

CAERPHILLY SKIPS BESPOKE PERMIT VARIATION

ENVIRONMENTAL ASSESSMENT OF NEW ACTIVITIES

Report Number 1960r3v2d0520

Commissioned by
Caerphilly Skip Hire (CWS) Limited
The Granary
Graddfa Industrial Estate
Llanbradach
CF83 3QS

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MAY 2020

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1 INTRODUCTION

1.1 Background

Geotechnology has been commissioned by Caerphilly Skip Hire (CWS) Limited to prepare a Permit Variation for their non-hazardous waste transfer facility near Llanbradach known as The Granary. Summary details of the operation and application are summarised in Table 1-1 and the site location is shown on Figure 1 and Figure 2.

Table 1-1 Application Details

Name of the Applicant	Caerphilly Skip Hire (CWS) Ltd.
Activity Address	The Granary, Graddfa Industrial Estate, Caerphilly. CF83 3QS
Permit No.	EPR/EP3994LG
National Grid Reference	314760, 190600
Site Location Plans	Figure 1
Key Features of Area	Figure 2

The Variation to the existing Permit is intended to:

- Enable increased tonnage throughput
- Extend the site boundary to accommodate the adjoining area currently operated under Exemption.
- Allow CWS to crush and screen inert waste using a slow speed crusher inside a building
- Allow CWS to bulk up bagged asbestos. This would involve accepting bagged asbestos and placing it into sealed skips which would then be taken for disposal, once full.
- Allow CWS to shred wood to enhance its off-site recovery and handling during transport. This temporary operation would be undertaken intermittently outdoors on impermeable surfacing.
- Bring the existing area covered by an S2 exemption into the Permitted boundary

Alongside the current recovery of waste from the current skip waste storage and sorting operation, the variation would therefore also enable:

- further recovery of inert waste and production of aggregates in accordance with the WRAP quality protocol for production of aggregates.
- chipped waste wood to be produced for a range of customer requirements.
- temporary storage and transfer of bagged asbestos.

As part of the Variation application NRW has requested CWS to describe the environmental risk posed by the proposals. This must take the form of an environmental risk assessment which should follow the methodology set out by NRW Environmental Risk Assessment (EPR–H1) guidance or an alternate methodology with an equivalent level of detail.

The objective of this Environmental Risk Assessment (ERA) is therefore to establish the impact, if any; the proposed Variation will have on the environment, human health or amenity issues of concern. The Risk Assessment is focussed on assessment of the changes proposed in the Variation as what is currently permitted was assessed in previous application.

1.2 Context of Proposed Activities

This assessment adopts the H1 Environmental Risk Assessment approach set out by NRW. In this context, the digital H1 software tool, which has been developed to help consistently quantify the impact of proposed releases from regulated activities, has been used as a method of quantifying potential impacts on human and ecological receptors. The impacts are also described using a series of risk matrices, similar to those used by NRW for Standard Rules Permits.

This latter approach is particularly valid and relevant at this site as the proposed waste types, operations and pollution control measures are the same as those considered acceptable by NRW under a range of Standard Rules Permits underpinned by generic risk assessments. The difference at this site is that the tonnage throughput is higher and the site is within 500m of residential properties.

Within this context, the proposed activities could be considered conventional and the associated environmental risks familiar to NRW. Similarly, this means that control measures should be relatively conventional and risks manageable.

2 SITE SETTING

2.1 Site Location

As shown on Figures 1 and 2, the current operation is located directly north of Llanbradach, which is itself north of Caerphilly, South Wales. The thin linear site measures approximately 400m by 25m and is orientated approximately north-south. The site is located near the base of the valley floor with the valley side steeply rising immediately west. Directly to the north are industrial units, some of which are used for waste activities and some for vehicle maintenance. Directly to the east is a railway line. Beyond the railway line is a Medical Centre, Community Centred, disused works and residential properties. Towards the south, the site is naturally squeezed between the railway line to the east and access road running alongside the western site boundary at an elevated position. Further south is forestry and residential properties.

Many of these features are identified on Figure 2.

2.2 Access

The site is accessed at its northernmost point off Colliery Road which runs above the site to the west. Photographs of the access route are shown on Figure 3. The access route is also shown on Figure 4. The exit is at the southernmost point of the site. This arrangement ensures that traffic moves from the north to the south through the site. During an emergency, the site could, however, be accessed from the north or south with both access routes being clear and 3.7m wide.

2.3 Environmental Setting

The site is located in an area where there are no protected ecological sites within 500m. Beyond this distance there is a SSSI 813m south. This was designated for geological reasons. There are no other protected sites within 2km apart from Ancient Woodland directly west of the site.

Groundwater below the site is not part of a Source Protection Zone. The groundwater is however designated as a secondary A aquifer in the superficial deposits and underlying bedrock. These are very likely to be overlain by made ground associated with historical land uses.

There are no surface water bodies close to the site apart from springs to the west issuing from higher ground and these are culverted beneath the site.

The site is close to residential properties, as shown on Figure 2 and 4. The closest are located to the west and separated from the site by dense woodland.

Wind direction at the site typically moves from the south to the north of the yard, as experienced by the site operator and in general accordance with the prevailing south-westerly wind directions experienced in the South Wales valleys.

2.4 Previous Land Use and Historical Legacy

Based on the environmental setting and historical land use information gathered as part of a Site Condition Report (SCR), there appears to be significant potential for historical anthropogenic contamination at the site that pre-dates the existing Permit. This may be associated with areas of potentially infilled land and the extensive railway sidings associated with the surrounding collieries. Since the cessation of mining activity, the immediate area has continued to be used for a range of industrial and waste operations. Residential development has primarily occurred to the east, at Llanbradach, although several properties are located along Colliery Road.

3 OVERVIEW OF CURRENT OPERATIONS

3.1 Site Layout

The long narrow site is naturally split into two areas referred to as top yard (at a higher elevation) and bottom yard (at a lower elevation). All waste acceptance and sorting is undertaken in the top yard. The lower yard is used for storage of empty skips and secure containers in accordance with an S2 exemption. Both areas are shown below and on Figure 4.



Plate 3-1 View South over concrete in part of Top Yard



Plate 3-2 Skip storage area in lower yard

3.2 Waste Management

The company's success relies upon the rapid sorting of waste brought to site in skips. In the most part, the waste is brought to site by the CWS skip wagon fleet which includes 6 wagons and a stock of approximately 400 skips. The skips accepted vary in size from 2 to 35 cu yd with all skips being rapidly sorted and separated materials quickly taken to other waste management facilities for recovery or disposal.

Following acceptance at the site, the waste is tipped from skips onto an outdoor impermeable surface in the top yard. The top yard benefits from impermeable surfacing and sealed drainage that passes through an interceptor. In this area, waste is rapidly inspected, separated and sorted using manual and mechanical means including an excavator with a selector grab, a riddle bucket and a front loading shovel. Some of the waste is passed through a trommel for further separation. The trommel is located within a building. This enables separation of fines, plastic, wood and mixed waste. These wastes drop out of the bottom of the trommel and picking line and are rapidly scooped up by the front loading shovel into their respective RORO skips. Fixed position atomiser sprays and sprinklers are soon to be installed in the building. The current overall process is summarised in Figure 5 and site layout in Figure 6. Separated materials are immediately placed into dedicated reversed parked RORO skips for temporary storage prior to off-site recovery and disposal.

The lower yard currently benefits from an S2 exemption. This part of the site is also used to store empty skips.

3.3 Waste Types

Waste types and quantities are restricted to those listed in the site Permit. Current maximum annual tonnage is 22,500 tonnes.

The site typically accepts:

- non-hazardous wastes
- inert Waste
- general & bio-degradable waste consisting of mixed construction, demolition and excavation waste (CDEW) and wood (treated and untreated)

3.4 Waste Acceptance

All vehicles using the facility are normally pre-booked and operated by CWS. The Yard manager visually inspects each load prior, during and following tipping or placement into storage. The yard manager is conversant with the requirements of the licence and responsible for ensuring materials are tipped in a proper and safe manner. Particular attention is given to identifying non-permitted items so that these can be appropriately dealt with in accordance with waste acceptance procedures.

3.5 Existing Environmental Controls

The site benefits from a range of pollution control measures. These are intended to limit impact on the local area and the environment. These measures have been in place for many years and have proven effective as there are no ongoing complaints from residents or any other party. NRW has also visited and inspected the operation on many occasions.

3.5.1 Drainage

The existing top yard largely comprises impermeable concrete installed by CWS with falls towards the south, as shown in Plate 3-1 and Figure 7. In the southern part of the top yard, the gravity drainage is directed to a Class 1 full retention interceptor designed, installed, operated and maintained by CWS. The modular unit provides easy access for maintenance and an oil alarm. Drainage passing into the interceptor can be controlled and stopped by closing a valve. Such drainage would then back up on the top yard, being retained by the push walls, concrete upstand and sleeping policeman (see Figure 7). The gravity drainage that passes through the interceptor falls under gravity to the east to land drains.

3.5.2 Control of mud and debris

From the working area to the public road is approx. 300m. The ground over which the lorries travel is concrete and experience has shown that there is sufficient distance for mud/water to come off the wheels prior to the vehicles leaving the permitted area. Mechanical sweeping is also sometimes undertaken to remove dried mud and prevent dust blow. These controls have proved effective to date.

3.5.3 Dust

Due to the bulky nature of the wastes and the manual / mechanical methods of sorting, significant dust release beyond the site boundary rarely occurs. Waste separation using a trommel is also undertaken within an open sided building. When dust is found to be a potential problem and visible on site, CWS use water from a bowser and hose pipe to dampen the affected wastes. If the operation of the trommel screen generates dust in such a quantity that it is visible then monitoring and further control measures are implemented. This includes shrouding the machine and conveyors and use of water misting.

A sprinkler system and Fixed position and mobile atomisers are to be installed in the building to enhance this control measure.

3.5.4 Odours

The operation does not typically generate an odour. The waste accepted is not typically odorous.

Any waste arriving at the facility with a significant odour problem is returned to the producer. Any action taken is recorded in the site logbook. Materials known to be odorous would not be tipped at the facility.

Site operatives are required to report any offensive odours encountered during waste sorting operations. In such cases, the producer of the waste is identified and notified and the incident recorded in the site logbook.

3.5.5 Noise

The site has been in operation for over thirty years and noise has not proven to be an issue. The trommel screen is housed in a building and powered via a fully silenced diesel engine and when operating produces less noise than a modern heavy lorry at fast tick over. All plant is maintained to ensure noise is minimised. CWS have their offices on site and the proprietor and persons employed are the people closest to any potential noise source.

3.5.6 Pests

All employees are required to report any evidence of rats or other vermin on the site to the Yard supervisor. The Yard supervisor also inspects the site daily. Pests have not proved to be a problem to date. Should the presence of vermin be suspected a pest control company would be employed to investigate and deal appropriately with the situation. Where control measures are used records would be kept of the types and quantities of pesticides used, if required.

3.5.7 Birds

The waste accepted at the site typically has little attraction to birds or other scavengers being mainly waste from construction and demolition. To ensure that problems do not develop, the sorting area is always cleared by the end of the working day and all skips kept on site after the end of the working day which contain loose or lightweight waste are securely sheeted or netted.

3.5.8 Litter

No loose material is left on the sorting area floor overnight as this could be blown around the site. During operations, any loose materials or litter escaping from the sorting area is immediately picked up and placed back in an appropriate container. Most bulky waste in skips is not a source of litter but where light fraction waste is in a skip this is sheeted as required.

