



Flood Consequence Assessment for Planning

Prepared for:
TACP Architects Ltd

January 2024

Our reference:
93441-TACP-GoferBulkingStation

Location:
Gofer Bulking Station
Abergele
Conwy
LL22 9SE



Document Issue Record

Project: Flood Consequence Assessment for Planning

Client: TACP Architects Ltd

Location: Gofer Bulking Station, Abergele, Conwy, LL22 9SE

Application: Proposed extension of existing recycling waste transfer depot building, formation of new covered sorting buildings with new vehicle wheel wash

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Version: v1.0 310124

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Key Facts

Flood Risk Posed:

- Flood Zone C1 as defined by Natural Resource Wales (NRW).
- Flood Zone 3 as shown on the Flood Map for Planning.
- TAN15 defended zone.
- Existing site is a Bulking Station – “less vulnerable”.
- Proposed development is extensions to the existing site usage – “less vulnerable”.
- No increase in vulnerability or introduction of additional units or businesses.
- Site defended to 1:200 year standard.
- Site within modelled breach extents.
- Risk of pluvial, groundwater and sewer surcharge flooding would appear to be low.

Flood Risk Management:

- No loss of fluvial floodplain storage.
- Flood proofing of the building will be incorporated as appropriate.
- A flood warning and evacuation plan will be implemented post development.

Assuming accordance with these flood risk management measures, Unda Consulting Limited consider the proposed application to be suitable in flood risk terms.

Introduction

Unda Consulting Limited have been appointed by TACP Architects Ltd (hereinafter referred to as the applicant) to undertake a Site Specific Flood Consequence Assessment (FCA) for Planning at Gofer Bulking Station, Abergele, Conwy, LL22 9SE (hereinafter referred to as “the site”). The FCA has been undertaken in accordance with Technical Advice Note 15 (TAN 15) and the associated technical guidance.

The site appears to be located within Flood Zone C1 as defined by Natural Resource Wales (NRW) on their Development Advice Map. Under Technical Advice Note 15 (TAN 15), a FCA is required if a proposed development:

- includes building or engineering works in Flood Zone C1, C2 or B;
- includes building or engineering works on land classified as having critical drainage problem;
- changes the use of land or buildings in a location at risk of flooding from rivers or the sea, or with critical drainage problems;
- changes the use of land or buildings in a way that increases the flood vulnerability of the development where it may be subject to other sources of flooding;
- is in Flood Zone A, but larger than 1 hectare.

Given that the proposed application site is located in Flood Zone C1: (Areas of the floodplain which are developed and served by significant infrastructure, including flood defences), and includes building work and the change of use of land or buildings, the applicant is required to submit a FCA under TAN 15. The assessment should demonstrate to the Local Planning Authority (LPA) and NRW how flood risk will be managed now and over the development’s lifetime, taking climate change into account, and with regard to the vulnerability of its potential users.

The objectives of a FCA to support a planning application are to establish:

- whether the proposed development is likely to be affected by current or future flooding from any source;
- whether it will increase flood risk elsewhere;
- whether the measures proposed to deal with these effects and risks are appropriate.

Existing Situation

Site Usage:

The site is occupied by Gofer Bulking Station.



Figure 1: Aerial view of the site and immediate surrounding area (Source: Google Earth)

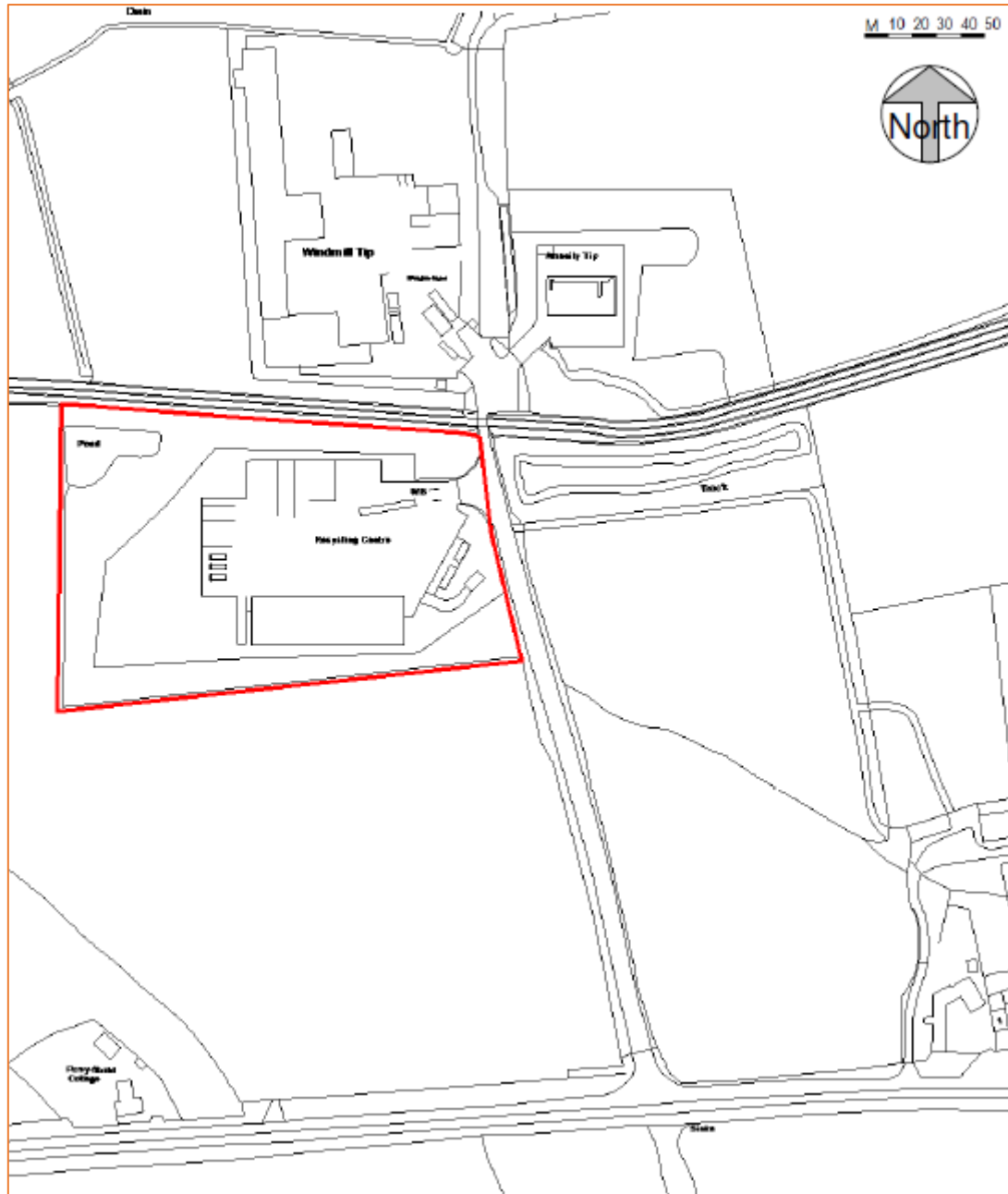


Figure 2: Site Location Plan (Source: TACP Architecture Ltd)

Topography:

Environment Agency LiDAR has been used to assess the topography across the site and wider area. Light Detection and Ranging (LiDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground surface. Up to 100,000 measurements per second are made of the ground, allowing highly detailed terrain models to be generated at high spatial resolutions. The EA's LiDAR data archive contains digital elevation data derived from surveys carried out by the EA's specialist remote sensing team. Accurate elevation data is available for over 70% of England. The LiDAR technique records an elevation accurate to +0.3m every 2m. This dataset is derived from a combination of our full dataset which has been merged and re-sampled to give the best possible coverage. The dataset can be supplied as a Digital Surface Model (DSM) produced from the signal returned to the LiDAR (which includes heights of objects, such as vehicles, buildings and vegetation, as well as the terrain surface) or as a Digital Terrain Model (DTM) produced by removing objects

from the Digital Surface Model. 1.0m horizontal resolution DTM LiDAR data has been used for the purposes of this study.

1m LiDAR remotely sensed digital elevation data suggests that the ground topography in the area of the proposed development ranges from approximately 4.30m AOD to 5.00m AOD.

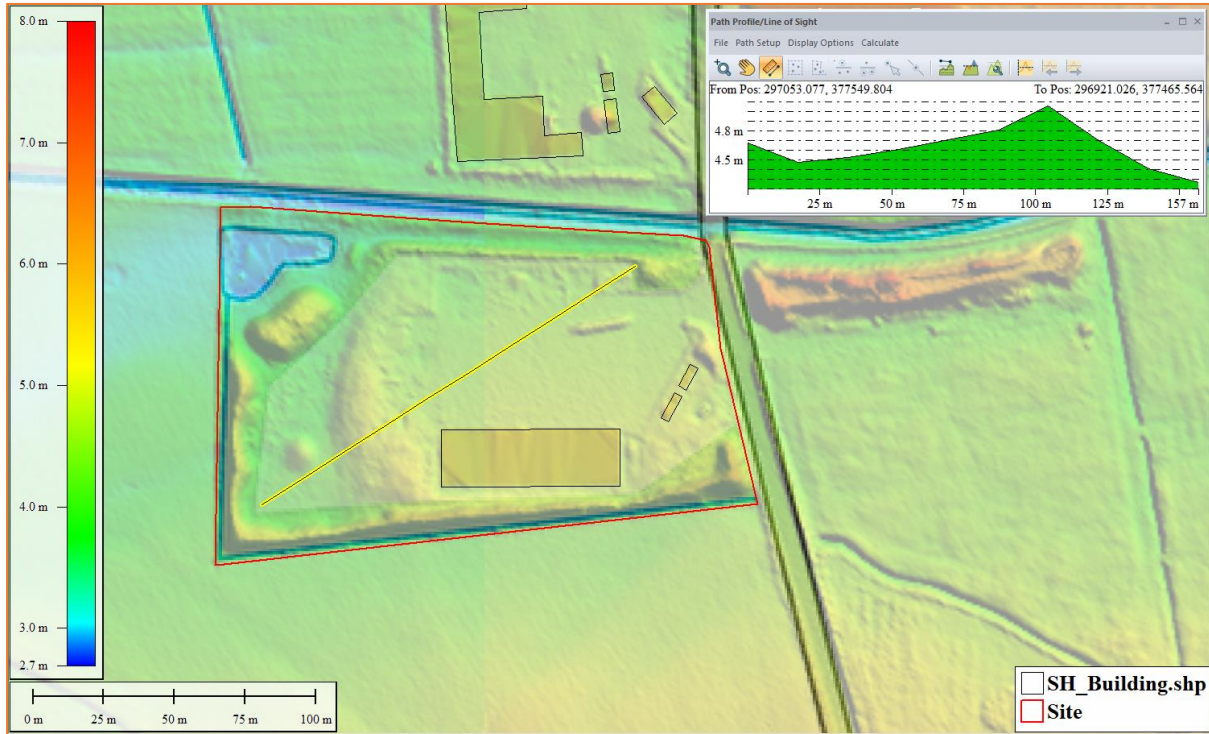


Figure 3: 1m LiDAR DTM showing topographic levels across the site. Transect inset runs from northeast to southwest (Source: EA 1m LiDAR, OS Mapping)

Proposed Development

The proposed planning application is for a Proposed extension of existing recycling waste transfer depot building, formation of new covered sorting buildings with new vehicle wheel wash.



Figure 4: Proposed Site Layout (Source: TACP Architecture Ltd)

Assessment of Flood Risk

Flood Zones:

Within planning, Flood Zones refer to the probability of river and sea flooding. They are shown on the Natural Resource Wales Development Advice Map, available on Natural Resource Wales' web site.

Description of Zone	Zone Name	Use within the precautionary framework
Considered to be at little or no risk of fluvial or tidal/coastal flooding.	A	Used to indicate that justification test is not applicable and no need to consider flood risk further.
Areas known to have been flooded in the past evidenced by sedimentary deposits.	B	Used as part of a precautionary approach to indicate where site levels should be checked against the extreme (0.1%) flood level. If site levels are greater than the flood levels used to define adjacent extreme flood outline there is no need to consider flood risk further.
Based on Environment Agency extreme flood outline, equal to or greater than 0.1% (river, tidal or coastal)	C	Used to indicate that flooding issues should be considered as an integral part of decision making by the application of the justification test including assessment of consequences.
Areas of the floodplain which are developed and served by significant infrastructure, including flood defences.	C1	Used to indicate that development can take place subject to application of justification test, including acceptability of consequences
Areas of the floodplain without significant flood defence infrastructure.	C2	Used to indicate that only less vulnerable development should be considered subject to application of justification test, including acceptability of consequences. Emergency services and highly vulnerable development should not be considered.

Table 1: Flood Zones

The Flood Zones shown on the Natural Resource Wales Development Advice Map do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding.

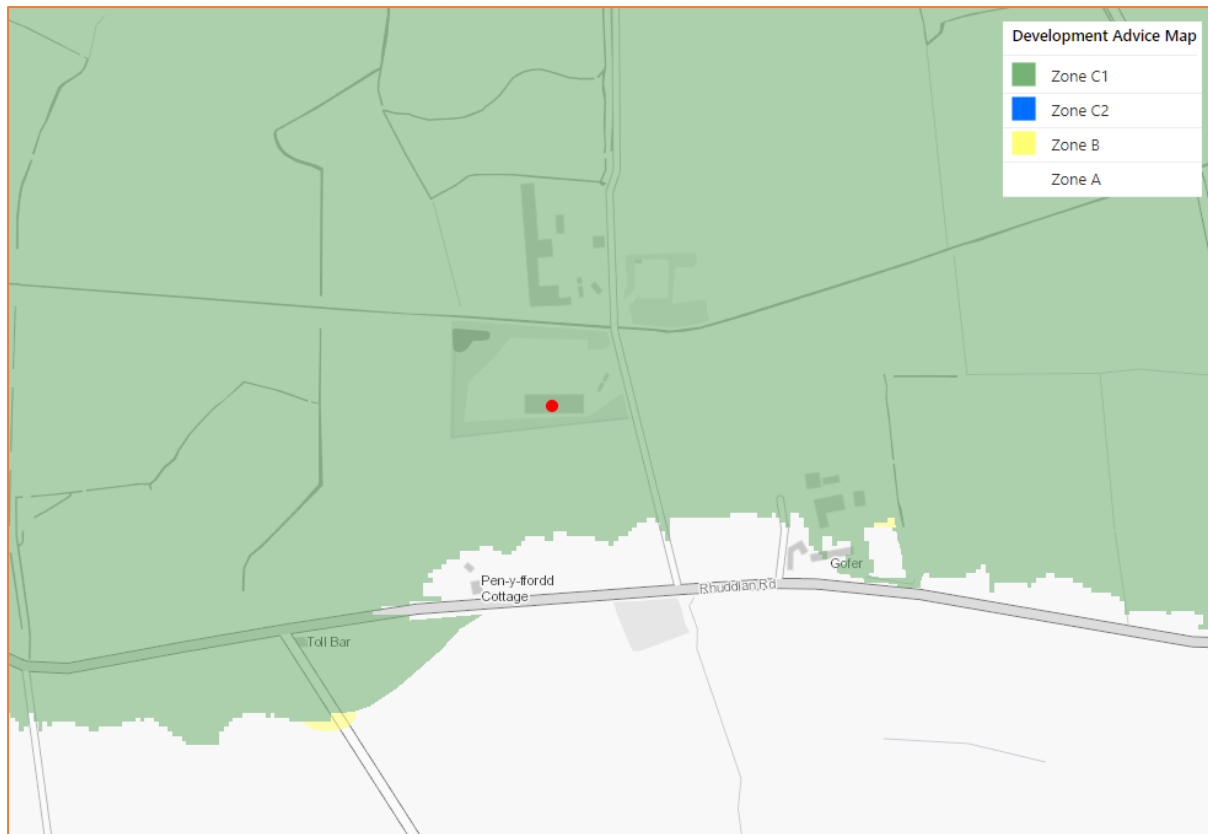


Figure 5: Natural Resource Wales Development Advice Map (Source: NRW)

The Flood Zones shown on the Natural Resource Wales Development Advice Map do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding.

