

## 2 Site description and proposed development

### 2.1 Introduction

2.1.1 This Chapter provides a description of the site(s) and surrounding area. It also sets out details of the K3 and WKN Proposed Developments and provides construction and post-construction information.

### 2.2 The Site(s) and wider area

2.2.1 The location of the K3 and WKN sites is shown in **Figure 1.1 in Chapter 1**.

#### Wheelabrator Kemsley (K3) Site

2.2.2 The site is located on land immediately to the east of the Kemsley Paper Mill, located 0.8km east of Kemsley, a residential suburb in the north of Sittingbourne in Kent (hereafter the '**K3 Site**'). It lies adjacent to the Swale Estuary to its east, with the Isle of Sheppey beyond and within the administrative areas of Kent County Council (KCC) and Swale Borough Council (SBC). To the south of the K3 Site lies a capped former landfill site which lies adjacent to the confluence between Milton Creek and the Swale Estuary. To the north lies an area of reedbed known as Kemsley Marshes. Access to the K3 Site is obtained from Barge Way to the north via an existing access road forming the eastern boundary of the Kemsley Paper Mill and shared with the mill operator DS Smith Ltd. The K3 Site lies in proximity to the A249 which links to both the M2 and M20 motorways to the south and with the Isle of Sheppey to the north.

#### Wheelabrator Kemsley North (WKN) Site

2.2.3 The site is located on land immediately north of the permitted K3 facility (hereafter the "**WKN Site**"). The WKN Site is currently being used by the Applicant as a laydown and parking area for the construction of the adjacent K3 facility. It has been cleared of vegetation and laid to concrete or hardcore with a perimeter fence.

2.2.4 To the east of the WKN Site lies the Swale Estuary with the Isle of Sheppey beyond. Immediately to the north lie the Kemsley Marshes beyond which lies the Kemsley Paper Mill anaerobic digester treatment works and to the north east a jetty operated by Knauf for the import of gypsum by barge.

2.2.5 **Figure 2.1** provides a photo of the K3 and WKN Site(s) as of July 2019.

### 2.3 Proximity to Sensitive Sites

2.3.1 The nearest statutory designation with regard to ecological interest is the Swale Special Protection Area and Site of Special Scientific Interest (SSSI) which lies approximately 100m east of the Sites at its closest point. Milton Creek Local Wildlife Site (LWS) is also less than 400m and 550m respectively from the K3

and WKN Sites. A designated Scheduled Monument 'Castle Rough', a former Medieval moated site, lies approximately 500m and 650m south west of the K3 and WKN Sites respectively. The Sites lie over 7km from the North Downs Area of Outstanding Natural Beauty. Statutory designations in proximity to the Sites are shown on **Figure 2.2a-d**.

## 2.4 Planning History

### ***K3 Site***

- 2.4.1 Planning permission was first granted on 6th March 2012 by Kent County Council under reference KCC/SW/10/444 on the K3 Site for the 'development of a Sustainable Energy Plant to serve Kemsley Paper Mill, comprising waste fuel reception, moving grate technology, power generation and export facility, air cooled condensers, transformer, bottom ash handling facility, office accommodation, vehicle parking, landscaping, drainage and access' (**'K3 as consented'**).
- 2.4.2 The applicants for the purposes of that application were St Regis Paper Co. Ltd and E.ON Energy from Waste UK Ltd. The developer and operator of the facility is now K3 CHP Ltd, a subsidiary company of Wheelabrator Technologies Inc.
- 2.4.3 K3 as consented, once operational, will combust post-recycled solid recovered fuel waste, commercial and industrial waste and pre-treated municipal solid waste to produce electricity which is exported to the national grid and steam which is supplied to the Kemsley Paper Mill for use in the paper-making process.
- 2.4.4 As consented and being built K3 will be capable of processing 550,000 tonnes of waste per annum and will have a generating output of 49.9MW. A full Environmental Impact Assessment was undertaken, submitted and approved as part of the local planning application for this development (see Document 3.3 submitted with the application). Construction of K3 began in July 2016 and is expected to be completed with the facility operational by late 2019.
- 2.4.5 An amendment to the original consent was permitted on 21<sup>st</sup> April 2015 to vary the permitted hours of delivery such that the facility could operate for 24 hours, 7 days a week (KCC/SW/14/50668).
- 2.4.6 An amendment to that consent was then permitted on 23<sup>rd</sup> August 2018 to vary Condition 16 to allow for an amended surface water management scheme, under reference KCC/SW/17/502996.
- 2.4.7 A further amendment to Condition 3 was sought to increase the maximum permitted HGV movements allowed by 45 vehicles per day (90 movements), from a previously consented maximum of 258 movements to 348 movements. This application was permitted on 11<sup>th</sup> October 2018 (Kent County Council planning reference: KCC/SW/0103/2018).
- 2.4.8 The last variation of the original consent was granted on 14<sup>th</sup> June 2019, under reference SW/19/501345 and resulted in the removal of Condition 11 from the planning permission, which had previously required the provision of a scheme for

the provision and management of a buffer zone within the ditch immediately to the west of the K3 site to be provided and implemented.

- 2.4.9 A range of non-material amendments have also been made since the original consent, for matters including changes to the site layout, removal of the IBA facility and the repositioning of surface water ponds, together with applications to form an improved access road and to discharge planning conditions.
- 2.4.10 Full details on the planning history of the K3 Site are available in the Planning Statement (Document 4.2) submitted with the DCO application and available on PINS website.

### **WKN Site**

- 2.4.11 An application for a standalone IBA facility on the proposed WKN Site was submitted in 2016 and approved by Kent County in February 2017 (planning ref. KCC/SW/0265/2016). The facility has not been constructed and the permission expires in February 2020.

## **2.5 Overview of K3 as consented**

- 2.5.1 The approved layout of K3 as consented pursuant to KCC/SW/10/444 (as amended) is provided as **Figure 2.3**, approved scaled elevations of the facility as **Figure 2.4a-e** and a computer-generated image of how the facility will look upon completion as **Figure 2.5**.
- 2.5.2 K3 as consented will combust waste imported to the site (up to 550,000 tonnes per annum) to generate hot gases that in turn are used to produce steam and ultimately electricity. K3 as consented is permitted to operate twenty-four hours a day seven days a week. All waste will be brought to the site in heavy goods vehicles (HGVs) or in Refuse Collection Vehicles (RCV's). Operational traffic will enter the K3 Site via:
- The A249 and Swale Way;
  - north from Swale Way via Barge Way; and
  - via the existing Kemsley Paper Mill northern access.
- 2.5.3 K3 as consented will generate 174 HGV/RCVs per day (348 movements) associated with waste delivery and bottom ash removal. There are several key steps associated in the waste-to-energy process for K3 as set out below and shown on **Figure 2.6**:

### Waste reception and storage

- 2.5.4 Post recycled waste will be brought to the K3 Site in HGVs or RCVs. On arrival the vehicles will be weighed on weighbridges at the entrance before vehicles proceed to the tipping hall. Once at the tipping hall vehicles will be directed to one of 7 unloading bays from which waste is then deposited into the fuel (waste) bunker. The bunker principally takes the form of a recessed rectangular pit. The bunker is sized to accommodate in excess of 4 days' worth of anticipated waste processing

capacity. The waste material can vary widely in moisture content and thermal value, so it is continually managed in the bunker to ensure consistency prior to the combustion process.

#### Combustion

- 2.5.5 Overhead cranes transfer the waste from the waste bunker into a feed hopper to the boilers. The facility will have two combustion lines and associated boilers. Inside each boiler, an inclined, reciprocating, metal grate slowly moves the waste through a controlled thermal (heating) process, at temperatures in excess of 1000°C.

#### Electricity Production

- 2.5.6 The combustion of the waste produces hot gases which are subsequently passed through a series of boiler tubes filled with water, creating high-pressure steam. This steam is used to drive a turbine in the turbine hall which in turn produces electricity. The electricity produced will be exported to the distribution network, owned and operated by UK Power Networks.
- 2.5.7 Once the steam has passed through the turbine generators it is cooled by way of transfer to the air-cooled condenser units. As the steam loses heat it cools and then condenses and is fed back into the feed water tanks ready for re-use in the waste-to-energy process. An element of the low-pressure steam (up to 50MWth per hour) is fed to the Kemsley Paper Mill in a closed loop circuit whereby once utilised in the paper making process it is conveyed back to the air-cooled condenser units of the K3 facility.

#### Air Quality Control

- 2.5.8 Once heat from the hot combustion gas is absorbed into the boiler tubes to produce steam, the gas is then transferred from the boiler into the gas treatment facility. The gas is then denitrified by a process which turns nitrogen oxides to nitrogen and steam. The reducing agent is ammonium hydroxide which reacts with the nitrogen dioxide of the flue gases.
- 2.5.9 The gas is then further treated by a spray absorber which injects water slaked lime into the flue gases which facilitates the separation of chloride and sulphur dioxide. Dry charcoal and lime are then injected into the flue gas which separates heavy metals, dioxin and furans by absorption. Finally, the gas is passed through a fabric filter that collects any fly ash and extracted pollutants in the flue gas. Clean exhaust gas is then transported to the stack and dispersed into the atmosphere. All collected fly ash is disposed of appropriately in accordance with contemporary waste management regulations.
- 2.5.10 Exhaust emissions will be monitored by a Continuous Emissions Monitoring System (CEMS).

#### Residual ash

- 2.5.11 Residual bottom ash from the waste combustion process is exported from the facility in HGVs and either landfilled or used as an aggregate by the construction industry. Prior to safely disposing to landfill, ferrous metals such as iron and steel,

and non-ferrous metals, such as copper and aluminium, are extracted from the ash residue and sent to recycling facilities.

### ***Ancillary facilities and services tie-ins***

#### Workshops and Other Buildings

- 2.5.12 Mechanical and electrical workshops and stores will be constructed for maintenance activities.

#### Bulk Material Storage

- 2.5.13 An above ground diesel storage tank will contain diesel for use in the diesel generators.
- 2.5.14 Above ground bulk storage silos or tanks for the storage of Flue Gas Treatment (FGT) reagents (for example urea solution, hydrated lime, activated carbon powder) and FGT residue.

#### Demineralised Water Plant

- 2.5.15 A demineralised water treatment plant to provide demineralised water for the boiler makeup. The pH of the water is increased by the addition of alkaline chemicals in order to control corrosion in the plant.

#### Diesel Generators

- 2.5.16 An emergency diesel generator allows for a safe shutdown in the event of a loss of grid power.

#### Steam connection to Kemsley Paper Mill

- 2.5.17 A low-pressure steam connection to Kemsley Paper Mill will provide steam for the paper production process.

#### Electricity grid connection

- 2.5.18 A grid connection to an existing substation located within the Kemsley Paper Mill site to the immediate west for the export of electricity to the grid.

#### Foul Sewer Connection

- 2.5.19 A connection to the foul sewer for the sanitary waste from Offices/ Admin/ Welfare facilities for disposal at Southern Water's treatment works.

#### Surface water drainage

- 2.5.20 Water used in the waste-to-energy process (boiler water) is continually recycled therefore minimising water consumption. No boiler water is discharged to the Swale.

- 2.5.21 The onsite surface water drainage network for the site will be split into two separate drainage systems. The first drainage system will collect clean surface

water runoff (i.e. from building roof areas) and store it in a lagoon. The second drainage system which will collect 'dirty' runoff (i.e. from the fuelling station) and store it in a 'dirty' water tank in accordance with BS EN 1992-3:2006 'Design of Concrete Structures – Part 3: Liquid retaining and containment structures'.

- 2.5.22 This 'dirty' water will then be used in the process as required, such as for cooling hot ash. No dirty water will be discharged to the swale. The clean water stored in the lagoon will be used to top up the 'dirty' water tank as and when necessary. If the lagoon has reached maximum capacity excess water will be discharged at a controlled rate into the Swale Estuary. A surface water outfall has been constructed to the east of the K3 Site in the intertidal area between Mean High Water and Mean Low Water. This outfall is subject to Marine Management Licence (licence number MLA/2017/00316).

#### Parking

- 2.5.23 Dedicated staff/ visitor and operative car parks are accessed via the main access.

#### Lighting

- 2.5.24 External lighting sufficient to meet external working requirements and designed to minimise light spill from the site will be installed.

#### Biodiversity Enhancements and Landscaping

- 2.5.25 The S106 Agreement for K3 as consented includes the requirement to create a new reedbed at Harty Fen on the Isle of Sheppey as part of the RSPB's habitat creation scheme to return farmland to grazing marsh and associated habitats (including reedbed). This was intended to provide alternative breeding habitat, should the Marsh Harrier choose to abandon the Kemsley Marshes reedbed, particularly during construction.
- 2.5.26 Such a reedbed has been created and signed off as complete by the RSPB.
- 2.5.27 A comprehensive strategy of habitat creation and landscaping with associated monitoring and maintenance within the K3 Site supported the original K3 application including a Habitats Management Plan (HMP) (Appendix 11.3).

#### ***Regulation and operation of the facility***

##### The Environmental Permitting (England and Wales) Regulations (EPR) 2016

- 2.5.28 K3 has been designed to meet the requirements of the Industrial Emissions Directive (IED) and its operation is to be regulated and monitored by the Environment Agency (EA). The facility will operate in accordance with its permit (permit no. EPR/JP3135DK) issued in accordance with Schedule 1 of the EPR which controls emissions to land, air and water associated with the waste-to-energy process with regard to the environment and human health.

## 2.6 K3 and WKN Proposed Developments

- 2.6.1 The Applicant has made an application to the SoS for a DCO for the construction and operation of the K3 and WKN Proposed Developments.
- 2.6.2 The K3 and WKN Proposed Developments are split into a number of key works within the DCO boundary including areas where ancillary works are required for the construction and operation of the key works.
- 2.6.3 The different elements of the works pertaining to the K3 and WKN Proposed Developments are set out in **Table 2.1** below and illustrated on **Figure 2.7a-b**.

