capacity in the local network to provide foul sewage disposal to service the proposed development. The proposed development would increase flows to the public sewerage system, and existing properties and land may be subject to a greater risk of flooding as a result. Additional off-site sewers, or improvements to existing sewers, will be required to provide sufficient capacity to service the development."

It should be noted that Southern Water is not able to formally object to planning applications as it has a statutory duty to allow connections, however the acknowledgement that there is inadequate capacity within the system is significant in determining the appropriate scale and location of new development within the Parishes.

In considering new locations for development and to minimise future risks, it is important that developers consult the latest Strategic Flood Risk Assessment (SFRA) and Environment Agency flood maps to ensure that development is avoided in areas at risk from flooding, or likely to be at risk as a result of climate

change, or in areas where development is likely to increase flooding elsewhere.

4. Current Drainage Problems

4.1 Introduction

It is difficult to separate the effects of the twin problems of surface water drainage and surcharging foul sewers, since they are closely linked, but in the sections below the two topics are examined in detail.

Drainage issues have plagued all of the local villages to some degree for many years. June 2012 was the latest significant flooding event, and was unusual in that it occurred in the summer, but most winters have one or more serious alerts, with widespread surface water flooding and sewage pollution, a handful of properties actually flood but more properties are threatened with flooding and/or sewage pollution. Barnham and Eastergate are often on the brink of a serious flooding event. December 1993 was the last big event when over 100 houses were flooded, many to a depth of more than a metre, and there was serious widespread disruption to local services and infrastructure.

4.2 Rivers (Rifes), Surface Water and Groundwater

Over time, as development has taken place, the open surface water system has been re-arranged, constrained, confined and culverted to accommodate obstacles such as shops, housing, the railway, etc. When the livestock market was operational at Barnham the animals were allowed to drink from the rife immediately north of the railway. This area is a critical pinch point for the Barnham Rife and in December 1993 a blocked screen and inundation of the culvert resulted in the most serious flooding event in Barnham's history. A second culvert under the road and railway and improved screens were installed after the 1993/4 flooding event.

Housing and business development has fundamentally two ways to dispose of clean surface water; firstly through a positive separate surface water system which eventually discharges to the local watercourse, or secondly through a soakaway system. Separate surface water systems will, unless well engineered, increase the speed and flow direct to the watercourse and hence increase the flooding risk. Soakaway systems in the locality (with the high groundwater levels in winter) have a generally poor track record which entirely reflects the geology. If a soakaway system fails there is increased pressure on the foul-water system as clean surface water seeks a disposal route through the foul sewer.

It is believed that much of the historic field drainage system of ditches and land drains has been neglected. In some cases ditches have simply been filled in, or culverted using small diameter pipes which in many cases have been subsequently neglected and become blocked. Roadside ditches are subject to varying levels of maintenance, frequently minimal. The main arterial rifes are subject to regular clearance by the Environment Agency (EA) and during high rainfall the key culverts and grids are regularly maintained by EA operatives.

The responsible authorities and agencies (e.g. WSCC, EA & SWS)

acknowledge that there are serious and chronic problems affecting the local communities from risk of flooding.

During extended or peak rainfall, the following issues are considered to contribute to flood risk within the two parishes:

- Run-off from impermeable hard surfaces (roof and hard standing including glass houses) that are not connected to a positive public surface water sewer. These elements may drain to soakaways, local watercourses or may in some cases be connected via lateral and direct connections to the foul water system.
- Rifes and drainage ditches (and roadways) carrying run-off from local land and further upstream (e.g. Walberton, Fontwell, Aldingbourne Parishes), reaching capacity and overflowing onto roads and fields, gardens and into properties – e.g. Highground Lane, Barnham Lane/Lake Lane junction, Hedge End Wood and at the Eastergate War Memorial. The culvert under the railway line at Barnham is a constriction and failure to ensure free passage would create a major incident similar to 1993/4. It must be remembered that without the sea defences high tide would reach road level at this culvert. This lack of natural gradient and poor land drainage creates major static ponding at some locations e.g. Angel's Nursery and adjoining parcels of land, Lake Lane/Barnham Lane Triangle, Choller Farm bend on Barnham Lane, (see appendices – WSCC report on June 2012 and List of Flooding Incident Locations).
- High groundwater levels in the area due to the underlying geology (see appendices – Surcharging of Sewers in the Barnham Area).

4.2.1 The Future

The Catchment urgently requires a surface water management plan.

Co-ordinated improvements are required to reduce the risk of surface water flooding for the current population and future development.

All Agencies need to work together to significantly reduce the amount of rainwater, groundwater or surface water entering the foul sewerage system.

