

Four ♦ Peacehaven wastewater treatment works and sludge recycling centre: introduction

THE PROPOSED DEVELOPMENT IN OVERVIEW

4.1 In order to comply with European and national obligations to raise standards of wastewater treatment in the Brighton and Hove drainage catchment, Southern Water needs to build a new wastewater treatment works and an associated recycling centre for the sewage sludge that arises during the treatment process. The company's planning application thus includes provision for a wastewater treatment works and sludge recycling centre at a site on the edge of Peacehaven.

Main treatment works elements

4.2 It is proposed that wastewater from the catchment will be transferred to the treatment works site from a new pumping station at Portobello. At the treatment works the wastewater will be processed as follows.

Preliminary treatment - mechanical screening of the flow to remove coarse solids, rags and detritus, followed by the removal of grit and grease. The screening and grit waste would be washed and packed into sealed skips for disposal off site.

Primary settlement - settleable solids and any remaining floating material would be removed from the wastewater. This process would be housed in a concrete box, sunk partly into the ground and covered to capture odorous air for treatment. Sludge would be removed at this stage for recycling and energy recovery.

Secondary biological treatment - the works would provide secondary treatment through a combination of biological treatment and filtration. The process would be housed in a concrete box sunk into the ground with covers to capture odorous air for treatment. The sludge generated by this process would be returned to the primary settlement area.

Thickening of liquid sludges - thickening increases the solids content of the sludge from the primary treatment process by effectively squeezing water out of it. This process reduces the volume of sludge, helps to reduce the size of subsequent tanks and reduces the amount of heat energy required for sludge digestion. Thickening would be achieved by means of mechanical equipment housed within a building to contain odorous air for treatment.

Sludge digestion – anaerobic digestion accelerates the natural processes of decomposition. The digestion process breaks down organic matter into simpler compounds, producing a stable sludge that ceases to

decompose or react further and which is suitable for use as an agricultural soil conditioner. Digestion also reduces the dry solids content by approximately 30% and generates a methane-rich biogas that would be collected and used as fuel within parts of the treatment plant. Digestion would take place in cylindrical tanks, which would be sunk partly into the ground.

Sludge dewatering - dewatering further reduces the volume of the sludge. This makes it less bulky to handle, and prepares the sludge for the drying process.

Thermal drying – this process removes almost all of the moisture from the sludge to produce a final product in the form of a granular pellet, which can be easily stored and transported. The pellets are utilised in agriculture as a soil conditioner. The dryer unit would be housed within an enclosure inside the SRC building. The dried product produced from the drying process would be stored temporarily in a silo outside the SRC building before being bagged for storage or loaded in bulk to a lorry.

4.3 The proposed treatment works layout makes allowance for the future extension of the treatment works. Space for ultra-violet treatment has been accommodated within the works layout and an area to the west of the site has been provided to allow for possible nutrient removal facilities.

4.4 In addition to the treatment processes described above, the site also includes facilities for reception of imported sludge cake and cess, odour control and sludge export. The expansion area could also be used temporarily for the storage of bagged sludge pellets.

4.5 A combined Heat and Power (CHP) facility would be provided to utilise biogas produced by the sludge digestion process to generate renewable electricity and heat.

4.6 The sludge import and export facilities, the sludge drying plant and odour control facilities would be grouped within a single sludge recycling centre building ('the SRC building'). This ensures capture of potential fugitive foul odours from sludge processing and handling activities, as well as keeping vehicle movements under one roof.

4.7 From the treatment works, the treated wastewater effluent would be transferred by underground pipe a new long sea outfall (LSO) at Friar's Bay, east of Peacehaven for final discharge out to sea.

Odour control

4.8 The treatment works design includes a comprehensive system for the capture and treatment of foul odours generated by the processing of sewage and sewage sludge. The purpose of the odour control plant would be to chemically scrub odorous compounds from the air extracted from around the various process units of the plant before discharging cleaned air via an exhaust stack to the atmosphere at high level.

4.9 This would be achieved by means of two wet scrubbing stages – acid and alkaline – followed by a final ‘solid media polishing’ stage. The ventilation system would maintain all odour controlled areas at a pressure below atmosphere in order to ensure no escape of odorous air from the building. Additional information relating to the proposed odour control plant is provided in the *Environmental Statement* that accompanies Southern Water’s planning application. An odour management plan (OMP) is proposed.

