dha environment

Document 3.1- ES Volume 2
Appendix 9.1 Flood Risk Assessment

The Kemsley Mill K4 Combined Heat and Power Generating Station Development Consent Order

Planning Act 2008 The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Regulation 5(2)e

April 2018 - Submission Version

PINS Ref: EN010090

Flood Risk Assessment

Kemsley Paper Mill (K4) CHP Plant

On Behalf of DS Smith Paper Ltd

Date: March 2018

Our Ref: JER1201

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Amendment Record

Revision No.	Date	Reason for Change	Authors Initials
V1	March 18	Client comments	JM

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1 Scope of Work

1.1 Background

1.1.1 At the request of D S Smith Paper Ltd (the Applicant), RPS Planning and Development Ltd (RPS) has carried out a site-specific Flood Risk Assessment (FRA) to support the planning application for a Combined Heat and Power (CHP) and associated infrastructure. The report has been produced in accordance with the National Planning Policy Framework (NPPF) [Ref 9.1] and Planning Practice Guidance (PPG) ID7 [Ref 9.2].

1.1.2 The key objectives of the FRA are:

- To assess the flood risk to the proposed development and to demonstrate the feasibility of appropriately designing the development such that any residual flood risk to the development and users would be acceptable;
- To assess the potential impact of the proposed development on flood risk elsewhere and to demonstrate the feasibility of appropriately designing the development such that the development would not increase flood risk elsewhere; and
- To satisfy the requirements of the NPPF and PPG which require FRAs to be submitted in support of planning applications for development over 1 ha in area.

1.1.3 Developments that are designed without regard to flood risk may endanger lives, damage property, cause disruption to the wider community, damage the environment, be difficult to insure and require additional expense on remedial works. Current guidance on development and flood risk identifies several key aims for a development to ensure that it is sustainable in flood risk terms. These aims are as follows:

- The development should not be at a significant risk of flooding and should not be susceptible to damage due to flooding;
- The development should not be exposed to flood risk such that the health, safety and welfare of the users of the development, or the population elsewhere, is threatened;
- Normal operation of the development should not be susceptible to disruption as a result of flooding;
- Safe access to and from the development should be possible during flood events;
- The development should not increase flood risk elsewhere;
- The development should not prevent safe maintenance of watercourses or maintenance and operation of flood defences;
- The development should not be associated with an onerous or difficult operation and maintenance regime to manage flood risk. The responsibility for any operation and maintenance required should be clearly defined;
- Future users of the development should be made aware of any flood risk issues relating to the development;

- The development design should be such that future users will not have difficulty obtaining insurance or mortgage finance, or in selling all or part of the development, as a result of flood risk issues;
- The development should not lead to degradation of the environment; and
- The development should meet all of the above criteria for its entire lifetime, including consideration of the potential effects of climate change.

1.1.4 The FRA is undertaken with due consideration of these sustainability aims.

2 Regulatory and Policy Framework

2.1 National Planning Policies

National Policy Statements (NPS) [Ref 9.14]

2.1.1 Planning policy on renewable energy Nationally Significant Infrastructure Projects (NSIPs), specifically in relation to hydrology and flood risk, is contained in the Overarching National Policy Statement (NPS) for Energy (EN-1) (Department of Energy and Climate Change (DECC), 2011a) and the NPS for Renewable Energy Infrastructure EN-3 (DECC, 2011b).

2.1.2 The key test set out within EN-1 is that inappropriate development should be avoided in areas at risk of flooding and to that development should be directed away from the areas at the highest risk. Where new energy infrastructure is necessary in such areas that should be seen as an exception and should be made safe without increasing flood risk elsewhere and if possible by reducing flood risk overall.

2.1.3 Paragraph 4.8.6 (NPS EN-1) specifically identifies that applicants should have regard to climate change and should assess the resilience of their project to climate change.

National Planning Policy Framework (NPPF)

2.1.4 The National Planning Policy Framework 2012 (NPPF) is a material consideration in determining planning applications. Paragraphs 99 to 108 of the NPPF outline the development requirements in terms of flood risk, water quality and resources and the impact of climate change, stipulating that a site specific Flood Risk Assessment (FRA) is required for proposals for new development in Flood Zones 2 and 3 and for any proposal for developments on 1 ha or greater in Flood Zone 1

2.1.5 The NPPF requires the application of a sequential risk-based approach to determining the suitability of land for development in flood risk areas, and that flood risk assessment should be carried out to the appropriate degree, at all levels of the planning process.

2.1.6 On 6th March 2014 the Department for Communities and Local Government (DCLG) launched Planning Practice Guidance ID7 as a web-based resource. The Planning Practice Guidance ID7 (DCLG, 2014) for Flood Risk and Coastal Change (Ref: 19.5) provides additional guidance for the implementation of the NPPF in relation to development and flood risk.

Planning Practice Guidance, online.

2.1.7 PPG ID7 Flood Risk and Coastal Change provides guidance to ensure the effective implementation of the NPPF planning policy for development in areas at risk of flooding.