Table 2.1: Works No.	
1	Construction and operation of an onshore generating station with a generating capacity of up to 75MW and permissible waste throughput of 657,000tpa (the K3 Proposed Development)
1A	Installation of grid connection for Work No 1
1B	Installation of steam connection for Work No 1
1C	Alteration of existing private access road to construct, use and maintain Work No 1
1D	Creation of a temporary construction compound and laydown area for the construction of Work No 1
1E	Construction and operation of a surface water outfall for Work No 1
2	Construction and operation of a waste-to-energy facility capable of processing 390,000 tonnes of waste per annum, with a generating capacity of up to 42MW (the WKN Proposed Development)
3	Installation of a grid connection WKN Proposed Development
4	Alteration of existing private access road to construct, use and maintain Work No 2
5	Temporary construction or alteration of existing private haul road for the construction of Work No 2
6	Creation of a temporary construction compound and laydown area for the construction of Work No 2
7	Construction and operation of a new surface water outfall for Work No 2

## 2.7 K3 Proposed development

- 2.7.1 Construction of K3 began in July 2016 and is expected to be completed with the facility operational by late 2019. The current consent allows K3 to generate up to 49.9MW of electricity and to process up to 550,000 tonnes of waste per annum.
- 2.7.2 The Applicant has identified that K3 would be capable of processing an additional 107,000 tonnes of waste per annum and, without any change to the external layout or design, of generating an additional 25.1MW of electricity.
- 2.7.3 The ability to increase the capacity of K3 is consequential to improvements to the efficiency of waste-to-energy plant technology since the original application was made. The operational change to K3 would be facilitated by de-restricting the flow of steam to the turbine and reconfiguring the central control system.
- 2.7.4 An increased tonnage throughput allows the Applicant, in the event of increased availability (the amount of time the plant can operate between routine maintenance) or changes in the composition of the waste received (and therefore the amount of waste required to produce the same energy output), to generate as much energy as they are permitted to do so and increase the overall efficiency of the plant.
- 2.7.5 The proposed increase in generating capacity and waste tonnage throughput would not require any changes to the built form or to the layout of K3 as consented (KCC/SW/10/444 as amended). There would be no increase in the amount of staff required to operate the facility and the facility will continue to be able to operate twenty-four hours a day seven days a week. The increase in waste throughput would generate an additional 34 HGV visits to the site (or 68 HGV movements) per day above K3 as consented therefore taking total daily HGV's associated with the K3 Proposed Development to 208 (or 416 movements).
- 2.7.6 In order for the K3 project to be properly categorised and consented under the Planning Act 2008 the applicant is seeking consent for the construction and operation of K3 at its total generating capacity of 75MW (49.9MW consented + 25.1MW upgrade) together with its proposed tonnage throughput of 657,000 tonnes per annum (550,000 consented + 107,000 tonnage increase) (the 'K3 Proposed Development').
- 2.7.7 However, the '**practical effect**' of the K3 Proposed Development would simply be K3, as constructed under its existing permission, being capable of generating an additional 25.1MW and processing an additional 107,000 tonnes of waste per annum.
- 2.7.8 In practical terms the granting of the DCO would not result in any additional external physical changes to K3 as consented and the layout and appearance of the facility would remain as per its consented design.
- 2.7.9 The key processes of K3 as consented and the practical effect of the K3 Proposed Development is set out in **Figure 2.8**.

**Anticipated annual resource consumption**

2.7.10 The estimated annual resource consumption of the K3 Proposed Development is shown in **Table 2.2**.

Resources consumed	Estimated K3 Proposed Development
Hydrate lime	9,700 tonnes per annum
Solid urea	1,300 tonnes per annum
Activated carbon	230 tonnes per annum
Low sulphur diesel	440 tonnes per annum
Total water demand	28,700 cubic metres per annum

Table 2.2: Estimated annual resource consumption the K3 Proposed Development.

**Environmental Permit**

2.7.11 K3 as consented has an Environmental Permit issued by the Environment Agency in accordance with Schedule 1 of the EPR 2016. An amended Environmental Permit will be required in order to operate K3 in accordance with the K3 Proposed Development proposals. This is required in addition to a DCO granted by the Secretary of State (SoS). The K3 Proposed Development cannot legally operate without the relevant permit. The permit will control emissions to land, air and water associated with the waste-to-energy process with regard to the environment and human health to acceptable limits.

2.7.12 An application to amend the permit is being prepared alongside the DCO application.

## 2.8 WKN Proposed Development

2.8.1 The WKN Proposed Development comprises a single line facility capable of processing 390,000 tonnes of waste per annum, with a generating capacity of up to 42MW. As with K3 the WKN Proposed Development will combust the waste imported to the site to generate hot gases that in turn are used to produce steam and ultimately electricity.

2.8.2 As for K3 all waste will be brought to the site in HGVs or RCVs. The WKN Proposed Development would generate 125 HGVs/RCVs per day (250 movements per day) associated with waste delivery and bottom ash removal. Operational traffic will enter the WKN Site via:

- The A249 and Swale Way;
- north from Swale Way via Barge Way; and
- via the existing Kemsley Paper Mill northern access

2.8.3 A full list of proposed plant items/buildings is provided below:

Main plant items:

- (a) Raised tipping hall (with demineralised water treatment plant beneath above ground level);
- (b) Fuel (waste) bunker;
- (c) Boiler hall;
- (d) Flue gas treatment building;
- (e) Turbine hall housing a steam turbine and generator;
- (f) Air cooled condenser;
- (g) Stack and associated emissions monitoring system;
- (h) Electricity substation;
- (i) Stores and utilities;
- (j) Admin office;
- (k) Fire water tanks; and
- (l) Stores (adjacent to landscaping);

Supporting infrastructure

- (m) Weighbridges and gatehouses, storage tanks, raw water tank, diesel generators and vehicle ramp to tipping hall.

## 2.9 Parameters

2.9.1 Whilst the final detailed design of the WKN Proposed Development will not be materially different to that described in this ES, the detailed design, construction and commissioning of the facility will be carried out by an experienced contractor

should Development Consent be granted and once contracts are placed with the equipment suppliers.

- 2.9.2 To reflect this and in accordance with the Rochdale Envelope principles a series of maximum parameters that provide the strategic framework for the WKN Proposed Development have been designed. These parameters are the framework on which the EIA has been undertaken and which the WKN Proposed Development will be required to accord with.
- 2.9.3 The layout parameters for the WKN Proposed Development are set out in **Figure 2.9**. This sets a series of 'envelopes' in which each of the major plant items are to be located. These envelopes are larger than the maximum expected dimensions of the major plant items to allow flexibility at the final design stage as to where exactly these plant items are required to be located. This essentially consists of a 5m buffer around each major plant item (where feasible, smaller buffers have been used).
- 2.9.4 The parameter plan also demarcates an area to be used to provide a surface water attenuation pond, hard and soft landscaping and biodiversity enhancement measures.
- 2.9.5 The maximum dimensions of the plant/buildings are provided in **Table 2.3** and can be described as a credible "worst case" for EIA assessment purposes. These are derived by determining the likely maximum size of a building and then adding an additional 10% buffer. It should be noted that these maximums relate to each major element of the development, but it would not be possible to build every plant item/building to the maximum dimensions shown as this would not be physically possible whilst allowing vehicle access around the site and would compromise the overall development. However, the dimensions sought allow a reasonable and necessary degree of flexibility should some buildings or structures be required to be larger or taller than expected. Notwithstanding this, the ES has assessed the worst-case scenario with regard to all building heights and dimensions.

Building or structure	Maximum length (metres)	Maximum width (metres)	Maximum height (metres)	Minimum height (metres)
a) Tipping hall (with demineralised water treatment plant beneath)	45	36	30	-
b) Fuel (waste) bunker	35	36	44	-
c) Boiler hall	50	36	58	-
d) Flue gas treatment building	45	35	44	-
e) Turbine hall	40	25	30	-
f) ACC	45	30	40	-

g)	Stack and associated emissions monitoring system	-	4	99	90
h)	Electricity Substation	45	30	15	-
i)	Stores and utilities	20	10	15	-
j)	Admin office	30	15	30	-
k)	Fire water tanks	-	7.2	15	-
l)	Stores (adjacent to landscaping)	40	35	15	-
m)	Supporting infrastructure	-	-	10	-

Table 2.3: maximum dimensions of the proposed WKN facility.

2.9.6 A full suite of photographs from key public viewpoints illustrating the scale and mass of the WKN Proposed Development using the maximum parameters in Table 2.3 are presented as **Figures 12.5-16 in Chapter 12** and form the basis of the landscape and visual impact assessment. **Figure 2.10** provides an illustrative CGI of how K3 and the WKN Proposed Development will look together utilising the maximum worst case parameters set out in Table 2.3.

2.9.7 It should be noted that based on the information available to date it has been determined that a minimum 90m stack is required for the WKN Proposed Development as set out in **Chapter 5** Air Quality. However, the WKN Proposed Development is not yet at the detailed design stage and an engineering, procurement and construction (EPC) contractor has not been appointed. To be consistent with the approach taken to the other building parameters and to allow a modest degree of flexibility through the permitting process a 10% buffer has been applied to allow the stack height to increase if required. Typically increasing stack height has beneficial effects on ambient air quality by benefit of increased atmospheric dispersion.

2.9.8 For the purposes of air quality assessment, the worst case scenario of a 90m stack has been assessed (**Chapter 5**). For the purposes of the landscape and visual and heritage assessments (**Chapters 12 & 13**) the higher worst-case parameter has been assessed i.e. a 99m stack.

#### Ground Levels

2.9.9 The finished ground level of the main buildings area of the WKN Proposed Development will be 6.3m Above Ordnance Datum (AOD) to reflect the site level on which K3 is being constructed. The ground will be levelled across an area suitably sized to accommodate the structures, storage and access and parking requirements. Areas surrounding the buildings are more likely to be landscaped and undulating. They will not necessarily be levelled from existing pre-development levels as there is no technical requirement to do this.

### ***Overview of the WKN Proposed Development***

- 2.9.10 The WKN Proposed Development will operate in the same manner as set out in section 2.7. The key processes are nonetheless set out below for ease of reference:

#### Waste reception and storage

- 2.9.11 Post recycled waste will be brought to the WKN Site in HGVs or RCVs. At arrival the vehicles will be weighed on weighbridges at the site entrance before vehicles proceed to the tipping hall. Once at the tipping hall vehicles will be directed to one of the unloading bays from which waste will then be deposited into the fuel (waste) bunker. The bunker principally takes the form of a recessed rectangular pit. The waste material can vary widely in moisture content and thermal value, so it is continually managed in the bunker to ensure consistency prior to the combustion process.

#### Combustion

- 2.9.12 Overhead cranes will transfer the waste from the waste bunker into a feed hopper to the boiler. The facility will have one combustion line and associated boiler. Inside the boiler, an inclined, reciprocating, metal grate will slowly move the waste through a controlled thermal (heating) process, at temperatures exceeding 1000°C.

#### Electricity Production

- 2.9.13 The combustion of the waste produces hot gases which will then subsequently pass through a series of boiler tubes filled with water, creating high-pressure steam. This steam is used to drive a turbine in the turbine hall and produce electricity. The electricity produced will be exported to the distribution network, owned and operated by UK Power Networks. The grid connection will be via the existing substation located within the DS Smith paper mill site to the immediate west.
- 2.9.14 Once the steam has passed through the turbine generators it is cooled by way of transfer to the air-cooled condenser units. As the steam loses heat it cools and then condenses whereby it is fed back into the feed water tank ready for re-use in the waste-to-energy process. The WKN Proposed Development would be CHP ready and therefore enabled to export steam to the DS Smith paper mill via K3 during routine maintenance or to other businesses in the local area, should a suitable customer be identified (in a similar manner to K3). A steam connection between the WKN Proposed Development and K3 will be installed for this purpose.

#### Air Quality Control

- 2.9.15 Once heat from the hot combustion gas is absorbed into the boiler tubes to produce steam, the gas exits the boiler into the gas treatment facility. The gas is then denitrified by a process which turns nitrogen oxides to nitrogen and steam.

The reducing agent is ammonium hydroxide which reacts with the nitrogen dioxide of the flue gases.

- 2.9.16 The gas is then further treated by a spray absorber which injects water slaked lime into the flue gases which facilitates the separation of chloride and sulphur dioxide. Dry charcoal and lime are then injected into the flue gas which separates heavy metals, dioxin and furans by absorption. Finally, the gas is passed through a fabric filter that collects any fly ash and extracted pollutants in the flue gas. Clean exhaust gas is then transported to the stack and dispersed into the atmosphere. All collected fly ash is disposed of appropriately in accordance with contemporary waste management regulations.

#### Residual ash

- 2.9.1 Residual bottom ash from the waste combustion process is exported from the facility in HGVs and either landfilled or used as an aggregate by the construction industry. Prior to safely disposing to landfill, ferrous metals such as iron and steel, and non-ferrous metals, such as copper and aluminium, are extracted from the ash residue and sent to recycling facilities.
- 2.9.2 **Figure 2.11** provides a process diagram detailing the key processes of the waste-to-energy process.

#### **Ancillary facilities and services tie-ins**

##### Bulk Material Storage

- 2.9.3 An above ground diesel storage tank will be installed for the emergency diesel generator and auxiliary burners.
- 2.9.4 Above ground bulk storage silos or tanks for the storage of FGT reagents (for example urea solution, hydrated lime, activated carbon powder) and FGT residue will also be installed. All chemicals will be stored in fully bunded areas, with each bund having a volume of 110% of the stored capacity. Diesel for use on process start-up and temperature control will be stored in bunded above ground storage tanks.

##### Demineralised Water Plant

- 2.9.5 A demineralised water treatment plant will be required to provide demineralised water for boiler makeup. The pH of the water is increased by the addition of alkaline chemicals in order to control corrosion in the plant.

##### Diesel Generators

- 2.9.6 The WKN Proposed Development will require an emergency diesel generator to ensure safe shutdown in the event of a loss of grid power.

#### Electricity grid connection

- 2.9.7 The grid connection will be via the existing substation located within the Kemsley Paper Mill site to the immediate west (Work no.3, see **section 2.7** and **Figure 2.7**). The grid connection will be laid within the existing K3 ducting to the substation within Kemsley Paper Mill.

#### Foul Sewer Connection

- 2.9.8 A connection to the foul sewer will be needed for sanitary connection from Offices/ Admin/Welfare facilities. The WKN Proposed Development will connect into the foul sewer pipe that currently serves the K3 Site.

#### Surface water drainage

- 2.9.9 Water used in the waste-to-energy process (boiler water) is continually recycled and supplemented by rainwater harvesting to minimise water usage. No boiler water is discharged to the Swale.
- 2.9.10 The onsite surface water drainage network for the site will be split into two separate drainage systems. The first drainage system will collect clean surface water runoff (i.e. from building roof areas) and store it in the lagoon. The second drainage system will collect 'dirty' runoff (i.e. from the refuelling area) and store it in the 'dirty' water tank in accordance with BS EN 1992-3:2006 'Design of Concrete Structures – Part 3: Liquid retaining and containment structures'. This 'dirty' water will then be used in the process as required (for example for cooling hot ash).
- 2.9.11 No dirty water will be discharged to the swale. The clean water will be stored in the lagoon and used to top up the 'dirty' water tank as and when necessary. If the lagoon has reached maximum capacity it will be discharged at a controlled rate into the Swale Estuary. A new surface water outfall will be constructed adjacent to the existing K3 outfall between the Mean High Water and Mean Low Water intertidal area (Work no.7, see section 2.7 and **Figure 2.7**). A variation to the K3 MMO licence has been sought to permit the discharge of clean water from the WKN Proposed Development into the Swale Estuary. The application to vary the existing MMO licence has been approved (ref: L/2017/00482/2) outside of the application for Development Consent.

#### Parking

- 2.9.12 Dedicated staff/ visitor and operative car parks are accessed via the main access.

#### Lighting

- 2.9.13 Lighting will be implemented using British Standard EN12464-2:2014 Lighting - Lighting of Work Places, Outdoor Works. Adherence to this Standard will ensure that any nuisance or disturbance associated with operational lighting installations will be minimised as far as is practicable. Contemporary lighting schemes minimise light spill and reduce lateral and vertical light spill from the source. Therefore, disturbance / nuisance to visual receptors are not considered likely to result in a

significant adverse effect particularly in the context of the Kemsley Paper Mill and the existing external lighting.