The site is located partially within Flood Zone C1 ((Areas of the floodplain which are developed and served by significant infrastructure, including flood defences), which means it is defined as land having at least a 1 in 1000 annual probability of tidal flooding.

The risk would appear to be predominantly tidal.

The Flood Map for Planning has no official status until it is formally implemented through planning policy, however, it represents the best available information the Welsh Government have on flood risk and Natural Resources Wales will continue to use this to inform their planning advice.

Local Planning Authorities are also expected to use the Flood Map for Planning alongside the draft TAN15 to support Local Development Plan work and in Strategic Flood Consequences Assessments.

The DAM is considered out of date by NRW, and no updates have been made for over 2 years, and no future updates are expected. The new Flood Map for Planning (FMfP) is therefore considered by NRW to be the best available spatial information held on flood risk and is being updated every 6 months.

NRW will consider both the DAM and the FMfP as part of the consultation process.

The Flood Map for Planning shows the site to be located entirely within Sea Flood Zone 3, and partially within Rivers Flood Zone 2 and Flood Zone 3. No existing or proposed site uses are located within the River Flood Zones.



Figure 6: Natural Resource Wales Flood Map For Planning (Source: NRW)

Fluvial (Afon Gele)

The Bodoryn Cut is located to the north of the site boundary, with the Afon Gele further to the north.

Modelled flood levels and extents:

Modelled flood levels and flood extents have been requested from the NRW as part of a flood data request (reference ATI-26320a). Modelled fluvial flood levels and flood extents have been provided by NRW from the Afon Gele 2020 flood model.

Both defended and undefended scenarios have been provided, for the present day and climate change 1:100 year and 1:1000 year events.

The Flood Consequences Assessment: Climate change allowances guidance (September 2021) shows the site to fall within the West Wales river basin district, where the central estimate / change factor is a 30% increase anticipated by the 2080s.

The north of the site (in the vicinity of the site boundary) and the existing pond in the northwestern corner of the site are shown to be partially within the modelled flood extents. All existing and proposed buildings, hardstanding and Bulking Station uses are shown to be entirely outside of the modelled flood extents provided.



Figure 7: Modelled Afon Gele Defended flood extents at the site (Source: NRW, OS Mapping, Proposed Site plan)

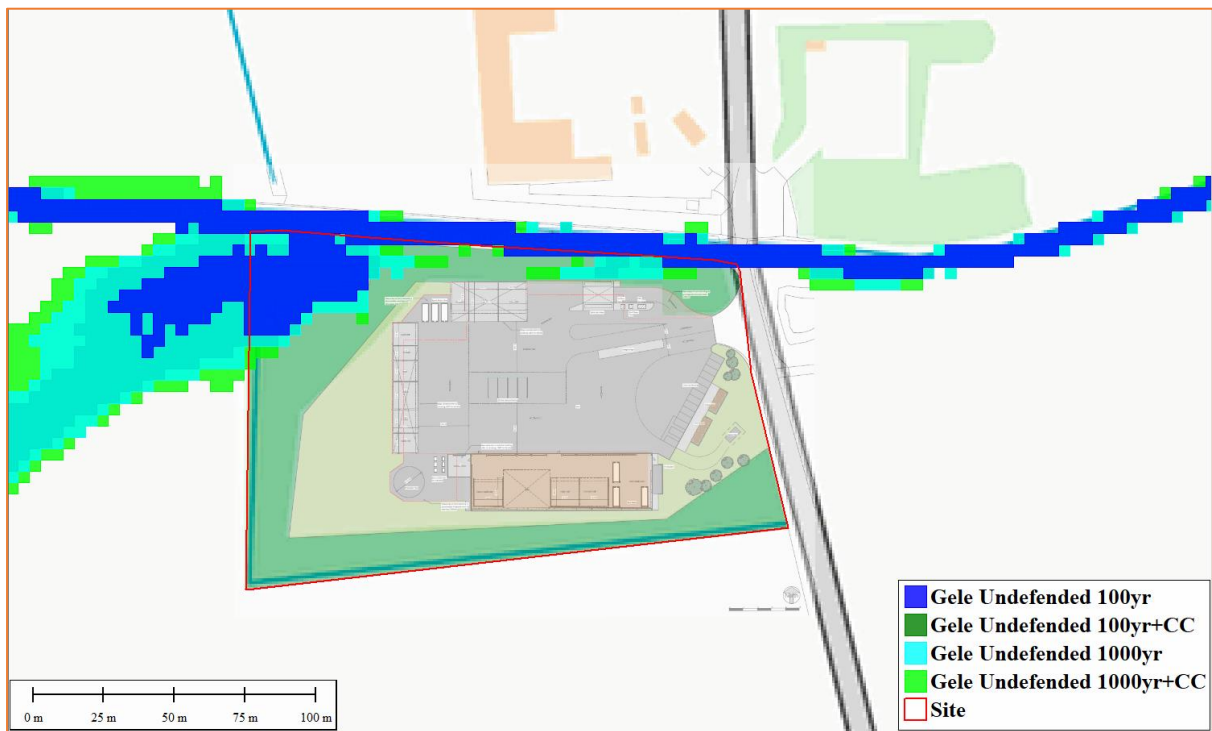


Figure 8: Modelled Afon Gele Undefended flood extents at the site (Source: NRW, OS Mapping, Proposed Site plan)

As such, the flood risk to the site is considered to be predominantly tidal and originate from the Irish Sea / tidally influenced Clwyd.

Tidal (Irish Sea):

The Irish Sea separates the islands of Ireland and Great Britain; linked to the Celtic Sea in the south by St George's Channel, and to the Inner Seas off the West Coast of Scotland in the north by the North Channel, also known as the Straits of Moyle.

The River Clwyd (Welsh: Afon Clwyd) is a river in Wales that rises in the Clocaenog Forest (grid reference SJ045535) 8km northwest of Corwen. Its total length is 56km. At the confluence of the Elwy and the Clwyd, the river becomes tidal and enters a narrow estuary before meeting the Irish Sea at Rhyl.

Modelled flood levels and extents:

Modelled flood levels and flood extents have been requested from the NRW as part of a flood data request (reference ATI-26320a). Modelled tidal flood levels have been provided from the Point of Ayr to Pensarn 2018 (2023 updates) model.

Modelled undefended, defended, and breach flood data has been provided.

The development is less vulnerable and is not-residential. The lifetime of the development is therefore considered to be 75 years.

As such, the 2097 70th percentile (Higher Central) and 95th percentile (Upper End) climate change allowances are considered to be the most appropriate in the Point of Ayr to Pensarn flood modelling.

Defended:

For the defended 1:200 year modelled flood events the site is shown to be entirely outside of the modelled 1:200 year extent at the present day, and in 2097 with a Higher Central climate change allowance. For the defended 1:200 year event in 2097 with an Upper End climate change allowance, the north of the site (in the vicinity of the site boundary) and the existing pond in the northwestern corner of the site are shown to be partially within the modelled flood extent. All existing and proposed buildings, hardstanding and Bulking Station uses are shown to be entirely outside of the modelled flood extent provided.

For the defended 1:1000 year modelled flood events the site is shown to be entirely outside of the modelled 1:1000 year extent at the present day, but partially within the 1:1000 year extent in 2097 with an Upper End climate change allowance.

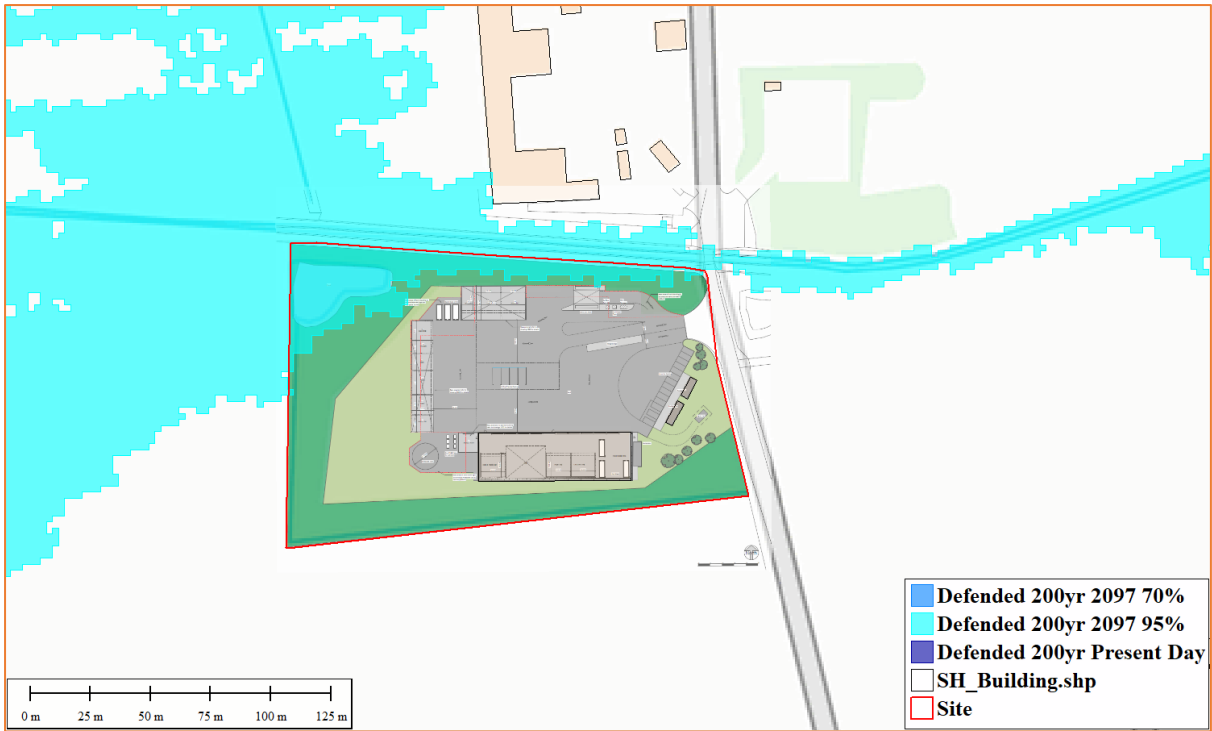


Figure 9: Modelled Point of Ayr to Pensarn defended 1:200 year flood extents at the site (Source: NRW, OS Mapping, Proposed Site plan)



Figure 10: Modelled Point of Ayr to Pensarn defended 1:1000 year flood extents at the site (Source: NRW, OS Mapping, Proposed Site plan)

Undefended:

For the undefended flood events, the site is shown to be partially within the modelled undefended 1:200 year and 1:1000 year flood extents.

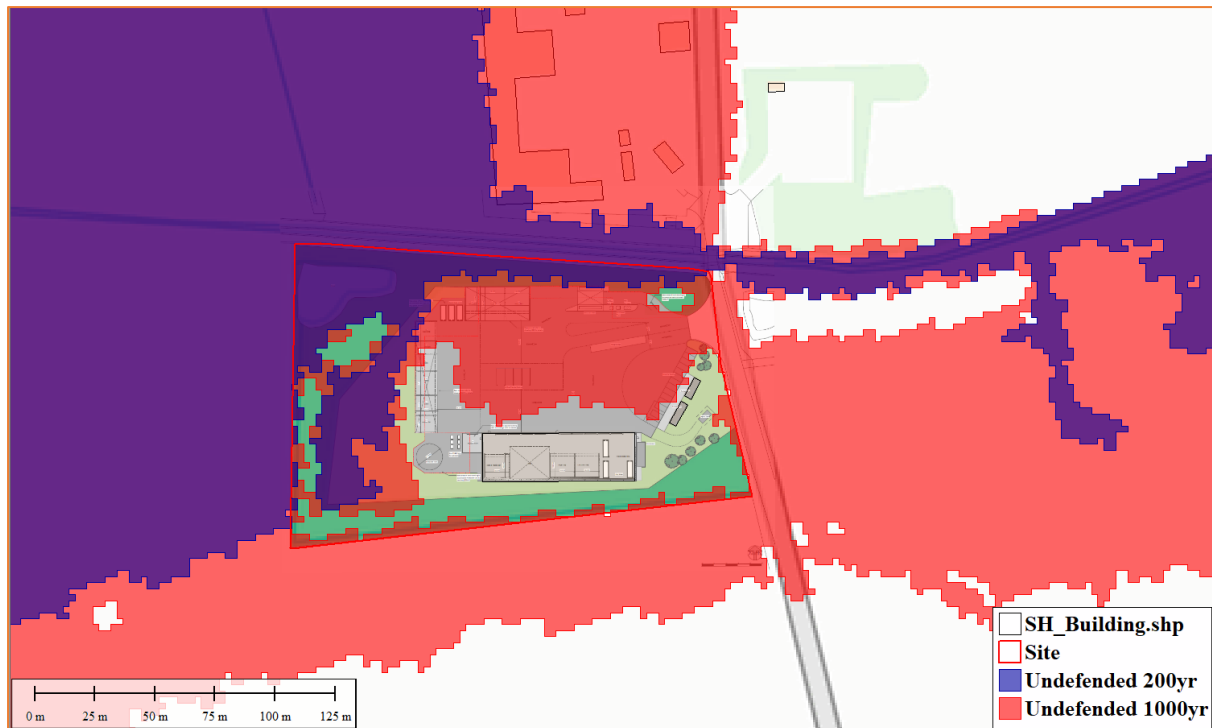


Figure 11: Modelled Point of Ayr to Pensarn undefended flood extents at the site (Source: NRW, OS Mapping, Proposed Site plan)

Return Period	Defended			Undefended		
	Present Day	2097 Higher Central (70th)	2097 Upper End (95th)	Present Day	2097 Higher Central (70th)	2097 Upper End (95th)
1:200 year	Outside	Outside	4.05mAOD	4.27mAOD	No Data	No Data
1:1000 year	Outside	No Data	4.49mAOD	4.79mAOD	No Data	No Data

Table 2: Modelled on-site flood levels

Comparison of the modelled defended 1:200 year and 1:1000 year Upper End 2097 flood levels (4.05mAOD and 4.49mAOD respectively) with topographic site levels (approximately 4.30mAOD to 5.00mAOD in the area of the Bulking Station), shows that the Bulking station is entirely above the 1:200 year and up to 0.19m below the 1:1000 year Upper End flood levels.