4 PROPOSED VARIATION

The proposed variation has 6 elements:

1. Altered site boundary to accommodate the area currently covered by an S2 exemption
2. Increased tonnage throughput
3. Crushing and screening of inert waste inside a building
4. Asbestos acceptance and bulking in a secure container
5. Occasional wood shredding
6. Acceptance of new wastes

Each of these elements are detailed in the following sections.

4.1 Altered Site Boundary

The current and proposed site boundaries are shown on Figure 4. The extended boundary would encompass the lower yard area currently benefiting from an S2 exemption. This operation would continue. This typically involves the short-term storage (<2 days) of secure containers ahead of off-site transport on impermeable concrete. This enables the top yard to be kept clear of full secure containers and improves traffic management and health and safety as the wagons collecting the full skips can proceed directly to the lower yard without interrupting the waste treatment operation in the top yard. No treatment would be undertaken on the lower yard. The upper yard would still remain the point at which waste is sorted as this area drains to the interceptor.

4.2 Increased Waste Tonnage Throughout

The current annual throughput is 22,500 tonnes. In 2018, the annual tonnage reported was 22,783 tonnes. To avoid such breaches, CWS seeks to increase the permitted tonnage.

Based on current assessments of market conditions, CWS expects the annual throughput to increase in future years by approximately 5%. Based on current tonnages of 22,500 tonnes this would mean an additional tonnage of approximately 1,125 tonnes/year. If each skip were to weigh ~3 tonnes this would be equivalent to an additional 6 – 7 skips/week.

As the expected future tonnage pushes the operation into the next highest NRW fee bracket, CWS wish to have the Permit issued on the higher tonnage limit of this bracket which is 75,000 tonnes. CWS recognise that the throughput will never reach this limit and will at all times be constrained by the commitments set out in management plans and the size of the site.

The main reason for the increased tonnage is to future proof the operation, provide flexibility in case short-term large contracts were to arise and to ensure the Permit is not breached. This jump in permitted tonnage does not mean that the CWS operation will triple in size overnight, or ever reach this new capacity. Rather, increasing the tonnage to this level ensures that the predicted small increases in tonnage can be accommodated and CWS are provided with the highest tonnage of the applicable fee bracket whilst ensuring the site always meets Permit conditions.

4.3 Crushing and Screening of Inert Wastes

Inert construction and demolition waste, such as soil and stone, concrete, bricks, tiles and ceramics and mixtures thereof, are common waste types found in the skips accepted by CWS. To improve the service offered to clients and to widen opportunities for recovery, CWS wishes to vary the existing Permit to allow the crushing and/or screening of these wastes. CWS estimate that up to 5,000 tonnes a year would be crushed and screened.

The crushing operation would be undertaken in the existing building directly adjacent to the existing trommel. This will enable materials to be directed by conveyor from the trommel directly to the crusher and screen. Fixed position and mobile atomiser sprays and fixed position sprinklers are to be installed in the building. Temporary screening would be undertaken outdoors on impermeable concrete.

This treatment activity will enable new materials and aggregates to be produced, as required. Due to the level of supply and demand of these materials, CWS does not currently foresee this operation being constant but undertaken only 3 days a week and in response to market demand. Certain wastes would be processed to produce aggregates in accordance with the WRAP quality protocol.

This crushing operation would be undertaken using a mobile slow speed electric jaw crusher fitted with spray bars enabling oversize material to be size reduced and sorted whilst dust release is minimised. Soils would be screened to recover stone and inert fractions such as brick and concrete. All equipment would be fitted with integrated dust and noise suppression to protect CWS personnel and to prevent pollution.

Within the building, dust suppression would include fixed position and mobile high pressure, low volume water sprays (atomiser sprays) and sprinklers. In combination, the integrated spray bars and atomisers would enable potential emission points to be controlled, particularly around the crusher unit. Mobile atomisers would be used when the screen is in operation to prevent the escape of visible particulates. The aim of the dust suppression measures is to ensure that the processes are substantially free from airborne particulate emissions and to provide a safe and comfortable working environment for CWS personnel. It is expected that the processes can be controlled such that there are no visible emissions. It is expected that any emission incidents will be rapidly brought under control as soon as they are observed and significant emissions will not be allowed to cross the permitted boundary.

As the crusher is to be used inside a building noise issues are not anticipated to be significant at the site boundary. The screening operation will be quieter than the crushing. Both activities will only occur infrequently and for short durations. At all times, noise emissions will be subject to assessment and control by site personnel and management to ensure that there are no significant noise issues beyond the site boundary.

4.4 Asbestos Bulking

The site does not currently accept any hazardous wastes. CWS is, however, sometimes asked to accept small quantities of bagged asbestos for bulking and disposal. To address this low demand, CWS wishes to vary the permit to allow the acceptance of small quantities of bagged asbestos for temporary secure storage and bulking prior to off-site disposal. There shall be no treatment of asbestos. This activity would be limited to the top yard.

4.5 Waste Shredding

To reduce traffic movements and widen off-site recovery options, CWS proposes shredding waste wood accepted at the site. Using a slow speed shredder, the waste wood would be shredded and then placed directly into RORO skips for off-site recovery. As with the crusher and screen, this operation would be reliant upon market demand and would only be undertaken for short periods intermittently. CWS would expect to shred less than 2000 tonnes / year.

During the shredding of wood, mobile atomiser units would be placed around the plant to prevent the release of airborne particulates when the unit is used externally. The unit would also be fitted with integrated noise dampening.

4.6 Acceptance of New Wastes

The Variation provides opportunity to add several new waste codes to the Permit. The additional waste codes are identified in Table 4-1 alongside the existing codes. The new waste codes are identified in Column 1 of Table 4-1.

Apart from the codes relating to asbestos, all additional codes are non-hazardous waste entries. The additional waste codes will enable CWS to accept additional waste for aggregate production and inert waste recovery, green waste for bulking and off-site recovery, gypsum (plasterboard) for off-site recovery, small items of WEEE to be separated from skip waste and bulky waste (such as a sofa) to be separated from skip waste. No additional treatment of these wastes would be undertaken compared to the existing operation with each waste type separated and placed into dedicated separate RORO skips. The skips used to store the plasterboard and WEEE will be covered.

Table 4-1 List of Wastes to be Accepted

New Waste	Specified Waste	Code	Description of Waste to be Accepted	Waste Ref. & Processing Limitations
		01	WASTES RESULTING FROM EXPLORATION, MINING, ING, AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS	
		01 04	wastes from physical and chemical processing of non-metalliferous minerals	
Y	Y	01 04 08	waste gravel and crushed rocks other than those mentioned in 01 04 07	WRAP AGG
Y	Y	01 04 09	waste sand and clays	WRAP AGG (sand only)
		02	WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING	
		02 01	wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing	
Y		02 01 03	plant-tissue waste	
		02 01 04	Waste plastics (except packaging)	
Y		02 01 07	wastes from forestry	
		02 01 10	waste metal	
		03	WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD	
		03 01	wastes from wood processing and the production of panels and furniture	
Y		03 01 01	waste bark and cork	
		03 03	wastes from pulp, paper and cardboard production and processing	
Y		03 03 01	waste bark and wood	
		07	WASTES FROM ORGANIC CHEMICAL PROCESSES	
		07 02	Wastes from MFSU plastics, synthetic rubber and man-made fibres	
		07 02 13	Waste plastic	
		10	WASTES FROM THERMAL PROCESSES	
		10 11	wastes from manufacture of glass and glass products	
Y		10 11 03	waste glass-based fibrous materials	WRAP AGG (without organic binders)
		10 13	wastes from manufacture of cement, lime and plaster and articles and products made from them	
Y		10 13 10	wastes from asbestos-cement manufacture other than those mentioned in 10 13 09	ASB
		12	WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND	
		12 01	wastes from shaping and physical and mechanical surface treatment of metals and plastics	
		12 01 01	ferrous metal filings and turnings	
		12 01 02	ferrous metal dust and particles	
		12 01 03	Non-ferrous metal filings and turnings	
		12 01 04	Non-ferrous metal dust and particles	
		12 01 05	Plastics shavings and turnings	

New	Specified Waste	Code	Description of Waste to be Accepted	Waste Ref. & Processing Limitations
		15	WASTE PACKAGING, ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED	
		15 01	packaging (including separately collected municipal packaging waste)	
		15 01 01	paper and cardboard packaging	
		15 01 02	plastic packaging	
		15 01 03	wooden packaging	Wood
		15 01 04	metallic packaging	
		15 01 05	composite packaging	
		15 01 06	mixed packaging	
	Y	15 01 07	glass packaging	WRAP AGG
		16	WASTES NOT OTHERWISE SPECIFIED ON THE LIST	
		16 01	End-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)	
		16 01 17	Ferrous metal	
		16 01 18	Non-ferrous metal	
		16 01 19	Plastic	
		16 02	Wastes from electrical and electronic equipment	
Y		16 02 14	Discarded equipment other than those mentioned in 16 02 09 to 16 02 13	
		17	CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)	
		17 01	concrete, bricks, tiles and ceramics	
	Y	17 01 01	Concrete	WRAP AGG
	Y	17 01 02	Bricks	WRAP AGG
	Y	17 01 03	tiles and ceramics	WRAP AGG
	Y	17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06	WRAP AGG
		17 02	wood, glass and plastic	
		17 02 01	Wood	Wood
	Y	17 02 02	Glass	WRAP AGG (not including fibreglass or glass fibre)
		17 02 03	Plastic	Plastic
		17 03	bituminous mixtures, coal tar and tarred products	
	Y	17 03 02	bituminous mixtures other than those mentioned in 17 03 01	WRAP AGG (Allowed only if: Bituminous mixtures from the repair and refurbishment of the asphalt layers of roads and other paved areas (excluding bituminous mixtures containing coal tar and classified as waste code 17 03 01). Must not include coal tar or tarred products. Must not include freshly mixed bituminous mixtures.

New	Specified waste	Code	Description of Waste to be Accepted	Waste Ref. & Processing Limitations
		17 04	metals (including their alloys)	
		17 04 01	copper, bronze, brass	
		17 04 02	Aluminium	
		17 04 03	Lead	
		17 04 04	Zinc	
		17 04 05	Iron and steel	
		17 04 06	Tin	
		17 04 07	mixed metals	
		17 04 11	cables other than those mentioned in 17 04 10	
		17 05	soil (including excavated soil from contaminated sites), stones and dredging spoil	
	Y	17 05 04	soil and stones other than those mentioned in 17 05 03	WRAP AGG (Must not contain any contaminated soil or stone from contaminated sites).
		17 05 06	dredging spoil other than those mentioned in 17 05 05	WRAP AGG (Allowed only if: Inert aggregate from dredgings. Must not contain contaminated dredgings. Must not contain fines).
	Y	17 05 08	track ballast other than those mentioned in 17 05 07	WRAP AGG (Allowed only if: Does not contain soil and stones from contaminated sites).
		17 06	insulation materials and asbestos-containing construction materials	
Y		17 06 01*	insulation materials containing asbestos	ASB
Y		17 06 03*	other insulation materials consisting of or containing dangerous substances	ASB
Y		17 06 04	insulation materials other than those mentioned in 17 06 01 and 17 06 03	ASB
Y		17 06 05*	construction materials containing asbestos	ASB
		17 08	gypsum-based construction material	
Y		17 08 02	gypsum-based construction materials other than those mentioned in 17 08 01	
		17 09	Other construction and demolition wastes	
		17 09 04	Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	WRAP AGG (Allowed only if: The waste is generated from utilities trenching's. The waste consists of subbase aggregates i.e. granular material. The waste contains only materials that would be described by entries 17 01 01, 17 03 02 and 17 05 04 in the WRAP protocol if the waste was not mixed).