2.9.14 The lighting will also be designed to avoid any associated effects on biodiversity.

#### Biodiversity Enhancements and Landscaping

2.9.15 Landscape proposals will form an integral part of the WKN Proposed Development to provide treatments for the perimeter and internal green spaces. A detailed landscape proposal scheme does not form part of the DCO application but will be secured by way of a Requirement attached to the DCO.

2.9.16 Species rich native grassland would be established over the majority of the landscape areas combined with areas of native shrub mixes. Species would include goat willow (*Salix caprea*), field maple (*Acer campestre*), hazel (*Corylus avellana*), hawthorn (*Crataegus monogyna*) and blackthorn (*Prunus spinosa*) and dog rose (*Rosa canina*) in an open mosaic habitat. The planting treatments would combine to form an intermittent visual screen of vegetation when viewed from surrounding receptors.

2.9.17 Further details on the ecological enhancements proposed are provided in Chapter 10 Ecology of this ES.

## **2.10 Construction of the WKN Proposed Development**

### ***Construction programme***

2.10.1 The entire site preparation and construction programme is anticipated to take approximately 40 months from commencement to take over. This will comprise the following key stages:

- Civil engineering works (month 0-40) – the physical works associated with constructing the facility
- Process works (month 12-40) – mechanical and electrical installation, fit out and commissioning of the plant
- Commissioning of the facility (month 30 – 40)

### ***Building materials***

2.10.2 The construction materials required will be those normally associated with a development of this nature, including:

- Concrete;
- Concrete reinforcement including high yield ribbed, hot-rolled bars complying with BS 4449 Strength Grade B500C and mild steel plain, hot-rolled bars complying with BS 4482 Strength Grade 250;
- Cement;
- Bricks;
- Bitumen ;

- Exposed structural steelwork grade: S355 JO/S355 J2; and
- Galvanised steel corrugated panels & galvanised steel sheets.

2.10.3 Building materials will need to be imported to the WKN Site. Any spoil that is generated from the Proposed Development will be re-used on-site where feasible/appropriate. Any contaminated spoil will be removed to an appropriately licensed landfill for disposal, albeit the likelihood of significant contamination being present on the WKN Site is considered low (see **Chapter 9** Ground Conditions).

2.10.4 Construction materials delivered to the WKN Site will be controlled through a specific construction method statement and incorporated in the Construction Environmental Management Plan (CEMP) (**Appendix 2.1**). Areas for storage of materials will be allocated and appropriate storage facilities (containers and bunds) will be utilised.

### ***Construction facilities***

2.10.5 During the construction of the WKN Proposed Development the following facilities and equipment will be provided:

- (1) a construction laydown area and associated access;
- (2) temporary construction site offices;
- (3) canteen, welfare, and related support facilities;
- (4) parking of construction vehicles plant and machinery or for the vehicles of construction workers;
- (5) open and covered storage of construction materials and equipment; and
- (6) workshops for pre-fabrication, assembly and testing of equipment.

2.10.6 The location of the laydown area (Work no. 6) is shown on **Figure 2.7b** and consists of an area of cleared ground contiguous to the north east corner of the WKN Site.

2.10.7 Numbers 2 to 5 will be limited to the construction laydown area (**see section 2.7 and Figure 2.7b**) and 2 to 6 to the WKN Site as required (**see section 2.7 and Figure 2.7b**).

2.10.8 Works to the construction access road (Work no. 5, **see section 2.7 and Figure 2.7b**) may be required to facilitate the safe movement of construction vehicles.

### ***Employment***

2.10.9 It is anticipated that the construction of the WKN Proposed Development will employ 482 people during its peak construction period.

### **Working hours**

2.10.10 It is intended that the construction working hours for the WKN Proposed Development would reflect those consented for K3. With the exception of construction using the concrete slip-forming method, construction using constant pour methods for concrete laying and internal process works relating to mechanical and/or electrical equipment installation, construction activities would only take place between 07:00 and 19:00 hours Monday to Friday inclusive and 07:00 and 16:00 hours Saturday and Sunday with no construction activities to take place on Bank or Public Holidays subject to any prior written variation as approved by the Local Planning Authority. The designated route for delivery of construction plant and materials is via Barge Way to the construction laydown area.

### **Construction Waste**

2.10.11 For all phases of the WKN Proposed Development there will be a Principal Contractor who will be charged with responsibility for management and co-ordination of all waste streams during construction. This will involve responsibility for the waste segregation, storage and collection of waste on-site.

2.10.12 Section 33 of the Environmental Protection Act (EPA) 1990 deals with the treatment, storage and disposal of waste. Section 34 of the EPA deals with "Duty of Care" and covers all those who produce or handle wastes from demolition, earthworks and construction activities, who are obligated to ensure its safekeeping, best practice management, transport and subsequent recovery or disposal.

2.10.13 The Waste (England and Wales) Regulations 2011 (amended in 2012 and 2014) clarify the requirements for waste prevention programmes and Waste Management Plans and provide further detail on the "Duty of Care" as mentioned in the EPA 1990.

2.10.14 All waste generated during construction will be dealt with in accordance with these legislative requirements.

### **Accident and disaster mitigation**

2.10.15 The construction of the WKN Proposed Development will be undertaken by an appropriately qualified engineering company well experienced in general health, safety and disaster mitigation during the construction of complex developments.

2.10.16 By way of example an extensive suite of legislative requirements and codes of practice and guidance are in place to avoid accidents and disasters during construction. This includes but is not limited to the those listed below:

- Construction (Design and Management) Regulations 2015;
- Control of Pollution Act 1974;
- Control of Substances Hazardous to Health Regulations 2002;

- Environmental Protection Act 1990;
- Health and Safety at Work Act 1974;
- Environment Agency – Pollution Prevention Guidance notes; and
- HSE – Codes of Practice and Guidance Notes.

2.10.17 In light of the above it is considered that the risk of accidents during the construction of the WKN Proposed Development will be comprehensively controlled and mitigated as far as is reasonably possible in accordance with UK legislation.

2.10.18 It is therefore considered that the risk arising from a major accident or disaster during construction is as low as reasonably practical. Compliance with this legislation and guidance will form part of any contract made by the Applicant with the appointed construction contractor. These Regulations and their requirements are furthermore included in the draft CEMP provided as **Appendix 2.1**.

#### ***Construction Environmental Management Plan (CEMP)***

2.10.19 The DCO requirements include the production of a CEMP for the WKN Proposed Development. An outline CEMP is provided as **Appendix 2.1** and includes the following items amongst others:

- A table showing the objectives, expected results, activities, and responsibilities required;
- The broad plan of the phasing of the work and its context within the whole project;
- Baseline levels for noise, vibration and dust monitoring;
- Threshold and action levels for noise, vibration and dust to warn of activities that may require particular care and control;
- Details of prohibited or restricted operations (for example locations, hours of operation etc.);
- Arrangements for the implementation of the CEMP and environmental monitoring, including responsibilities, the role of environmental authorities, and participation of stakeholders;
- A monitoring and supervision plan;
- A response plan in the event of accidents or otherwise unexpected events and potential risk register;
- Locations and protocol with regard to material storage and compounds;
- Reference to ground conditions and remedial measures and/or mitigation associated with ground contamination if necessary;

- Contact details during normal working hours and emergency contact details outside these hours;
- The provision for reporting, public liaison, and prior notification for particular construction related activities;
- A mechanism for the general public to register complaints and the procedures for responding to such complaints; and
- Reference to management of material resources and waste.

### ***Construction traffic***

2.10.20 It is anticipated that many of the construction staff vehicle movements will take place at the beginning and end of each day. The HGV deliveries are likely to be spread across the day and will be timed, where possible, to avoid the peak traffic flow periods (i.e. from 08:00 to 09:00 and 17:00 to 18:00). During construction, it is estimated there will be a peak of up to 482 staff on site during the early groundworks and foundation works period.

2.10.21 It is estimated that construction of WKN will generate an average of 27 HGV deliveries per day (average of 54 HGV movements per day) throughout the 40-month construction period. During the peak construction period there could be up to 45 HGV deliveries per day (90 movements per day).

2.10.22 Construction workers will be provided with allocated parking areas within the Site and the use of public transport and car sharing will be encouraged.

2.10.23 Construction traffic will also be managed through a Construction Traffic Management Plan. A CTMP is provided as **Appendix 4.2** and includes the following items amongst others:

- A routing strategy for construction HGVs to ensure they approach the WKN Site via the strategic road network;
- Wheel washing facilities;
- Peak time restrictions for HGVs where possible; and
- Controls governing the movement of large loads.

## **2.11 WKN Post construction**

### ***Site operating hours***

2.11.1 Once fully commissioned during regular operation the plant will be operated / manned 24 hours a day 365 days per year. The WKN Proposed Development will generate 250 HGV/RCV movements per day. HGV movements would be generated throughout the day and would typically be spread fairly equally in terms of hourly movements. Although there may be occasional peaks of HGV movements at

various times of the day, these would be balanced by subsequent troughs. HGV movements through the night time period are expected to be negligible.

- 2.11.2 Total staff numbers are expected to be between 35 and 50. Staff arrivals and departures have been based on the K3 shift pattern. Management (8 staff) and maintenance (14 staff) teams will arrive at 07:30 and depart at 16:30; the day work team (10 staff) will arrive at 07:00 and depart at 19:00 and the operating team (17 staff) will work a two-shift pattern 07:00 – 19:00 and 19:00 – 07:00.
- 2.11.3 Further details regarding the traffic and transport effects of the WKN Proposed Development are set out in **Chapter 4** Traffic and Transport of this ES.

***Maintenance of the plant***

- 2.11.4 The WKN Proposed Development would be operated and maintained by a dedicated Operations and Maintenance team. A maintenance plan will be established setting out required weekly, monthly, annual or longer interval inspections, tests and maintenance activities to be undertaken.
- 2.11.5 Fugitive dust emissions will be minimised through the use of the enclosed tipping hall, silos for the collection of FGT residue and a quench system for bottom ash.
- 2.11.6 Buildings will be kept at a slight negative pressure to minimise odour release into the environment, with the air drawn into the plant for use as primary combustion air.

***Anticipated annual resource consumption***

- 2.11.7 At this stage the exact annual resource consumption of the WKN Proposed Development is unknown however estimated quantities are provided in Table 2.3 below.

Resources consumed	Estimated quantity
Hydrate lime	5,800 tonnes per annum
Solid urea	750 tonnes per annum
Activated carbon	140 tonnes per annum
Low sulphur diesel	260 tonnes per annum
Total water demand	17,000 cubic metres per annum

Table 2.3: estimated annual resource consumption of the WKN Proposed Development.

### ***Environmental Permit***

#### The Environmental Permitting (England and Wales) Regulations 2016

- 2.11.8 In accordance with Schedule 1 of the EPR 2016, an Environmental Permit will be required to operate the WKN Proposed Development. This is required in addition to a DCO granted by the SoS. The WKN Proposed Development cannot legally operate without the relevant permit.
- 2.11.9 The Environmental Permitting Regulations (EPR) aims to prevent or minimise pollution from new and existing installations which come under the regime through an integrated permitting system. An Environmental Permit (EP) sets conditions and requirements in order to prevent or reduce emissions to air, water and land and limit waste and noise generated. Conditions on the prevention of accidents, efficient use of energy / resources and decommissioning of plant are also set.
- 2.11.10 Under the regime the operator has to demonstrate that the design and choice of technology is Best Available Technology (BAT) which minimises impacts to the environment.
- 2.11.11 The Environment Agency (EA) is the competent authority for environmental permitting in England. Prior to issuing an Environmental Permit the EA must be satisfied that the installation will not cause adverse effects on the environment. Monitoring and auditing ongoing compliance with the terms of the Environmental Permit issued is undertaken and enforced by the EA.
- 2.11.12 The Applicant has entered into formal discussions with the EA regarding the Environmental Permit for the WKN Proposed Development.

## 2.12 Management of risk and disasters for the K3 and WKN Proposed Developments

2.12.1 The risk of major accidents related to the operation of waste-to-energy facilities is well understood and low when proper management and operational procedures are employed.

2.12.2 For reference a list of relevant legislation that an operational waste-to-energy facilities are required to satisfy is outlined below:

- Health and Safety At Work Act 1974 - lays down wide-ranging duties on employers to ensure the 'health, safety and welfare' at work of all their employees, as well as others on their premises, including temps, casual workers, the self-employed, clients, visitors and the general public;
- Confined Spaces Regulations 1997 – sets a requirement to manage access to areas which are substantially enclosed (though not always entirely), and where serious injury can occur from hazardous substances or conditions within the space or nearby (e.g. lack of oxygen);
- Dangerous Substances and Explosive Atmospheres Regulations 2002 - Requires an operator to identify DSEAR areas and implement a process for the equipment and working within those areas;
- Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016 - This Regulation covers both electrical and nonelectrical equipment and requires the operator to ensure that all equipment used in DSEAR zoned areas is ATEX rated;
- The Regulatory Reform (Fire Safety) Order 2005 - Requires the operator to carry out a fire safety risk assessment and implement and maintain a fire management plan;
- Pressure Equipment Regulations 2016 – prohibits the use of pressure equipment until it has been demonstrated that it has undergone a declaration of conformity, it is safe and designed & manufactured to sound engineering practices. Covers the requirement to demonstrate that written schemes of examination, the safe operating limits of pressure systems, and that the systems are safe under those conditions. Requires operators to maintain and keep records of the examination of pressure systems;
- Supply Of Machinery (Safety) Regulations 2008 – Requires operators to ensure all equipment complies with the relevant standards and risk assessments when supplied to site;
- European Commission Council Recommendation of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields - Design specifications for all electrical equipment to be utilised in the completed CHP installation shall be compliant with Council Recommendation 1999/519/EC or harmonised EMF standards;
- Control of Electromagnetic Fields at Work Regulations 2016 –The management of Electro Magnetic Fields during installation, commissioning

and ongoing maintenance shall conform to these regulations. The CEMFAW Regulations contain a schedule which introduces limits, explains the effects of EMFs and provides details of safety conditions which must be met; and

- Ionising Radiations Regulations 2017 (IRR17) – these regulations impose duties on employers to protect employees and other persons against ionising radiation arising from work with radioactive substances and other sources of ionising radiation. Certain duties are also imposed on employees.

2.12.3 It is noted that the K3 and WKN Proposed Developments do not fall within the scope of EU legislation 2012/18/EU (control of major-accident hazards involving dangerous substances) or Council Directive 2009/71/Euratom (Community framework for the nuclear safety of nuclear installations) and does not fall within the consultation zones of any major accident hazard site with Hazardous Substance Consent. Similarly, the WKN Proposed Development does not fall within the scope of The Planning (Hazardous Substances) Regulations 2015 as amended.

2.12.4 In light of the above it is considered that the risk of accidents from the K3 and WKN Proposed Developments will be comprehensively controlled and mitigated as far as is reasonably possible in accordance with UK legislation in existence at the time of operation.