Comparison of the modelled undefended 1:200 year and 1:1000 year present day flood levels (4.27mAOD and 4.79mAOD respectively) with topographic site levels (approximately 4.30mAOD to 5.00mAOD in the area of the Bulking Station), shows that the Bulking station is entirely above the 1:200 year and up to 0.49m below the 1:1000 year flood levels.

Tidal (Clwyd Estuary)

The Coastal Flood Boundary Dataset provides peak still tidal levels.

The Flood Consequences Assessment: Climate Change Allowances was updated in September 2021. UKCP18 presents sea level rise allowances as regionalised data, with the impact of climate change dependent on location. This guidance has been updated to indicate projected increases in sea level rise for each local authority administrative area. These regional allowances replace the single allowance for Wales previously provided. The guidance states that the 2100 figure is currently appropriate for development with a 75 year lifetime. The site lies

within the Conwy Local Authority Area, where the cumulative mean sea level rise (metres) by 2100 is 0.75m for the 70th percentile (Higher Central Allowance), and 1.01m for the 95th percentile (Upper End Allowance).

The table below shows the flood levels with allowance for climate change:

Return Period	Present Day	2100 Higher Central (70 th)	2100 Upper End (95 th)
1:200 year	5.74mAOD	6.49mAOD	6.75mAOD
1:1000 year	5.92mAOD	6.67mAOD	6.93mAOD

Table 3: Modelled coastal node levels for Clwyd Estuary node (chainage _1134_4)

Comparison of these extreme sea levels in 2100 with topographic site levels (approximately 4.30mAOD to 5.00mAOD in the area of the Bulking Station) shows that the entire site is below the extreme sea levels in 2100.

The site is however defended from coastal and tidal flooding to the 1:200 year standard.

Flood defences:

The site is defended from fluvial flooding from the Afon Gele to the 1:100 year standard, and coastal / tidal flooding to the 1:200 year standard.

The fluvial defences on the Afon Gele are an embankment in Fair condition (condition grade 3) to the 1:100 year design standard.

The coastal defences at Kimmel Bay, are coastal defence walls and embankments in Fair condition (condition grade 3) to the 1:200 year design standard.

The tidal defences on the Clwyd Estuary are an embankments in Fair condition (condition grade 2) to the 1:200 year design standard.

The Shoreline Management Policy is to Hold the existing defence line for the next 100 years (SMP22 – Great Ormes Head to Solway Firth) for Kimmel Bay. The Shoreline Management Plan is for Managed realignment for the 100 years (SMP22 – Great Ormes Head to Solway Firth) for the Clwyd Estuary.

The site would appear to be well defended from fluvial, coastal and tidal flooding at the present day.

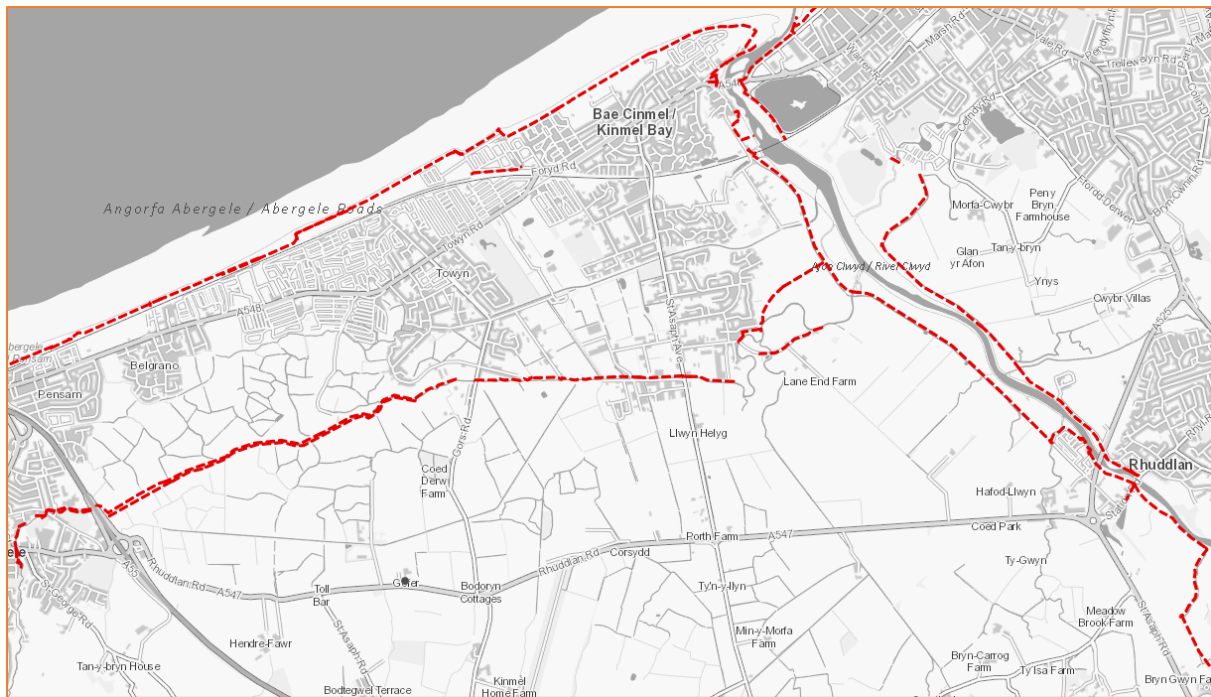


Figure 12: Flood Defence Location (Source: NRW, Flood Map for Planning)

The Point of Ayr to Pensarn study investigated breach scenarios at five sites along the River Clwyd (Marine Lake, Clwyd Embankment Right Bank, Clwyd Embankment Left Bank, Clwyd Rhuddlan Triangle and the Gele Outfall) and modelled how this would affect the flood risk to the area, and are discussed in the Residual Risk section below.

Residual risk (breach or overtopping of flood defences):

Breaching of flood defences can cause rapid inundation of areas behind flood defences as flow in the river channel discharges through the breach. A breach can occur with little or no warning, although they are much more likely to concur with extreme river levels or tides when the stresses on flood defences are highest. Flood water flowing through a breach will normally discharge at a high velocity, rapidly filling up the areas behind the defences, resulting in significant damage to buildings and a high risk of loss of life. Breaches are most likely to occur in soft defences such as earth embankments although poorly maintained hard defences can also be a potential source of breach.

Overtopping of flood defences occurs when water levels exceed the protection level of raised flood defences. The worst case occurs when the fluvial or tidal levels exceed the defence level as this can lead to prolonged flooding. Less severe overtopping can occur when flood levels are below defence levels, but wave action causes cyclic overtopping, with intermittent discharge over the crest level of the defence. Flood defences are commonly designed with a freeboard to provide protection against overtopping from waves. The risk from overtopping due to exceedance of the flood defence level is much more significant than the risk posed by wave overtopping. Exceedance of the flood defence level can lead to prolonged and rapid flooding with properties immediately behind the defences at highest risk.

The Point of Ayr to Pensarn study investigated breach scenarios at five sites along the River Clwyd (Marine Lake, Clwyd Embankment Right Bank, Clwyd Embankment Left Bank, Clwyd Rhuddlan Triangle and the Gele Outfall) and modelled how this would affect the flood risk to the area.

The 1:200 year scenario has been modelled for 2097 with the 70th (Higher Central) and 95th (Upper End) climate change scenarios, and the 1:1000 year scenario has been modelled for 2097 with the 95th (Upper End) climate change scenario.



Figure 13: Modelled Maximum Breach Extents (Source: NRW, OS Mapping, Proposed Site plan)

The site is shown to be partially within the modelled breach extents for all of the modelled scenarios.

Return Period	2097 Higher Central (70th)	2097 Upper End (95th)
1:200 year	4.88mAOD	5.08mAOD
1:1000 year	No Data	5.28mAOD

Table 4: Modelled maximum on-site breach flood levels

Comparison of the modelled maximum on-site 1:200 year Higher Central 2097 flood level (4.88mAOD) with topographic site levels (approximately 4.30mAOD to 5.00mAOD in the area of the Bulking Station), shows that the Bulking station is up to 0.58m below the 1:200 year 2097 Higher Central breach flood level.

Comparison of the modelled maximum on-site 1:200 year and 1:1000 year Upper End 2097 breach flood levels (5.08mAOD and 5.28mAOD respectively) with topographic site levels (approximately 4.30mAOD to 5.00mAOD in the area of the Bulking Station), shows that the Bulking station is up to 0.78m below the 1:200 year and 0.98m below the 1:1000 year Upper End breach flood levels.

Historical flood events:

The site is shown to be within an area that has flooded previously on the NRW Historic Flood Map. The site is shown to be entirely within the Pensarn, Towyn, Kinmel Bay Feb/ March 1990 flood extent, and partially within the Abergele / Rhuddlan Marshes 1977 flood extent.

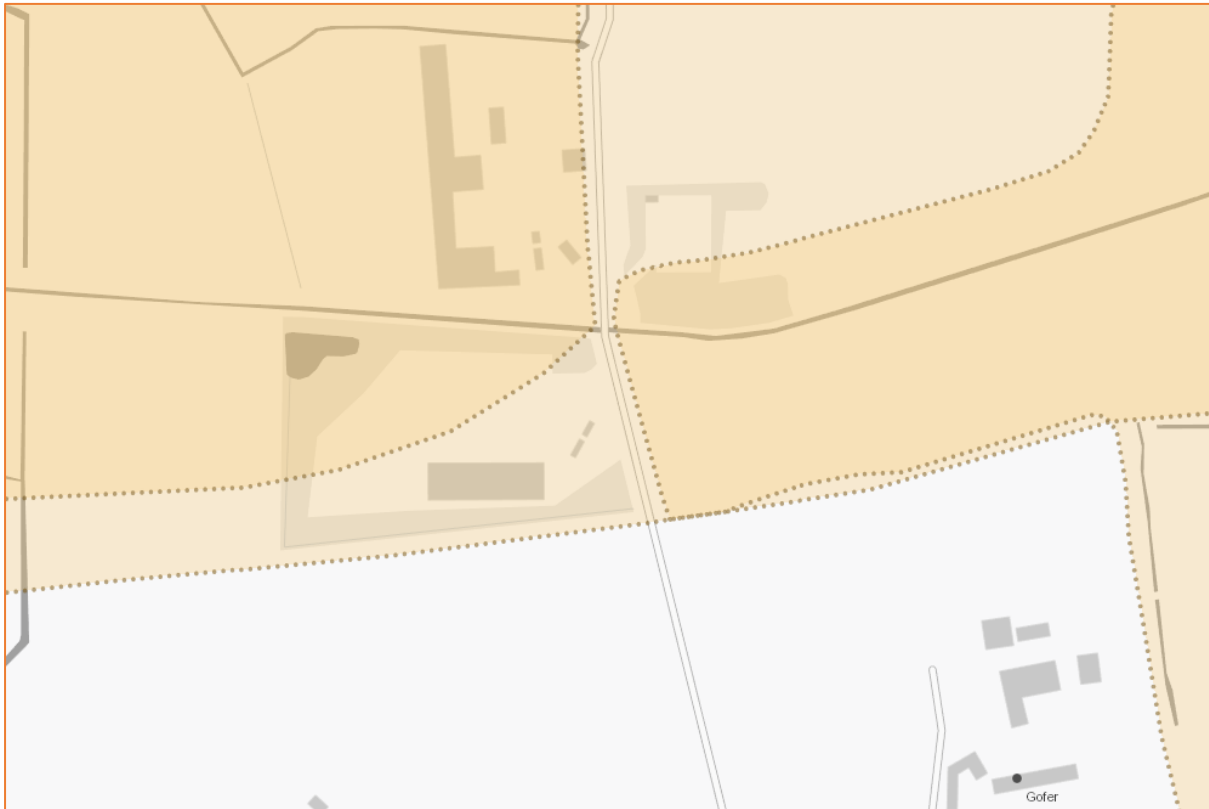


Figure 14: Recorded Flood Extents (Source: NRW, Flood Map for Planning)

Pluvial (Surface Water & Small Watercourses):

Pluvial (surface water) flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead.

In 2013 the EA and NRW, working with Lead Local Flood Authorities (LLFAs), produced an updated Flood Map for Surface Water. It is considered to represent a significant improvement on the previous surface water flood maps available, both in terms of method and representation of the risk of flooding. The modelling techniques and data used and considerably improved, and also incorporated locally produced mapping where this is available to represent features best modelled at a local scale.

The Flood Map for Surface Water assesses flooding scenarios as a result of rainfall with the following chance of occurring in any given year (annual probability of flooding is shown in brackets):

- 1:30 (3.3%)
- 1:100 (1%)
- 1:1000 (0.1%)

The mapping below shows the Risk of Flooding from Surface Water centred on the site. Please note that NRW do not consider this information suitable to be used to identify the risk to individual properties or sites. It is useful to raise awareness in areas which may be at risk and may require additional investigation.

The Natural Resources Wales Surface Water & Small Watercourses Flood Map suggests that parts of the site are shown to be at “Low” to “High” risk of flooding from surface water. This is however shown to be in the area of the existing pond on site, and then to the south of the site.

The existing and proposed Bulking stations uses are shown to be entirely outside of areas of “Low”, “Medium” and “High” risk of flooding from surface water.



Figure 15: Extract from Natural Resources Wales Surface Water Flood Map (Source: NRW)

Groundwater:

Groundwater flooding occurs as a result of water rising up from the underlying rocks or from water flowing from abnormal springs. This tends to occur after much longer periods of sustained high rainfall. Higher rainfall means more water will infiltrate into the ground and cause the water table to rise above normal levels. Groundwater tends to flow from areas where the ground level is high, to areas where the ground level is low. In low-lying areas the water table is usually at shallower depths anyway, but during very wet periods, with all the additional groundwater flowing towards these areas, the water table can rise up to the surface causing groundwater flooding.

Groundwater flooding is most likely to occur in low-lying areas underlain by permeable rocks (aquifers). These may be extensive, regional aquifers, such as chalk or sandstone, or may be localised sands or river gravels in valley bottoms underlain by less permeable rocks. Groundwater flooding takes longer to dissipate because groundwater moves much more slowly than surface water and will take time to flow away underground. No information has been provided to suggest that the site is susceptible to groundwater flooding.