2.1.8 PPG ID7 states that a site-specific FRA is required for all proposals for new development in Flood Zones 2 and 3 and for any proposal of 1 hectare or greater in Flood Zone 1. An FRA should consider vulnerability to flooding from other sources as well as from river and sea

flooding, and also the potential for any increased risk of flooding elsewhere resulting from a development.

Environment Agency - Flood risk assessments: climate change allowances [Ref 9.3]

2.1.9 The NPPF sets out how the planning system should help minimise vulnerability and provide resilience to the impacts of climate change. The NPPF and supporting planning practice guidance on Flood Risk and Coastal Change explain when and how flood risk assessments should be used. This includes demonstrating how flood risk will be managed now and over the development's lifetime, taking climate change into account.

2.1.10 In February 2016 the EA updated advice on climate change allowances to support NPPF. New guidance requires that flood risk assessments and strategic flood risk assessments, assess both the central and upper end allowances (Table 2-1) to understand the range of impact.

Table 2-1: Peak Rainfall Intensity Allowance in Small and Urban Catchments (use 1961 to 1990 baseline)

Applies across all of England	Total potential change anticipated for 2010 to 2039	Total potential change anticipated for 2040 to 2059	Total potential change anticipated for 2060 to 2115
Upper End	10%	20%	40%
Central	5%	10%	20%

2.1.11 The proposed development has an anticipated lifespan of approximately 25 years. In line with climate change guidance RPS has added 20% to all attenuation / runoff calculation for the development to account for climate change.

Sea level rise

2.1.12 Table 2-2 outlines the anticipated sea level rise associated with climate change per defined epoch. The EA expect sea level rise to increase the rate of coastal erosion.

Table 2-2: Sea Level Allowance for each Epoch (mm) per year (use 1990 baseline)

Area of England	1990 to 2025	2026 to 2055	2056 to 2085	2086 to 2115	Cumulative rise 1990 to 2115 / metres (m)
East, east midlands, London, south east	4 mm/yr. (140 mm)	8.5 mm/yr. (255 mm)	12 mm/yr. (360 mm)	15 mm/yr. (450 mm)	1.21 m
South West	3.5 mm/yr. (122.5 mm)	8 mm/yr. (240 mm)	11.5 mm/yr. (345 mm)	14.5 mm/yr. (435 mm)	1.14 m

North west, north east	2.5 mm/yr. (87.5 mm)	7 mm/yr. (210 mm)	10 mm/yr. (300 mm)	13 mm/yr. (390 mm)	0.99 m

2.1.13 The climate change guidance notes that the allowances provided have been derived from national scale research. There may be cases where local evidence supports the use of other local climate change allowances. With specific reference to changes to extreme rainfall LIT 5707 notes that UKCP09 provides useful information on change to rainfall across the UK.

2.2 Local Planning Policies

2.2.1 The relevant development plan at the local level comprises the Swale Local Plan (Bearing Fruits 2031) which was adopted on July 2016.

2.2.2 Policy DM1 requires development proposals to avoid inappropriate development in areas at risk of flooding or where development would increase flood risk elsewhere.

2.3 Legislative background

2.3.1 Following the implementation of the Flood and Water Management Act 2010 [Ref 9.7] local flood risk has become the responsibility of the Local Planning Authority. The Act places new duties on upper tier Councils, by designating them as Lead Local Flood Authorities (LLFAs) for the coordination of local flood risk management in their respective administrative areas.

2.3.2 From April 6 2015 the responsibility for drainage and surface water management design approval resides with the local planning authority and the design of the drainage and surface water management should be submitted as part of the planning process.

2.3.3 The local planning authority has responsibility for the approval of proposed drainage systems in new developments and redevelopments. Approval must be given before any developer can commence construction. In order to be approved, the proposed drainage system would have to meet national standards for sustainable drainage.

2.3.4 The local planning authority is also responsible for adopting and maintaining SuDS which serve more than one property, which they have approved. The Highways Authorities will be responsible for maintaining SuDS in public roads to National Standards.

2.3.5 The National Standards set out the criteria by which the form of drainage appropriate to any particular site or development can be determined, as well as requirements for the design, construction, operation and maintenance of SuDS.

2.3.6 Additional guidance for the use of SuDS is provided via CIRIA and BRE in the following:

- C753 – The SuDS Manual, 2015 [*Ref 9.8*].
- C522 Sustainable Drainage Systems- Design Manual for England and Wales [*Ref 9.9*].

- REP R 156 Infiltration Drainage – Manual of Good practice [*Ref 9.10*].
- BRE365 Soakaway design [*Ref 9.11*].

3 Site Setting

3.1 Site Location

3.1.1 The proposed development site is located approximately 3 km north of Sittingbourne centre and 1.3 km north of Kemsley town centre. It is bounded to the north, south and west by the Kemsley Paper Mill complex, operated by the Applicant, to the east by the Kemsley 3 SEP facility with marshes and the Swale Estuary beyond.

3.1.2 The National Grid Reference of the site is centred on 592007,166298. The location plan is shown in Drawing 1.

3.2 Existing Site

3.2.1 The application site covers a roughly triangular in shape parcel of land covering approximately 1 ha, presently entirely concrete hardstanding.