Access

4.10 A proposed access road would approach the treatment works from the northern end of Bolney Avenue to the south-west, and would link the works to the main A259 South Coast Road via Hoyle Road, Greenwich Way and Sutton Avenue. The connection to Hoyle Road would be made via a new section of road currently proposed by another developer from Hoyle Road to Bolney Avenue.

Hours of operation

4.11 With wastewater arising continuously, the treatment works would operate and be staffed for 24 hours a day, although most site staff would work between 07.30 to 16.00 Monday to Wednesday and 07.30 to 15.00 Thursday and Friday. Deliveries to and from the site would take place mainly during these times except in emergency events in which sludge granule exports might take place outside of normal hours if no storage space is available on site.

Landscape and design strategy

4.12 The treatment works and access road would be sited in a dry valley to take advantage of the natural landform and contain views of the development. This containment would be reinforced by subtle ground remoulding, planting and the formation of a new earth mound at the eastern end of the works, and the main treatment works buildings would have a green roof, incorporating a canopy that would cover the access road along the side of the building and bring the roof close to surrounding landforms. The green roof would be profiled and vegetated to reflect the character of local downland. Selective tree and shrub planting will provide further visual containment, and the wider works site will be laid out in such a way as to render it suitable for active and passive recreational use, consistent with local plan policy as explained in the next section.

SITE-SPECIFIC DEVELOPMENT PLAN POLICY

4.13 The design of the proposed wastewater treatment works and sludge recycling centre had regard to relevant development plan policy. The manner in which the design responds to general policies, as set out in the regional spatial strategy, the East Sussex and Brighton & Hove Structure Plan and the East Sussex and Brighton & Hove Waste Local Plan is described in appendix II of this document. In terms of site-specific policies, the following ‘saved’ policies of the adopted Lewes District Local Plan 2003 remain applicable to the treatment works site and its immediate surroundings.

Countryside policies and the AONB

CT1 Development will be contained within the Planning Boundaries as shown on the Proposals Map. Planning permission will not be granted for development outside the Planning Boundaries, other than for that specifically referred to in other chapters of the Plan or listed below . . .

i). proposals which feature in an adopted minerals or waste disposal local plan

j). provision of essential/service facilities to meet community or environmental needs for which a rural location is required . . .

The retention of the open character of the countryside is of heightened importance where it separates settlements and prevents their coalescence. Development referred to above may not be acceptable where its scale would significantly erode the gap between settlements and detract from their separate identities.

4.14 The objective of this policy is to protect the countryside, in part by establishing clear 'planning boundaries' around urban settlements. The local plan treats development within defined planning boundaries as acceptable in principle, but applies tight controls outside such boundaries. Peacehaven is one of the settlements surrounded by a defined planning boundary. The treatment works application site lies largely outside the defined planning boundary.

4.15 Parts (i) and (j) of Lewes District Local Plan policy CT1 acknowledge that *proposals which feature in an adopted minerals or waste disposal local plan or the provision of essential/service facilities to meet community or environmental needs for which a rural location is required* might be appropriate on sites outside the defined planning boundaries.

4.16 As explained in appendix II of this statement, the specific requirement to build a new wastewater treatment works serving the Brighton and Hove drainage catchment is identified in policy WLP30A of the adopted East Sussex and Brighton & Hove Waste Local Plan. The treatment works is clearly intended to meet the sanitation requirements of the local community and would bring clear environment benefits in terms of cleaner seas. In the current context, a rural location is required because an extensive search for potential treatment works sites within urban areas between Shoreham and Newhaven and as far north as Lewes did not identify a suitable alternative to that now proposed on the northern edge of Peacehaven.

4.17 Having regard to the objectives of local plan policy CT1, Southern Water recognised that its proposals should not promote the coalescence of Peacehaven and any neighbouring settlement. A comprehensive landscape design strategy, described in following chapters of this design and access statement, was thus commissioned to contain view of the treatment works. The landscape strategy will also have the effect of softening the urban edge between Peacehaven and the downs to the north. Through this comprehensive landscape strategy, the requirements of saved policy CT1 can be addressed.