No further information has been provided to suggest that the site is susceptible to groundwater flooding.

Sewer Surcharge:

Sewer flooding occurs when the sewer network cannot cope with the volume of water that is entering it. It is often experienced during times of heavy rainfall when large amounts of surface water overwhelm the sewer network causing flooding. Temporary problems such as blockages, siltation, collapses and equipment or operational failures can also result in sewer flooding.

All Water Companies have a statutory obligation to maintain a register of properties/areas which have reported records of flooding from the public sewerage system, and this is shown on the DG5 Flood Register. This includes records of flooding from foul sewers, combined sewers and surface water sewers which are deemed to be public and therefore maintained by the Water Company. The DG5 register records of flood incidents resulting in both internal property flooding and external flooding incidents. Once a property is identified on the DG5 register, water companies can typically put funding in place to address the issues and hence enable the property to be removed from the register. It should be noted that flooding from land drainage, highway drainage, rivers/watercourses and private sewers is not recorded within the register.

No information has been provided to suggest that the site is susceptible to sewer surcharge flooding.

Other Sources:

The Natural Resources Wales Risk of Flooding from Reservoirs Map suggests that the site lies outside of the "Maximum extent of flooding" from reservoir failure. The Natural Resources Wales also advise on their website that reservoir flooding is extremely unlikely. All major reservoirs have to be inspected by specialist dam and reservoir Engineers. These inspections are monitored and enforced by the Natural Resources Wales themselves. The risk to the site from reservoir flooding is therefore minimal and is far lower than that relating to the potential for fluvial flooding to occur.

There do not appear to be any further artificial (man-made) sources of flood risk (such as raised canals) in the vicinity of the site.

Flood Risk Management Measures

Vulnerability to flooding:

TAN15 classifies property usage by vulnerability to flooding.

The existing site usage as a Bulking Station is classified as a "*less vulnerable development*" throughout. Post development, the site will remain as a "*less vulnerable development*" throughout, as the application is for the Proposed extension of existing recycling waste transfer depot building, formation of new covered sorting buildings with new vehicle wheel wash.

The development will not introduce any additional units or businesses to the site, and will not change or increase the vulnerability of the site to flooding.

Particular flooding consequences may not be acceptable for particular types of development. For example, allowing residential development in areas which are subject to high risks of flooding can result in a traumatic impact on people's lives. The precautionary framework identifies the vulnerability of different land uses to flooding, and for this purpose, development has been subdivided into three categories:

Development category	Types
Emergency services	hospitals, ambulance stations, fire stations, police stations, coastguard stations, command centres, emergency depots and buildings used to provide emergency shelter in time of flood
Highly vulnerable development	all residential premises (including hotels and caravan parks), public buildings (e.g. schools, libraries, leisure centres), especially vulnerable industrial development (e.g. power stations, chemical plants, incinerators), and waste disposal sites
Less vulnerable development	general industrial, employment, commercial and retail development, transport and utilities infrastructure, car parks, mineral extraction sites and associated processing facilities, excluding waste disposal sites

Table 5: Vulnerability to flooding categories

The Emergency Services category describes facilities which need to be operational and accessible at all times. Highly vulnerable development describes development where the ability of occupants to decide on whether they wish to accept the risks to life and property associated with flooding, or be able to manage the consequences of such a risk, is limited. It also includes those industrial uses where there would be an attendant risk to the public and the water environment should the site be inundated. Less vulnerable development describes development where the ability of occupants to decide on whether they wish to accept such risks is greater than that in the highly vulnerable category. The vulnerability attributed to a mixed use proposal will be defined by the most vulnerable use.

There are uses which are considered to be exceptions to the general rule, and have not been classified above, because they are required in a fluvial, tidal or coastal location by virtue of their nature. These include boatyards, marinas, essential works required at mooring basins, and development associated with canals.

Physical Design Measures:

In accordance with section A1.14 of TAN15 there is a frequency threshold of flooding below which flooding of development should not be allowed. The following table, taken from TAN15, provides indicative guidance as to what the frequency threshold could be for different types of development in terms of annual probability of occurrence:

Type of development	Threshold frequency	
	Fluvial	Tidal
Residential	1%	0.5%
Commercial / retail	1%	0.5%
Industrial	1%	0.5%
Emergency services	0.1%	0.1%
General infrastructure	1%	0.5%

Table 6: TAN15 Flood frequency thresholds

Comparison of modelled fluvial flood levels with topographic site levels shows that the entire site is flood free for the 1:100 year and 1:1000 year events at the present day and with an allowance for climate change.

The Point of Ayr to Pensarn study investigated breach scenarios. The 1:200 year scenario has been modelled for 2097 with the 70th (Higher Central) and 95th (Upper End) climate change scenarios, and the 1:1000 year scenario has been modelled for 2097 with the 95th (Upper End) climate change scenario

The site is shown to be partially within the modelled breach extents for all of the modelled scenarios.

Comparison of the modelled maximum on-site 1:200 year Higher Central 2097 flood level (4.88m AOD) with topographic site levels (approximately 4.30m AOD to 5.00m AOD in the area of the Bulking Station), shows that the Bulking station is up to 0.58m below the 1:200 year 2097 Higher Central breach flood level.

Comparison of the modelled maximum on-site 1:200 year and 1:1000 year Upper End 2097 breach flood levels (5.08m AOD and 5.28m AOD respectively) with topographic site levels (approximately 4.30m AOD to 5.00m AOD in the area of the Bulking Station), shows that the Bulking station is up to 0.78m below the 1:200 year and 0.98m below the 1:1000 year Upper End breach flood levels.

The existing site usage as a Bulking Station is classified as a "*less vulnerable development*" throughout. Post development, the site will remain as a "*less vulnerable development*" throughout, as the application is for the Proposed extension of existing recycling waste transfer depot building, formation of new covered sorting buildings with new vehicle wheel wash.

The development will not introduce any additional units or businesses to the site, and will not change or increase the vulnerability of the site to flooding.

To help protect against flooding during extreme events, the applicant has agreed to implement flood resistant design measures into the proposed development where possible, in consultation with the Local Authority building control department.

These measures can include the following where feasible and practical:

- Waterproof screed used on floors;
- Closed-cell foam used in wall cavities;
- Waterproof ground floor internal render;
- External walls rendered resistant to flooding to first floor level;
- Exterior ventilation outlets, utility points and air bricks fitted with removable waterproof covers;
- Ground floor electrical main ring run from high level;
- Electrical incomer and meter situated at high level;
- Boilers, control and water storage / immersion installed at high level;
- Gas meter installed at high level;
- Raised wiring and power outlets at least 600mm above finished ground floor level;
- Plumbing insulation of closed-cell design;
- Non-return valves fitted to all drain and sewer outlets;
- Manhole covers secured;
- Anti-syphon fitted to all toilets;

- Built-in furniture units of solid, water resistant material;
- Use of MDF carpentry (i.e. skirting, architrave, built-in storage) avoided.

The applicant should also consider the use of demountable flood defence barriers to defend ground level doorways and low windows.

Safe Escape:

TAN 15 requires a route of safe escape for all residents and users to be provided from new developments in Flood Zone C.

Type of development	Maximum depth of flooding (mm)	Maximum rate of rise of floodwaters (m/hr)	Maximum speed of inundation of flood risk area (hrs)	Maximum velocity of floodwaters (metres/sec)
	Property Access			Property Access
Residential (habitable rooms)	600 600	0.1	4	0.15 0.3
Commercial & Retail	600 600	0.3	2	0.15 0.3
Industrial	1000 1000	0.3	2	0.3 0.45
Emergency Services	450 600	0.1	4	0.15 0.3
General Infrastructure	600 600	0.3	2	0.3 0.3

Table 7: TAN15

Table A1.15 shows the threshold frequency beyond which proposed development would be expected to flood under extreme conditions. For industrial development a maximum flood depth of 1000mm would be allowed at the property and for the site access.

The site is shown to be partially within the modelled breach extents for all of the modelled scenarios.

Comparison of the modelled maximum on-site 1:200 year Higher Central 2097 flood level (4.88mAOD) with topographic site levels (approximately 4.30mAOD to 5.00mAOD in the area of the Bulking Station), shows that the Bulking station is up to 0.58m below the 1:200 year 2097 Higher Central breach flood level.

Comparison of the modelled maximum on-site 1:200 year and 1:1000 year Upper End 2097 breach flood levels (5.08mAOD and 5.28mAOD respectively) with topographic site levels (approximately 4.30mAOD to 5.00mAOD in the area of the Bulking Station), shows that the Bulking station is up to 0.78m below the 1:200 year and 0.98m below the 1:1000 year Upper End breach flood levels.

Site users should exit the site to the site access road and travel south along this road, then east along the A557 (Rhuddlan Road) and then south along Primrose Hill. This route has a maximum flood depth of 0.98m for the 1:1000 year Upper End breach flood event. This route is away from the source of flooding, and entirely outside of the breach extent after approximately 185m.



Figure 16: Breach Depth Grid Map for 1 in 1000 year 2097 Upper End breach event showing escape route. (Source: NRW)

Flood Alert/Warnings:

The NRW is responsible for issuing flood warnings. Flood warnings are issued to the emergency services and local authorities. Both private individuals and organisations can sign-up to receive warnings via phone, text or email. This system of receiving warnings is currently voluntary.

Advice regarding severe flood warnings will generally be given during weather forecasts on local radio and TV. In the case of extreme events, warnings can also be disseminated via door to door visits by the police or locally appointed flood wardens.

The applicant has agreed to implement a flood warning and evacuation plan post development, and subscribe to the NRW's flood warning service.

The site is in a NRW Flood Warning Area (Clwyd Left Bank) and Flood Alert Area (North Wales Coast). The NRW issues flood warnings to specific areas when flooding is expected. It is recommended that the applicant registers online with the free NRW Floodline Warnings Direct service at <https://naturalresources.wales/flooding/sign-up-to-receive-flood-warnings/?lang=en> to receive flood warnings by phone, text or email.

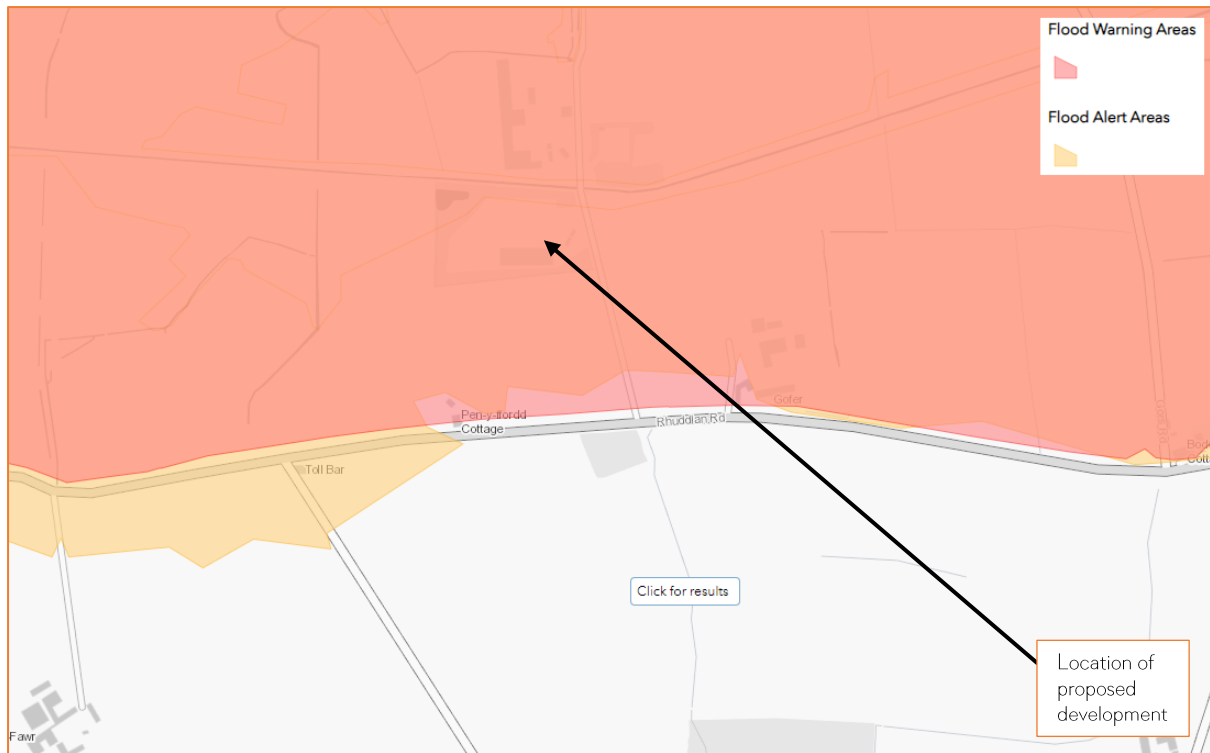


Figure 17: NRW Flood Warning/Alert Areas (Source: NRW)

Flood Warning:

The flood warning service has three types of warnings that will help you prepare for flooding and take action:

Flood Warning	Flood Alert	Flood Warning	Severe Flood Warning
What it means?	Flooding is possible. Be prepared.	Flooding is expected. Immediate action required.	Severe flooding. Danger to life.
When it's used?	Two hours to two days in advance of flooding.	Half an hour to one day in advance of flooding.	When flooding poses a significant threat to life.
What to do?	Be prepared to act on your flood plan. Prepare a flood kit of essential items. Monitor local water levels and the flood forecast on our website.	Move family, pets and valuables to a safe place. Turn off gas, electricity and water supplies if safe to do so. Put flood protection equipment in place.	Stay in a safe place with a means of escape. Be ready should you need to evacuate from your home. Co-operate with the emergency services. Call 999 if you are in immediate danger.

Table 8: Flood Warnings

Flood Plan:

It is recommended that the applicant and future owners, occupiers and Landlords of the site prepare a flood plan to protect life and property during a flood event:

Before a flood:

- Find out if you are at risk of flooding.
- Find out if you can receive flood warnings.
- Prepare and keep a list of all your important contacts to hand or save them on your mobile phone.
- Think about what items you can move now and what you would want to move to safety during a flood such as pets, cars, furniture, and electrical equipment.
- Know how to turn off gas, electricity and water supplies
- Prepare a flood kit of essential items and keep it handy. It can include copies of important documents, a torch, a battery-powered or wind-up radio, blankets and warm clothing, waterproofs, rubber gloves and a first aid kit including all essential medication.
- Consider buying flood protection products such as flood boards and airbrick covers to help reduce flood water getting into your property.