3.2.2 The site is accessed through the current DS Smith Paper Mill complex from the A249 via Swale Way via Ridham Avenue.

3.3 Proposed Development

3.3.1 The proposed design for the new plant includes the following:

- Gas turbine technology of around 52 MW nominal power output.
- Waste Heat Recovery Boilers (capable of supplementary firing) sized to provide an output of approximately 105 MWth steam.
- Steam Turbine technology of around 16 MW nominal power output.

3.3.2 A site concept plan has been developed for the proposed development site and is shown in Drawing 2.

3.4 Current Topography

3.4.1 A review of topographical survey drawing 10392-0005-002 indicates that the existing CHP site is relatively level with elevations ranging from c.8.80 mAOD to c.9.20 mAOD.

3.4.2 The temporary construction access road varies in topography ranging from 5.37 mAOD within the southern extent to 2.78 mAOD within the northern extent.

4 Flood Risk Assessment

4.1 Hydrological Overview

4.1.1 The nearest watercourses to the Proposed Development are a number of drain networks, which lie to the east and south. OS data and information obtained from a site visit by an RPS hydrologist notes a culverted drain beneath the construction access road on the northwest edge of the Site. The drain flows south to north and converges with a number of other drainage networks and then flows east into The Swale, the watercourse that separates the Kent mainland from the Isle of Sheppey.

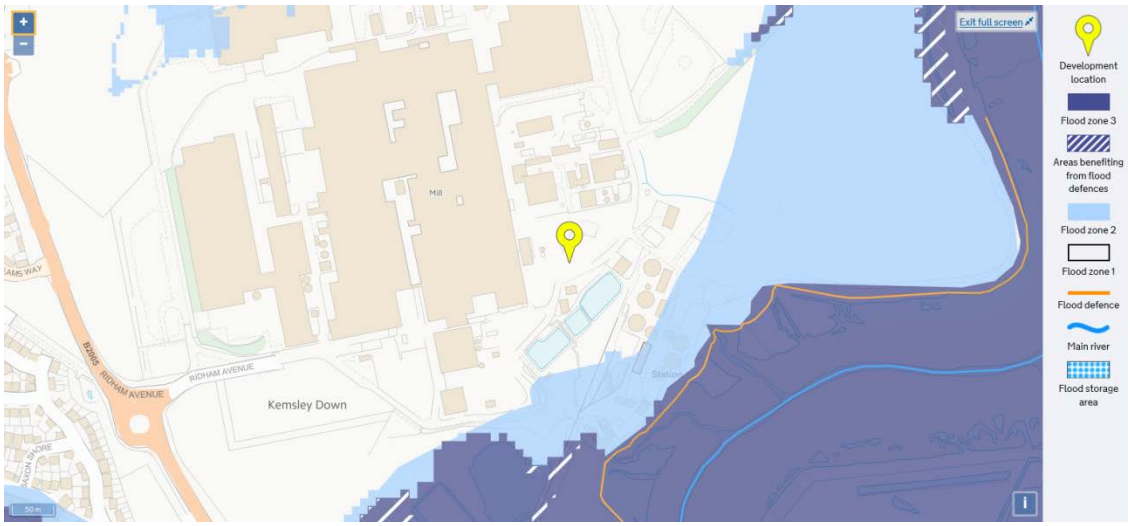
4.1.2 The tidally dominated Swale is approximately 300 m to the south at closest orientation of the Proposed Development and has been classified by the EA as the main risk of flooding. Therefore, fluvial flooding has not been assessed further within this report.

4.1.3 Responsibility for ordinary watercourses which discharge into the Swale fall under the jurisdiction of Kent County Council as the Lead Local Flood Authority (LLFA) and Lower Medway Internal Drainage Board (IDB) under the Water and Flood Management Act 2010 and Land Drainage Act 1991 [Ref 9.12]. The IDB and LLFA are required to exercise general supervision over all matter relating to water level management within their districts.

4.1.4 The North Kent Rivers Catchment Flood Management Plan (CFMP) [Ref 9.13] indicates that the site is located within a Policy Option 3 area (Areas of low to moderate flood risk where we are generally managing existing flood risk effectively).

4.2 Fluvial and Tidal Flooding

4.2.1 The Environment Agency (EA) [Ref 9.14] Flood Map for Planners indicates the entire Proposed CHP Development area lies within Flood Zone1, defined as land having a low probability of flooding, assessed as having a less than 1 in 1,000 annual probability of river or sea flooding. The southern extent of the construction access road is located within Flood Zone 3 (FZ3), and has a ‘high’ probability of tidal flooding.



Tidal Flooding Sources

4.2.2 The tidally dominated Swale is approximately 300 m to the south of the proposed development site at closest orientation and has been classified by the EA as the main source of flooding. EA data information request (Annex 1) has supplied modelling outputs from the North Kent Coast Modelling and Mapping Study (August 2015) indicating the CHP site is not susceptible to flooding during all scenarios.

4.2.3 Tidal model outputs indicate that the construction access road would be susceptible to flooding, with levels reaching 6.015 mAOD during the undefended 0.5% AEP 2115 event. Compared against topographical survey data flood depth would range from 3.05 m within the northern extent reducing to 0.65 m at the southern extent.