4.3 Foul Water and Sewerage

Much of the public sewerage system in Barnham, Eastergate and surrounding villages dates back to the early 20th century, when communities were served by their own small treatment works with the more rural houses enjoying septic tanks and cesspools. The “new” wastewater treatment plant at Lidsey was constructed to amalgamate these flows and remove the proliferation of small inefficient works. (Pictures exist of sewers being laid in Yapton Road in the early 20th century). Much of the system was sized for a much smaller number of houses and a much lower flow of waste water per household than exists today.

The sewer network in the parishes is today a complex assortment of old and new pipework with certain areas subject to regular collapse due to the geology of clay and “running” sands (e.g. Lake Lane, Barnham Road, Syke Cluan Close). Various

sections have been replaced in recent years. The main sewer in Barnham Road was upgraded in 2005 with a larger diameter pipe in order to remove an overflow that used to take place from the foul to the surface water system in Elm Grove. Part of these improvements included a new pipe under the railway and the installation of a screening and pumping station in Marshall Close to allow over-pumping from the foul system directly to the Rife at times of high flow when the gravity sewers to Lidsey WWTW are unable to cope. (Note this upgrading a few years ago was greatly complicated by the repeated collapse of the new sewer pipework into the running sands in parts of Barnham Road.)

There are a number of well understood and documented problems and concerns arising from the inadequacy of the sewage systems in the two parishes and beyond. These are summarised below:

- Groundwater infiltration and surface water inundation; rainfall either generates excessive surface water which inundates the foul sewage system or increases groundwater levels and through infiltration again enters the foul sewage system. This extra rainwater in the foul system causes surcharging and "geysering" from manholes in roads & gardens. This surcharging creates "lagoons" of dilute sewage with obvious sewage debris which eventually finds its way into the rifes and watercourses e.g. Lake Lane, Farnhurst Road, Highground Lane, land behind Eastergate school and Eastergate Lane. Action by Southern Water to relieve pressure on the sewers by tankering to a local wastewater treatment works (Ford, Chichester or Lidsey) can relieve the pressure, however pumping from foul sewer to surface water drainage systems and watercourses regularly occurs for extended periods. The most obvious locations for this activity are at the junction of Elm Grove/Orchard Way and Oriel Close near to the local Primary School, and opposite the junction of Lake Lane and Barnham Lane. (see appendices - List of Flooding incident locations)
- Capacity of the total network for both current and future households, at different parts of the network and at different times of year. Capacity of sewer pipes at key pinch-points and the impacts of climate change on rainfall, groundwater and peak flow within the sewers
- Resilience of sewer system given geology of running sand and infiltration by groundwater (hydraulic pressure, e.g. Lake Lane)
- Over reliance on soakaways with debatable efficiency and lack of separate surface water sewerage systems leads to households discharging surface water into foul sewer
- Health and environmental concerns about SWS pumping foul sewage into watercourses including under permit from Marshall Close. Health risks from sewage lagoons, their environmental impact on the watercourse, flood plain and residential gardens.
- Capacity of Lidsey WWTW to cope with the flows that arrive at the WWTW and treat the sewage to the required standard to protect the Lidsey Rife. Although Southern Water monitors current flows and check the capacity of the WWTW to accommodate current and projected future flows, are the legally required standards being met?

4.4 Impact of New Housing Developments

Inevitably, there are serious concerns within the Parishes about the impacts of flooding and drainage, both in respect of current properties at risk but also the impact from future development within the parishes which is not sustainable.

Recent changes to building standards have in part started to address this, but in this vulnerable area the developers have sought to push housing proposals by generally proposing various sustainable drainage systems (SuDS) for the capture and/or disposal of surface water e.g. holding ponds (with slow release into watercourses), in addition to the usual permeable surfaces and shallow soakaways at house design level. It is worth noting that the glasshouse developments have had holding ponds as a standard part of their design for many years. It is also worth noting that where developments have proposed surface water mitigation through holding ponds or flood plain extensions, these have not always been enforced by the Planning authority ADC. (Bluebell Woods development, in Lake Lane).

4.4.1 SuDS Principles

Sustainable drainage is a departure from the traditional approach to draining sites. There are some key principles that influence the planning and design process enabling SuDS to mimic natural drainage by:

- storing runoff and releasing it slowly (attenuation)
- allowing water to soak into the ground (infiltration)
- Slowly transporting (conveying) water on the surface
- filtering out pollutants
- allowing sediments to settle out by controlling the flow of the water

Engineers' reports purporting to claim/prove that surface water flow off a site will be less after the housing and roadways have been built than from the undeveloped, green-field site have been presented to various Inspectors at Planning Appeals. Whilst the Inspectors have accepted these claims, the Parish Councils generally take these 'proofs' with a considerable amount of scepticism, e.g. Seawards submission to the Planning Inspector for the 75-100 house development at Goodacres extension site, 2012.