New	Specified waste	Code	Description of Waste to be Accepted	Waste Ref. & Processing Limitations
		19	WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE	
		19 10	Wastes from shredding of metal-containing wastes	
		19 10 01	Iron and steel waste	
		19 10 02	Non-ferrous waste	
		19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified	
		19 12 01	Paper and cardboard	
		19 12 02	ferrous metal	
		19 12 03	non-ferrous metal	
		19 12 04	Plastic and rubber	
	Y	19 12 05	Glass	WRAP AGG (Without glass from cathode ray tubes.
		19 12 07	wood other than that mentioned in 19 12 06	Wood
Y	Y	19 12 09	minerals (for example sand, stones)	WRAP AGG (Must not contain contaminated concrete, bricks, tiles, sand, stone or gypsum from recovered plasterboard.
		20	MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS	
		20 01	separately collected fractions (except 15 01)	
		20 01 01	Paper and cardboard	
		20 01 02	Glass	WRAP AGG (Must not include fibreglass)
Y		20 01 36	Discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35	
		20 01 38	wood other than that mentioned in 20 01 37	Wood
		20 01 39	Plastics	
		20 01 40	Metals	
		20 02	garden and park wastes (including cemetery waste)	
Y		20 02 01	biodegradable waste (wood and bark only)	
	Y	20 02 02	soil and stones, mixed inert waste	WRAP AGG
		20 03	Other municipal wastes	
Y		20 03 01	Mixed general waste	
Y		20 03 07	Bulky waste	
Y		20 03 99	Municipal wastes not otherwise specified	

5 IMPLICATIONS OF PROPOSALS

5.1 Altered Site Boundary

Following the Variation, time would be needed to re-arrange the site layout so that it resembles that shown in Figure 6. The main alterations to the existing site layout would be:

- Construction of additional impermeable concrete surface in top yard
- Demolition of building to make room for storage and screening of soil and stone
- Installation of jaw crusher in AREA I
- Addition of secure, clearly labelled, covered asbestos skip in AREA J on impermeable concrete

If granted the Permit Variation, CWS would expect to construct the additional impermeable surface within the next 6 months. CWS would not start the new proposals until the relevant site infrastructure has been improved.

5.2 Additional Waste Codes

Several new waste codes will need to be added to the Permit as part of the Variation. These are identified in Table 4-1.

5.3 Additional Activities and Limitations

The proposed variation will require the permit to specify new activities and limitations. These are detailed in Table 5-1 alongside the current conditions.

Table 5-1 Proposed changes to Site Activities

Description of Activities	Limitation of Activities
CURRENT OPERATION	
R13 Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where the waste is produced)	Storage of non-hazardous waste shall be carried out on an impermeable surface with sealed drainage. There shall be no treatment of waste other than sorting for the purpose of recovery only.
D15 Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where the waste is produced)	
PROPOSED OPERATION FOLLOWING VARIATION	
R13: Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)	The maximum quantity of asbestos waste stored at the site shall not exceed 10 tonnes. Treatment consisting only of manual sorting, separation, screening, shredding, crushing or compaction of non-hazardous or inert waste into different components for disposal or recovery. There shall be no treatment of asbestos waste. Specified waste shall be stored and treated on either (1) hard standing or (2) an impermeable surface with run-off from the impermeable surface passing through suitable well maintained interceptors. Specified wastes are identified in Table 4-1.
D15: Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where it is produced)	
D14: Repackaging prior to submission to any of the operations numbered D1 to 13	
D9: Physico-chemical treatment not specified elsewhere in Annex IIA which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1 to D8 and D10 to D12	
R3: Recycling/reclamation of organic substances which are not used as solvents	
R4: Recycling/reclamation of metals and metal compounds	
R5: Recycling/reclamation of other inorganic materials	

5.4 Site Infrastructure and Pollution Control Measures

There would be no changes to the drainage infrastructure at the top yard as this will continue to operate. There would also be no changes to the lower yard as the same 'S2' operation would continue.

5.5 Technical Ability

The TCM is to attend further training to enable the transfer of hazardous asbestos. The current WAMITAB certificates are provided in Appendix 1.

6 RISK ASSESSMENT METHODOLOGY

In the following chapters the influence the proposed activities could have on the environment is evaluated.

6.1 Approach

Two approaches have been used to assess the impacts of the proposed activities. One is based on the EA H1 software tool, which enables a detailed evaluation of identified exposure pathways and the other, more conventional risk assessment, assists in identifying the exposure pathways based on a conceptual site model. This latter is semi-quantitative and based on the approach adopted by NRW in generic risk assessments that accompany Standard Permit applications. The conceptual site model, presented as a matrix, identifies plausible pollution linkages (source-pathway-receptor relationships) and potential impacts to the local environment which could arise as a result of the proposed activities.

This combined approach enables:

- screening out those linkages that are insignificant and don't need detailed assessment
- assessment of potentially significant risks in more detail if needed

The approach has three stages:

- identify risks from the proposed activities
- assess the risks and check that they are acceptable
- justify appropriate measures to control identified risks, if necessary

In the assessment the following aspects have been considered:

- Odour
- Noise and vibration
- Accidents
- Fugitive emissions to air and water – uncontrolled releases such as dust, run-off from operational areas, but not controlled releases from point-sources and problems with mud, pests or litter
- Controlled releases to air
- Controlled discharges to surface waters
- Controlled discharges to ground or groundwater
- Ozone and Global warming potential
- Site waste

6.2 Identification and Evaluation of Potential Risks

There are a number of methods and approaches available for assessing the environmental impacts of a project. To provide a structured framework for assessment across several topic areas, generic assessment criteria have been clearly defined. The assessment of potential impacts has been based on a tabulated conceptual model based upon the standard source (hazard)–pathway–receptor model. The approach enables hazards and receptors to be readily identified and evaluates the pathway via which the human and environmental receptors may be impacted. If a pathway exists that potentially connects the hazard to the

receptor then there is a risk of impact that requires evaluation, management and potentially mitigation. If a pathway does not exist there is no risk of impact. This approach has been adopted as it should be acceptable to all stakeholders with the methodology and findings transparent, defensible and repeatable.

For each plausible impact identified, the potential impacts have been classified as positive or negative and the probability and consequence of the event occurring has been evaluated.

In accordance with the concept of risk assessment, each impact has been characterised in terms of the possible consequence and likelihood. These two terms are functions of five sets of criteria which are defined below:

Probability of Impact

Probability of exposure is the likelihood of the receptors being exposed to the hazard. Example definitions:

- Very high – exposure is inevitable with no control measures between source and receptor
- High – exposure is probable: direct exposure likely with no/few barriers between hazard source and receptor;
- Moderate – exposure is fairly probable: feasible exposure possible - barriers to exposure less controllable;
- Low – exposure is unlikely: several barriers exist between hazards source and receptors to mitigate against exposure:
- Very Low – exposure is very unlikely: effective, multiple barriers in place to mitigate against exposure.

For each of these criteria, a rating system has been developed. An explanation of the ratings associated with each of the above criteria are provided in Table 6-1 and Table 6-2. To facilitate a semi-quantitative evaluation of the potential impacts, each criteria has been given a numerical score between 1 and 5. Where there is insufficient data to categorise an impact against the criteria, the impact is assigned an appropriate default value and labelled 'unknown'. In these instances, a conservative approach is adopted and negative impacts are assigned a value of 5, reflecting the theoretical worst case scenario. Positive impacts that cannot be confidently rated against the criteria are assigned a value of 3, reflecting a theoretical mid case.

Consequence of Impact

The consequences of a hazard being realised may be actual or potential harm and is a measure that combines the assessment of:

- Magnitude – the severity of the impact.
- Scale – the geographical extent of influence of the impact.
- Duration – the time period over which the impact will continue to be experienced.

In this assessment the overall consequence of an impact will be rated as very high, high, Moderate, low or very low.

To obtain the overall **consequence** rating of the potential impact, the numerical values for each criteria (magnitude, scale and duration) are added together. Similarly, to obtain the

overall **likelihood** of an impact, the exposure and probability scores are added together. The range of possible values for consequence is therefore 3-15, and the range for likelihood is 2-10.

Table 6-1 Criteria for evaluation of the likelihood of possible impacts

Frequency to Impact	An indication of the frequency of the activity that may cause the impact, or the continuity of the exposure, either negative or positive		Discrete Event	Prolonged Exposure from a Single Activity or Event	
		Very high	Daily or continuous	Exposure in perpetuity	5
		High	Weekly/once per week	Continuous exposure beyond the waste transfer operation but not in perpetuity	4
		Moderate	Monthly/once per month	Continuous exposure during waste transfer operation (for months/ years)	3
		Low	Bi-annually	Continuous exposure during waste transfer operation (for weeks)	2
		Very low	Annually or less frequently	Prolonged exposure but for a very short duration (for few days)	1
		Unknown	Frequency of activity unknown	Continuity of exposure unknown	5*
Probability of Occurrence	An assessment of the degree of certainty associated with a potential impact, either negative or positive	Highly Likely	Very likely or certain to occur		5
		Likely	Likely to occur		4
		Possible	May possibly occur		3
		Unlikely	Unlikely to occur		2
		Highly Unlikely	Very unlikely to occur, or almost impossible		1
		Unknown	Probability of occurrence unknown		5*

** Score of 3 assigned for positive impacts*

Table 6-2 Criteria for evaluation of the consequence of possible impacts

Criteria	Description	Possible Results		
		Term	Description	Score
Magnitude of Impact	An indication of the severity of the impact, either positive or negative	Very High	Extreme negative effect – Where environmental functions or processes permanently cease Extreme positive effect – Permanently off-sets consumption of natural resources	5
		High	Severe negative effect – Where environmental functions or processes are altered to the extent that they temporarily cease Severe positive effect - Temporarily off-sets consumption of natural resources	4
		Moderate	Moderate negative effect - the affected environment is altered, but functions continue, albeit in a modified way Moderate positive effect – Consumption of natural resources continues, but a significantly lower quantity is required	3
		Low	Minimal negative effect - affects the environment in such a way that functions and processes are not affected Minimal positive effect - Consumption of natural resources continues, but a large amount is still required	2
		Very low	Minimal or negligible effect	1
		Unknown	Magnitude of impact unknown	5*
Scale of Impact	An indication of the geographical extent of the impact, either negative or positive	National	Affects international resources	5
		Regional	Affects the resources of Wales and the UK	4
		District	Affects off-site resources within adjacent County Boroughs	3
		Local	Affects the project area e.g. local residential and industrial areas, adjacent railway line and ancient woodland	2
		Site-	Localised, confined to site	1
		Unknown	Extent of impact unknown	5*
Duration of Impact	An indication of the duration or time over which the impact will be experienced, either negative or positive	Permanent	Will remain permanently	5
		Long Term	Extends beyond the waste transfer operations but not permanent	4
		Medium	Throughout the recycling operation	3
		Short	Shorter than the recycling operations	2
		Transient	Very short duration	1
		Unknown	Duration of impact unknown	5*

** Score of 3 assigned for positive impacts*

Based upon the overall aggregate scores for consequence and likelihood, each impact is assigned a qualitative term, ranging from 'very low' to 'very high'. The range of values equating to 'very low' and 'very high' have been chosen to approximate the 10th percentile and 90th percentile values of the overall ranges, for both consequence and likelihood. This system is summarised in Table 6-3.