Fluvial Flooding Sources

4.2.4 EA mapping indicates that The Swale is the only source of flooding, therefore fluvial influences are not considered further in this report.

4.3 Flood Defence Details

4.3.1 EA Mapping indicates that there are existing flood defences along the eastern extent of the site (Annex 1) comprising raised walls and embankments. These flood defences are recorded to provide a 1 in 1,000 year standard of protection.

4.3.2 The EA currently has no planned improvement works to these defences.

4.4 Groundwater Flooding

4.4.1 The EA has confirmed that they have no record of groundwater flooding at the proposed development site.

4.4.2 Previous ground investigations have noted a shallow water table within the superficial deposits at the site (Alluvium – clay Silty, Peaty and sandy), which maybe in hydraulic continuity with

nearby water courses and may therefore fluctuate with the tide. The superficial deposits are classified as a secondary (undifferentiated) aquifer. A site investigation conducted by RPS (July 2009) indicates wide spread seepage within the made ground and alluvium layers. It is likely that this represents a perched system. A deeper groundwater system (most likely in continuity with the Swale estuary) was encountered at a depth of 14 m below existing ground level.

4.4.3 British Geological Survey (BGS) [Ref 9.15] mapping indicates the superficial soils are underlain by a bedrock geology comprising Eocene-aged London Clay, a negligibly permeable non-aquifer. The London Clay is generally regarded as containing insignificant quantities of groundwater, but is underlain by more permeable Eocene Woolwich and Thanet sand beds. These are major aquifer units that can provide significant quantities of groundwater for abstraction.

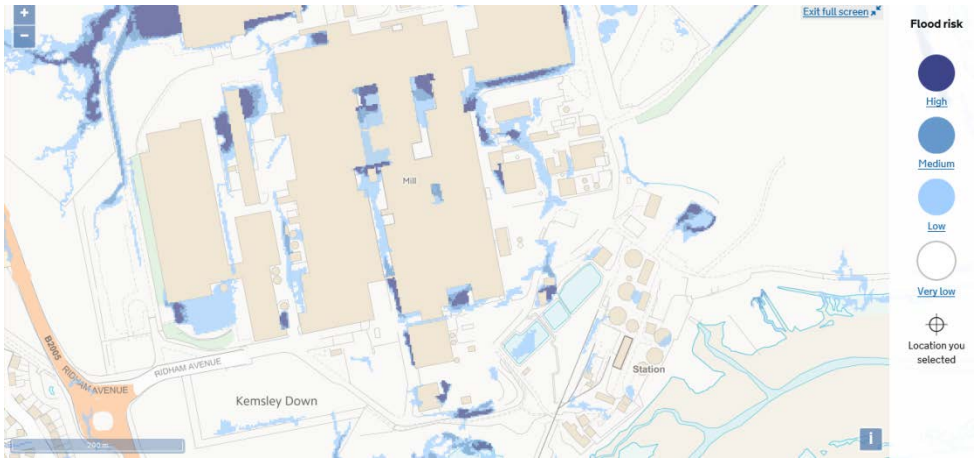
4.5 Source Protection Zone

4.5.1 EA records indicate that the nearest Source Protection Zone 3 is located 1.4 km to the southwest of the southernmost point of the site.

4.6 Surface Water Flooding

4.6.1 Surface Water flooding occurs when rainfall precipitation rates exceed ground infiltration rates, causing rainfall to run off across the ground surface. This is common on low permeability surfaces such as asphalt and concrete, on saturated ground, and on compacted or low permeability natural soils such as the clayey soils that occur within site. It is often localised with flows being conveyed into natural surface channels or artificial drainage systems.

4.6.2 EA Surface Water Flooding Maps (Accessed October 2017) indicates that the majority of the site is at 'very low' risk with a chance of flooding each year of less than 1 in 1000 (0.1%). Localised areas within the northern and southern extents of the site are defined as being at low risk, with between 1 in 100 (1%) and 1 in 1000 (0.1%) chance of flooding in any given year.



4.7 Flooding due to Infrastructure Failure

4.7.1 No potential sources of flooding from artificial drainage systems, sewers, ponds or reservoirs have been identified and none have been reported.

4.8 Other Sources of Flooding

4.8.1 No other potential sources of flooding have been identified.

4.9 Historical Flood Events

4.9.1 EA data request (Annex 1) indicates that no historical flood records (from rivers and/or sea) are present for the location.

4.10 Water Framework Directive Status

4.10.1 The application area is located within the Medway Swale Estuary assessment area. EA records indicate that the current (2016 Cycle 2) WFD status of the Swale is Moderate. However, the objective status is Good.

4.11 Current Flood Risk

4.11.1 The EA flood map indicates that the only significant source of flooding originates from The Swale.

4.11.2 EA flood zone mapping shows that the development site lies within Flood Zone 1, therefore has a 'low probability' of flooding from extreme tidal events.

4.11.3 The construction access road lies partly within Flood Zone 2 and 3.

5 Flood Risk Vulnerability Classification

5.1.1 In accordance with the Flood Risk Vulnerability Classification [Ref 9.16] in Table 2 of the PPG Flood Risk and Coastal Change, the proposed CHP plant development and associated infrastructure is classified as 'Essential Infrastructure' to be located on land assessed as Flood Zone 1.