In considering new locations for development and to minimise future risks, it is important that developers consult the latest Strategic Flood Risk Assessment (SFRA) and Environment Agency flood maps to ensure that development is avoided in areas at risk from flooding, or likely to be at risk as a result of climate change, or in areas where development is likely to increase flooding **elsewhere**. There are local small-scale examples of flooding directly caused by nearby developments, e.g. Downview Road, and the greater example of the major recent flooding incidents (June 2012) in Felpham and in North Bersted attributed to the swathe of new housing, industrial and road development running from Flansham to Bersted (and including the Bognor Relief Road). It is clear that creating large areas of impermeable surface immediately north of this low-lying area (*which has not previously been subject to flooding*) will have the potential to cause this lower lying

area to flood. This specific risk in Felpham and Bersted was predicted after the 1993/4 floods, but neither the District Council nor various Planning Inspectors have taken cognisance of the long-term impact of overdevelopment of this low-lying flood-prone area. The main consideration of the planning process appears to be concerned with the risk of flooding to the new houses, with no consideration given to the potentially catastrophic effects on other areas downstream. The narrow view adopted by, or imposed on, planning officers in considering drainage issues in new developments appears to preclude considering anything beyond the site boundaries.

4.4.2 Package Sewage Treatment Plants (PSTPs)

To address the acknowledged issue of "inadequate capacity" in the local foul sewer network, developers are proposing to use stand-alone Package Sewage Treatment Plants (PSTPs), sometimes also called private sewerage systems. The Angel's Nursery site on Yapton Road (WSCC, 95 houses) has a two-plant system proposed, with treated water run off to the local drainage system. The Goodacres extension site (Seawards, 75-100 houses) also had a (single) stand-alone system proposed, again with treated water run-off to the local watercourses. This Seawards proposal is understood to have an 'emergency' connection to the public foul sewer. The Brooks Nursery (Barnham Road) site, 40 houses, is also proposing a PSTP. There are anxieties that these proposals for PSTPs are simply a ruse by developers to get a proposed development past the Appeals inspector, and the proposals are subsequently dropped in favour of a direct connection to the public foul sewer system.

There are worries at both District and Parish Council level about these PSTPs, which are primarily intended for use in non-sewered areas (e.g. remote rural locations) and their impact on the local environment. Such concerns have been summarised in detail by the Environment Agency:

"Where premises rely on private sewerage systems, these systems depend on proper operation and regular maintenance to function effectively. If this does not happen, the plants are prone to failure, causing pollution of land and/or watercourses, as well as potential nuisance and risk to human health. Many householders lack the expertise to properly operate or maintain private sewerage systems. They are unaware of the impacts until the system fails or are unwilling to spend potentially significant sums of money on maintaining or replacing the plant when that is necessary.

Compliance rates for public and private sewage treatment works regulated by the Environment Agency show that, as a result of these difficulties, private sewage treatment works do not perform as well as public ones and are less likely to comply with their discharge consent. Our compliance figures for England and Wales, for the five-year period of 2000-2004, show that in each of those years between 94 and 96 per cent of sewage treatment works operated by sewerage undertakers and regulated by a numeric discharge consent complied with the conditions of that discharge consent. By comparison, the compliance rate for privately operated sewage treatment works regulated by a numeric discharge consent ranged from 59 to 62 per cent.

Furthermore, sewerage systems serving multiple premises will need to have appropriate legally binding agreements in place for their operation and maintenance. Where no such agreement is in place, or a dispute arises as to the responsibilities of individual householders, this frequently leads to the system not

being properly operated or maintained. We deal with the failure of many hundreds of private sewerage systems (an average of just under 400 incidents per year between 2002 and 2007) and the consequent pollution, each year."

5. Policies

In view of the concerns and issues outlined above, the Parishes of Barnham and Eastergate consider the following policies are essential for sustainable economic, social and environmental development and an improved quality of life.

- The Parish Councils will undertake to seek improvements to existing flood protection and drainage infrastructure before any further development takes place within the catchment.
- The Parish Councils will not support any development, other than minor housing or commercial extensions, until completion of the Surface Water Management Plan for Lidsey Catchment and the Aldingbourne and Barnham Rife Strategy. These are seen as intrinsic to the protection of the Parishes from additional flood risk and to the future remediation and management of problems associated with the current drainage networks.
- No development will be **permitted** unless it is demonstrated that efficient and effective drainage systems are available for the disposal of foul (sewage) and clean surface water, independently, and which take account of changing rainfall patterns due to climate change.
- No development shall **commence** until details have been submitted to, and approved in writing by, the local Planning Authority for the detailed design of the sustainable surface water drainage scheme including its operation and construction. The design should follow the hierarchy of preference for different types of surface water drainage disposal systems and must include groundwater monitoring over a period of time that is representative of typical winter rainfall conditions.
- There needs to be a presumption against the use of Package Sewage Treatment Plants (PSTPs) to treat the foul water from new developments.
- There needs to be a presumption against the use of soakaways for the disposal of clean surface and roof water. The local authorities and relevant agencies should seek to install new surface water disposal systems for areas where soakaways have been proved to be ineffective.
- The concept of Sustainable Urban Drainage Systems (SuDS) as an alternative to conventional drainage will be supported provided that they can be shown to be suitable in the intended location. All sustainable drainage systems must be approved by the relevant SuDS Approval Body (SAB) prior to the commencement of development.
- Any alternative drainage solutions (e.g. PSTPs or SuDs) proposed as part of a planned development must be deliverable and sustainable, and include details for the provision of their long-term maintenance and management for the lifetime of the development.