During a flood:

- Tune into your local radio station on a battery or wind-up radio.
- Fill jugs and saucepans with water.
- Grab your flood kit - if you have prepared one.
- Collect blankets, torch, first aid kit, medication and food.
- Move important documents, personal items, valuables, and lightweight belongings upstairs or to high shelves.
- Raise large items of furniture, or put them in large bags if you have them.
- Move people, outdoor belongings, cars and pets to higher ground.
- Switch off water, gas and electricity at mains when water is about to enter your home. Do not touch sources of electricity when standing in water.
- Fit flood protection products, if you have them, for example flood boards, airbrick covers, sandbags.
- Put plugs in sinks and baths. Weigh them down with a pillowcase or plastic bag filled with soil.
- If you do not have non-return valves fitted, plug water inlet pipes with towels or cloths.
- Move your family and pets upstairs or to a high place with a means of escape.
- Listen to the advice of the emergency service and evacuate if told to do so.
- Avoid walking or driving through flood water. Six inches of fast-flowing water can knock over an adult and two feet of water can move a car.

After a flood:

- If you have flooded, contact your insurance company as soon as possible.
- Take photographs and videos of your damaged property as a record for your insurance company.
- If you don't have insurance, contact your local authority for information on grants and charities that may help you.
- Flood water can contain sewage, chemicals and animal waste. Always wear waterproof outerwear, including gloves, wellington boots and a face mask.
- Have your electrics, central heating and water checked by qualified engineers before switching them back on.

Off-Site Impacts

Floodplain storage:

TAN15 requires that where development is proposed in undefended areas of floodplain, which lie outside of the functional floodplain, the implications of ground raising operations for flood risk elsewhere needs to be considered. Raising existing ground levels may reduce the capacity of the floodplain to accommodate floodwater and increase the risk of flooding by either increasing the depth of flooding to existing properties at risk or by extending the floodplain to cover properties normally outside of the floodplain. Flood storage capacity can be maintained by lowering ground levels either within the curtilage of the development or elsewhere in the floodplain, in order to maintain at least the same volume of flood storage capacity within the floodplain.

In undefended tidal areas, raising ground levels is unlikely to impact on maximum tidal levels so the provision of compensatory storage should not be necessary.

For development in a defended flood risk area, the impact on residual flood risk to other properties needs to be considered. New development behind flood defences can increase the residual risk of flooding if the flood defences are breached or overtopped by changing the conveyance of the flow paths or by displacing flood water elsewhere. If the potential impact on residual risk is unacceptable then mitigation should be provided.

The site is located within an area of predominantly tidal flood risk.

Surface Water Drainage Strategy:

The development will utilise Sustainable Urban Drainage (SuDs) design in accordance with TAN15 hierarchy as follows:

1. Store rainwater for later use;
2. Infiltration techniques;
3. Attenuate rainwater by storing in tanks for gradual release;
4. Discharge rainwater direct into watercourse;
5. Discharge rainwater into surface water sewer;
6. Discharge rainwater into a combined sewer;
7. Attenuation of rainwater in ponds or open water features with controlled discharge into the local watercourse.

From 7 January 2019, all new developments of more than 1 dwelling house or where the construction area is 100m² or more, will require Sustainable Drainage Systems (SuDS) for surface water.

Conclusion

Unda Consulting Limited have been appointed by TACP Architects Ltd (hereinafter referred to as the applicant) to undertake a Site Specific Flood Consequence Assessment (FCA) for Planning at Gofer Bulking Station, Abergele, Conwy, LL22 9SE (hereinafter referred to as "the site"). The FCA has been undertaken in accordance with Technical Advice Note 15 (TAN 15) and the associated technical guidance.

The proposed planning application is for the Proposed extension of existing recycling waste transfer depot building, formation of new covered sorting buildings with new vehicle wheel wash.

The existing site usage as a Bulking Station is classified as a "*less vulnerable development*" throughout. Post development, the site will remain as a "*less vulnerable development*" throughout, as the application is for the Proposed extension of existing recycling waste transfer depot building, formation of new covered sorting buildings with new vehicle wheel wash.

The development will not introduce any additional units or businesses to the site, and will not change or increase the vulnerability of the site to flooding.

is located in Flood Zone C1: (Areas of the floodplain which are developed and served by significant infrastructure, including flood defences).

The risk would appear to be predominantly tidal.

Modelled flood levels and flood extents have been requested from the NRW as part of a flood data request (reference ATI-26320a).

Modelled fluvial flood levels and flood extents have been provided by NRW from the **Afon Gele 2020 flood model**. Both defended and undefended scenarios have been provided, for the present day and climate change 1:100 year and 1:1000 year events. The north of the site (in the vicinity of the site boundary) and the existing pond in the northwestern corner of the site are shown to be partially within the modelled flood extents. All existing and proposed buildings, hardstanding and Bulking Station uses are shown to be entirely outside of the modelled flood extents provided.

As such, the flood risk to the site is considered to be predominantly tidal and originate from the Irish Sea / tidally influenced Clwyd.

Modelled tidal flood levels have been provided from the **Point of Ayr to Pensarn 2018 (2023 updates) model**. Modelled undefended, defended, and breach flood data has been provided for the present day and climate change.

For the defended 1:200 year modelled flood events the site is shown to be entirely outside of the modelled 1:200 year extent at the present day, and in 2097 with a Higher Central climate change allowance. For the defended 1:200 year event in 2097 with an Upper End climate change allowance, the north of the site (in the vicinity of the site boundary) and the existing pond in the northwestern corner of the site are shown to be partially within the modelled flood extent. All existing and proposed buildings, hardstanding and Bulking Station uses are shown to be entirely outside of the modelled flood extent provided.

For the defended 1:1000 year modelled flood events the site is shown to be entirely outside of the modelled 1:1000 year extent at the present day, but partially within the 1:1000 year extent in 2097 with an Upper End climate change allowance.

For the undefended flood events, the site is shown to be partially within the modelled undefended 1:200 year and 1:1000 year flood extents.

Comparison of the modelled defended 1:200 year and 1:1000 year Upper End 2097 flood levels with topographic site levels in the area of the Bulking Station, shows that the Bulking station is entirely above the 1:200 year and up to 0.19m below the 1:1000 year Upper End flood levels.

Comparison of the modelled undefended 1:200 year and 1:1000 year present day flood levels with topographic site levels in the area of the Bulking Station, shows that the Bulking station is entirely above the 1:200 year and up to 0.49m below the 1:1000 year flood levels.

For the tidally influenced Clwyd (Clwyd Estuary) the **Coastal Flood Boundary Dataset** provides peak still tidal levels. Comparison of these extreme sea levels in 2100 with topographic site levels in the area of the Bulking Station, shows that the Bulking station is entirely below the extreme sea levels.

The site is defended from fluvial flooding from the Afon Gele to the 1:100 year standard, and coastal / tidal flooding to the 1:200 year standard. The fluvial defences on the Afon Gele are an embankment in Fair condition (condition grade 3) to the 1:100 year design standard.

The coastal defences at Kimmel Bay, are coastal defence walls and embankments in Fair condition (condition grade 3) to the 1:200 year design standard.

The tidal defences on the Clwyd Estuary are an embankments in Fair condition (condition grade 2) to the 1:200 year design standard.

The Shoreline Management Policy is to Hold the existing defence line for the next 100 years (SMP22 – Great Ormes Head to Solway Firth) for Kimmel Bay. The Shoreline Management Plan is for Managed realignment for the 100 years (SMP22 – Great Ormes Head to Solway Firth) for the Clwyd Estuary.

The site would appear to be well defended from fluvial, coastal and tidal flooding at the present day.

The Point of Ayr to Pensarn study investigated **breach scenarios**. The 1:200 year scenario has been modelled for 2097 with the 70th (Higher Central) and 95th (Upper End) climate change scenarios, and the 1:1000 year scenario has been modelled for 2097 with the 95th (Upper End) climate change scenario

The site is shown to be partially within the modelled breach extents for all of the modelled scenarios.

Comparison of the modelled maximum on-site 1:200 year Higher Central 2097 flood level with topographic site levels in the area of the Bulking Station, shows that the Bulking station is up to 0.58m below the 1:200 year 2097 Higher Central breach flood level.

Comparison of the modelled maximum on-site 1:200 year and 1:1000 year Upper End 2097 breach flood levels with topographic site levels in the area of the Bulking Station, shows that the Bulking station is up to 0.78m below the 1:200 year and 0.98m below the 1:1000 year Upper End breach flood levels.

The site is shown to be within an area that has flooded previously on the NRW Historic Flood Map. The site is shown to be entirely within the Pensarn, Towyn, Kimmel Bay Feb/ March 1990 flood extent, and partially within the Abergele / Rhuddlan Marshes 1977 flood extent.

Safe escape as per the definitions within TAN15 can be provided

The Natural Resources Wales Surface Water & Small Watercourses Flood Map suggests that parts of the site are shown to be at "Low" to "High" risk of flooding from surface water. This is however shown to be in the area of the existing pond on site, and then to the south of the site. The existing and proposed Bulking stations uses are shown to be entirely outside of areas of "Low", "Medium" and "High" risk of flooding from surface water.

The risk of flooding posed to the site by groundwater, sewer surcharge and reservoir flooding would appear to be low.

In summary:

- Flood Zone C1 as defined by Natural Resource Wales (NRW).

- Flood Zone 3 as shown on the Flood Map for Planning.
- TAN15 defended zone.
- Existing site is a Bulking Station – “less vulnerable”.
- Proposed development is extensions to the existing site usage – “less vulnerable”.
- No increase in vulnerability or introduction of additional units or businesses.
- Site defended to 1:200 year standard.
- Site within modelled breach extents.
- Risk of pluvial, groundwater and sewer surcharge flooding would appear to be low.
- No loss of fluvial floodplain storage
- Flood proofing of the building will be incorporated as appropriate.
- A flood warning and evacuation plan will be implemented post development.

Assuming accordance with these flood risk management measures, Unda Consulting Limited consider the proposed application to be suitable in flood risk terms.

Appendix

- NRW Flood Data Email.
- Plans and drawings.

Emma Jeffery

From: Data Distribution <datadistribution@cyfoethnaturiolcymru.gov.uk>
Sent: 13 December 2023 13:26
To: Edward Bouët
Subject: ATI-26320a - Flood Products, Gofer Bulking Station, Abergele, Conwy, LL22 9SE
Attachments: ATI-26320a General Conditional Licence 13.12.2023.pdf

Dear Mr Bouët

Further to your recently completed signed signature document, I have now completed the relevant general conditional licence for the provision of the flood product data requested. Please find attached copy of the completed licence, and the relevant links to download the flood products below.

Please note you will need to insert email details to download and the data is available for 3 months.

PointofAyrtoPensarn_5_V1.1_2018

<https://cyfoethnaturiolcymru.sharefile.eu/d-se692692201e447e2ab6736e0af5f4300>

StAsaph_5_V4.1_2021

<https://cyfoethnaturiolcymru.sharefile.eu/d-s2a126247555645bf8a7a534acfd4157d>

PontRobin_5_V2.0_2020

<https://cyfoethnaturiolcymru.sharefile.eu/d-s3580adcd50384889ae82b0bf7bcfec09>

ClwydEstuary_5_V1.2_2020

<https://cyfoethnaturiolcymru.sharefile.eu/d-s48918ce19e6748ae8d71b88163fe40db>

AfonGele_5_V5.0_2020

<https://cyfoethnaturiolcymru.sharefile.eu/d-s4088a7e613804ed1b47d54082631df51>

For the product 6 data, please see relevant attribution statement below.

Please find a link to our Open Government Licence (OGL) here -

<http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Please also include the attribution statement: "Contains Natural Resources Wales information © Natural Resources Wales and database right. All rights reserved."

I trust this information is of use to you.

Kind regards

Garin Fitter

Swyddog Trwydeddu Data / Data Licensing Officer

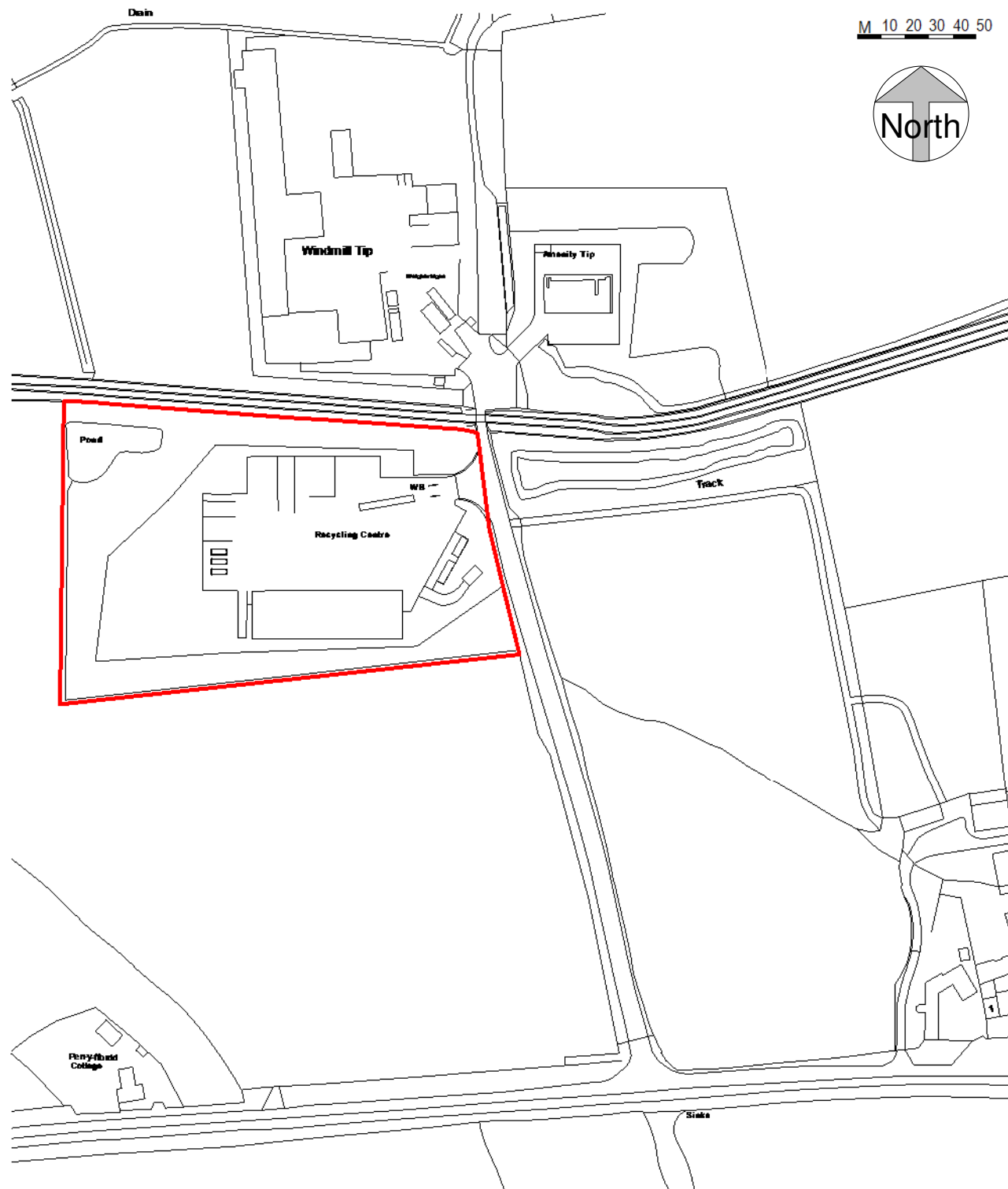
Hwb Cwsmeriaid / Customer Hub

Rhif ffôn/Phone number: 0300 065 3000



Croesewir gohebiaeth yn Gymraeg a byddwn yn ymateb yn Gymraeg, heb i hynny arwain at oedi.