Table 6-3 Overall consequence and likelihood ratings

Overall Consequence	Sum of Magnitude + Scale + Duration	3-4	5-7	8-11	12-14	15
		Very Low	Low	Moderate	High	Very High
Overall Likelihood	Sum of Exposure + Probability	2-3	4-5	6-7	8-9	10
		Very Low	Low	Moderate	High	Very High

Finally, the overall significance associated with the impact is determined by cross-referencing the overall consequence and likelihood ratings, as shown in Table 6-4. This determines the overall significance of the impact, which is assigned one of five qualitative terms, ranging from 'very low significance' to 'very high significance'. Each of the qualitative terms and implication of these levels of significance for the proposed screening and recovery activities are provided in Table 6-5.

Table 6-4 Matrix used to determine overall significance of potential impact

		OVERALL CONSEQUENCE OF IMPACT (Sum of Magnitude + Duration + Scale)				
		Very Low	Low	Moderate	High	Very High
OVERALL LIKELIHOOD OF IMPACT (Sum of Exposure and Probability)	Very Low	Very Low	Very Low	Low	Low	Moderate
	Low	Very Low	Low	Low	Moderate	High
	Moderate	Low	Low	Moderate	High	High
	High	Low	Moderate	High	High	Very High
	Very High	Moderate	High	High	Very High	Very High

Table 6-5 Explanation and interpretation of significance ratings for impacts remaining after mitigation

Significance of Impact After Mitigation	Implications for Project	
<i>Very high</i>	Extremely beneficial and enduring effect	An automatic fatal flaw. The screening and recovery scheme should not proceed unless the design is changed so that this impact is eliminated or its significance is reduced to acceptable levels. There is a high probability that severe harm could arise to a designated receptor from an identified hazard.
<i>High</i>	Very substantial improvement to existing resources	Unacceptable effect. The screening and recovery scheme should not proceed unless the design is changed so that the significance of this impact is reduced to acceptable levels. Harm is likely to arise to a designated receptor from an identified hazard without intervention.
<i>Moderate</i>	Appreciable improvement to, or will sustain, existing resources	Effect is serious enough to cause concern. Changes to screening and recovery scheme should be considered. It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, and if any harm were to occur it is more likely, that the harm would be relatively mild.
<i>Low</i>	Some benefits	Acceptable effect - the possibility of the impact occurring is by no means certain and the consequence of exposure is such that there would be no measurable harm.
<i>Very low</i>	Negligible effect - probable that impact could occur but the impact would not be measurable	Negligible effect - probable that impact could occur but the impact would not be measurable.

6.2.1 Presentation of Impacts

In view of the large amount of data to be handled, matrices are used to present the potential impact ratings associated with the proposed activities in a clear, transparent and consistent manner.

Individual tables corresponding to each aspect (such as air quality, surface water) are used to assess the risks associated with the potential impacts.

6.3 H1 Assessment

The H1 assessment tool provided by NRW has been used to capture the results of the ERA in a systematic repeatable tool. The tool is fully programmed by the EA and the detail and guidance is not repeated here. The full output from the tool is provided in Appendix 2.

7 IMPACT ASSESSMENT

7.1 Focussing Assessment

7.1.1 New Hazards

The Variation potentially introduces new hazards to the operation and this assessment is solely focussed on these new activities. These additional hazards are identified in this section. The potential environmental aspects the hazards may impact are also identified so that the assessment is focussed on the key pollutant linkages. This evaluation is presented in Table 7-1.

This evaluation of the potential new hazards and the aspects they could impact indicates that the change to the Permit boundary will not alter the risk profile of the site. This is because the top yard will continue to be the waste reception and treatment area and the lower yard will continue to be used for temporary storage of secure containers, in accordance with the existing S2 exemption.

The evaluation also indicates that the Variation will not alter the risk that the current operation poses to surface water or groundwater. This is because the proposed new wastes and waste treatment activities do not have a high leaching potential, will be sorted into secure containers (RORO skips) and the waste operation will continue to operate on the top yard that already benefits from an impermeable surface that drains to an interceptor.

The assessment does however identify that the proposed Variation could alter particulate matter release, litter, odour, noise and vibration, fire potential, flood consequences and off-site protected sites and on this basis these aspects require further evaluation.

Table 7-1 Identification of Aspects Requiring Evaluation

Variation Proposal	New waste code required?	New treatment process required?	Environmental Aspect Potentially Impacted by Variation									Justification
			Particulate matter release	Litter and pests	Odour	Noise/vibration	Fire	Flood consequences	Protected sites	Surface waters	Ground water	
Extend site boundary to include S2 exemption area	No	No	N	N	N	N	N	N	N	N	N	No new hazards as existing S2 operation will continue in lower yard but would now be within Permit boundary
Accept new waste codes	Yes	No	Y	Y	Y	N	Y	N	Y	N	N	Plasterboard could release particulates. Green waste and plasterboard could release odour and green waste is combustible. Drainage on top yard will not require alteration as new wastes in secure containers will not alter risk profile
Increased tonnage throughput	Yes	No	Y	Y	N	Y	N	N	Y	N	N	Increased traffic could release particulates and cause noise. Fire risk won't change significantly as storage quantities not increasing, only throughout
Crushing and screening	No	Yes	Y	N	N	Y	Y	N	Y	N	N	Outdoor screening could release particulates and cause noise. Inert / non-hazardous wastes not combustible and drainage on top yard would not require alteration
Asbestos bulking	Yes	No	Y	N	N	N	Y	Y	N	N	N	Double bagged asbestos in secure container will not release particulates. Hazardous waste could alter clean-up operation after flood / fire event
Shredding of wood	No	Yes	Y	N	N	Y	Y	N	Y	N	N	Shredding could generate dust, noise and nuisance and produce combustible material. Drainage on top yard would not require alteration as waste process does not introduce new leachability risk

7.1.2 Receptors

The Variation will not introduce new receptors but consideration has been given to any new receptors and existing receptors. Based on the Site Condition Report, the key receptors are considered below:

- **Residential properties in close proximity to the site** – these have not changed since the current Permit was issued. These are retained in the assessment of risks from the potential new hazards.
- **Protected ecological sites** – this includes adjacent Ancient Woodland and a geological SSSI 800m to the South. These were designated prior to issue of the exiting Permit. These are retained in the assessment of risks from the potential new hazards.
- **Groundwater in the underlying Secondary A aquifers.** These were present when the current Permit and S2 exemption was issued. Groundwater is protected by the current pollution control measures and this will not require alteration to accommodate the proposed Variations. On this basis, groundwater is screened out of the risk assessment focussed on the proposed Variation as pollution control measures are already in place.
- **Rail traffic on adjacent line.** This was present when the current permit was issued but this receptor is retained in the assessment of risks from the potential new hazards.

Surface water passes beneath the site in culverts having issued from springs to the west. These were present when the existing Permit was issued and are not included in the assessment of the proposed Variation as the changes will not influence these features.

7.2 Site Context

The scope of the Variation sought, the location of the site and the control measures that will be implemented will limit the potential risks posed to the environment. These operational control measures are listed below:

- All waste will continue to be treated on the top yard that benefits from an impermeable surface that directs drainage to an interceptor
- All waste will be stored in secure containers (skips) prior to off-site transport
- Quantity of asbestos in storage will not exceed 10 tonnes.
- Asbestos waste shall be double bagged and stored within secure lockable containers.
- There shall be no treatment of asbestos.
- Wind direction is typically from the southwest and away from the closest residential properties and Llanbradach

7.3 Existing Issues

The permitted CWS operation has been operating continuously since 1993. During this time, the site has been inspected on numerous occasions by NRW officers, the Fire Rescue Service (FRS) and site visitors. The adjacent residential properties have also been occupied.

Throughout this period, no significant complaints have been received and the company has become a well-known local employer. There are currently no environmental issues of concern.

7.4 Outcome of Impact Assessment

The output from the H1 assessment is presented in Appendix 2 and the impact assessment matrices in Tables 7-1 to 7-8. These have been completed to evaluate all aspects of the Variation.

Provided that management plans are in place and fully adopted, the assessments demonstrate that the proposed Variation activities will not result in unacceptable environmental impacts. This will require the control measures identified to be fully adopted. To minimise the opportunity of these measures not being fully implemented, the operation of the site will continue to be in accordance with a documented management system which will specifically include measures aimed at protecting the environment. These will include:

- Processing of non-hazardous waste will be undertaken in accordance with an Environmental Permit and a documented management system.
- Site will be managed by personnel with relevant and current WAMITAB certification and waste management experience.
- Areas used to store and process wastes will continue to be on an impermeable surface with drainage passing to an interceptor.
- Potentially combustible waste will be stored in accordance with an approved Fire Prevention and Mitigation Plan.
- Waste will not be burned, either in the open, inside buildings or in any form of incinerator.
- Wastes will only be treated using processes identified in the Permit.
- No dusts will be accepted.
- Where disposal is necessary, this will be undertaken in a manner which minimises its impact on the environment.
- The activities shall not extend beyond the Permit boundary.
- Preventative maintenance programme will be in place for all plant and infrastructure.
- No sub-contractors will be used to operate the plant.

7.5 Positive Impacts

To satisfy the Permit requirements, this assessment has focussed on identifying the potential negative environmental risks associated with the proposed waste management facility so that these can be managed and mitigated, as far as practicable, within the site management systems. In this context, the positive impacts associated with the development are not highlighted. Some of the direct positive impacts will include:

- Recovery of additional waste.
- Full time employment and associated personal and community benefits.

Table 7-2 Evaluation of Potential Impacts from Particulate Matter

Data and information				Judgement				Controls	
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk of Variation
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment).
Local human population	Release of particulates from new waste codes	Harm to human health - respiratory irritation and illness	Off-site air transport then inhalation.	(3 + 3) Moderate	(3+2+3) Moderate	Moderate	No treatment of green waste or plasterboard. Plasterboard to be stored in sealed and secure container. Residents to the north are ~350m away and 150m to the east. Railway line passes between site and these residents with either side of the track lined by mature trees. Residents to the west are ~120m away and at higher elevation than the waste operation on top yard. Between these closest residents and the site is dense woodland. Wind direction typically from southwest and away from closest residential properties.	Minimise drop heights of all loose waste Manually place potentially dusty waste e.g., plasterboard, into sealed container Continue to implement EMS and successful housekeeping measures Provide adequate dust suppression to all areas as required. Operation to temporarily cease and management systems reviewed if dust observed leaving site boundary. Mobile atomisers to be available for use should problems develop anywhere on site.	Low
Local human population	Release of particulates from new waste codes	Nuisance - dust on cars, clothing etc.	Off-site air transport then deposition.	(3 + 3) Moderate	(2+2+3) Low	Low	As above	As above	Low
Adjacent Railway Line	Release of particulates from new waste codes	Nuisance / Danger – reduced vision of driver and debris on railway lines	Off-site air transport then deposition.	(3 + 3) Moderate	(4+2+3) Moderate	Moderate	No treatment of green waste or plasterboard. Plasterboard to be stored in sealed and secure container.	As above	Low