- All new developments must, as part of the submission process, include a site specific Flood Risk Assessment, which also takes account of and identifies the impact on neighbouring areas in the catchment.
- The Parish Councils support the goal of ensuring that the environment and water quality of the rife system within the catchment is either maintained or improved to its highest possible level. The opening up of watercourses and their banks for recreation and amenity use is supported. There is a presumption against culverting and the constricting of watercourses and their immediate environs.
- The Parish Councils support the goal of conserving clean, potable water in existing housing stock through the retro-fitting of water efficiency measures and the aim of designing new dwellings to have a predicted consumption of no more than 80 litres of water per person per day, in line with Level 5 of the Code for Sustainable Homes (DCLG).

These policies aim to contribute to sustainable development by:

- Identifying appropriate flood protection measures to minimise the impact of climate change.
- Preventing adverse harm to the water environment in terms of pollution and flooding.
- Making sure that the necessary flood protection and drainage infrastructure is in place before further development takes place.
- Requiring new housing development to reduce water discharge.
- Ensuring that the appropriate long term maintenance and management mechanisms are put in place for flood protection and SuDS features for the lifetime of the development.

6. Reasons for Our Policies

Barnham and Eastergate Parishes are located on the Arun coastal flood plain and, together with the neighbouring Parishes of Aldingbourne and Walberton, they have experienced numerous incidents of localised flooding over many years during periods of prolonged and heavy rainfall. The most serious event was in December 1993 and the most recent occurred in June 2012 and December 2012 resulting in the flooding of residential homes and businesses, surcharging of the local foul sewer network and disruption of the local transport infrastructure. The community has strong views on the need to reduce and minimise flood risk and seeks to ensure that potential development does not increase the risk of flooding within the Parishes or to its neighbours.

The Parish Councils are strongly in favour of restricting any development, other than minor housing or commercial extensions, until completion of the Surface Water Management Plan for Lidsey Catchment and the Aldingbourne and Barnham Rife Strategy, **and** consequent measures to reduce flood risk have been put in place.

Barnham and Eastergate Parish Councils support the partnership between WSCC and SWS to progress the Surface Water Management Plan for the Lidsey Catchment.

Barnham and Eastergate Parish Councils support the EA to develop the Aldingbourne and Barnham Rife Strategy.

Completion of an area drainage model for the Lidsey Catchment is seen as imperative to better understand and determine future investment needs due to growth and possible future flooding.

Relevant Policy Guidance:

Flood and Water Management Act (2010)

National Planning Policy Framework (NPPF)

- NPPF10: Meeting the challenge of climate change, flooding and coastal change

Arun District Draft Local Plan (2013-2028) - DM 40: Flood Risk

- DM 41: Sustainable Drainage Systems

7. Appendices

1. WSCC SFRA 2012 part 1
 2. WSCC SFRA part 2
 3. Atkins report EA 2012 Barnham Position Statement (draft)
 4. WSCC report on June 2012 flood
 5. Aldingbourne NP Drainage report (draft)
 6. List of flooding incident locations in B/E 2013
 7. British Geological Survey Extract Barnham area 2008
 8. EA map of Fluvial and Coastal Flood risk Barnham and Eastergate, Aldingbourne 2011
 9. Parish drainage incidents map 2013 (to be drawn up)
- Other references: ADC draft Local Plan 2013-2028 DN 40 – Flood risk; DM 41 Sustainable drainage systems

Abbreviations:

ADC	Arun District Council
AOD	Above Ordnance Datum
APC	Aldingbourne Parish Council
BPC	Barnham Parish Council
EA	Environment Agency
EPC	Eastergate Parish Council
LCA	Landscape Character Area
NPPF	National Planning Policy Framework
SDNP	South Downs National Park
SWS	Southern Water Services
SAB	SUDS Approval Body
SFRA	Strategic Flood Risk Assessment
SUDS	Sustainable Urban Drainage system

WSSC
WWTW

West Sussex County Council
Waste Water Treatment Works

Authors: Dr John Mason & Mr Richard Hammond – Barnham Village Drainage Group