2.12.5 It is therefore considered that the risk of a major accident or disaster is as low as reasonably practical.

## 2.13 Decommissioning the K3 and WKN Proposed Developments

- 2.13.1 The K3 and WKN Proposed Developments are each expected to have an operating life of up to 50 years. Once at the end of their operational life the Applicant will make a commercial decision as to whether to re-invest in the developments and extend their operating life or choose to decommission them. The necessity for the K3 and WKN Proposed Developments to be operated under an environmental permit would remain through the operating life of the plant.
- 2.13.2 At the end of their operating life, it is expected that the K3 and WKN Proposed Developments would be rendered in-operable before eventually a programme of demolition is commenced. Prior to demolition, all residues and operating chemicals would be removed from the facility and disposed of in accordance with contemporary waste management legislation. This would include bottom ash and FGT residues and any remaining operating chemicals.
- 2.13.3 Prior to demolition an assessment of the buildings and plant would be undertaken to establish which materials have a residual value as scrap or are able to be recycled. All materials that cannot be reused or recycled would be removed from the relevant Site and transferred to suitably licensed waste recovery/ disposal facilities. The waste management procedures set out in paragraphs 2.11.11-2.11.14 will apply equally to demolition.
- 2.13.4 The design and construction of the K3 and WKN Proposed Developments does not involve prohibited materials such as asbestos, polychlorinated biphenyls (PCBs), ozone depleting substances and carcinogenic materials. An assessment of non-prohibited materials that can nonetheless result in health effects will be undertaken as part of standard practice and appropriate method statement working practices employed to protect human health and the environment.
- 2.13.5 A Decommissioning Environmental Management Plan (DEMP) is a necessity of the environmental permitting and site surrender process controlled by the EA. This will include details on all potential environmental risks on the relevant Site and contain guidance on how risks can be removed or mitigated. All demolition work will by necessity be required to be undertaken by a suitable qualified and experienced contractor in accordance with contemporary legislation.
- 2.13.6 Upon completion of the decommissioning works the EA will undertake a site inspection to ensure all work has been completed to their satisfaction. A suitable portfolio of evidence will be required to as part of the DEMP process.

## 2.14 Alternatives and Primary Mitigation

### *Alternatives*

#### Location

- 2.14.1 The consideration of alternative locations is not considered relevant to K3 and subsequently the K3 Proposed Development, as K3 is already being constructed.
- 2.14.2 Regarding the WKN Proposed Development there is an ongoing national need for energy security and diversity in addition to national targets for the reduction of waste sent to landfill. The Applicant has identified an additional need to increase waste processing capacity in the south-east region for post-recycled waste (a Fuel Study is provided as part of the Application (Document 4.6). The selection of the WKN Site to help meet this need is directly related to the presence of K3 and a number of other reasons as set out below:
- Its location in relation to the waste sources available in the region and access to the strategic road network;
  - Availability of existing supporting infrastructure including connection to the grid and water supplies;
  - Economies of scale associated with adjoining facilities;
  - Location within an existing industrial area;
  - The results of preliminary environmental studies that indicated that there is sufficient environmental carrying capacity in the area to support the development.
- 2.14.3 It has not therefore been necessary to consider alternative locations for the WKN Proposed Development.

#### Technology

- 2.14.4 There are a number of alternative technologies available for this type of plant (including external kilns, fluidised beds, gasification and pyrolysis, plasma gasification and moving grate technology).
- 2.14.5 Given the combined objective of the WKN Proposed Development primarily as an electricity generating station but also as a waste solution, moving grate technology was the only technology considered suitable for the WKN Proposed Development due to its reliability and performance in relation to energy generation. The Applicant has developed and operated numerous moving grate waste-to-energy plants around the world and is fully experienced in this technology.
- 2.14.6 Whilst there are various forms of waste-to-energy systems, the only one that is tried and tested in thousands of applications worldwide is moving grate technology. Alternative combustion techniques are available but do not have the

same number of reference facilities and in some cases, the technology has been withdrawn from the commercial application market.

### Layout

2.14.7 At the outset of the design process a thorough analysis of the WKN Site was undertaken and this identified several constraints which have been key drivers in developing the layout of the WKN Proposed Development. These constraints included:

- the overall dimensions of the WKN Site and the configuration of its boundaries which determine the possible locations and configurations of the components making up the facility;
- vehicular and pedestrian access would be via the existing Kemsley Paper Mill northern access route, and this would dictate that access into the WKN Site would be on its western boundary;
- the visual and physical impact of the development upon the surrounding area including views directly to the Site from nature reserves on the Isle of Sheppey;
- the proximity of the WKN Site to the River Swale demanded that built development be concentrated as far as possible from the WKN Site's northern and eastern boundary to minimise the potential for noise and overshadowing effects thereon;
- similarly, a landscaped buffer zone would be required between the built development to soften its impact upon the WKN Site's northern/eastern boundary;
- respecting the WKN Site's proximity and interface with the consented K3 facility on its eastern boundary also required careful consideration;
- location and orientation for the main buildings and the stack in relation to mitigating the developments visual impact.

2.14.8 In addition to the above site constraints the following key design requirements have also been addressed in developing the WKN Site layout:

- minimising the individual building footprints and sizes;
- ensuring an efficient and logical process layout for the buildings;
- establishing efficient and safe traffic management for all vehicles accessing and circulating within the WKN Site;
- providing adequate queuing and manoeuvring space for all vehicles within the WKN Site;

- incorporating an access and exit vehicle ramp long enough to access the 10m level increase from the general site level up to that of the Tipping Hall;
- locating the Air Cooled Condensers and stack in close proximity to those of the K3 Site;
- locating the Air Cooled Condensers such that they are acoustically shielded from sensitive receptors by the principle building components; and
- locating the Substation on the WKN Site's southern boundary for it to be in close proximity to the grid connection point at the Kemsley Paper Mill substation.

2.14.9 The proposed site layout has been developed with the WKN Site constraints and key design requirements in mind, and the layout illustrates some of the key design principles adopted in developing the design:

- the main buildings reflect the linear sequences adopted by the majority of similar energy from waste facilities with its Tipping Hall, Bunker Hall, Boiler Hall, Flue Gas Treatment (FGT) and Stack aligned on plan in the southern portion of the WKN Site;
- all major outdoor plant/equipment (e.g. ACC; stack; substation) are located close to the WKN Site's southern boundary both to minimise their impact upon the northern boundary and to be as far as possible be co-located with those of K3 Site;
- the main buildings assist in visually and acoustically shielding the outdoor plant/equipment from areas to the north of the WKN Site;
- to minimise potential light spill to the north the offices and welfare accommodation are located on the south face of the main building;
- extent of traffic movements to the eastern of the main buildings have been minimised, and the northern area predominantly set aside for landscaping and attenuation pond to provide both visual softening and biodiversity benefits.

### **Primary Mitigation**

2.14.10 EIA is an iterative process, and the findings of the current EIA have helped to inform the design of the WKN Proposed Development in order to minimise impacts on the environment.

2.14.11 K3 is at an advanced stage of construction and is being built pursuant to the environmental assessments and mitigation necessary at the time of approval and therefore there is limited scope for further 'primary' (designed in) mitigation to be included. Notwithstanding this, it has not been identified through the assessments presented in the ES that further mitigation to ameliorate the effects of K3 Proposed Development is required.

2.14.12 The design of the WKN Proposed Development has taken into account measures to avoid significant adverse effects where possible. Details of the 'primary' mitigation measures embedded in the design of the WKN Proposed Development are summarised in **Table 2.4** below:

Topic	Issue	Design Amendment resulting from ES
Air Quality	Ambient concentrations of nitrogen dioxide, carbon monoxide and other pollutants and their effects on sensitive receptors	<p>Pollutants from the combustion of gas need to emit at sufficient height to ensure that pollutant concentrations are acceptable by the time they reach ground level. The stack also needs to be high enough to ensure that releases are not within the aerodynamic influence of nearby buildings, or else wake effects can quickly bring the undiluted plume down to the ground.</p> <p>A stack height of 90m<sup>1</sup> is proposed following a series of atmospheric dispersion modelling simulations to predict the ground-level concentrations with the stack at different heights. A 90m stack will mitigate any significant effect on sensitive receptors from the WKN Proposed Development's emissions.</p>

2.14.13 Where additional 'secondary' mitigation measures are required to further mitigate the impact of the K3 and WKN Proposed Developments on the environment these are discussed and documented in each relevant topic chapter, which clarify the extent to which the potential significance of each adverse effect will be offset by the mitigation measures proposed.

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<sup>1</sup>It should be noted that based on the information available to date it has been determined that a minimum 90m stack is required for the WKN Proposed Development as set out in Chapter 5 Air Quality. However, the WKN Proposed Development is not yet at the detailed design stage and an engineering, procurement and construction (EPC) contractor has not been appointed. To be consistent with the approach taken to the other building parameters and to allow a modest degree of flexibility through the permitting process a 10% buffer has been applied to allow the stack height to increase if required. Typically increasing stack height has beneficial effects on ambient air quality by benefit of increased atmospheric dispersion.



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Client **Wheelabrator Kemsley**

Project **K3 and WKN DCO**

Title **Aerial view of the K3 and WKN Site(s) July 2019**

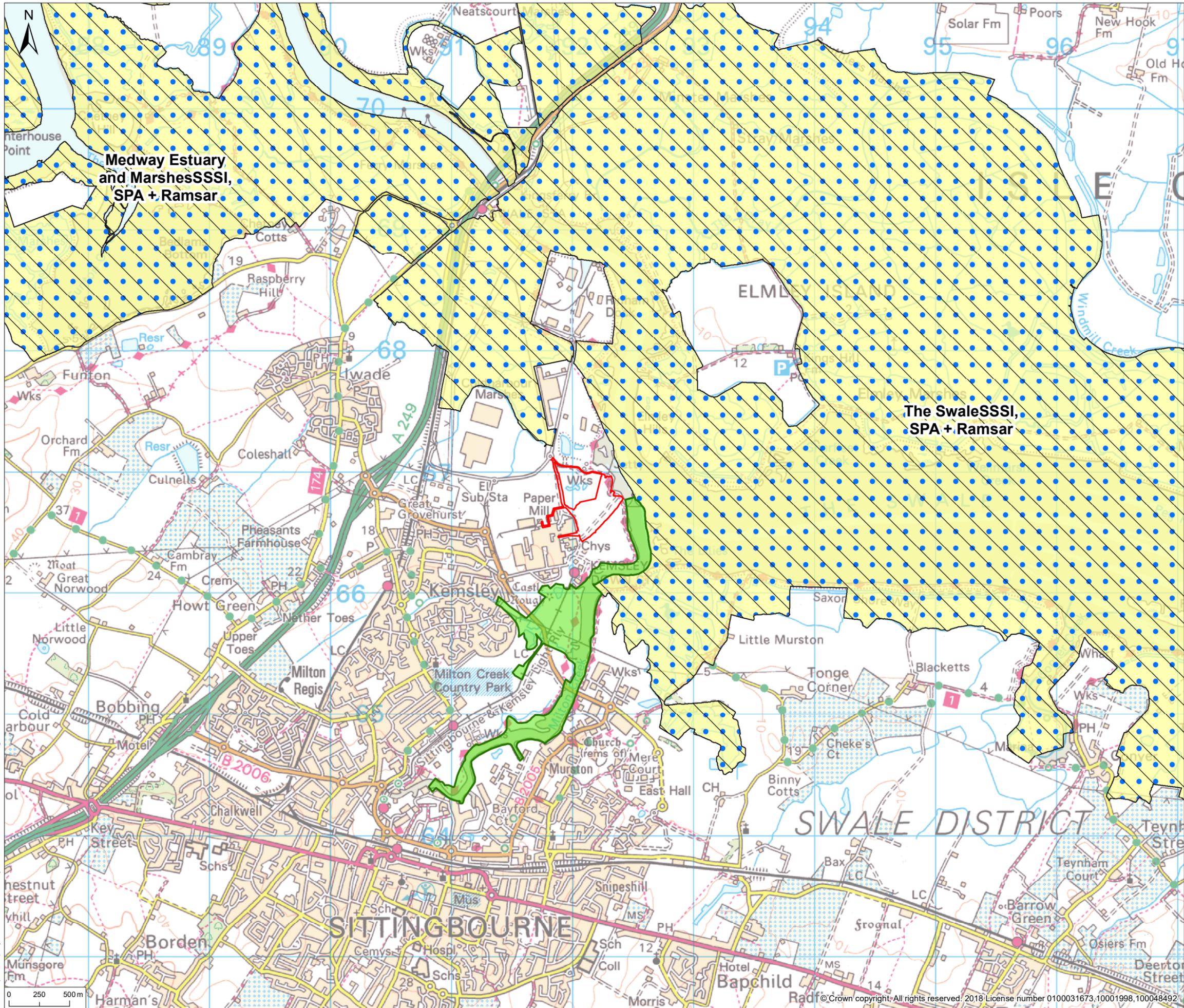
Status **SUBMISSION** Drawn By: **CR** PM/Checked By: **TS**

Job Ref **OXF9812** Scale @ A3: **NTS** Date Created: **SEPT 2019**

Figure Number

**2.1**





- Legend**
- DCO Boundary
  - Sites of Special Scientific Interest
  - Special Protection Area
  - Ramsar Site
  - Milton Creek Local Wildlife Site

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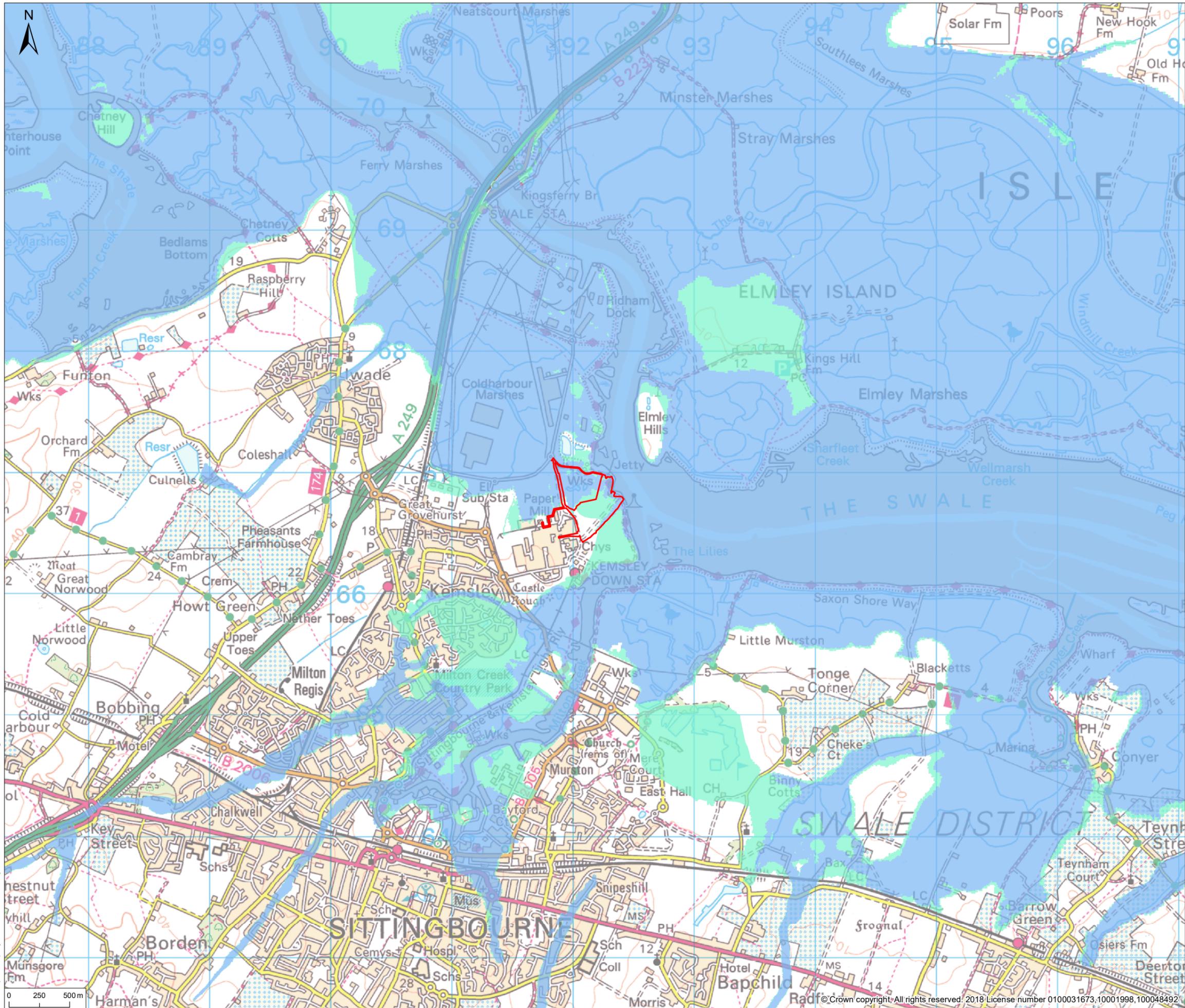