Local human population	Release of particulates due to increased tonnage throughput	Harm to human health - respiratory irritation and illness	Off-site air transport then inhalation.	(3 + 3) Moderate	(3+2+3) Moderate	Moderate	Expected increase in tonnage is small (~5%/year) which is equivalent to only 6-7 skips / week. All permitted waste types are predominantly non-hazardous and do not include dusts, powders or loose fibres and have a low potential to produce bioaerosols. All relevant plant to be fitted with dust suppression. Increased throughput not likely to be perceptible to residents given small predicted increases in tonnage each year and no change to operational hours – the operation will just operate slightly quicker. Residents to the north are ~350m away and 150m to the east. Railway line passes between site and these residents with either side of the track lined by mature trees. Residents to the west are ~120m away and at higher elevation than the waste operation on top yard. Between these closest residents and the site is dense woodland. Wind direction typically from southwest and away from closest residential properties.	As above	Low
Local human population	Release of particulates due to increased tonnage throughput	Nuisance - dust on cars, clothing etc.	Off-site air transport then deposition.	(3 + 3) Moderate	(2+2+3) Low	Low	As above. Local residents often sensitive to dust nuisance.	As above.	Low
Adjacent Railway Line	Release of particulates due to increased tonnage throughput	Nuisance / Danger – reduced vision of driver and debris on railway lines	Off-site air transport then deposition.	(3 + 3) Moderate	(4+2+3) Moderate	Moderate	No treatment of green waste or plasterboard. Plasterboard to be stored in sealed and secure container.	As above	Low
Local human population	Releases of particulate matter from crushing and screening soil and stones	Harm to human health - respiratory irritation and illness	Off-site air transport then inhalation.	(3 + 3) Moderate	(3+2+3) Moderate	Moderate	These will be short-term temporary activities. Crushing will be inside building with dust suppression Screening will be outdoors with dust suppression Residents to the north are ~350m away and 150m to the east. Railway line passes between site and these residents with either side of the track lined by mature trees. Residents to the west are ~120m away and at higher elevation than the waste operation on top yard. Between these closest residents and the site is dense woodland. Wind direction typically from southwest and away from closest residential properties.	As above	Low
Local human population	Releases of particulate matter from crushing and screening soil and stones	Nuisance - dust on cars, clothing etc.	Off-site air transport then deposition.	(3 + 3) Moderate	(2+2+3) Low	Low	As above.	As above	Low
Adjacent Railway Line	Releases of particulate matter from crushing and screening soil and stones	Nuisance / Danger – reduced vision of driver and debris on railway lines	Off-site air transport then deposition.	(3 + 3) Moderate	(4+2+3) Moderate	Moderate	These will be short-term temporary activities. Crushing will be inside building with dust suppression Screening will be outdoors with dust suppression	As above	Low

Local human population	Releases of particulate matter from asbestos acceptance and bulking	Harm to human health - respiratory illness	Off-site air transport then inhalation.	(2+2) Low	(3+1+1) Low	Low	All asbestos waste will be double bagged and in sealed units with no exposed loose fibres. Most asbestos will be bound chrysotile asbestos with low propensity to release fibres. All asbestos waste will be handled by trained specialists before transport off-site in specialist sealed units for off-site disposal.	Implement new measures in EMS Control source of asbestos so that risks on site are controlled. Provide RPE, asbestos suppressants and Type H vacuum.	Very Low
Local human population	Releases of particulate matter from asbestos acceptance and bulking	Nuisance - dust on cars, clothing etc.	Off-site air transport then deposition.	No exposure pathways considered plausible			Acceptance and bulking will not generate sufficient quantity of particulates to be nuisance		
Adjacent Railway Line	Releases of particulate matter from asbestos acceptance and bulking	Nuisance / Danger – reduced vision of driver and debris on railway lines	Off-site air transport then deposition.	No exposure pathways considered plausible			Acceptance and bulking will not generate sufficient quantity of particulates to be nuisance		
Local human population	Releases of particulate matter from shredding wood	Harm to human health - respiratory illness	Off-site air transport then inhalation.	(3 + 3) Moderate	(3+2+3) Moderate	Moderate	This is a short-term temporary operation involving shredding of small quantities of wood to aid transport / recovery. All shredded wood would be immediately be placed into RORO skip. Residents to the north are ~350m away and 150m to the east. Railway line passes between site and these residents with either side of the track lined by mature trees. Residents to the west are ~120m away and at higher elevation than the waste operation on top yard. Between these closest residents and the site is dense woodland. Wind direction typically from southwest and away from closest residential properties.	Minimise drop heights of all loose waste. Continue to implement EMS and housekeeping measures. Provide adequate dust suppression to all areas as required. Mobile atomisers to be available for use should particulates be released from shredder. Operation to temporarily cease and management systems reviewed if dust observed leaving site boundary.	Low
Local human population	Releases of particulate matter from shredding wood	Nuisance - dust on cars, clothing etc.	Off-site air transport then deposition.	(3 + 3) Moderate	(2+2+3) Low	Low	As above	As above	Low
Adjacent Railway Line	Releases of particulate matter from shredding wood	Nuisance / Danger – reduced vision of driver and debris on railway lines	Off-site air transport then deposition.	(3 + 3) Moderate	(4+2+3) Moderate	Moderate	All shredded wood would be immediately placed into RORO skip.	As above	Low
Local human population	Releases of particulate matter from shredding wood	Nuisance - dust on cars, clothing etc.	Off-site air transport then deposition.	(3 + 3) Moderate	(1+2+3) Low	Low	As above. Local residents often sensitive to dust.	As above	Very Low

Table 7-3 Evaluation of Potential Impacts from Litter and Pests

Data and information				Judgement				Controls	
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk of Variation
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment).
Local human population	Litter from new waste codes	Nuisance, loss of amenity and harm to animal health	Off-site air transport then deposition	(3 + 3) Moderate	(1+2+3) Low	Low	No treatment of green waste or plasterboard. Plasterboard to be stored in sealed and secure container. Residents unlikely to be impacted given distance and topography, infrastructure and vegetation between them and site boundary.	Continue to implement EMS and successful housekeeping measures Operation to temporarily cease and management systems reviewed if litter / pests becomes problem on site.	Low
Adjacent Railway Line	Litter from new waste codes	Nuisance / Danger – reduced vision of driver and debris on railway lines	Off-site air transport then deposition	(3 + 3) Moderate	(4+2+3) Moderate	Moderate	No treatment of green waste or plasterboard. Plasterboard to be stored in sealed and secure container. Most waste is bulky and not dusty.	Continue to implement EMS and successful housekeeping measures Operation to temporarily cease and management systems reviewed if litter/ pests becomes problem on site. Litter netting to be erected alongside railway line if problem identified	Low
Local human population	Additional pests due to new waste streams	Harm to human health - from waste carried off site and faeces. Nuisance and loss of amenity.	Off-site air transport and over land deposition	No additional risk as new waste codes not likely to be attractive to pests and all wastes to be stored in secure containers			Risk profile not likely to change	Existing housekeeping measures and EMS to continue to be implemented	
Local human population	Waste, litter and mud on local roads from additional vehicular movements due to increased tonnage	Nuisance, loss of amenity, road traffic accidents.	Vehicles entering and leaving site.	(3 + 3) Moderate	(1 + 2 + 3) Low	Moderate	Road safety, local residents often sensitive to mud on roads. All deliveries of waste will continue to be via Colliery road and sheeted when necessary with no opportunity for wastes to escape. Long clean site roads comprised of concrete will continue to provide opportunity for water and mud to fall off vehicles prior to leaving site.	As above. Appropriate measures will continue to be implemented including clearing waste, litter and mud arising from the activities from affected areas outside the site.	Low

Table 7-4 Evaluation of Potential Impacts from Odour, Noise and Vibration

Data and information				Judgement				Controls	
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk of Variation
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment).
Local human population	Increased odour from new waste	Nuisance, loss of amenity	Off-site air transport then inhalation.	(3+1) Low	(1+2+1) Very Low	Very Low	Local residents often sensitive to odour, however existing and new waste types have low odour potential provided management systems are implemented. Green waste and plasterboard to be placed in separate secure containers. Plasterboard to be kept dry in secure container.	Continue to implement good housekeeping and EMS Implement effective waste acceptance controls for new waste streams. If needed, undertake olfactory assessments and develop odour management plan as required.	Very low
Local human population	Noise and vibration from increased tonnage	Nuisance, loss of amenity, loss of sleep.	Noise through the air and vibration through the ground.	(3+3) Moderate	(3+2+1) Low	Low	Local residents often sensitive to noise and vibration. Expected increases in tonnage are small and incremental. Very few residents on Colliery Road.	Implement noise management plan Continue to ensure all plant is well maintained.	Low
Local human population	Noise and vibration from crushing and screening	Nuisance, loss of amenity, loss of sleep.	Noise through the air and vibration through the ground.	(2+3) Low	(3+2+1) Low	Low	Local residents often sensitive to noise and vibration. However, residents unlikely to be directly impacted given distance between them and site boundary and mature vegetation. Crushing and screening are temporary short-term operations and will not be undertaken regularly. Crushing to be undertaken inside building.	Implement noise management plan Continue to ensure all plant is well maintained. Ensure potentially noisy operations are planned for shortest duration feasible. Temporarily cease operations if significant problems identified.	Low
Local human population	Noise and vibration from shredding of wood	Nuisance, loss of amenity, loss of sleep.	Noise through the air and vibration through the ground.	(2+3) Low	(3+2+1) Low	Low	Local residents often sensitive to noise and vibration. However, residents unlikely to be directly impacted given distance between them and site boundary and mature vegetation. Shredding is a temporary short-term operation and will not be undertaken regularly.	Implement noise management plan Continue to ensure all plant is well maintained. Ensure potentially noisy operations are planned for shortest duration feasible. Temporarily cease operations if significant problems identified.	Low

Table 7-5 Evaluation of Potential Impacts from Vandalism and Fire

Data and information				Judgement				Controls	
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk of Variation
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment).
Local human population and local environment	Fire associated with new waste (either accidental during operations or out of hours due to arson)	Respiratory irritation, illness and nuisance to local population. Injury to staff or fire fighters.	Air transport of smoke and particulate deposition.	(1+3) Low	(3+2+1) Low	Low	Some new waste types are combustible but stored in small volumes in RORO skips. Asbestos will be double bagged and contained in secure container New wastes do not significantly change current risk profile. Secure site monitored 24/7 by CCTV with telemetry. Closest residents to west and east are typically up-wind of the site.	Effective waste acceptance systems to continue to be implemented. New FPMP to be implemented including details of Emergency contacts. Site to be kept secure. New source of fire water on site.	Low
Adjacent Railway Line	Fire associated with new waste (either accidental during operations or out of hours due to arson)	Nuisance / Danger – reduced vision of driver and debris on railway lines	Air transport of smoke and particulate deposition.	(1+3) Low	(4+2+1) Low	Low	Some new waste types are combustible but stored in small volumes in RORO skips, like current operation. Asbestos will be double bagged and contained in secure container New wastes do not significantly change current risk profile. Secure site monitored 24/7 by CCTV with telemetry.	Effective waste acceptance systems to continue to be implemented. New FPMP to be implemented including details for Network Rail. Site to be kept secure. New source of fire water on site.	Low
Local human population and local environment	Fire associated with new plant (crusher / shredder) – either accidental or due to arson	Respiratory irritation, illness and nuisance to local population. Injury to staff or fire fighters.	Air transport of smoke and particulate deposition.	(1+3) Low	(3+2+1) Low	Low	Crushing / shredding will be short-term temporary operations. Waste to be crushed is not combustible. Shredding to produce chipped wood that is directly placed into RORO skip. Closest residents to west and east are typically up-wind of the site. Plant isolated from large stockpiles of combustible waste as waste will be in skips.	Plant to be isolated when not in use Plant to be fitted with fire extinguishers. All plant will continue to be subject to Preventative Maintenance Plan. Implement new FPMP. Site to be kept secure. New source of fire water on site. Good housekeeping to be maintained to ensure no build-up of fluff in machinery.	