Correspondence in Welsh is welcomed, and we will respond in Welsh without it leading to a delay.



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Revisions

Rev	Date	Description	By	Check
P01	01/03/23	Issued for Inofrmation \ Comment	KA	DM

Client

Conwy County Council

Project Title

Gofer Waste Transfer Site

Sheet Name

Location Plan

Purpose of Issue

Status

Scale

1 : 2500@A3

Date

01/03/23

Drawn By

KA

Checked By

DM

Office

Wrexham

Job Number

22058

Project•Originator•Zone•Level•Type•Role•Number

GWS- TACP-XX- XX- DR- A- 7000

Revision

P01

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Rev	Date	Description	By	Check
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Client
Conwy County Council

Project Title
Gofer Waste Transfer Site

Sheet Name
Existing Site Layout

Purpose of Issue
 Status

Scale
1 : 200@AO

Date
27/02/23

Drawn By
KA

Checked By
DM

Office
Wrexham

Job Number
22058

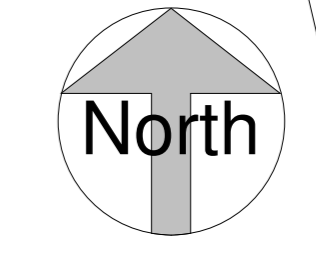
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Revision
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NOTES

Existing hard-standing surface: 3635m²
 Proposed extra hard-standing surface: 981m²
 Total hard-standing surface: 4616m²

Revisions

Rev	Date	Description	By	Check
P01	03/03/23	Issued for Information / Comment	KA	DM
P02	10/03/23	Updated in accordance with clients comments	DW	KA
P03	15/03/23	Updated in accordance with clients comments	DW	KA

Client
Conwy County Council

Project Title
Gofer Waste Transfer Site

Sheet Name
Proposed Site Layout - Scheme 01

Scale
1 : 200@A0

Date
27/02/23

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Job Number
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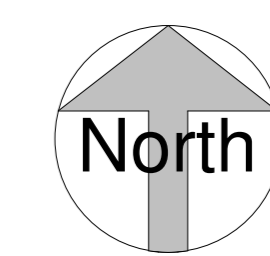
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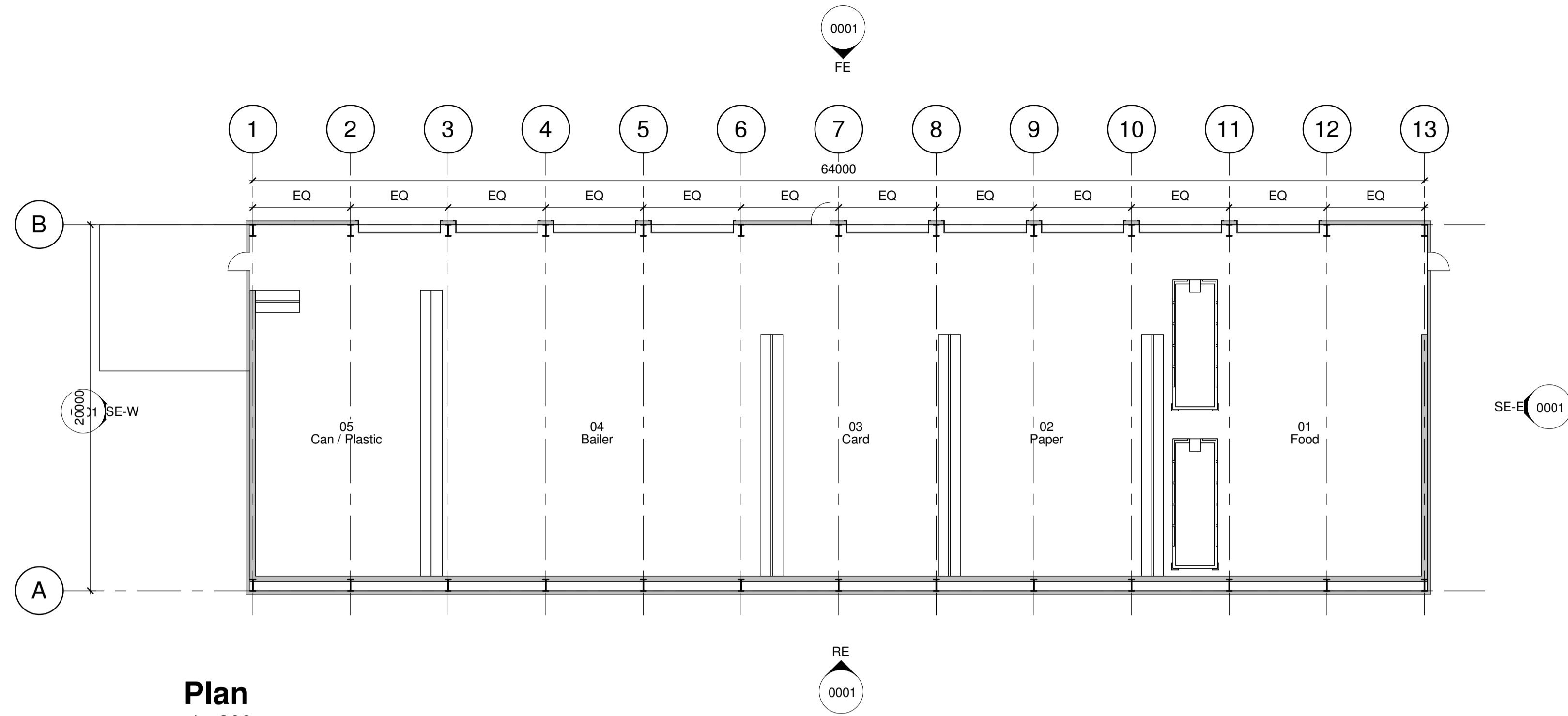
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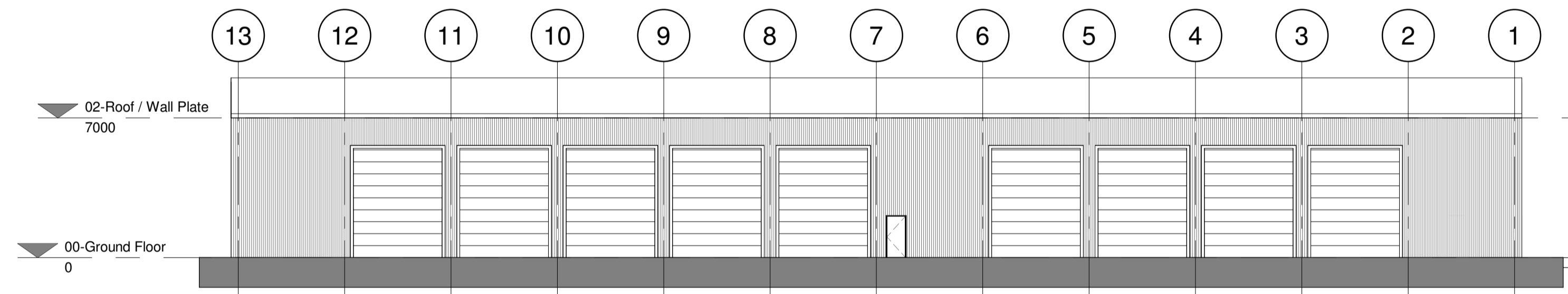
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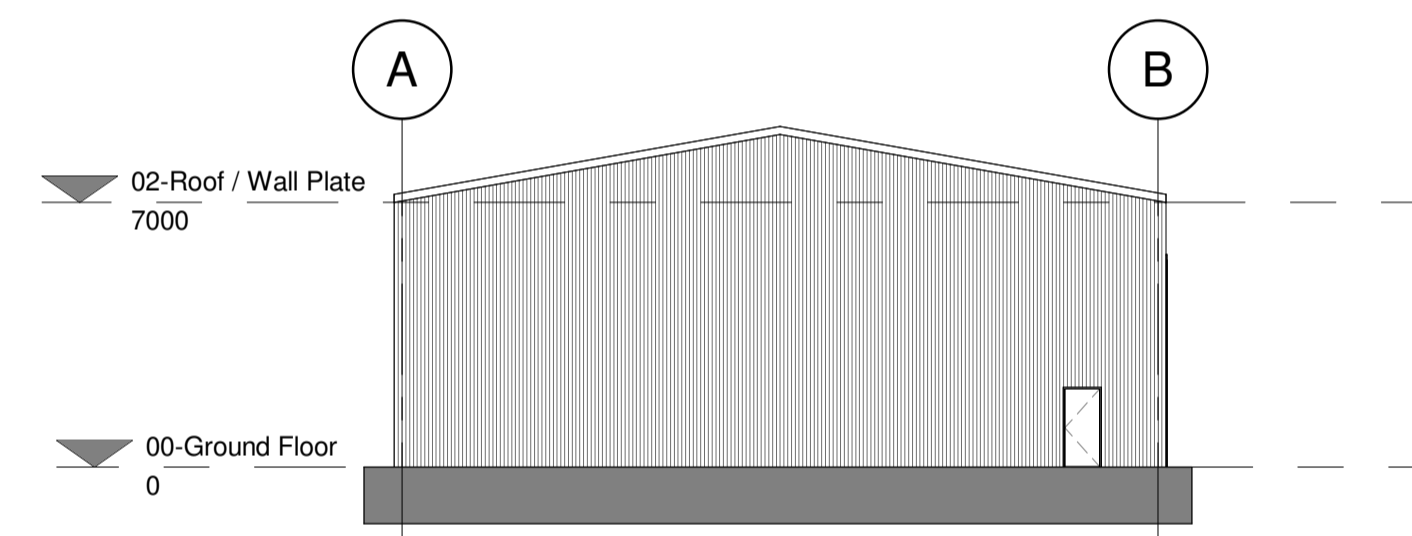




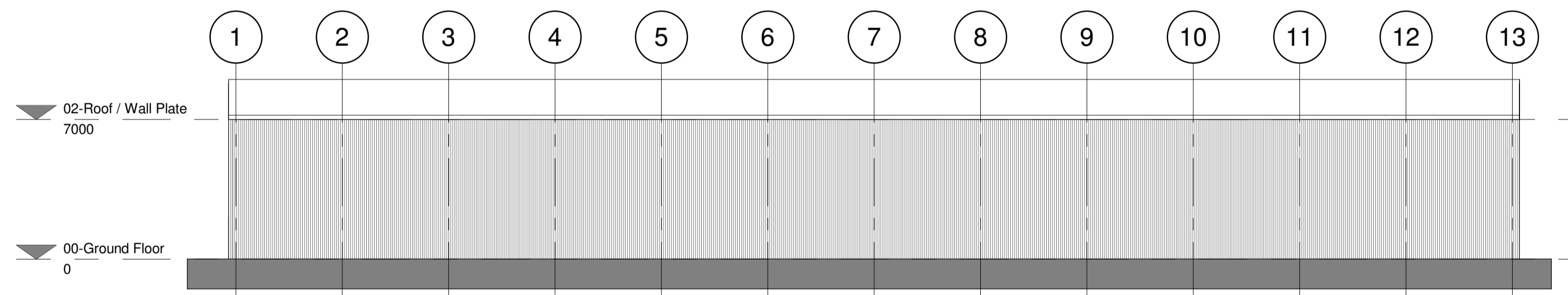
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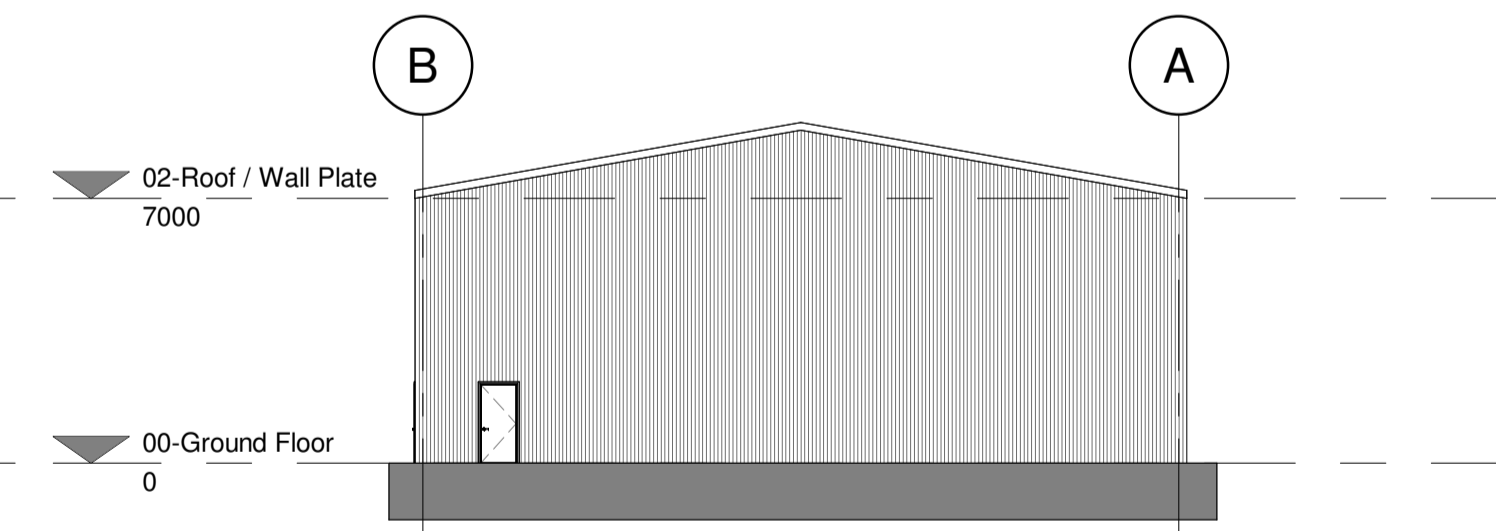
Front Elevation - North
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Side Elevation - East
1 : 200



Rear Elevation - South
1 : 200



Side Elevation- West
1 : 200

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Revisions

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P01	01/03/23	Issued for Information \ Comments	KA	DM