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Client	Wheelabrator Technologies Inc	
Project	K3 and WKN DCO	
Title	Statutory Designations - Ecological assets	
Status	Drawn By:	PM/Checked By
SUBMISSION	CR	TS
Job Ref	Scale @ A3	Date Created
OXF9812	1:30,000	SEPT 2019
Figure Number	<b>2.2b</b>	

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**Legend**

- DCO Boundary
- Flood Zone 3
- Flood Zone 2

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Client **Wheelabrator Technologies Inc**

Project **K3 and WKN DCO**

Title **Statutory Designations - Flood risk**

Status **SUBMISSION** Drawn By: **CR** PM/Checked By: **TS**

Job Ref **OXF9812** Scale @ A3: **1:30,000** Date Created: **SEPT 2019**

Figure Number

**2.2c**



**Legend**

- DCO Boundary
- Air Quality Management Areas

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Client **Wheelabrator Technologies Inc**

Project **K3 and WKN DCO**

Title **Statutory Designations -  
Air Quality Management Areas**

Status **SUBMISSION** Drawn By: **CR** PM/Checked By: **TS**

Job Ref **OXF9812** Scale @ A3: **1:30,000** Date Created: **SEPT 2019**

Figure Number

**2.2d**

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Drawing for **PLANNING** purposes only

Rev	amendments	by	date
L	Leader For Fire water pump house extended into building, contour lines removed, water treatment installed to Switch Gear	BC	TFH 31.08.18
K	Drawing updated to UMG current site plan	PBR	TFH 19.06.18
J	Client logos updated, Steam export rack updated as per CNIM drawing, Internal equipment not shown.	JT	CMGD 14.02.17
H	Hibernacula added, Previous site boundary line removed, Hatches updated.	JH	CD 20.01.17
G	Drawing updated to suit NMA site plan 2016	DDP	CD 11.01.17
F	Logos confirmed, Site layout/access clarified	AJL	RS 28.06.12
E	Site layout updated.	JAT	SG 08.10.12
D	E.ON logo added.	KRy	PRP 15.02.10
C	Surrounding site context and site gates added, Listing OS and colours altered.	SMG	PRP 09.12.09
B	Entrance clarified, Red line boundary confirmed, Critical dimensions added.	AJL	PRP 02.12.09
A	Boundary confirmed, waste extent reduced.	PRP	RS 19.11.09

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Client  
**Wheelabrator**  
 TECHNOLOGIES

Project **Kemsley Sustainable Energy Plant**

Title **Proposed Building Layout**

Drawing Status: Preliminary  
 Date Created: November 2009  
 Project Leader: RS  
 Drawing Number: 16315 / A0 / P / 0105 L

Drawing Scale: 1:500  
 Drawn by: JAT  
 Initial Review: SG

Rev  
 16315 / A0 / P / 0105 L

**FIGURE 4.2D**

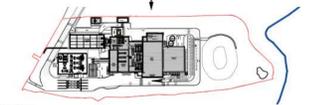


notes :

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3. This drawing should be read in conjunction with all other relevant drawings and specifications.
4. Information based on drawing reference: 15015 F003.

Key:

- A. Horizontally laid Sinusoidal profile insulated built-up cladding with Colorcoat HPS2008 Ultra coating - Colour 'Terracotta' (matt finish) / RAL 040 40 40
  - B. Horizontally laid microrib profile insulated cladding panel with Colorcoat HPS2008 Ultra coating - Colour 'Albatross' / RAL 240 80 05
  - C. Horizontally laid microrib profile insulated cladding panel with Colorcoat HPS2008 Ultra coating, 1000mm deep bands - Colours random mixture 'Terracotta (matt finish) RAL 040 40 40/ Merlin Grey RAL 180 40 05/ Anthracite (matt finish) RAL 7016/ Hamlet RAL 9002
  - D. Vertically laid Trapezoidal profile insulated cladding panel with Colorcoat HPS2008 Ultra coating - Colour 'Anthracite' (matt finish) / RAL 7016
  - E. Stack - Colour 'Light Grey' / RAL 7035
  - F. Horizontally laid microrib profile cladding sheet with Colorcoat HPS2008 Ultra coating, 1000mm deep bands - Colours random mixture 'Terracotta (matt finish) RAL 040 40 40/ Merlin Grey RAL 180 40 05/ Anthracite (matt finish) RAL 7016/ Hamlet RAL 9002
  - G. Horizontally laid microrib profile insulated cladding panel with Colorcoat HPS2008 Ultra coating - Colour 'Terracotta' (matt finish) / RAL 180 40 05
  - H. Aluminium Louvres to be PPC colour Merlin Grey RAL 180 40 05 / Anthracite (matt finish) RAL 7016
- Polyester powder coated aluminium window frames - Colour 'Anthracite' (matt finish) / RAL 7016
- Metal external handrails and plant support - Galvanised finish.
- Paladin fencing and gates - Colour 'Anthracite' (matt finish) / RAL 7016



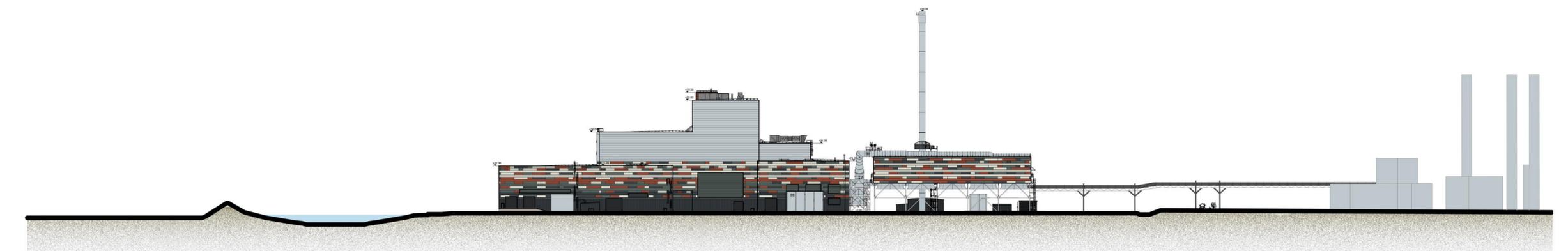
Key Plan  
Scale @ 1:7000

Drawing for **PLANNING** purposes only

rev	amendments	by	ckd	date
T	Site plan, CEMS platform and louvres updated.	BC	TFH	11.09.18
S	Site drawings revised and updated to show new M&E equipments and site attenuation Pond	PBR	TFH	04.07.18
R	Escape stair updated to be non enclosed stair. Transformer note added. ACC cladding amended.	JT	CMGD	27.02.17
P	Client logos updated. Steam export rack updated as per CNIM drawing. Transformer fence added. Walkway enclosure added. Escape stairs added. Key updated.	JT	CMGD	13.02.17
N	Text and level added	JH	CD	20.01.17
M	Elevations updated to suit 2016 NMA site plan layout.	DDP	CD	03.01.17
L	Updated to suit current site layout receiver from EPC contractor.	MK	JAT	17.11.15
K	Updated as per client comments 26.10.15.	MK	JAT	28.10.15
J	Updated to suit current building layout received from EPC contractor.	DEC	JAT	20.10.15
H	Logo's updated.	LMA	ST	02.08.13
G	Elevations updated. Logo's updated.	A.JL	RS	10.07.13
F	Elevation information, title block and key updated.	JAT	SG	08.10.12
E	E.ON logo added. Building extents clarified.	KRY	PRP	15.02.10
D	Stack colour reference amended.	A.JL	PRP	18.01.10
C	Key and notes updated and minor amendments to drawing.	SMG	PRP	17.12.09
B	Building levels information clarified. Keyplan Updated. Stack height confirmed.	A.JL	PRP	25.11.09
A	Key added. Keyplan updated. Building elements labelled.	A.JL	PRP	19.11.09



North West Elevation  
Scale 1:500



Swale Estuary

Proposed Sustainable Energy Plant

Existing Paper Mill  
(with indicative heights)

North West Site Section  
Scale 1:1000



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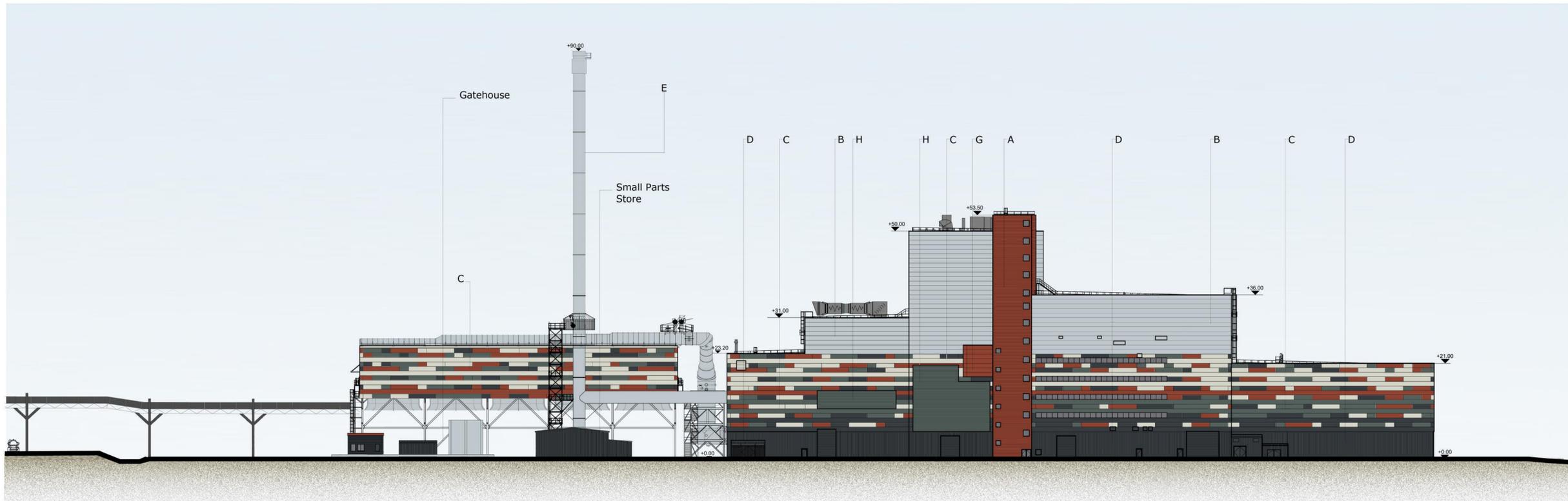
Client  
Project **Kemsley Sustainable Energy Plant**

Title **North West Elevation**

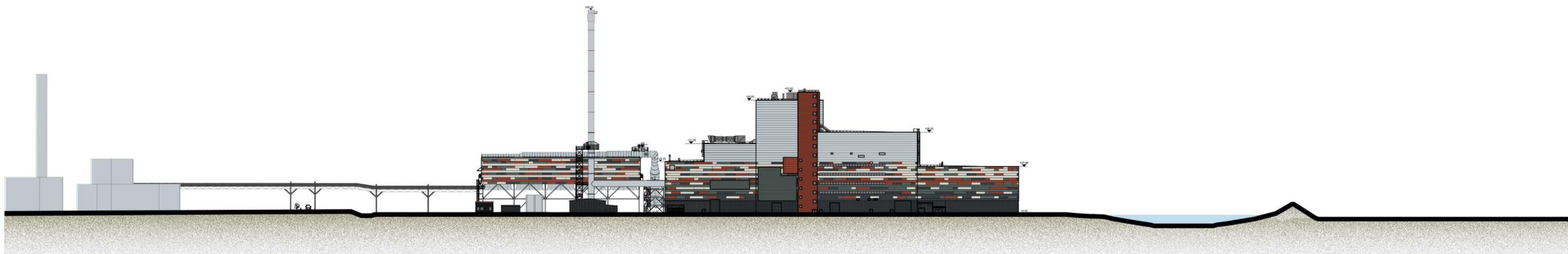
Drawing Status	Date Created	Drawing Scale
Preliminary	11.11.09	1:500
Project Leader	Drawn By	Initial Review
AWY	SMG	RS

Drawing Number  
**16315 / A1 / P / 0113 T**

FIGURE 4.7D



South East Elevation  
Scale 1:500



Existing Paper Mill  
(with indicative heights)

Proposed Sustainable Energy Plant

Attenuation Pond

Swale Estuary

South East Site Section  
Scale 1:1000

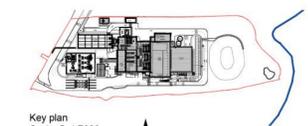
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4. Information based on drawing reference: 15015 F005.