5.1.2 Table 3 of Planning Practice Guidance (Table 5-1 of this report) indicates that 'Essential Infrastructure' uses are appropriate for the locations in Flood Zone 1.

Table 5-1: Significant Residual Visual and Landscape Effects

Flood Risk Vulnerability classification (see Table 3 of Planning Practice Guidance)	**Essential Infrastructure**	**Water Compatible**	**Highly Vulnerable**	**More Vulnerable**	**Less Vulnerable**
Zone 1	Yes	Yes	Yes	Yes	Yes
Zone 2	Yes	Yes	Exception test required	Yes	Yes
Zone 3a	Exception test required	Yes	No	Exception test required	Yes
Zone 3b Functional Floodplain	Exception test required	Yes	No	No	No

Key: ***Yes***: Development is appropriate, ***No***: Development should not be permitted

6 Site Drainage

6.1 Sustainable Drainage Options

6.1.1 The NPPF and associated Planning Practice Guidance, CIRIA C753 SuDS Manual (2015) and also the Swale Borough Council Local Plan (2008) promote sustainable water management through the use of SuDS. A hierarchy of techniques is identified:

1. **Prevention** – the use of good site design and housekeeping measures on individual sites to prevent runoff and pollution (e.g. minimise areas of hard standing).
2. **Source Control** – control of runoff at or very near its source (such as the use of rainwater harvesting).
3. **Site Control** – management of water from several sub-catchments (including routing water from roofs and car parks to one/several large soakaways for the whole site).
4. **Regional Control** – management of runoff from several sites, typically in a detention pond or wetland.

6.1.2 It is generally accepted that the implementation of SuDS as opposed to conventional drainage systems, provides several benefits by:

- reducing peak flows to watercourses or sewers and potentially reducing the risk of flooding downstream;
- reducing the volumes and frequency of water flowing directly to watercourses or sewers from developed sites;
- improving water quality over conventional surface water sewers by removing pollutants from diffuse pollutant sources;
- reducing potable water demand through rainwater harvesting;
- improving amenity through the provision of public open spaces and wildlife habitat; and
- replicating natural drainage patterns, including the recharge of groundwater so that base flows are maintained.

6.2 Drainage Strategy

6.2.1 The sustainable management of surface water is an essential element of reducing future flood risk to the site and its surroundings.

6.2.2 The effect of development is generally to reduce the permeability of at least part of the site, which markedly changes the site's response to rainfall. Without specific measures to manage surface water the volume of water and peak flow rate are likely to increase. Inadequate surface water drainage arrangements can threaten the development itself and increase the risk of flooding to others.

6.2.3 Surface water arising from a developed site should as far as is practicable be managed in a sustainable manner to mimic the surface water flows arising from the site prior to the proposed development while reducing the risk of flooding at the site and elsewhere, taking climate change into account.

6.2.4 The Proposed Development will retain the existing surface water drainage regime, where by surface water flows are conveyed, by an internal drainage network, to a current outflow into an isolated open channel forming within Kemsley Marshes. By virtue of the channel water is directed through the marshes parallel with the access track/ Barge Way. At the south west corner of the Country Style Recycling the stream abruptly turns east discharging into The Swale via an existing outflow.

6.2.5 As the Proposed Development will retain the existing drainage regime directing flows into The Swale, via Applicant owned land, the EA and Medway IDB have stipulated a requirement to reduced run-off rate.

6.3 Discussions with Regulators

6.3.1 RPS has liaised with Lower Medway IDB (Mike Watson) with respect to offsite clean surface water flow. RPS confirmed that the Proposed Development would utilise existing drainage outfalls, which conveys water, at an unrestricted rate, to an isolated drainage network within the Applicant ownership. Water is then discharged via current outfall into the Swale.

6.3.2 The IDB confirmed the above approach is acceptable. However, the Applicant should be made aware that the receiving Kemsley Marsh land is acting as storm water attenuation. Therefore, restricting future development of this specific area of land in the future.

7 Flood Management

7.1.1 EA tidal modelling outputs indicate that the Proposed CHP Development is not susceptible to flooding during all scenarios. However, the local transport network is shown via EA undefended tidal flood modelling outputs to be at flood risk. A comparison between the 1 in 200 year (0.5%) event including climate change 2115 flood level (6.015 mAOD) and access road level indicates the road would be at risk to flood depths ranging from 3.05 m within the northern extent to 0.65 m within the central to southern extent flood depth.

7.1.2 The following flood management procedure options may be used to mitigate the risk to site users. The options presented or not exhaustive and are presented for consideration only.

7.2 Flood Warnings

7.2.1 The EA aims to provide up to 12 hours before the issue of a Flood Warning. It is recommended that the site operator liaise with and registered on the EA Flood Warning System and implement on site management strategies to ensure that they can communicate flood warnings efficiently in order that the site can be evacuated.

7.2.2 It is recommended that a Flood Evacuation Plan is developed as land surrounding the site would be at risk of flooding. Staff training would also be required, with the plan including information on what to do upon receipt of a flood warning, together with evacuation procedures and routes.