Landscape conservation and enhancement

CT2 In order to ensure the continued protection of the landscape and character of the Sussex Downs Area of Outstanding Natural Beauty (AONB) planning permission will only be granted where proposals:

- a). respect the natural beauty of the Downland area in terms of siting, use, form, layout, design and materials***
- b). complement, and are consistent with, the quiet informal enjoyment of the area by the public and***
- c). respect the distinctive qualities of the AONB.***

Opportunities will be taken, wherever possible, to enhance the landscape character of the AONB and secure long term positive management measures.

Major development would be incompatible with the protection of the character of the AONB. Only a demonstrable national need and lack of alternative sites could justify any exception.

4.18 The proposed treatment works would lie wholly outside the Sussex Downs AONB. However, Southern Water recognised the need for a design response that is sensitive to views in and out of the AONB. Landscape evaluation indicated that substantial concealment of the treatment works complex in views southwards from the downs could be achieved by some gentle land-raising of farmland to the north of the treatment works compound. The northern fringe of the planning application site thus overlaps with the AONB, although the sole purpose of these landscape works would be to protect views of the landscape, and the existing agricultural land use could be restored on land to the north of the treatment works once the land-raising operations are complete.

4.19 It was recognised also that measures are necessary to contain views of the site from elevated viewpoints to the east, including from Bollen's Bush, which lies within the AONB. In its previous proposals for the site, Southern Water promoted an architectural solution, with the sludge recycling centre enclosed in a building set into the valley and designed to reflect convex downland slopes whilst screening views of tanks behind. As explained in chapter two, the 2007 appeal decision dismissed this approach but suggested an alternative strategy, with a raised eastern mound and a green roof helping to integrate the treatment works into the landscape. These ideas have been incorporated in the current proposals and would result in compliance with local plan policy CT2.

4.20 Natural England's proposed boundary for the South Downs national park, confirmation of which would be accompanied by the 'de-designation' of the Sussex Downs AONB, lies further to the north of the application site. This section of the proposed boundary was endorsed by the inspector following the public inquiry into the national park designation.

Peacehaven and Telscombe policies

4.21 Chapter 13 of the adopted Lewes District Local Plan contains planning policies specifically for Peacehaven and Telscombe, the following of which have

been saved by the Secretary of State and are considered to be of relevance to the design of the wastewater treatment works and the landscape strategy for the surrounding area.

- PT2 Land east and west of Peacehaven Sports Park
- PT5 Business development: Keymer Avenue
- PT6 Meridian and Bolney Avenue industrial estates link
- PT10 Access and permeability at the Meridian Centre
- PT16 Outdoor sports provision

Proposed housing on land east and west of Peacehaven sports park

PT2 Land east and west of Peacehaven Sports Park (see inset map no.3) is allocated for residential development for a combined total of no more than 185 dwellings in the Local Plan period 2001- 2006.

However, this development will be managed to ensure that no more than 50 completed units per year come forward in Peacehaven and Telscombe.

Development of these sites will also be subject to the following criteria:

- a). a landscape buffer of at least 10m width shall be provided along the northern edge of these sites***
- b). contributions will be required towards bringing forward a package of measures to increase transport choice on the A259 and reduce reliance on the private car***
- c). compliance with all relevant District Wide policies***

4.22 This 185 dwelling allocation is one of a first phase of housing sites identified in local plan housing policy RES2. Policy RES3 identifies a second phase of housing sites for development in the period 2006-2011, including a further 111 dwellings on the sites east and west of Peacehaven sports park.

4.23 In July 2006, Bovis Homes secured planning permission for the development of these sites, on appeal. Development of the westernmost of these sites is underway. The likelihood of new housing proceeding on the land allocated in the local plan was taken into account by Southern Water during its treatment works site selection process, and in the design of the current proposals. It was concluded that there is adequate separation between the allocated housing land and the treatment works site to the north to allow both developments to proceed without conflict. Southern Water operates wastewater treatment works appreciably closer to housing than the minimum distance proposed at Peacehaven.

4.24 Southern Water concluded that the proposed landscape strategy for the area between the policy PT2 housing sites and the proposed treatment works should provide an attractive outlook from the new housing, with potential for enhanced public access to land that is currently private farmland.

4.25 As the traffic chapter of the *Environmental Statement* explains, Southern Water has taken into account the cumulative effects of the construction traffic

associated with a concurrent development of the treatment works and the policy PT2 housing sites.