Key:

- A. Horizontally laid Sinusoidal profile insulated built-up cladding with Colorcoat HPS200® Ultra coating - Colour 'Terracotta' (matt finish) / RAL 040 40 40
  - B. Horizontally laid microrib profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Albatross' / RAL 240 80 05
  - C. Horizontally laid microrib profile insulated cladding panel with Colorcoat HPS200® Ultra coating, 1000mm deep bands - Colours random mixture 'Terracotta' (matt finish) RAL 040 40 40/ Merin Grey RAL 180 40 05/ Anthracite (matt finish) RAL 7016/ Hamlet RAL 9002
  - D. Vertically laid Trapezoidal profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Anthracite' (matt finish) / RAL 7016
  - E. Stack - Colour 'Light Grey' / RAL 7035
  - F. Horizontally laid microrib profile cladding sheet with Colorcoat HPS200® Ultra coating, 100mm deep bands - Colours random mixture 'Terracotta' (matt finish) RAL 040 40 40/ Merin Grey RAL 180 40 05/ Anthracite (matt finish) RAL 7016/ Hamlet RAL 9002
  - G. Horizontally laid microrib profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Terracotta' (matt finish) / RAL 180 40 05
  - H. Aluminium Louvres to be PPC colour Merin Grey RAL 180 40 05 / Anthracite (matt finish) RAL 7016
- Polyester powder coated aluminium window frames - Colour 'Anthracite' (matt finish) / RAL 7016
- Metal external handrails and plant support - Galvanised finish.
- Paladin fencing and gates - Colour 'Anthracite' (matt finish) / RAL 7016



Key plan  
Scale @ 1:7000

Drawing for PLANNING purposes only

U	Site plan updated, CEMS platform and staircase updated.	BC	TFH	11.09.18
T	Drawing revised to show MSE equipment and new attenuation pond layout.	PBR	TFH	04.07.18
S	Escape stair updated to be non enclosed stair. ACC cladding amended	JT	CMGD	21.02.17
R	Client logos updated. Steam export rack updated as per CNIM drawing. Key updated. Raw Water Tank added. Walkway enclosure added. Escape stairs added.	JT	CMGD	13.02.17
P	Text added	JH	CD	19.01.17
N	Site Elevations and sections updated to suit 2016 NMA Site Plan Layout	DDP	CD	03.01.17
M	Updated to suit current site layout received from EPC contractor	MK	JAT	17.11.15
L	Updated as per client comments 26.10.15.	MK	JAT	28.10.15
K	Updated to suit current building layout received from EPC contractor	DEC	JAT	20.10.15
J	Logo's updated	LMA	ST	02.08.13
H	Elevations updated. Logo's updated.	AJL	RS	10.07.13
G	Elevation information, title block and key updated	JAT	SG	08.10.12
F	Logo confirmed	PRP	AJL	03.03.10
E	E.ON logo added.	KRY	PRP	15.02.10
D	Stack colour reference amended. Crane area material changed to concrete.	AJL	PRP	18.01.10
C	Key and notes updated and minor amendments to drawing.	SMG	PRP	16.12.09
B	Building levels information clarified. Keyplan Updated. Stack height confirmed.	AJL	PRP	25.11.09
A	Key added. Keyplan updated. Building elements labelled.	AJL	PRP	19.11.09

rev	amendments	by	chkd	date
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Client



Project Kemsley Sustainable Energy Plant

Title South East Elevation

Drawing Status	Date Created	Drawing Scale
Preliminary	11.11.09	1:500
Project Leader	Drawn By	Initial Review
AWY	SMG	RS

Drawing Number  
**16315 / A1 / P / 0110 U**

FIGURE 4.4D



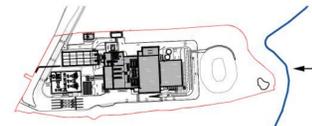
**Key:**

- A. Horizontally laid Sinusoidal profile insulated built-up cladding with Colorcoat HPS200® Ultra coating - Colour 'Terracotta' (matt finish) / RAL 040 40 40
- B. Horizontally laid microrib profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Albatross' / RAL 240 80 05
- C. Horizontally laid microrib profile insulated cladding panel with Colorcoat HPS200® Ultra coating, 1000mm deep bands - Colours random mixture 'Terracotta' (matt finish) RAL 040 40 40/ Merin Grey RAL 180 40 05/ Anthracite (matt finish) RAL 7016/ Hamlet RAL 9002
- D. Vertically laid Trapezoidal profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Anthracite' (matt finish) / RAL 7016
- E. Stack - Colour 'Light Grey' / RAL 7035
- F. Horizontally laid microrib profile cladding sheet with Colorcoat HPS200® Ultra coating, 1000mm deep bands - Colours random mixture 'Terracotta' (matt finish) RAL 040 40 40/ Merin Grey RAL 180 40 05/ Anthracite (matt finish) RAL 7016/ Hamlet RAL 9002
- G. Horizontally laid microrib profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Terracotta' (matt finish) / RAL 040 40 05
- H. Aluminium Louvres to be PPC colour Merin Grey RAL 180 40 05 / Anthracite (matt finish) RAL 7016

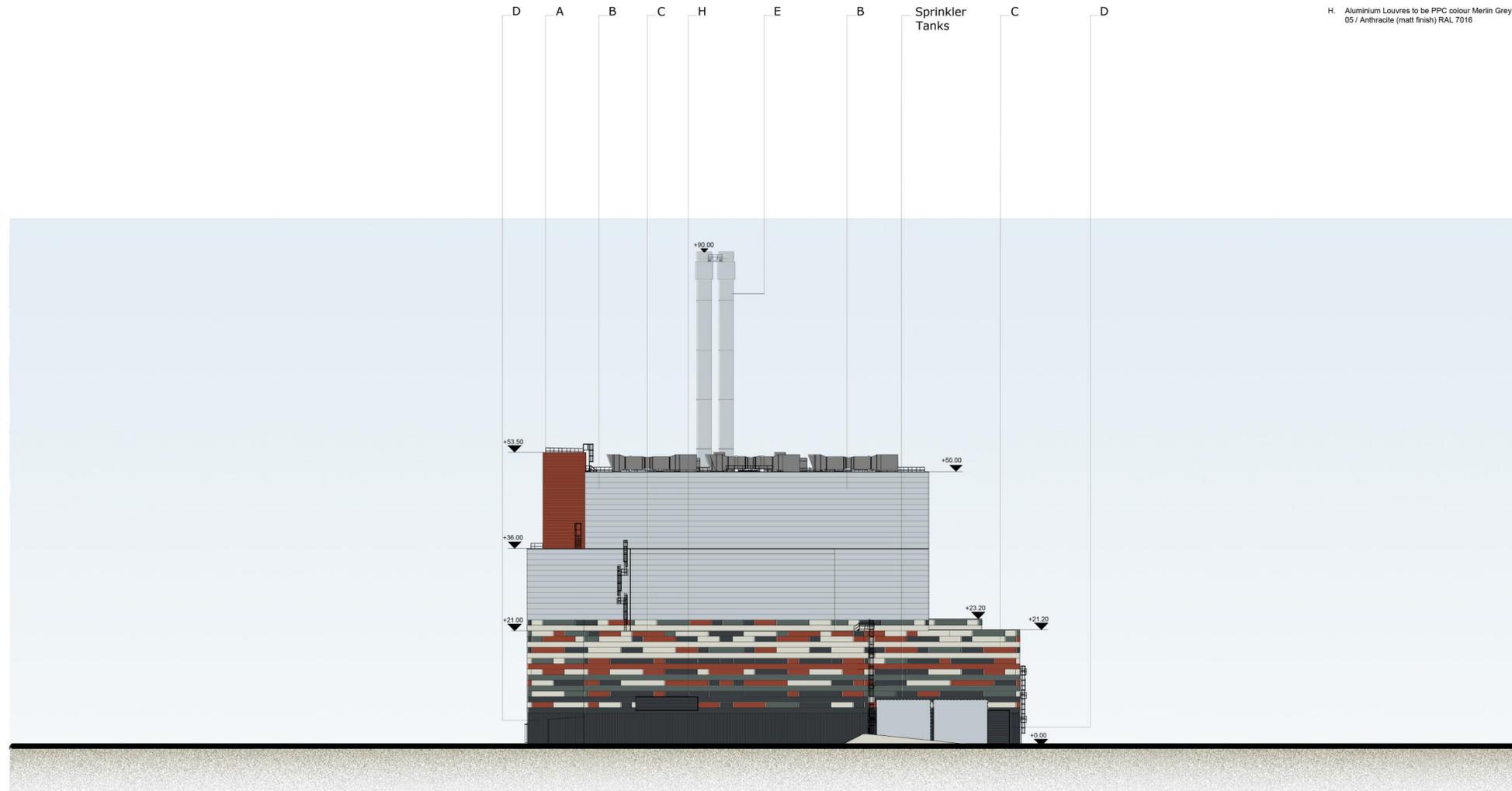
Polyester powder coated aluminium window frames - Colour 'Anthracite' (matt finish) / RAL 7016  
 Metal external handrails and plant support - Galvanised finish.  
 Paladin fencing and gates - Colour 'Anthracite' (matt finish) / RAL 7016

**notes :**

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4. Information based on drawing reference: 15015 F0006.



Drawing for **PLANNING** purposes only



North East Elevation  
 Scale 1:500

<b>T</b>	Site plan updated with removal of contour lines and building labels.	BC	TFH	04.09.18
<b>S</b>	Site revised and updated to show M & E equipment	PBR	TFH	04.07.18
<b>R</b>	Escape stair updated to be non enclosed stair.	JT	CMGD	21.02.17
<b>P</b>	Client logos updated. Steam export rack updated as per CNIM drawing. Key updated. Escape stair added.	JT	CMGD	13.02.17
<b>N</b>	Scale amended	MT	CD	19.01.17
<b>M</b>	Site Elevations and sections updated to suit 2016 NMA Site Plan Layout	DDP	CD	03.01.17
<b>L</b>	Updated to suit current site layout received from EPC contractor	MK	JAT	17.11.15
<b>K</b>	Updated as per client comments 26.10.15.	MK	JAT	28.10.15
<b>J</b>	Updated to suit current building layout received from EPC contractor	DEC	JAT	20.10.15
<b>H</b>	Logo's updated.	LMA	ST	02.08.13
<b>G</b>	Elevations updated. Logo's updated.	AJL	RS	10.07.13
<b>F</b>	Elevation information, title block and key updated.	JAT	SG	08.10.12
<b>E</b>	E.ON logo added. Building extents confirmed.	KRy	PRP	15.02.10
<b>D</b>	Stack colour reference amended. Crane area material changed to concrete. UMA extents confirmed.	AJL	PRP	18.01.10
<b>C</b>	Key updated. Brise Soleil added. Other minor amendments to drawing.	SMG	PRP	17.12.09
<b>B</b>	Elevation altered to show UEB.	AJL	PRP	23.11.09
<b>A</b>	Key added. Keyplan Updated. Building Elements Labelled.	AJL	PRP	19.11.09

rev	amendments	by	ckd	date
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Client  
 Project **Kemsley Sustainable Energy Plant**

Title **North East Elevation**

Drawing Status	Date Created	Drawing Scale
Preliminary	11.11.09	1:250
Project Leader	Drawn By	Initial Review
AWY	SMG	RS

Drawing Number **16315 / A1 / P / 0111 T**

FIGURE 4.5D

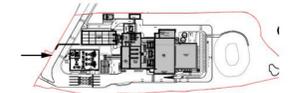


**Key:**

- A. Horizontally laid Sinusoidal profile insulated built-up cladding with Colorcoat HPS200® Ultra coating - Colour 'Terracotta' (matt finish) / RAL 040 40 40
  - B. Horizontally laid microrib profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Albatross' / RAL 240 80 05
  - C. Horizontally laid microrib profile insulated cladding panel with Colorcoat HPS200® Ultra coating, 1000mm deep bands - Colours random mixture 'Terracotta' (matt finish) RAL 040 40 40/ Merlin Grey RAL 180 40 05/ Anthracite (matt finish) RAL 7016/ Hamlet RAL 9002
  - D. Vertically laid Trapezoidal profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Anthracite' (matt finish) / RAL 7016
  - E. Stack - Colour 'Light Grey' / RAL 7035
  - F. Horizontally laid microrib profile cladding sheet with Colorcoat HPS200® Ultra coating, 1000mm deep bands - Colours random mixture 'Terracotta' (matt finish) RAL 040 40 40/ Merlin Grey RAL 180 40 05/ Anthracite (matt finish) RAL 7016/ Hamlet RAL 9002
  - G. Horizontally laid microrib profile insulated cladding panel with Colorcoat HPS200® Ultra coating - Colour 'Terracotta' (matt finish) / RAL 180 40 05
  - H. Aluminium Louvres to be PPC colour Merlin Grey RAL 180 40 05 / Anthracite (matt finish) RAL 7016
- Polyester powder coated aluminium window frames - Colour 'Anthracite' (matt finish) / RAL 7016
- Metal external handrails and plant support - Galvanised finish.
- Paladin fencing and gates - Colour 'Anthracite' (matt finish) / RAL 7016

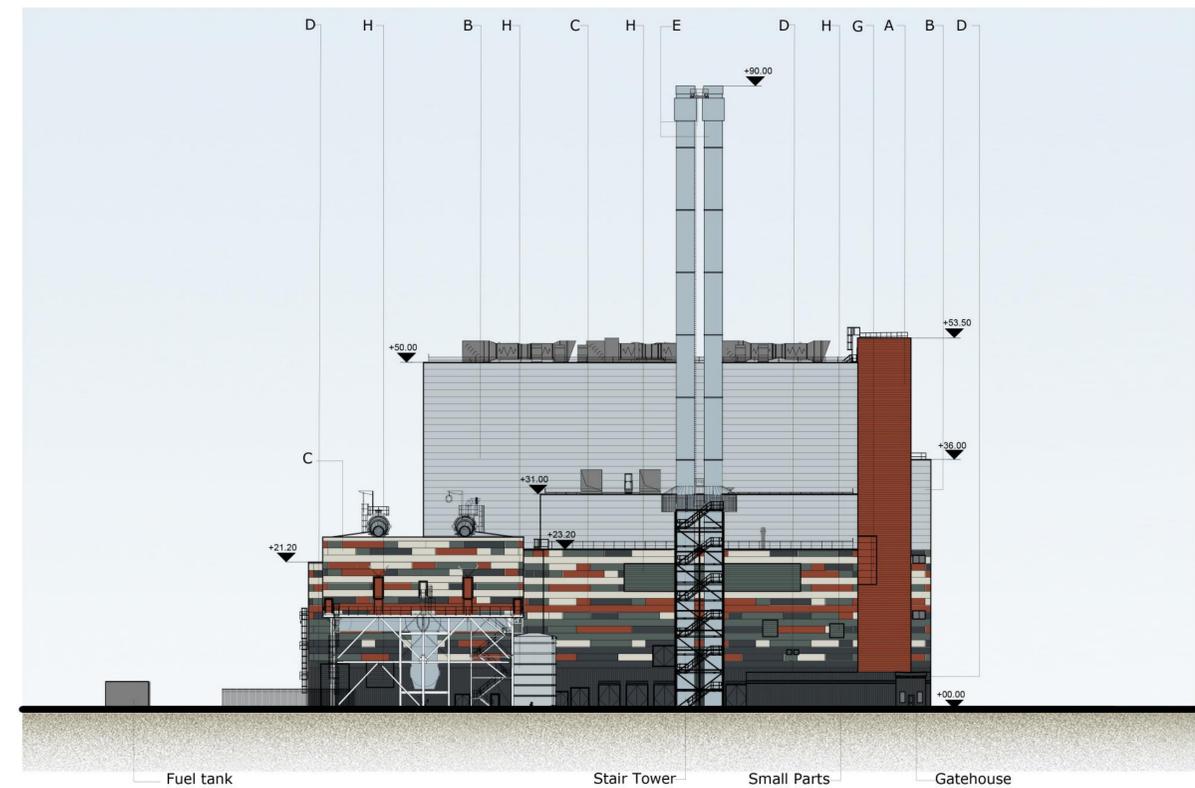
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4. Information based on drawing reference: 15015 F004.