7.2.3 Flood Plans should be practiced regularly in order to minimise the risk to people.

7.2.4 Suitably trained staff would need to convey flood warning information and emergency procedures to occupants. All site personnel and contracted night security services would be required to be familiar with the flood action plan. Appropriate signage across the site (i.e. exits and assembly points) should be installed.

7.2.5 Additional information on the EA Flood Warnings and advice on what each warning can be found at the flood information surface (https://flood-warning-information.service.gov.uk/) [Ref 9.17].

7.3 Safe Access/Egress

7.3.1 As noted in 7.2.1 there is likely to be up to 12 hours before flood water impact upon the site. Therefore, there should be sufficient time for occupants to safely evacuate the site.

7.3.2 In the unlikely event that the site would be flooded, based on EA model outputs there is a risk to the local traffic network, therefore the following is provided to aid occupants.

7.3.3 If required to evacuate safely, occupants should head west through the Kemsley Paper Mill complex and then out onto Swale Way in an area located within Flood Zone 1.

8 Summary and Conclusions

8.1 Summary

8.1.1 A site-specific Flood Risk Assessment (FRA) in accordance with the NPPF and Planning Practice Guidance has been undertaken for the proposed c.1 ha CHP development and associated infrastructure adjacent to the Kemsley Paper Mill complex, Kemsley.

8.2 Flood Risk

8.2.1 EA flood mapping indicates that the entire site lies within Flood Zone 1, therefore has a 'low probability' of flooding from tidal sources.

8.2.2 EA tidal modelling outputs indicate that the Propose Development is not susceptible to flooding during all scenarios.

8.2.3 The site has not flooded historically.

8.2.4 The majority of the site is at very low risk of surface water flooding.

8.2.5 The risk of groundwater flooding is considered to be low.

8.2.6 The risk of flooding from infrastructure failure is considered to be low.

8.2.7 The risk of flooding from reservoir failure has been assessed as low.

8.2.8 The proposed development is appropriate for the present flood zone and the zone including climate change.

8.2.9 The Proposed Development will retain the existing surface water drainage regime, where by surface water flows are conveyed by an internal drainage network to a current outflow into an open channel within Kemsley Marshes.

8.2.10 As the Proposed Development will retain the existing drainage regime directing flows into The Swale, via Applicant owned land, the EA and Medway IDB have not stipulated a requirement to reduced run-off rate.

8.3 Conclusion

8.3.1 The FRA has demonstrated the following:

- The site is elevated to Flood Zone 1; and
- All aspects of the proposed development are appropriate for their respective flood zoning classification.

8.3.2 The FRA has also considered the potential impact of the proposed development on surface water runoff rates. Appropriate mitigation measures to attenuate surface runoff have been presented, in accordance with EA requirements and the SuDS manual.

8.3.3 This FRA demonstrates that the proposed development is not at risk of tidal flooding and incorporates appropriate SuDs measures to manage run-off with increasing flood risk elsewhere. Therefore, the proposed development meets the requirements of National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPG) ID7, for the development of a CHP Plant on land located northeast of Kemsley Town centre.

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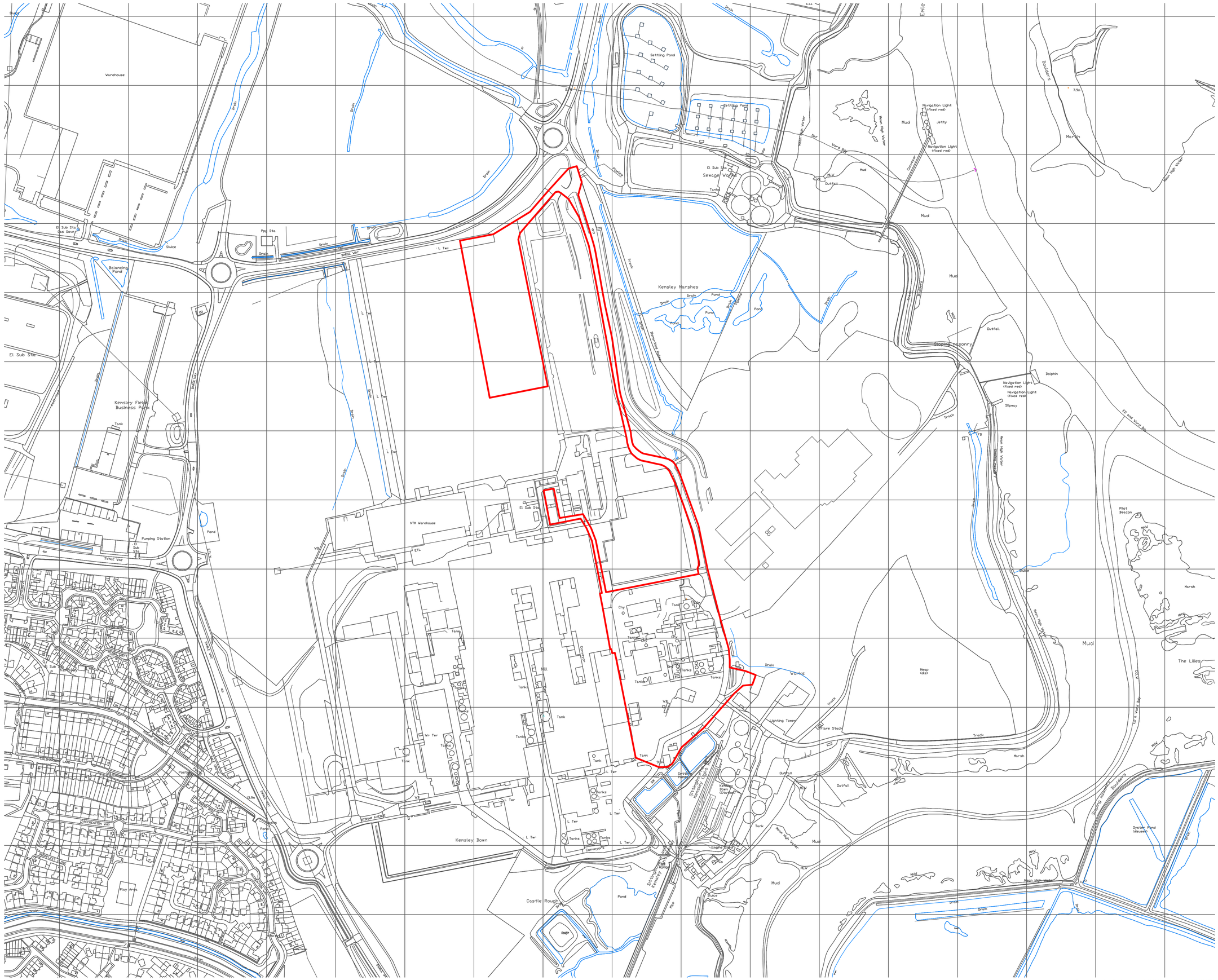