Unauthorised persons entering site	Additional physical hazards related to new plant and new wastes	Bodily injury	Direct physical contact	(1+3) Low	(1+1+1) Very Low	Very Low	Site is secure and monitored 24/7 by CCTV with telemetry. Permitted waste types are mostly inert and non-hazardous. All asbestos will be double bagged and in labelled sealed units. All plant and vehicles will be locked down and isolated at the end of each day.	Plant to be isolated when not in use Site to be kept secure.	Low
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Table 7-6 Evaluation of Potential Impacts of Flooding

Data and information				Judgement				Controls	
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk of Variation
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment).
Local human population and local environment	Flooding of site containing new waste (asbestos)	If waste is washed off site it may contaminate buildings / natural habitats downstream	Flood waters	(1+3) Low	(1+1+1) Very Low	Very Low	Parts of site potentially susceptible to flooding. Most new waste types are non-hazardous / inert so could add to the volume of the local post-flood clean-up workload, rather than the hazard. All asbestos will be stored in an area of the site where ground levels are highest and off the ground within sealed units. Most wastes stored in RORO skips. Top yard waste management area benefits from impermeable surface with drainage passing through silt trap and interceptor.	Implement management system that details actions to be taken during flooding. Ensure asbestos is always in secure container. Remove asbestos from site if flooding forecast.	Very Low

Table 7-7 Evaluation of Potential Impacts on Protected Sites

Data and information				Judgement				Controls	
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk of Variation
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment).
Llanbradach quarry geological SSSI (813m south of site)	Releases of particulate matter from acceptance of new waste / increased throughput / new processing	Smothering and particulate fall out	Off-site air transport then fall-out	(1+3) Low	(1+1+1) Very Low	Very Low	SSSI is ~800m from southern tip of site but ~1km from waste management area on top yard. Wind direction is typically from the south-west and away from SSSI. No treatment of green waste or plasterboard. Plasterboard to be stored in sealed and secure container. Expected increase in tonnage is small (~5%/year) which is equivalent to only 6-7 skips / week. All permitted waste types are predominantly non-hazardous and do not include dusts, powders or loose fibres and have a low potential to produce bioaerosols. Crusher to be located inside building. Crushing / shredding / screening will not be permanent operations and only undertaken for short periods intermittently. All new plant to be fitted with dust suppression and provided with atomisers. Asbestos to be double bagged and stored in secure container.	Continue to store wastes in skips Continue to minimise drop heights of all loose waste Manually place potentially dusty waste e.g., plasterboard, into sealed container Continue to implement EMS and successful housekeeping measures Provide adequate dust suppression to all areas as required. Operation to temporarily cease and management systems reviewed if dust observed leaving site boundary. Mobile atomisers to be available for use should problems develop anywhere on site.	Very Low.

Ancient Woodland adjacent to site to west and north	Releases of particulate matter from new waste / increased throughput / new processing	Smothering and particulate fall out		(1+4) Low	(3+2+2) Low	Low	<p>Wind direction is typically from the south-west and away from closest woodlands.</p> <p>No treatment of green waste or plasterboard.</p> <p>Plasterboard to be stored in sealed and secure container.</p> <p>Expected increase in tonnage is small (~5%/year) which is equivalent to only 6-7 skips / week.</p> <p>All permitted waste types are predominantly non-hazardous and do not include dusts, powders or loose fibres and have a low potential to produce bioaerosols.</p> <p>Crusher to be located inside building.</p> <p>Crushing / shredding / screening will not be permanent operations and only undertaken for short periods intermittently.</p> <p>All new plant to be fitted with dust suppression and provided with atomisers.</p> <p>Asbestos to be double bagged and stored in secure container.</p>	As above	Low
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Table 7-8 Evaluation of Potential Impacts on Surface Water

Data and information				Judgement				Controls	
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk of Variation
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment).
Surface water	Leaching from new waste / new treatment activities	Deterioration of water quality (chronic and / or acute effects)	Run-off	No pathway considered plausible.			Surface water will continue to be culverted beneath site. Site will continue to benefit from impermeable surface. Risk profile will not be altered by current Variation proposals.	None required apart from ensuring that concrete remains in good condition and existing made ground is not disturbed.	Variation will not alter current situation.

Table 7-9 Evaluation of Potential Impacts on Groundwater

Data and information				Judgement				Controls	
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk of Variation
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment).
Groundwater (Secondary A aquifers beneath site)	Leaching from new waste / new treatment activities	Acute or chronic effects due to deterioration of water quality	Infiltration to groundwater through unsaturated zone	No pathway considered plausible.			All new wastes and treatment activities will continue to be undertaken on top yard that already benefits from an acceptable impermeable surface with drainage passing through silt trap and interceptor. This situation has been present for existing Permitted activity for many years and will not require alteration to accommodate proposed Variation. New wastes will not generate leachate and, like existing wastes, will be quickly sorted and placed into RORO skips. Plasterboard and asbestos will be kept in separate secure containers.	Continue to ensure pollution control measures are fully implemented and subject to preventative maintenance programme.	Variation will not alter current situation.

7.6 Procedures and Controls

The assessment indicates that risk management controls are needed. CWS will therefore ensure that a fully documented management system is in place.

8 SUMMARY AND CONCLUSIONS

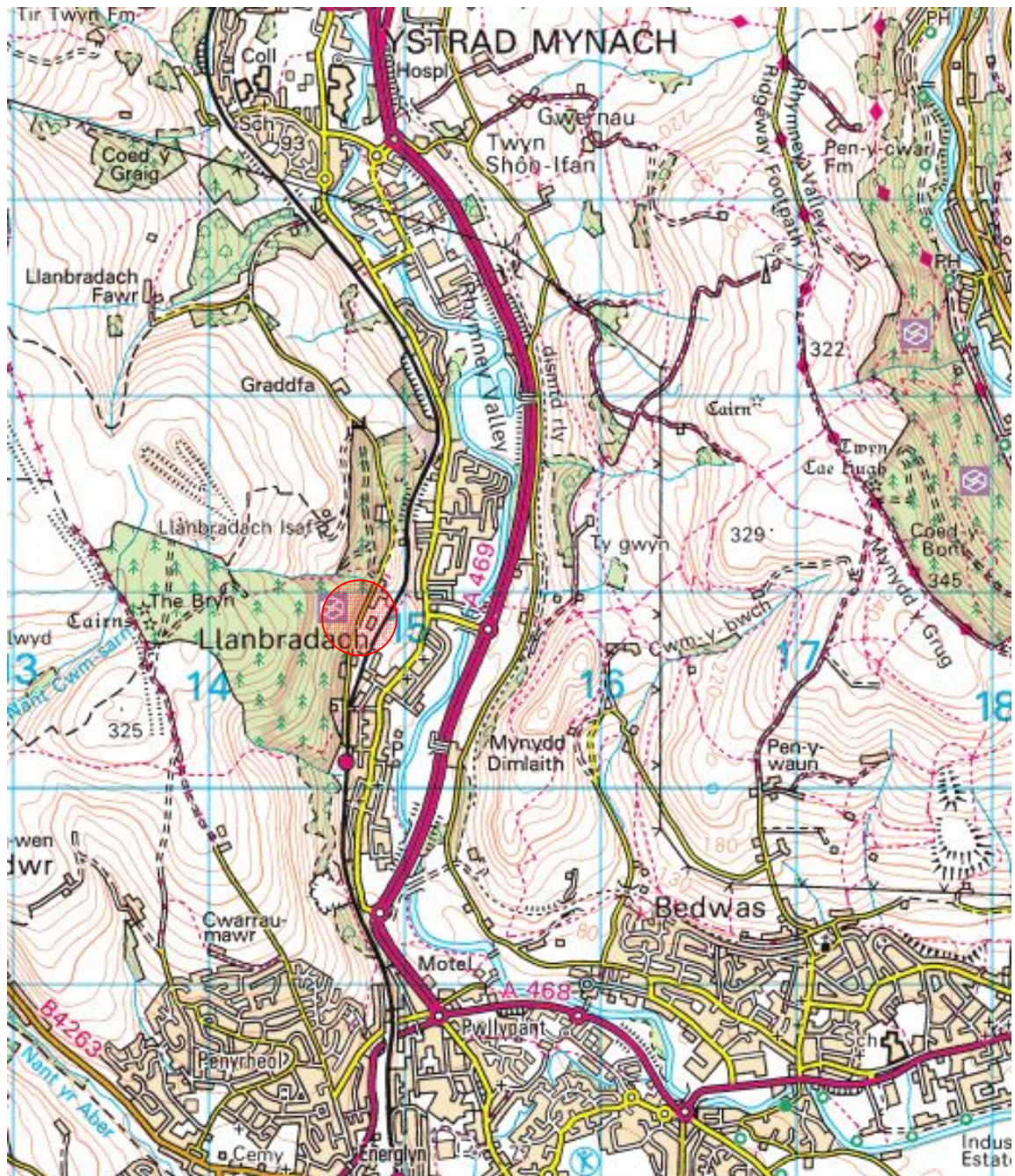
The assessment demonstrates that the proposed variation will not lead to any significant negative impacts to the environment or humans. The scheme does, however, provide many positive impacts.

This risk assessment will need to be updated when necessary and directly linked to the Environmental Management System.

8.1 Management Systems and Toolkit

CWS will continue to operate the recycling facility in accordance with the 'How to comply' guidance and will continually review the site Environmental Management System and procedures to ensure the operation is based on sound current environmental practice. Most importantly, this Environmental Risk Assessment will be routinely reviewed to ensure the predictions are valid, control measures are adequate and current and the environment remains protected.