Key Plan  
Scale @ 1:7000

Drawing for **PLANNING** purposes only



South West Elevation  
Scale 1:500

U	Gatehouse and rainwater tank added, site plan updated.	BC	TFH	12.09.18
T	Drawing revised and updated to show M&E equipment	PBR	TFH	04.07.18
S	ACC cladding amended.	JT	CMGD	13.02.17
R	Client logos updated. Steam export rack updated as per CHIM drawing. Key updated. Raw Water Tank added. Industrial Waste Water Pit removed. Walkway enclosure added. Fuel Tank added. ACC cladding amended.	JT	CMGD	13.02.17
P	Scale changed.	JH	CD	19.01.17
O	Elevations updated to suit 2016 NMA site plan layout.	DDP	CD	03.01.17
N	Updated to suit current site layout received from EPC contractor	AE	JAT	17.11.15
M	Updated as per client comments 26.10.15.	MK	JAT	28.10.15
L	Updated to suit current building layout received from EPC contractor	DEC	JAT	20.10.15
K	Logo's updated	LMA	ST	02.08.13
J	Elevations updated. Logo's updated.	AJL	RS	10.07.13
H	Elevation amended to suit comments.	JAT	SG	12.10.12
G	Elevation information, title block and key updated	JAT	SG	08.10.12
F	E.ON logo added. Building extents clarified.	KRY	PRP	15.02.10
E	Stack colour reference amended. UMA extents confirmed.	AJL	PRP	18.01.10
D	Key updated and minor amendments to drawing.	SMG	PRP	17.12.09
C	Building levels information clarified. Key updated. Stack material indicated.	AJL	PRP	25.11.09
B	Key & materials information added.	AJL	PRP	23.11.09
A	Key added. Keyplan Updated. Building Elements Labelled.	AJL	PRP	19.11.09

rev	amendments	by	ckd	date
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Client  
Project **Kemsley Sustainable Energy Plant**

Title **South West Elevation**

Drawing Status	Date Created	Drawing Scale
Preliminary	11.11.09	1:250
Project Leader	Drawn By	Initial Review
AWY	SMG	RS

Drawing Number **16315 / A1 / P / 0112 U** Rev

**FIGURE 4.6D**





\\eur-mpfs-02\projects\9812 Kemsley Construction Phase\Tech\Drawings\9812-0024-004.mxd

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Client **Wheelabrator Kemsley**

Project **K3 and WKN DCO**

Title **CGI of how K3 as consented will look post completion**

Status **SUBMISSION** Drawn By: **CR** PM/Checked By: **TS**

Job Ref **OXF9812** Scale @ A3: **NTS** Date Created: **SEPT 2019**

Figure Number

**2.5**

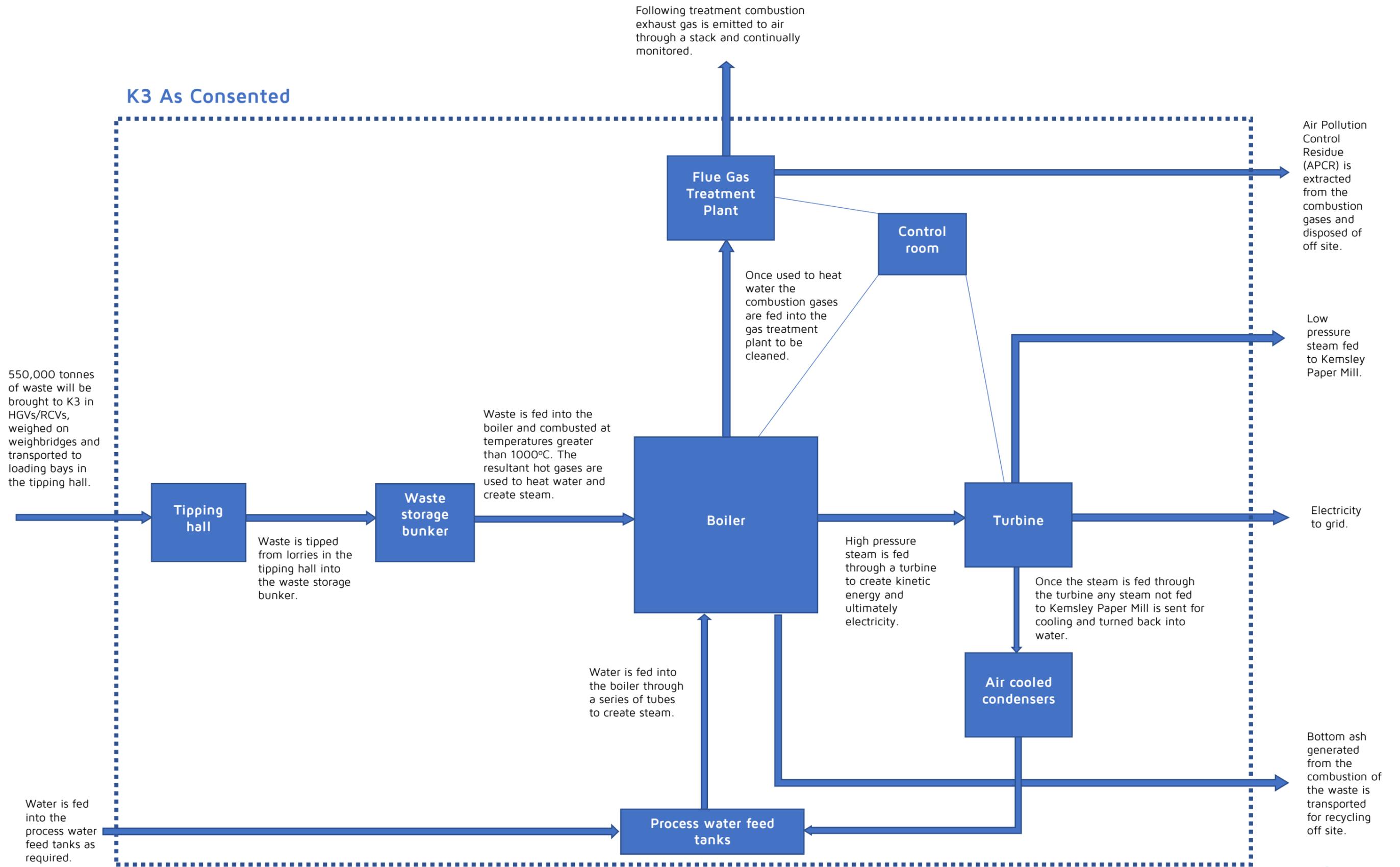
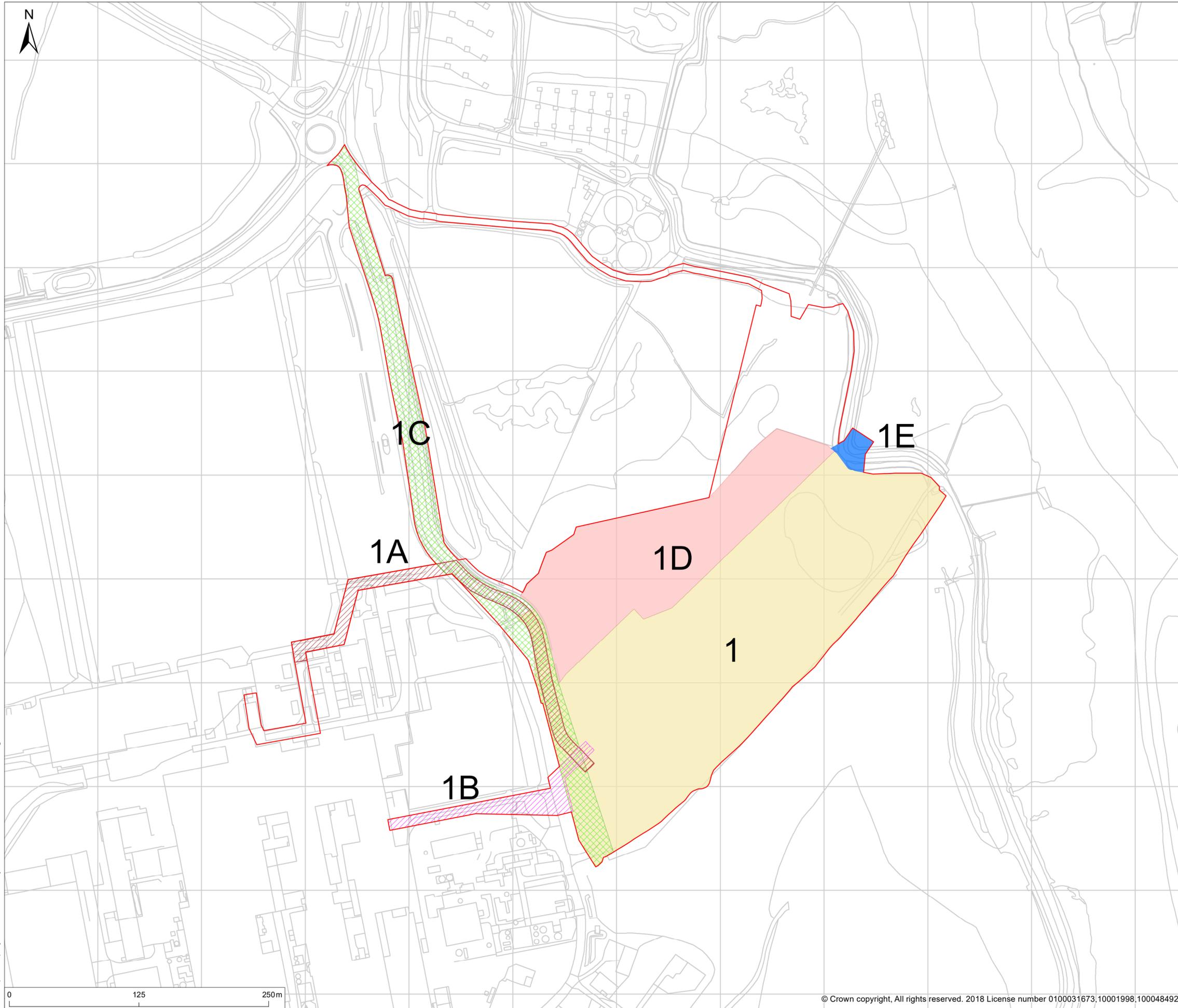


Figure 2.6 K3 as consented process diagram.



**Legend**

- DCO Boundary
- Works Area 1
- Works Area 1A
- Works Area 1B
- Works Area 1C
- Works Area 1D
- Works Area 1E

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Client **Wheelabrator Technologies Inc**

Project **K3 and WKN DCO**

Title **K3 Works Plan**

Status **SUBMISSION** Drawn By: **CR** PM/Checked By: **TS**

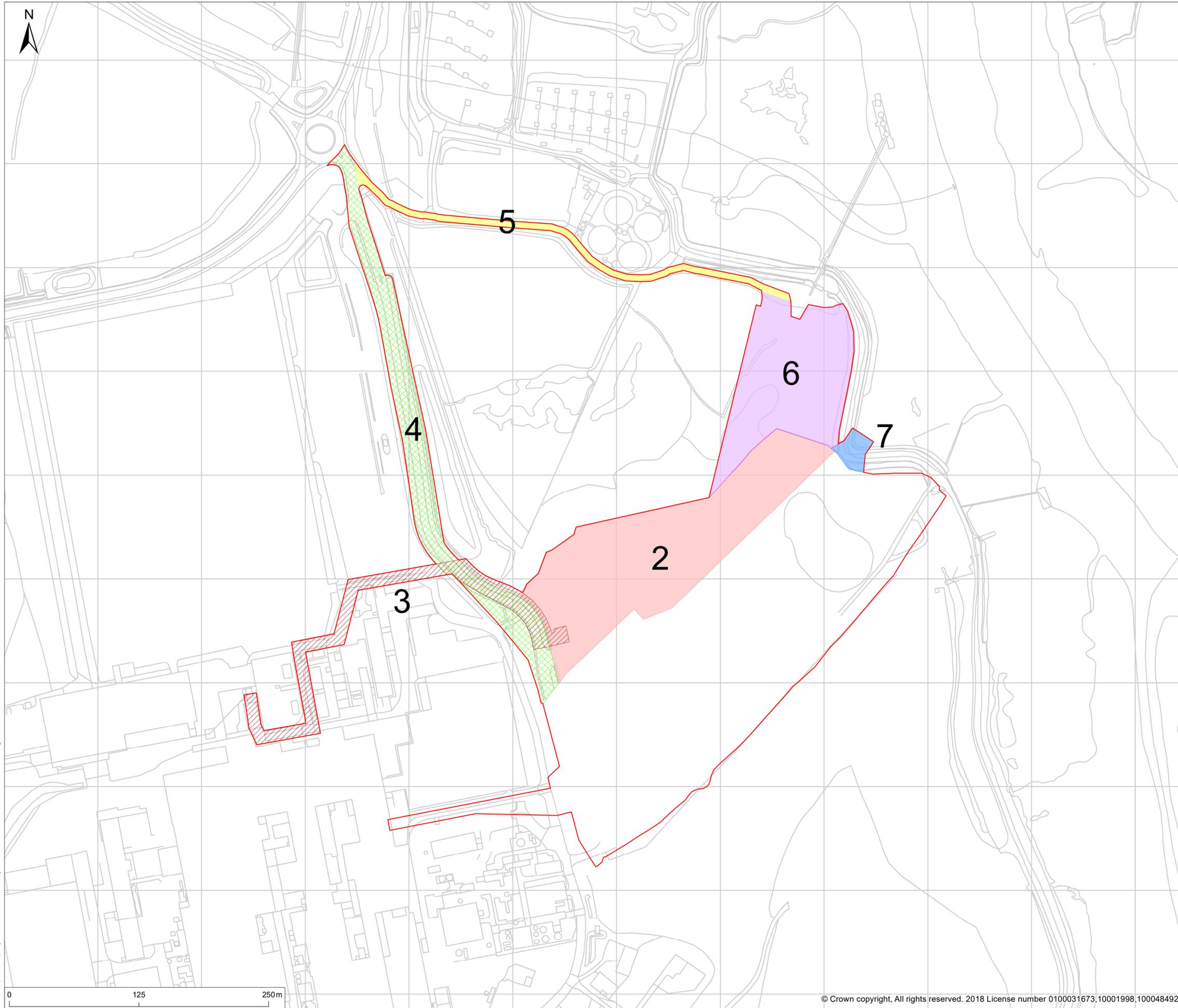
Job Ref **OXF9812** Scale @ A2: **1:2,500** Date Created: **SEPT 2019**

Figure Number  
**2.7a**

\\neur-mpfs-02\projects\9812 Kemsley Construction Phase\Tech\Drawings\9812-0050-004.mxd