Business development: Keymer Avenue and Meridian and Bolney Avenue industrial estates link

PT5 Land to the north of Keymer Avenue . . . is allocated for offices and business uses (under Use Class B1), subject to the following criteria:

- a). the sole means of vehicular access to the site shall be from Hoyle Road, in order to keep business and residential traffic apart;***
- b). a landscape buffer of at least 5m shall be provided to separate the development from properties in Capel Avenue, Keymer Avenue and along the northern and eastern edges of the sites;***
- c). compliance with all district-wide policies.***

PT6 Land south of Hoyle Road (see Inset Map No 3), Peacehaven, is allocated for:

- a). Industrial/warehouse units for B1 or B8 uses;***
- b). a link road of 6.75m carriageway width from Hoyle Road to the Bolney Avenue Industrial Estate (access to the northern end of Bolney Avenue is to be closed to vehicular traffic);***
- c). At least two units should be, or capable of being subdivided into, units of no more than 400sq.m in order to nurture new business in the towns;***
- d). a landscape buffer between the rear boundaries in Damon Close and any development of this site;***

Subject to the following criteria:

- i). the link road will be constructed prior to the occupation of the industrial estates;***
- ii). all relevant District-Wide policies are complied with.***

4.26 As local plan paragraph 13.32 explains, the Bolney Avenue industrial estate is a small employment area to the east of the Meridian industrial estate, surrounded on three sides by housing. The local plan allocates land for further employment uses, with the prerequisite of a link road that would enable the Bolney Avenue industrial estate to be reached from the west via Hoyle Road. This would enable commercial traffic to be excluded from Bolney Avenue and neighbouring residential side-roads. Lewes District Council has indicated that it will support a Prohibition of Driving Order to this end. The proposed access road would also serve the Keymer Avenue employment land allocation provided for in policy PT5.

4.27 A review of access options to the identified Peacehaven treatment works site concluded that an access road from the west, via Sutton Avenue, Greenwich Way and Hoyle Road, represents the best practicable environmental option. Implicit in the local plan's allocation of further development land served by this

route is the fact that the roads are suitable for commercial traffic and have additional traffic capacity. In the current context, the employment land allocations in local plan policies PT5 and PT6 carry no other design implications for Southern Water's project.

Access and permeability to the Meridian Centre

PT10 At the Meridian Centre, Peacehaven, the Council will not grant planning permission for proposals that prejudice:

- a). the flow of pedestrians and shoppers through and around the Meridian Centre along key desire lines;***
- b). the safe and convenient access to the Meridian Centre by public transport, cycle or on foot.***

4.28 The traffic chapter of the *Environmental Statement* predicts that an insignificant increase in road traffic on roads near the Meridian Centre would be generated by the proposed treatment works in operation. Volumes of traffic during construction will be higher, although still within the design capacity of local roads. In order to protect local amenity during the construction period, Southern Water proposes to operate a traffic management plan, to be agreed with the local planning and highways authorities prior to the commencement of construction. In addition to the concerns highlighted in local plan policy PT10, this management plan will take into account the local 'safe routes to school' initiative. Subject to these measures, which were supported in the 2007 appeal decision, local plan policy PT10 has no implications for the design of the wastewater treatment works.

Outdoor sports provision: land at Lower Hoddern Farm

PT16 Land at Lower Hoddern Farm (see Inset Map No 3) is allocated for public open space and sports pitches to serve the Peacehaven area, subject to the following criteria:

- a). vehicular access will be from Piddinghoe Avenue only***
- b). any associated built development such as changing rooms will be located close to the existing sports buildings at Piddinghoe Avenue, as shown on the Proposals Map, in order to minimise impact on the open countryside***
- c). car parking to serve the sports pitches/open space will be located close to the existing at Piddinghoe Avenue, as shown on the Proposals Map***
- d). the main pedestrian accesses to the sports pitches will be from the west (the Meridian Centre), from the east (the Sports park)***
- e). boundaries to the sports park / open space will not restrict views into the open countryside***

4.29 Policy PT16 allocates land for approximately 11.3 ha of new recreation space, to be provided gradually so that it is absorbed into the fabric of Peacehaven and sufficiently utilised. The local plan notes that the development

of additional housing would exacerbate an identified shortfall of recreational land. The developers of any sites that may come forward in the period to 2011 will thus be expected to contribute towards the cost of laying out this new recreation land.