Client

Conwy County Council

Project Title

Gofer Waste Transfer Site - Scheme 01

Sheet Name

Existing Plans & Elevations

Purpose of Issue

Status

Scale

1 : 200@A1

Date

28.02.23

Drawn By

KA

Checked By

DM

Office

Wrexham

Job Number

22058

Project*Originator*Zone*Level*Type*Role*Number

GWS-TACP-ED-XX-DR-A-0001

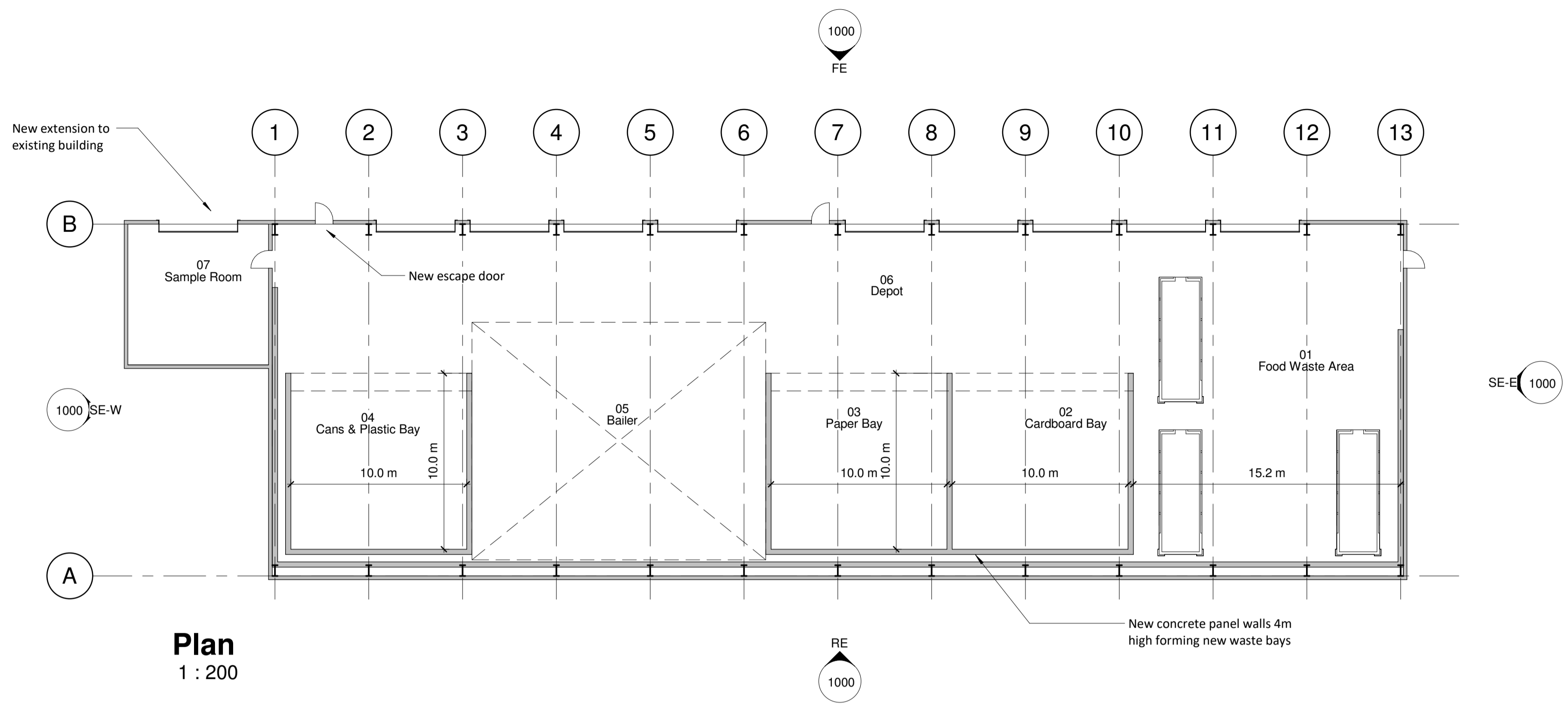
Revision

P01

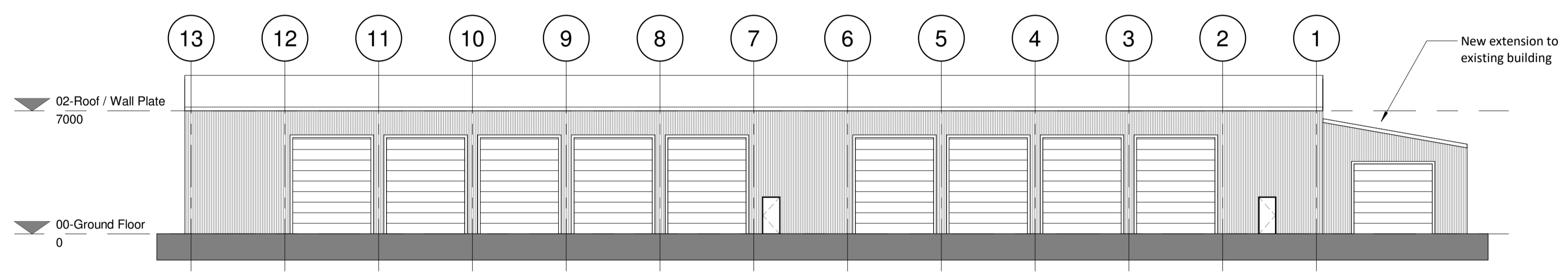
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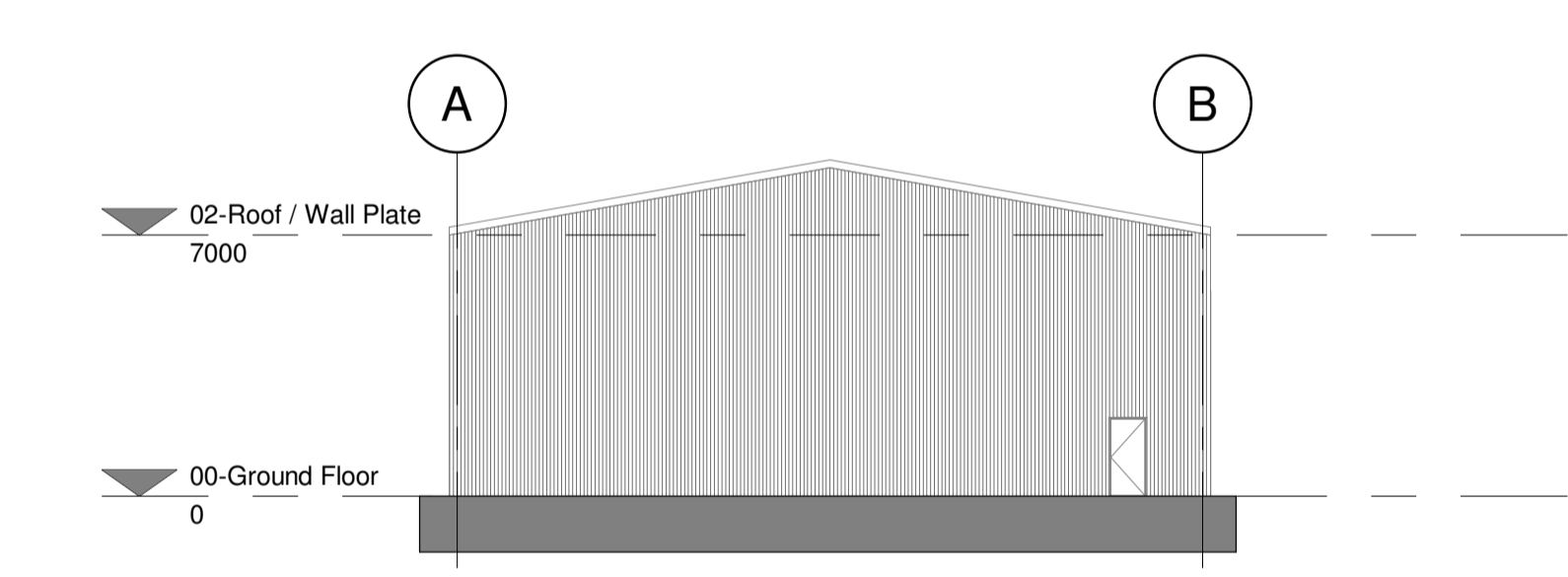




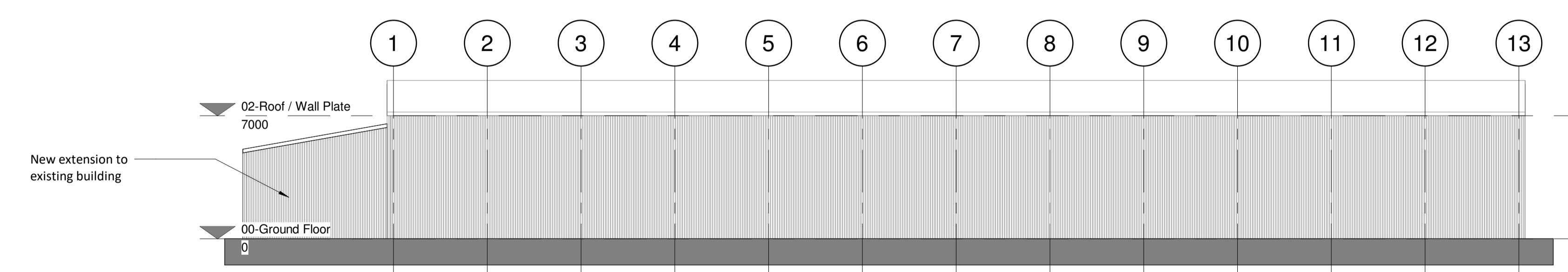
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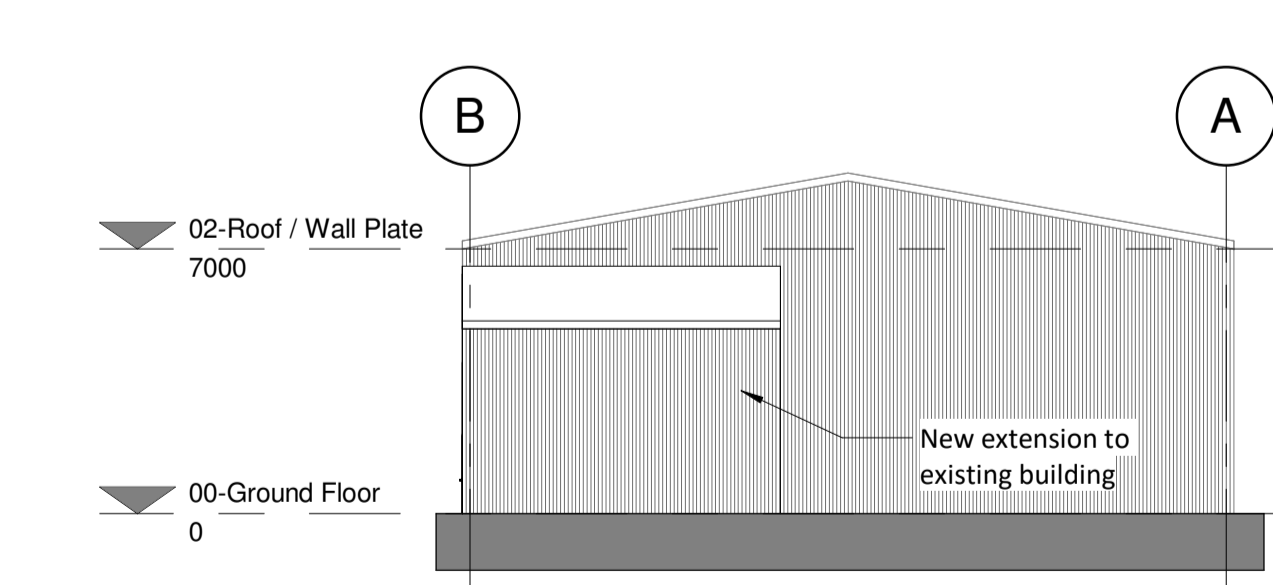
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Prop Side Elev - East
1 : 200



Prop Rear Elev - South
1 : 200



Prop Side Elev - West
1 : 200

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Client
Conwy County Council

Project Title
Gofer Waste Transfer Site - Scheme 01

Sheet Name
Proposed Plans & Elevations

Purpose of Issue Status

Scale	Date	Drawn By	Checked By	Office
1 : 200@A1	28/02/23	KA	DM	Wrexham

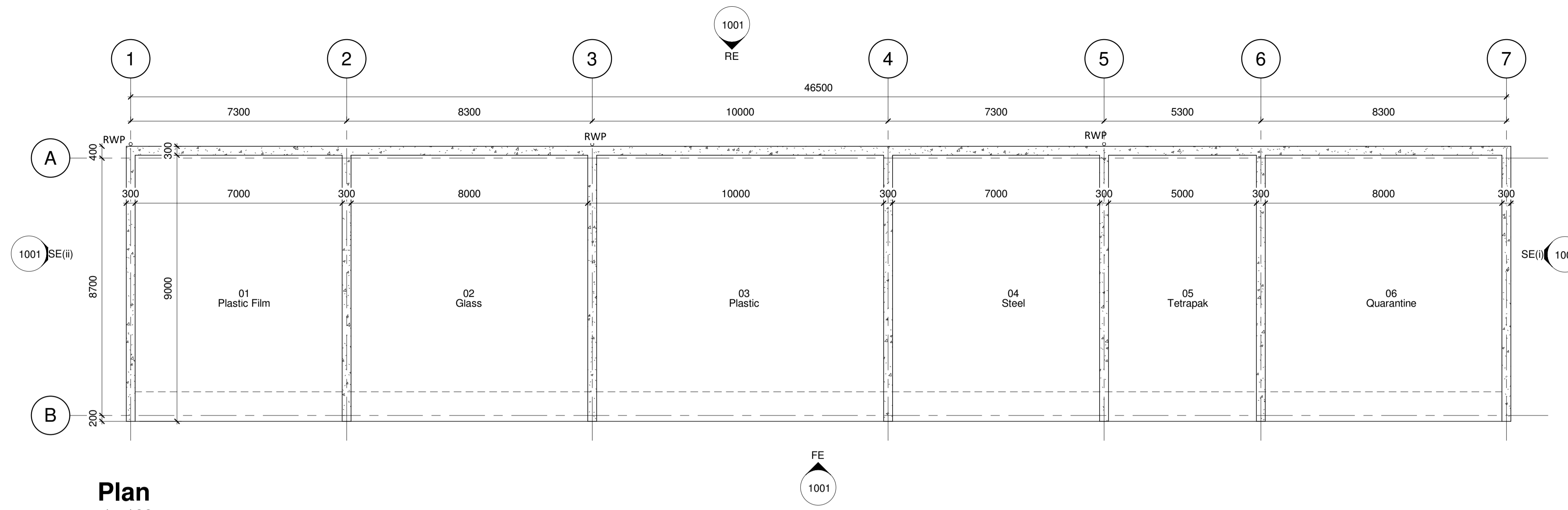
Job Number	Project*Originator*Zone*Level*Type*Role*Number	Revision
22058	GWS-TACP-ED-XX-DR-A-1000	P03