DS Smith

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Legend

Application boundary

Notes

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The Kemsley Mill K4 Combined Heat and Power Generating Station Development Consent Order

Title: Land Plan

Scale 1: 2,500 @ A1

0 50 100 150 200 Metres

Date: Mar 2018

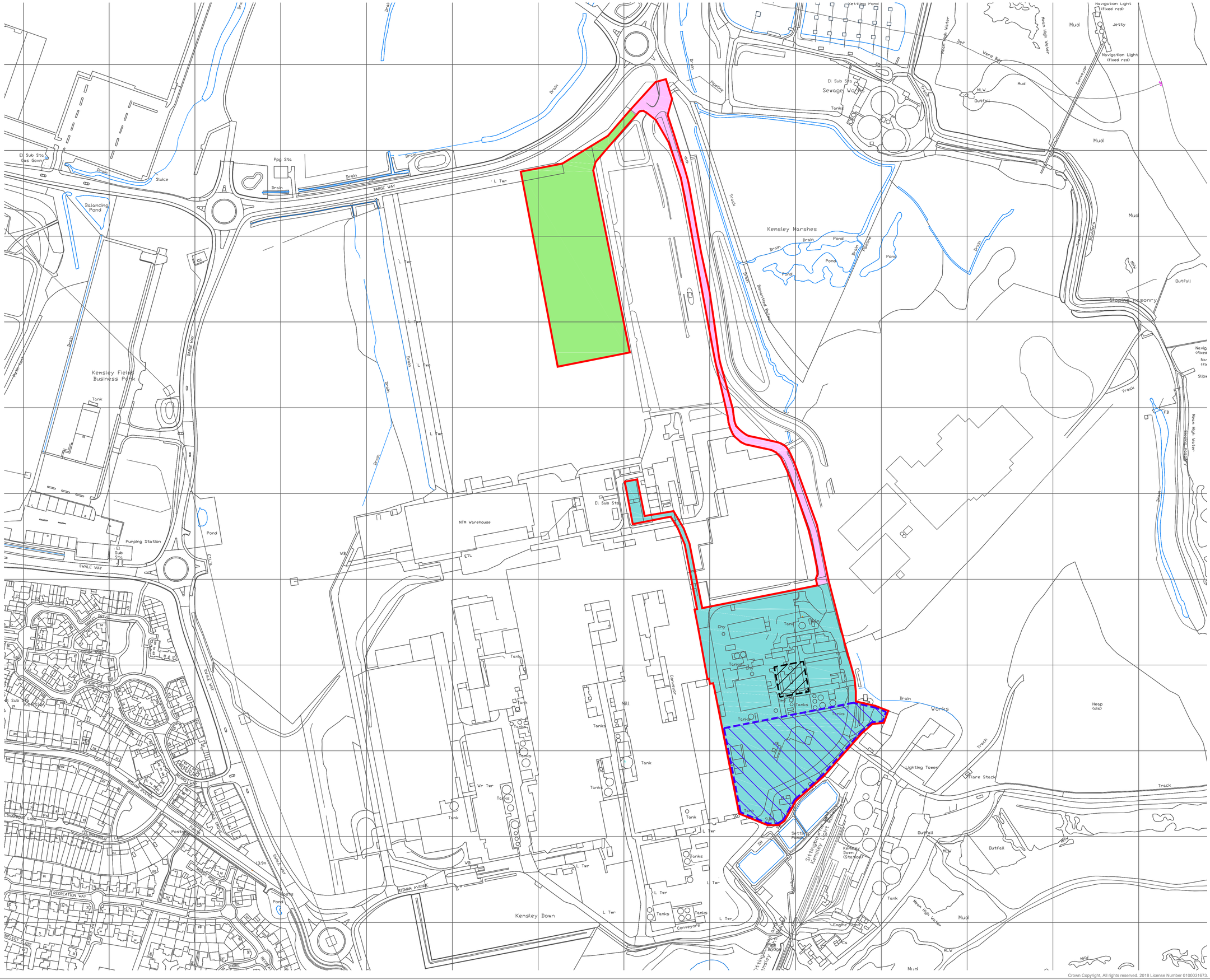
Author: R.Massey

Doc reference

10392-0024-005

Document number

4.3



Notes

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The Kemsley Mill K4 Combined Heat and Power Generating Station Development Consent Order

Title: Works Plans - Key Plan

Scale 1: 2,000 @ A1

0 40 80 120 160 Metres

Date: Mar 2018

Author: R.Massey

Doc reference

10392-0026-006

Document number

4.4

Limits of deviation for work no.1 g) CHP Pipe Bridge, including pipes and cables

Limits of deviation for work no.1 d) Heat Recovery Steam Generator

Limits of deviation for work no.1 b & c) Generator and Gas Turbine)

Limits of deviation for work no.1 a) Local Equipment Room and Control (including battery enclosure)

Limits of deviation for work no.1j) 35m high Package Boiler Stack

Limits of deviation for work no.1 e) 70M High Heat Recovery Steam Generator Stack

Limits of deviation for work no.1 f) Turbine Hall (including steam turbine)

Limits of deviation for work no.1 k-w) Ancillary plant items

Limits of deviation for work no.1 i) Fin Fan Cooler

Limits of deviation for work no.1 h) Dump Condenser

DS Smith

N

Legend

- Application boundary
- Limits of deviation for work no.1 a) Local Equipment Room and Control (including battery enclosure)
- Limits of deviation for work no.1 b & c) Generator and Gas Turbine
- Limits of deviation for work no.1 d) Heat Recovery Steam Generator
- Limits of deviation for work no.1 e) 70M High Heat Recovery Steam Generator Stack
- Limits of deviation for work no.1 f) Turbine Hall (including steam turbine)
- Limits of deviation for work no.1 g) CHP Pipe Bridge, including pipes and cables
- Limits of deviation for work no.1 h) Dump Condenser
- Limits of deviation for work no.1 i) Fin Fan Cooler
- Limits of deviation for work no.1 j) 35m high Package Boiler Stack
- Limits of deviation for work no.1 k-w) Ancillary plant items