Figure 1 Site Location Plan



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Figure 2 Key Features of Surrounding Area

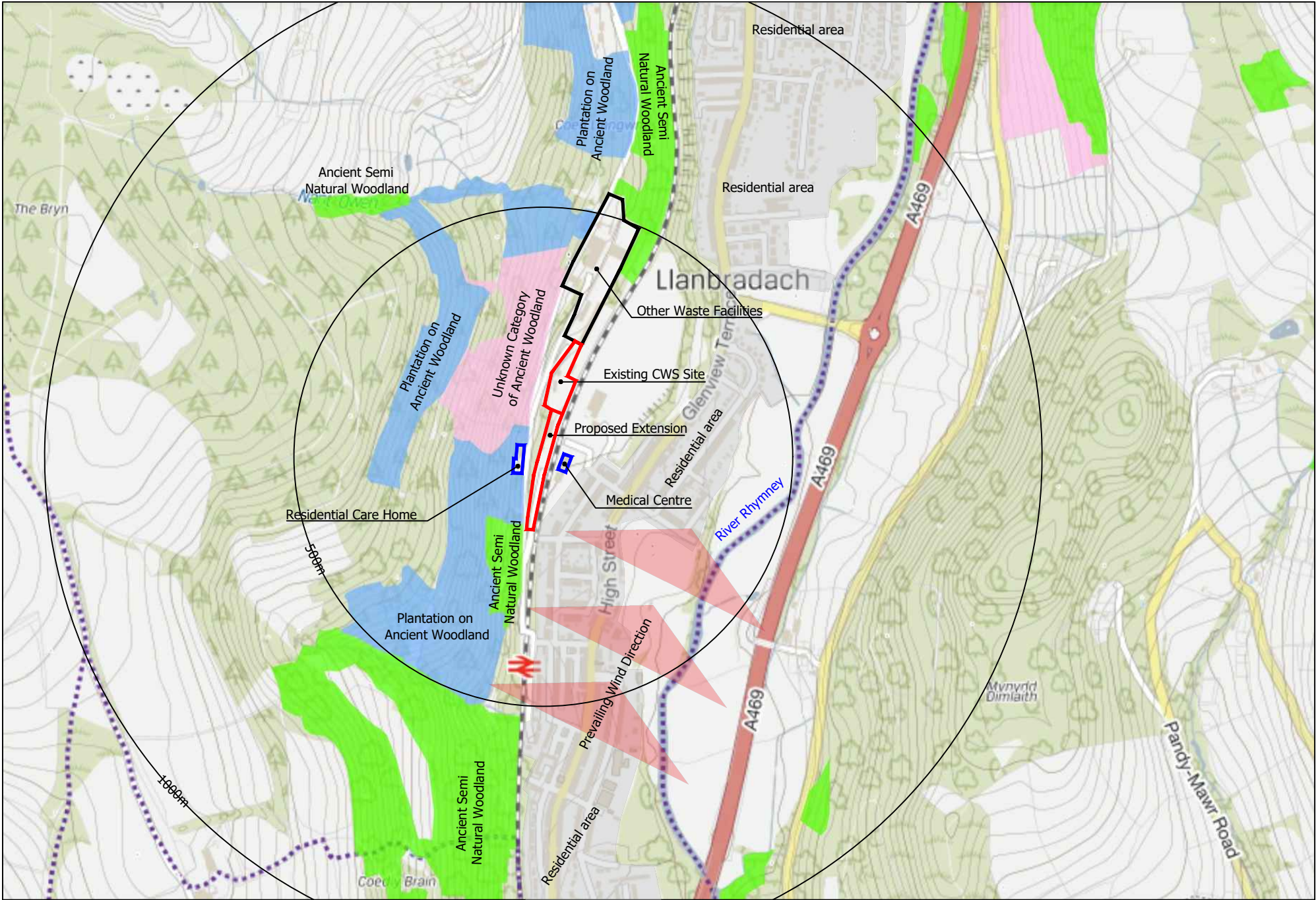


Figure 3 Photographs of Site

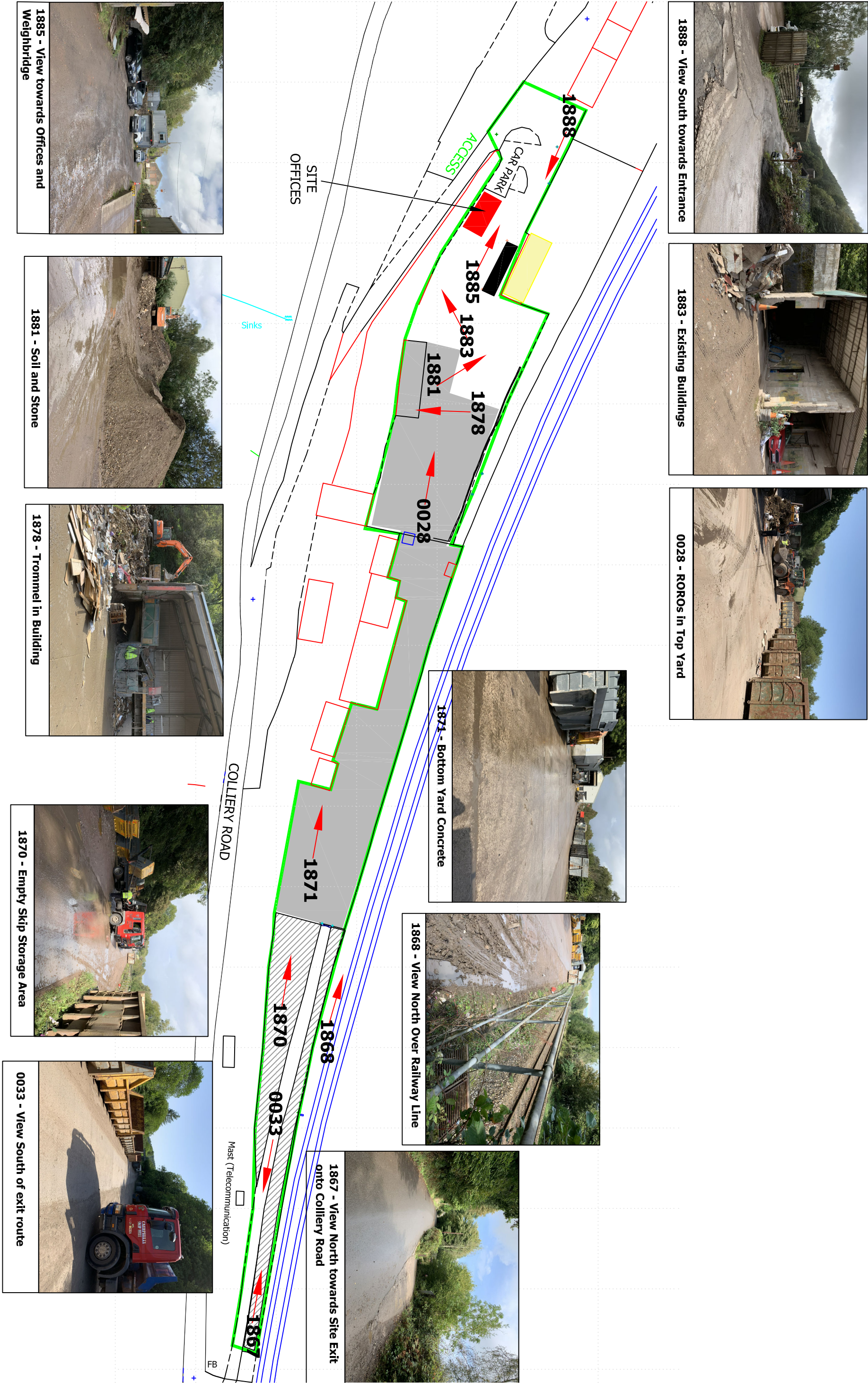


Figure 4 Site Plan

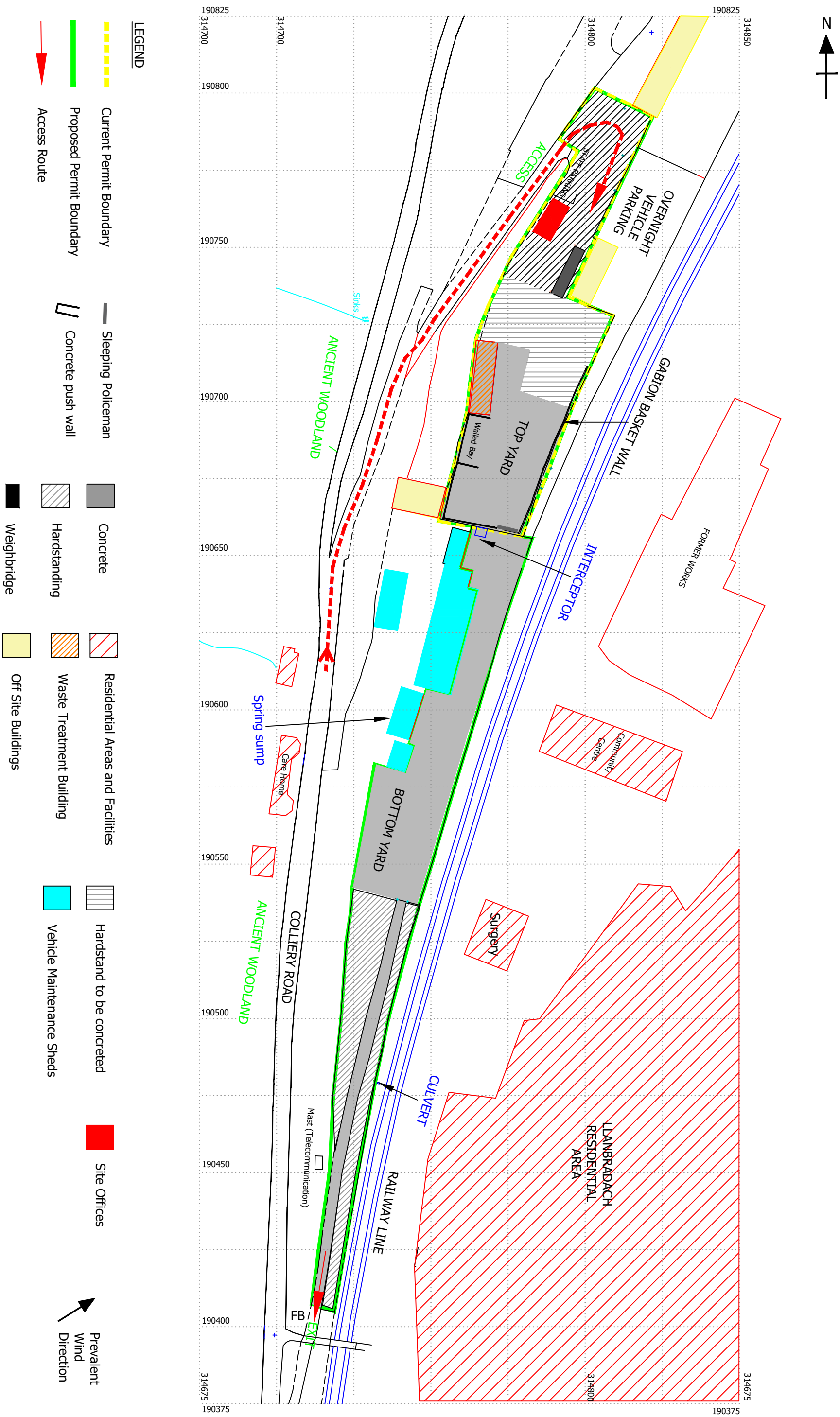


Figure 5 Process Flow Chart

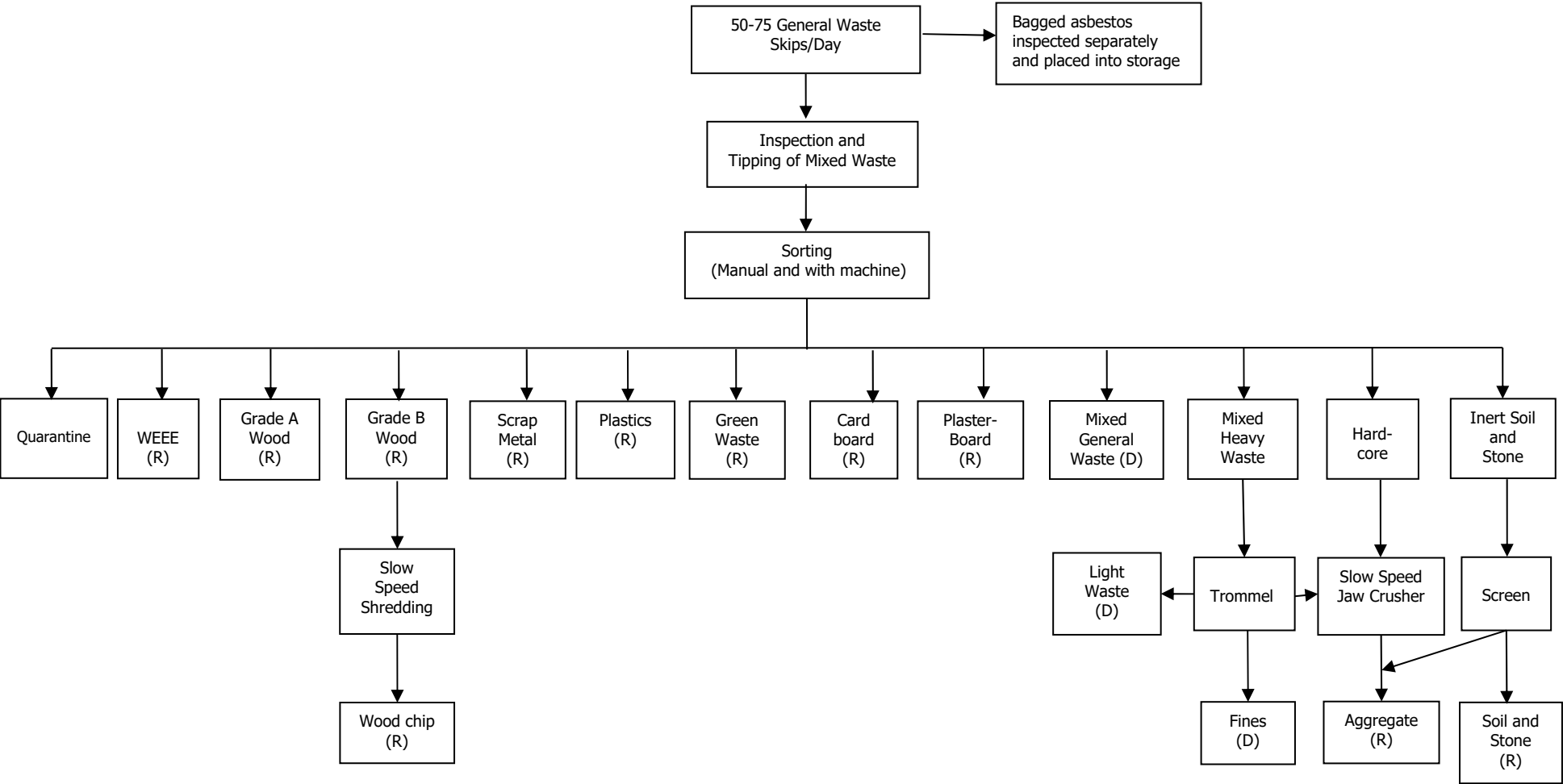
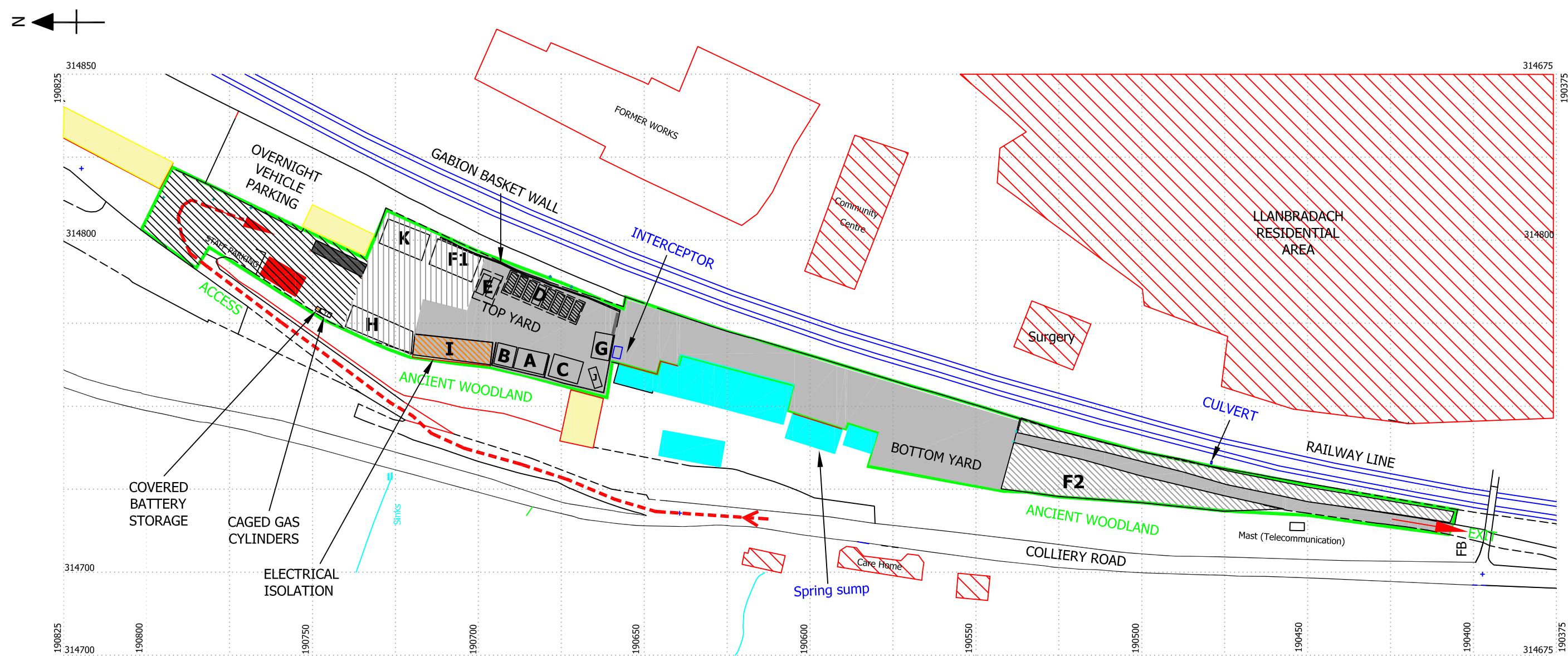


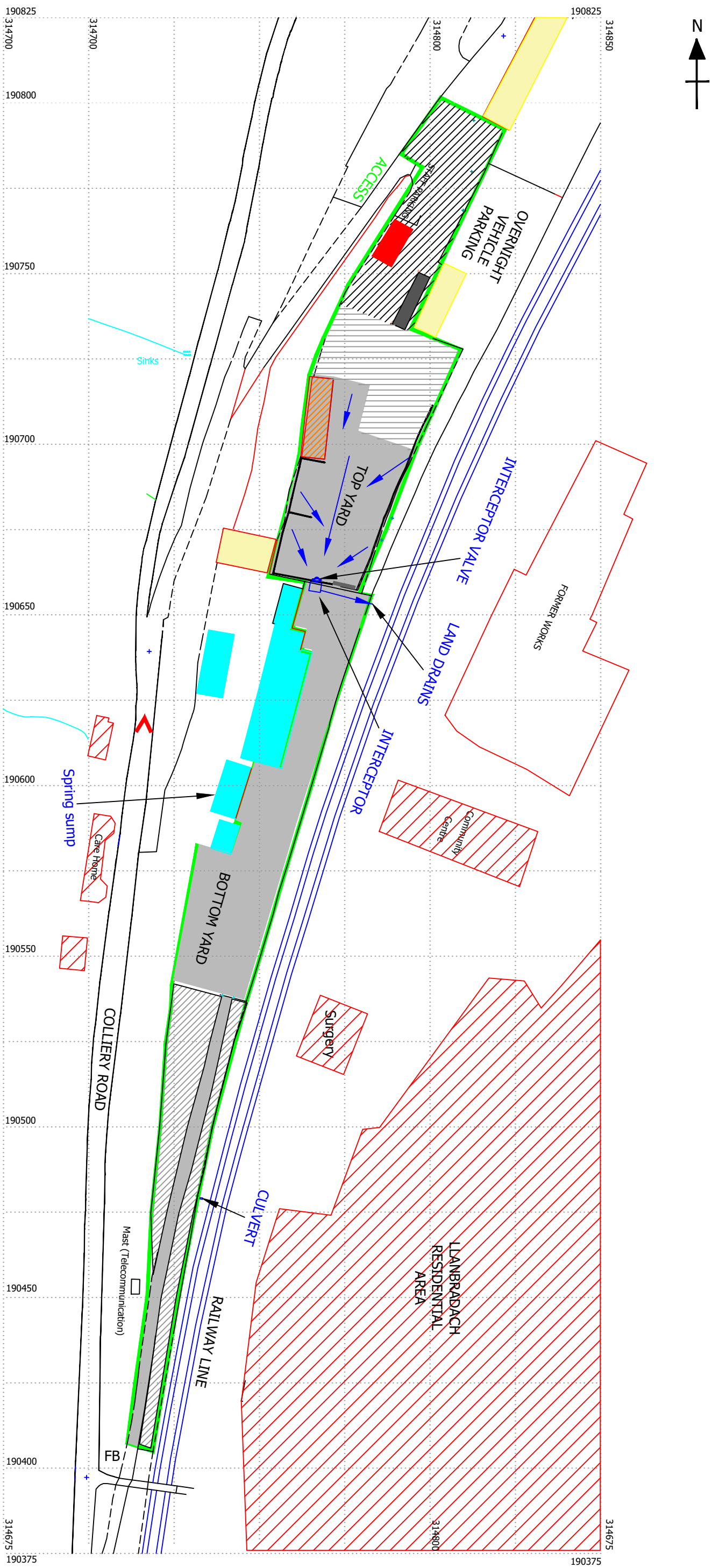
Figure 6 Site Layout



LEGEND

- | | | | | | |
|--------------------------|----------------------------------|---------------------------|--------------------------------------|---|--|
| Proposed Permit Boundary | Sleeping Policeman | Hardstand to be concreted | A Sorting Area | E Emergency Quarantine | I Trommel, Picking Line & Jaw Crusher |
| Access Route | Concrete push wall | Vehicle Maintenance Sheds | B Inert Materials | F Empty Skip Storage | J Secure Asbestos Skip |
| Concrete | Residential Areas and Facilities | Site Offices | C Non Recyclables | G Wood | K Wood Shredding and Product Storage |