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\\neur-mpfs-02\projects\9812 Kemsley Construction Phase\Tech\Drawings\9812-0050-004.mxd



**Legend**

- DCO Boundary
- Works Area 2
- Works Area 3
- Works Area 4
- Works Area 5
- Works Area 6
- Works Area 7

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Client **Wheelabrator Technologies Inc**

Project **K3 and WKN DCO**

Title **WKN Works Plan**

Status **SUBMISSION** Drawn By: **CR** PM/Checked By: **TS**

Job Ref **OXF9812** Scale @ A2: **1:2,500** Date Created: **SEPT 2019**

Figure Number  
**2.7b**

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### K3 As Consented - Practical Effect

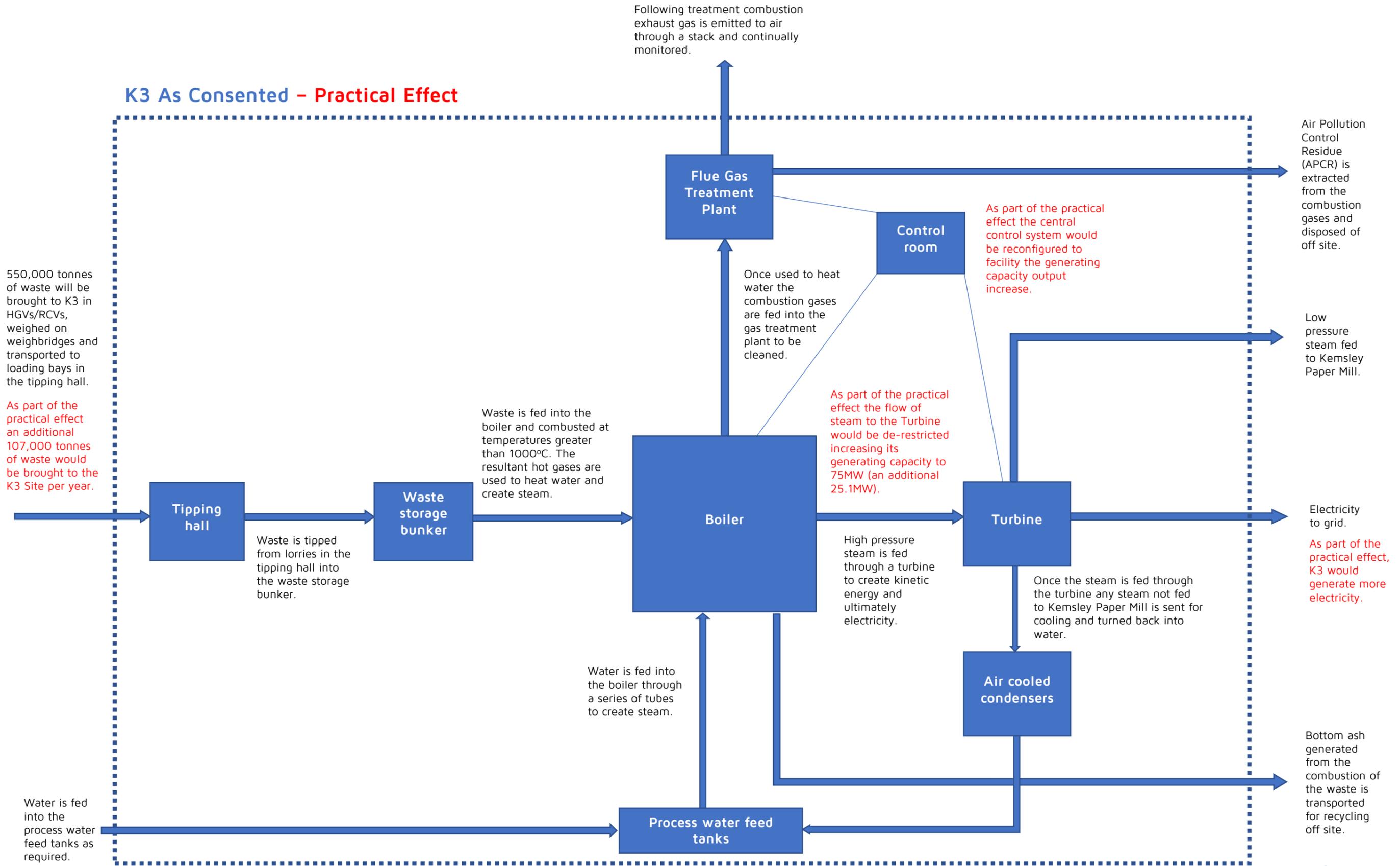
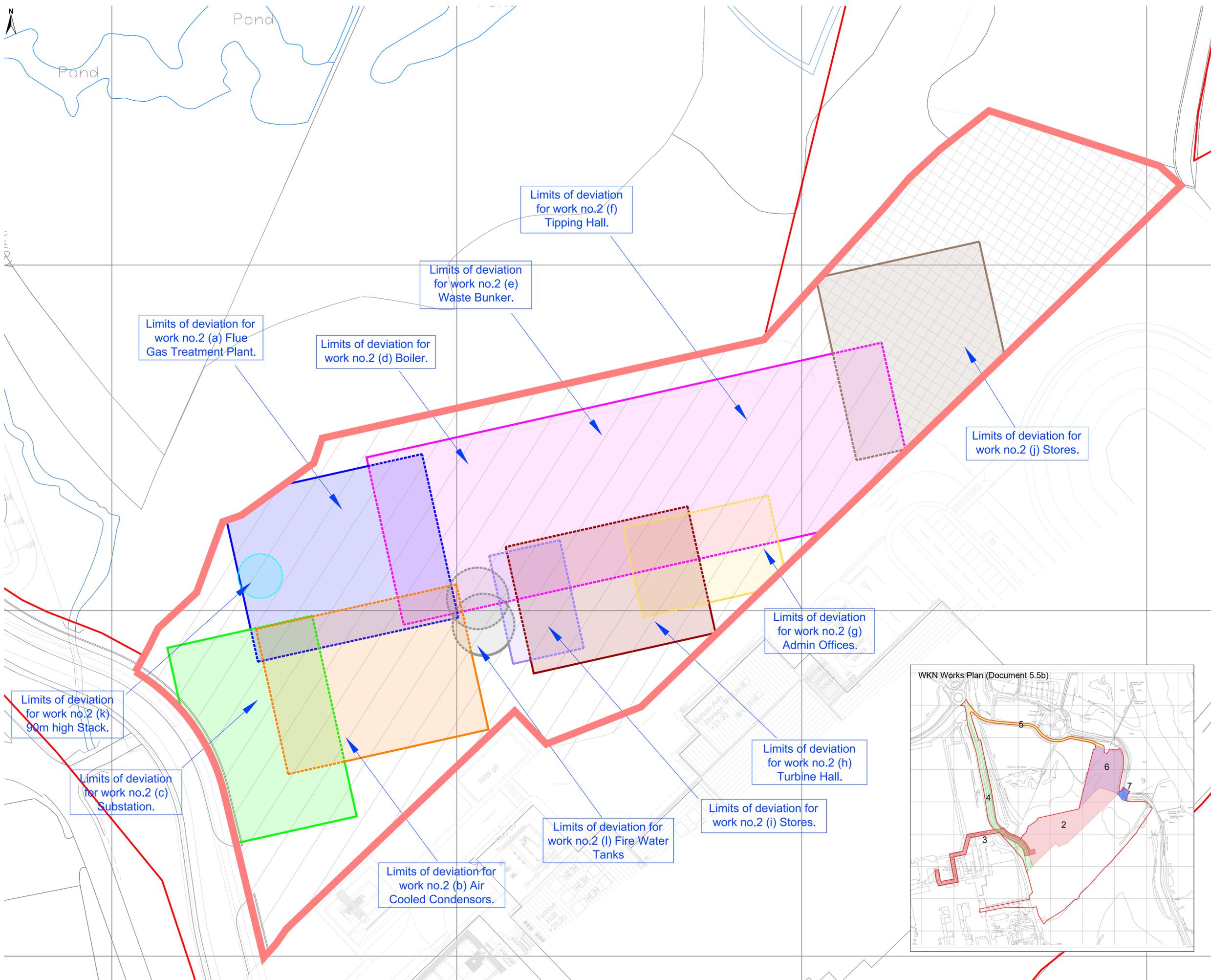


Figure 2.8 Practical effect of the K3 Proposed Development process diagram.



- Legend**
- DCO Boundary
  - Work No 2 Boundary
  - a) Limits of Deviation for Flue Gas Treatment Plant
  - b) Limits of Deviation for Air Cooled Condensors
  - c) Limits of Deviation Substation
  - d,e & f) Limits of Deviation for Main Facility (Boiler, Waste Bunker and Tipping Hall)
  - g) Limits of Deviation for Admin Offices
  - h) Limits of Deviation for Turbine Hall
  - i) Limits of Deviation for Store and Utilities
  - j) Limits of Deviation for Stores and Utilities
  - k) Limits of Deviation for Stack
  - l) Limits of Deviation for Fire Water Tanks
  - Auxiliary Buildings <10m in height. Size and location to be designed at a later date.
  - Landscaping and surface water drainage.

Limits of deviation for work no.2 (a) Flue Gas Treatment Plant.

Limits of deviation for work no.2 (d) Boiler.

Limits of deviation for work no.2 (e) Waste Bunker.

Limits of deviation for work no.2 (f) Tipping Hall.

Limits of deviation for work no.2 (j) Stores.

Limits of deviation for work no.2 (g) Admin Offices.

Limits of deviation for work no.2 (k) 90m high Stack.

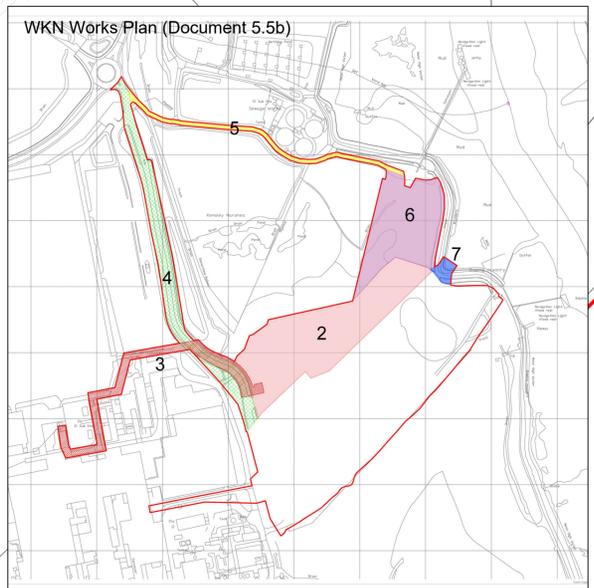
Limits of deviation for work no.2 (c) Substation.

Limits of deviation for work no.2 (h) Turbine Hall.

Limits of deviation for work no.2 (b) Air Cooled Condensors.

Limits of deviation for work no.2 (l) Fire Water Tanks

Limits of deviation for work no.2 (i) Stores.



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Client **Wheelabrator Technologies Inc**  
 Project **K3 and WKN DCO**  
 Title **WKN Parameter Plan**



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 Figure Number **2.9**



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Client **Wheelabrator Kemsley**

Project **K3 and WKN DCO  
 CGI of how K3 and the WKN  
 Proposed Development will look  
 together using worst case  
 parameters**

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Figure Number

**2.10**

## WKN Proposed Development

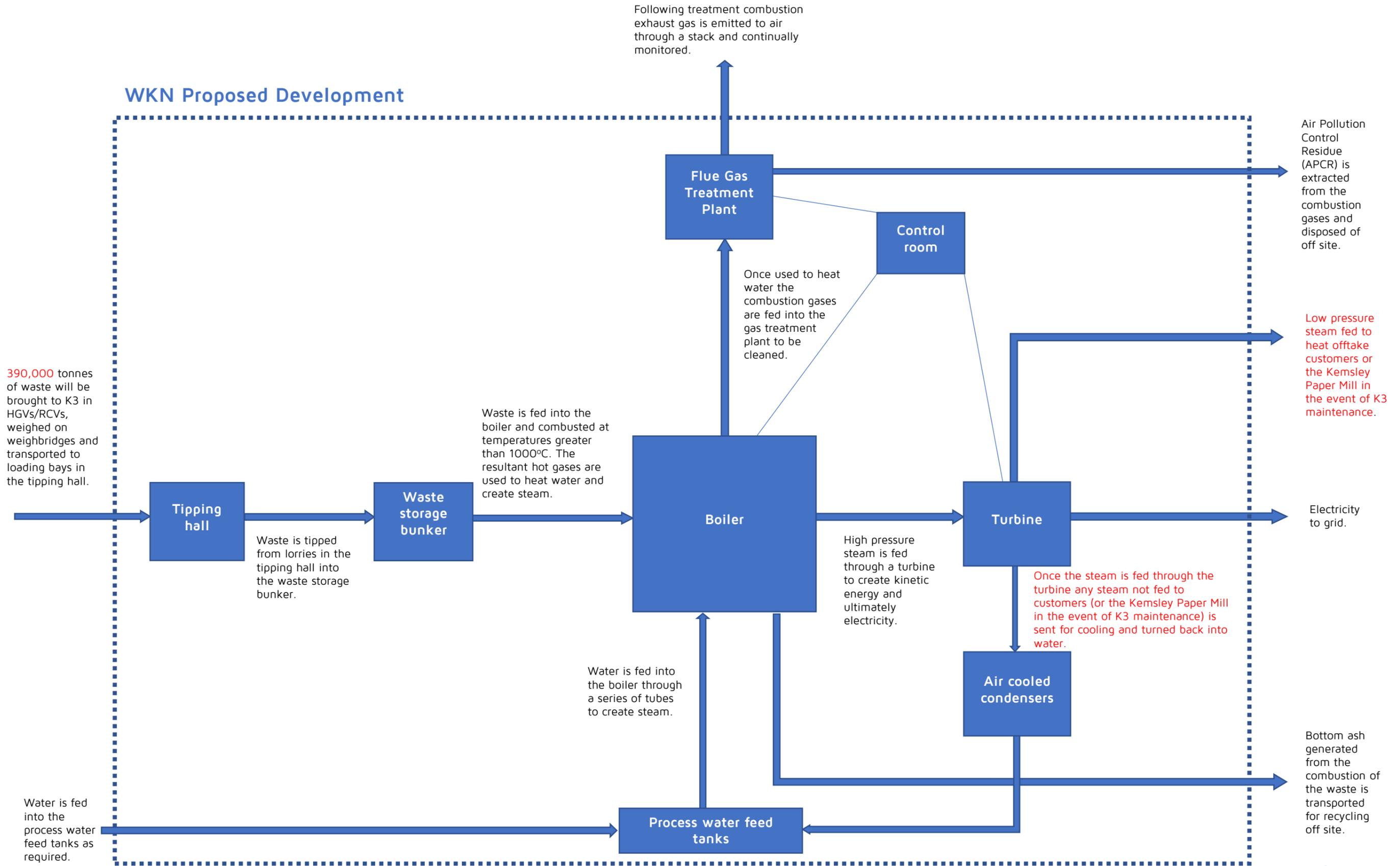


Figure 2.11 WKN Proposed Development process diagram.