4.30 Paragraph 13.70 of the local plan states that, although the PT16 open space allocation would be on good quality agricultural land, its use for sports pitches and open space is not irreversible in the long term and recreational use is therefore compatible with local plan policy CT4, which relates to the protection of high quality agricultural land, although it is acknowledged that some levelling of the site is likely to be required.

4.31 The treatment works itself would lie to the north-east of the land allocated for open space by local plan policy PT16. However, approximately 8.6 ha of the PT16 allocation lies within the planning application site, of which approximately 0.4 hectares of the PT16 land would be directly taken up by the footprint of the proposed treatment works access road. 1.0 ha on the north-eastern corner of the PT16 land would be within the post-and-rail fence marking the boundary of Southern Water's operational site, and thus unavailable for future public access.

4.32 The need for the proposed site access road to drop down to the excavated ground level of treatment works, coupled with the diagonal angle at which the access road would bisect the allocated site, could limit the usability of the land identified by policy PT16 specifically for sports pitches in the absence of suitable design measures. However, at the 2006 public inquiry into Southern Water's previous proposals for the site, it was demonstrated that, through a combination of gentle terrain levelling and the careful alignment of the access road, that up to seven sports pitches could be provided with the treatment works in place. This equated to the maximum number of pitches that East Sussex County Council estimated could be accommodated within the PT16 allocation in the absence of a treatment works development.

4.33 In refining the design and layout of the treatment works proposal in the light of local plan policy PT16, Southern Water recognised that its proposals could promote the implementation of the policy and provide a large area of amenity land that the local plan envisaged. Table 4.1 summarises this relationship, and shows that:

- i). The gross area of land allocated as open space or suitable for public access to the north of Peacehaven would amount to 16.6 ha as a consequence of Southern Water's proposals, compared with 11.3 ha allocated in local plan policy PT16.
- ii). Of this 16.6 ha, up to 8.1 ha is considered to have potential for use as sports pitches, with the remaining land having an undulating terrain more suited to informal amenity use.

Table 4.1: Relationship between land allocated for public open space and playing fields in local plan policy PT16 and the wastewater treatment works proposal at Peacehaven

Land parcel	Approximate area (hectares)
Lewes District Local Plan:	
a). Total area of the PT16 land allocation (of which an unspecified area might be suitable for use as playing fields)	11.3
Treatment works planning application site:	
b). Area of PT16 land within Southern Water's planning application site	8.6
c). Total area of land suitable for public access in Southern Water's landscape strategy	13.9
d). Total area of PT16 land remaining suitable for public access in Southern Water's landscape strategy (including access road)	7.8
e). Area of level land with potential for use as playing fields in Southern Water's landscape strategy	5.4
f). Area of PT16 land remaining outside the application site boundary	2.7
g). Total area of land potentially available for playing fields [i.e. (e)+(f)]	8.1
h). Total area of land allocated or suitable for public access [i.e. (c)+(f)]	16.6

4.34 In summary, with an appropriately sensitive landscape design response, Southern Water's proposals would support the objectives of policy PT16 and could assist in the delivery of a larger, more attractive and more diverse area of land suitable for public access than the local plan envisages. An area in excess of eight hectares would be available for the laying out of sports pitches. This potential benefit was acknowledged in the appeal decision for Southern Water's previous proposals for the site.

TREATMENT WORKS SITE OPTIONS

4.35 An overall account of the site selection process pursued by Southern Water is provided in the *Site Selection Report* appended to the *Environmental Statement*, and the *Site Selection Review and Update* that also accompanies the current planning application. The site selection process is also summarised in chapter two of this design and access statement.

4.36 In summary, the company conducted an exhaustive search for sites within a wide area of search that was agreed with local authorities consultative

group. In a process informed by widespread stakeholder consultation, an initial 'long list' of 66 potential treatment works locations was identified. This was reduced to a shortlist of eight sites, from which a preferred site on the edge of Peacehaven was selected. This site selection decision received the independent support of consultants Entec, who were appointed to advise East Sussex County Council in its consideration of Southern Water's first planning application for a treatment works on the Peacehaven site. The choice of site was also supported in the 2007 appeal decision.

CONCLUSIONS

4.37 There is independent support for the principle of locating the wastewater treatment works and sludge recycling centre on the edge of Peacehaven. From a design perspective, planning policy highlights a need to integrate the development sensitively into the landscape in views from both Peacehaven and the AONB downland to the north and east. The design needs also to respond to a local plan policy that allocates a part of the site for open space and sports pitches.