| Hardstanding | Waste Treatment Building | Prevalent Wind Direction | D Recyclates in ROROs | H Soil and Stone Screening and Product Storage | |
| Weighbridge | Off Site Buildings | | 6m x 2.4m RORO skip (drawn to scale) | | |

Figure 7 Site Drainage



**CAERPHILLY SKIPS
BESPOKE PERMIT
VARIATION**

**ENVIRONMENTAL
RISK ASSESSMENT**

**Appendix 1
WAMITAB Certificates
for Key Personnel**

Report Number 1960r3v2d0420



Certificate No. CCC19008

Continuing Competence Certificate

This certificate confirms that

Michael Barrington Jones

Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 08/11/2018

TSNH Transfer - Non Hazardous Waste

Awarded: 08/11/2018

Expiry Date:
08/11/2020

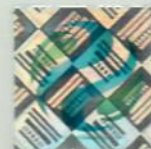
Authorised

WAMITAB Chief Executive Officer

CIWM Executive Director



The Chartered Institution
of Wastes Management



00115850

**CAERPHILLY SKIPS
BESPOKE PERMIT
VARIATION**

**ENVIRONMENTAL
RISK ASSESSMENT**

**Appendix 2
Digital Copy of
H1 Assessment**

Report Number 1960r3v2d0420



GEO
TECHNOLOGY

Geotechnical &
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