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The Kemsley Mill K4 Combined Heat and Power Generating Station Development Consent Order

Title: Work No.1 - works plan with limits of deviation for horizontal tube boiler

Scale 1: 250 @ A1

0 5 10 15 20 Metres

Date: Mar 2018

Author: R.Massey

Doc reference

10392-0029-010

Document number

4.5

Limits of deviation for work no.1 g) CHP Pipe Bridge, including pipes and cables

Limits of deviation for work no.1 d) Heat Recovery Steam Generator

Limits of deviation for work no.1 b & c) Generator and Gas Turbine)

Limits of deviation for work no.1 a) Local Equipment Room and Control (including battery enclosure)

Limits of deviation for work no.1j) 35m high Package Boiler Stack

Limits of deviation for work no.1 e) 70M High Heat Recovery Steam Generator Stack

Limits of deviation for work no.1 f) Turbine Hall (including steam turbine)

Limits of deviation for work no.1 k-w) Ancillary plant items

Limits of deviation for work no.1 i) Fin Fan Cooler

Limits of deviation for work no.1 h) Dump Condenser

DS Smith

N

Legend

- Application boundary
- Limits of deviation for work no.1 a) Local Equipment Room and Control (including battery enclosure)
- Limits of deviation for work no.1 b & c) Generator and Gas Turbine
- Limits of deviation for work no.1 d) Heat Recovery Steam Generator
- Limits of deviation for work no.1 e) 70M High Heat Recovery Steam Generator Stack
- Limits of deviation for work no.1 f) Turbine Hall (including steam turbine)
- Limits of deviation for work no.1 g) CHP Pipe Bridge, including pipes and cables
- Limits of deviation for work no.1 h) Dump Condenser
- Limits of deviation for work no.1 i) Fin Fan Cooler
- Limits of deviation for work no.1 j) 35m high Package Boiler Stack
- Limits of deviation for work no.1 k-w) Ancillary plant items

Notes

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The Kemsley Mill K4 Combined Heat and Power Generating Station Development Consent Order

Title: Work No.1 - works plan with limits of deviation for vertical tube boiler

Scale 1: 250 @ A1

0 5 10 15 20 Metres

Date: Mar 2018

Author: R.Massey

Doc reference

10392-0031-007

Document number

4.9