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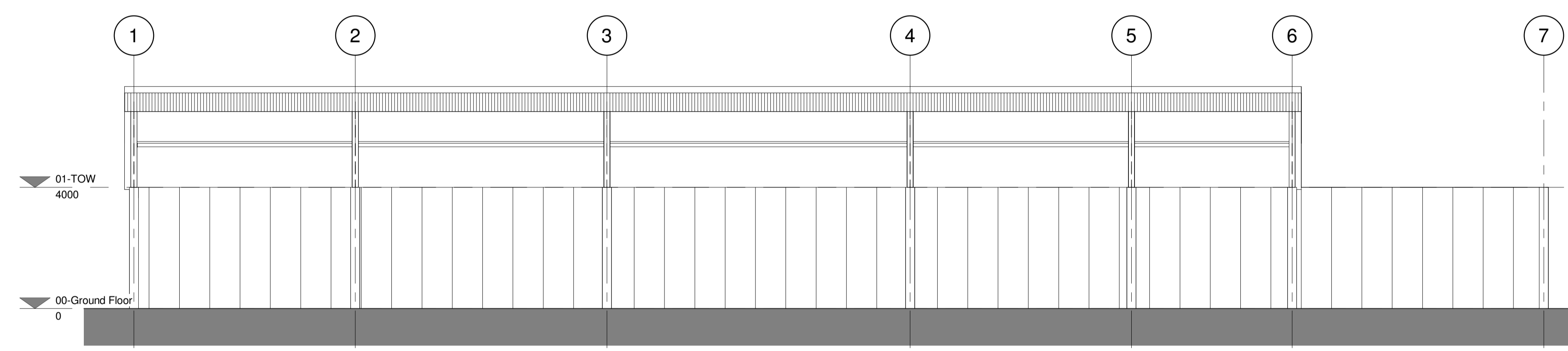
admin@tacparchitects.co.uk
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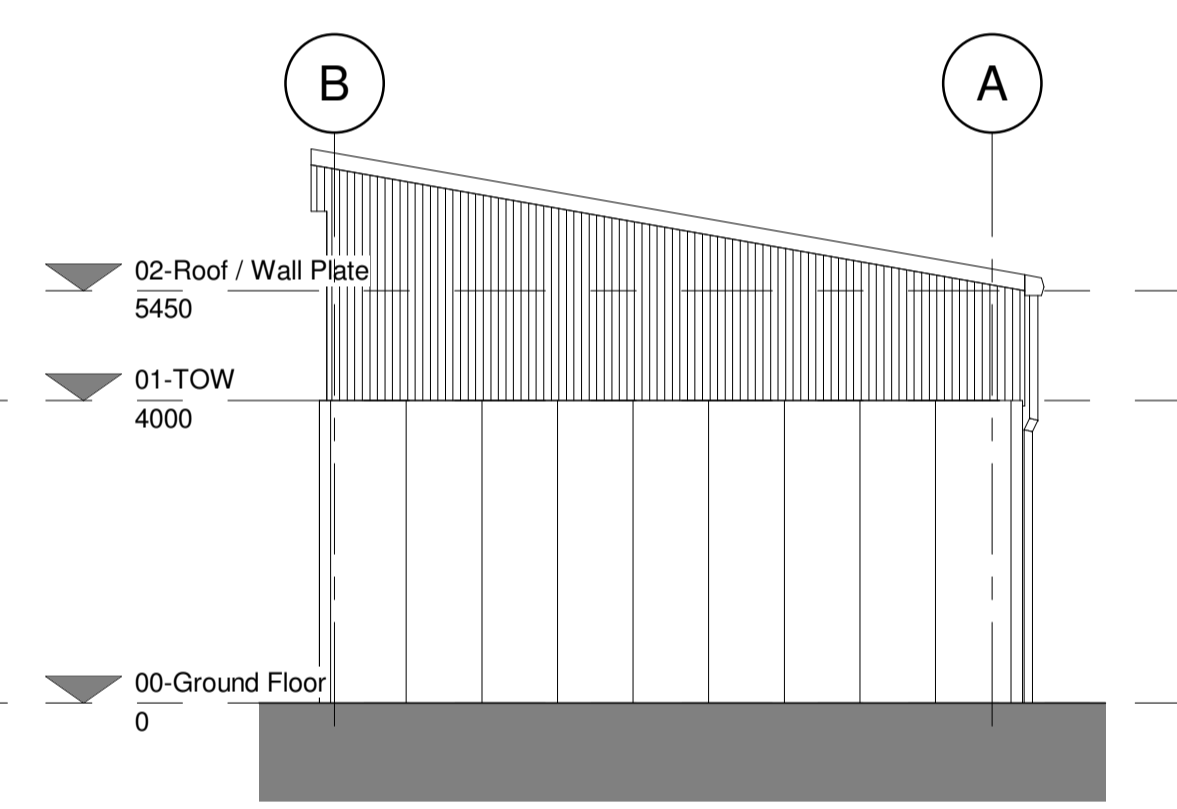




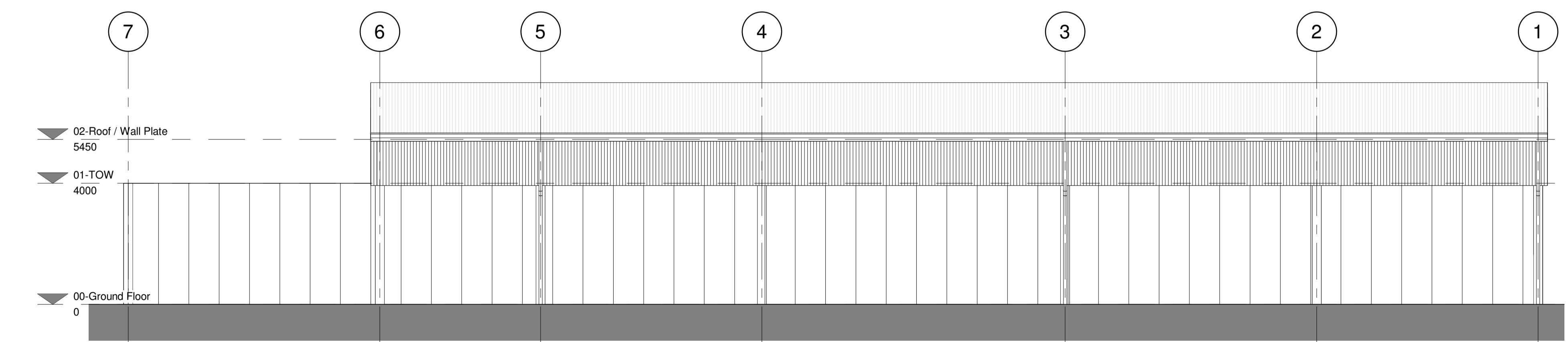
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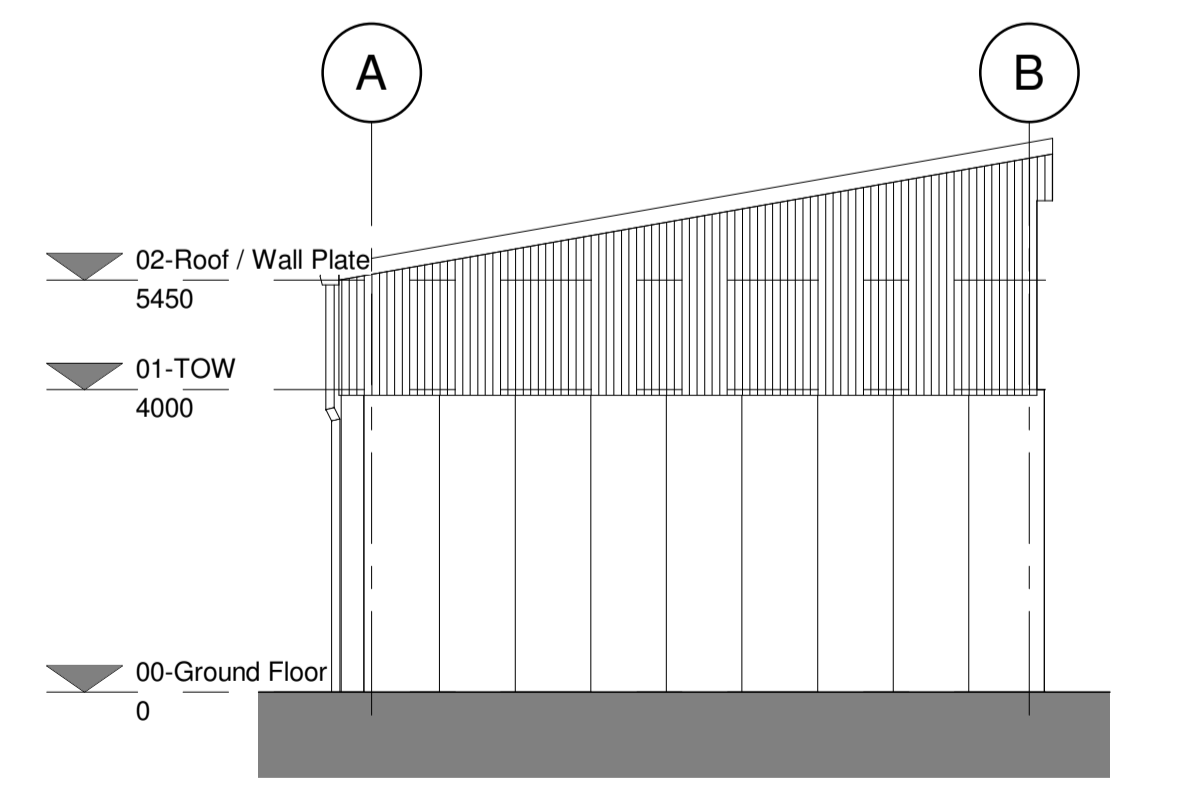
Front Elevation
1 : 100



Side Elevation (i)
1 : 100



Rear Elevation
1 : 100



Side Elevation (ii)
1 : 100

General Notes

1. Contractor to verify all dimensions and check level datums on site
2. All of the designs are the sole property of TACP Architects Ltd and may not be used without their written agreement
3. All prints, specifications and their copyright are the property of TACP Architects Ltd
4. Do not scale off drawings
5. All dimensions shall be checked on site before commencement of shop drawings, manufacture and all discrepancies must be reported to TACP Architects Ltd

NOTES:

All levels of floor and top of steel / concrete walls to be confirmed by structural engineer

Location, type and size of structural steel sections to be in accordance with structural engineers detailed drawings

Revisions

Rev	Date	Description	By	Check
P01	01/03/23	Issued for Information \ Comments	KA	DM
P02	10/03/23	Updated in accordance with clients comments	DW	KA

Client
Conwy County Council

Project Title
Gofer Waste Transfer Site - Scheme 01

Sheet Name
Out-building 01 - Plans & Elevations

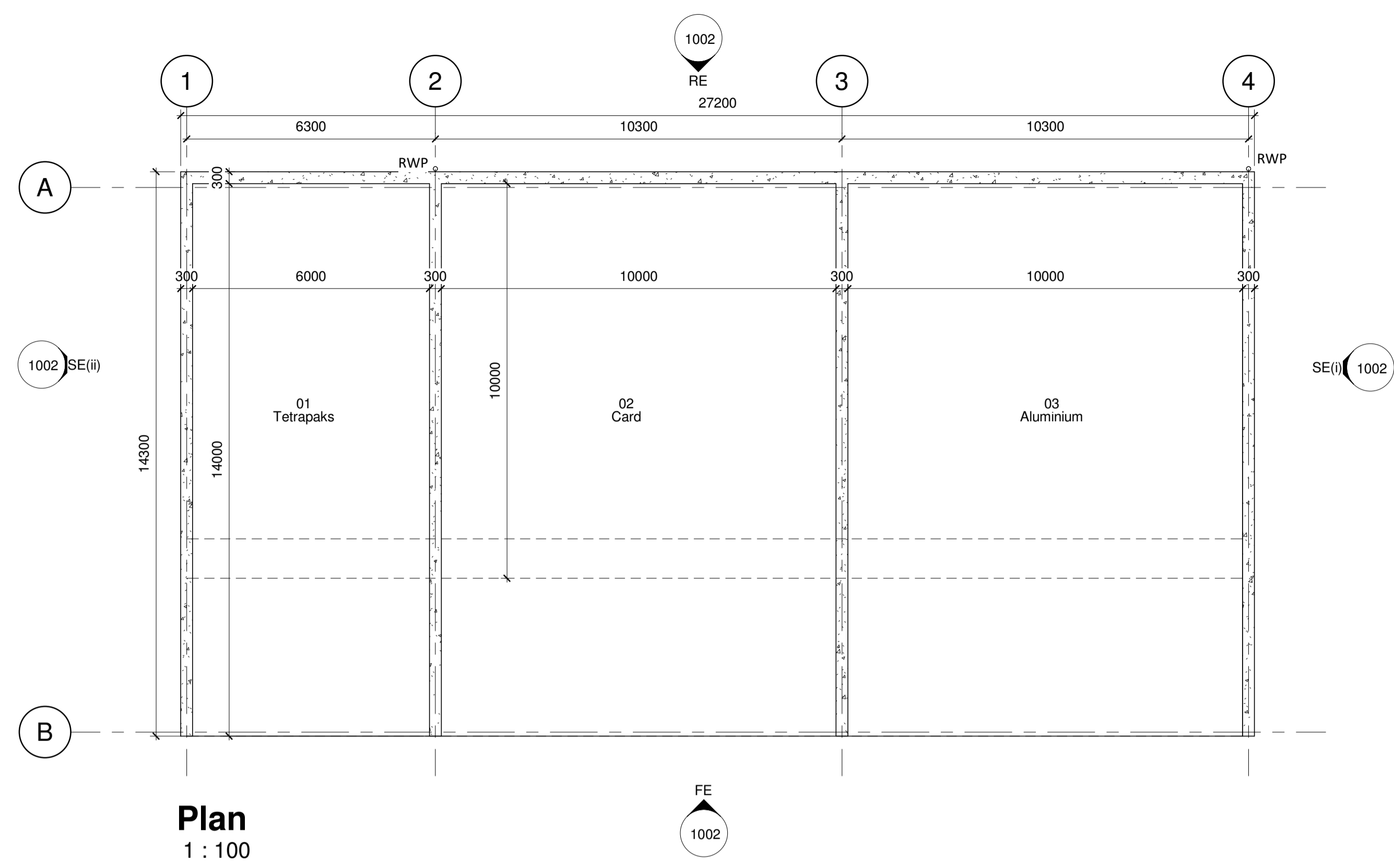
Purpose of Issue _____ Status _____

Scale _____ Date _____ Drawn By _____ Checked By _____ Office _____
1 : 100@A1 27/02/23 KA DM Wrexham

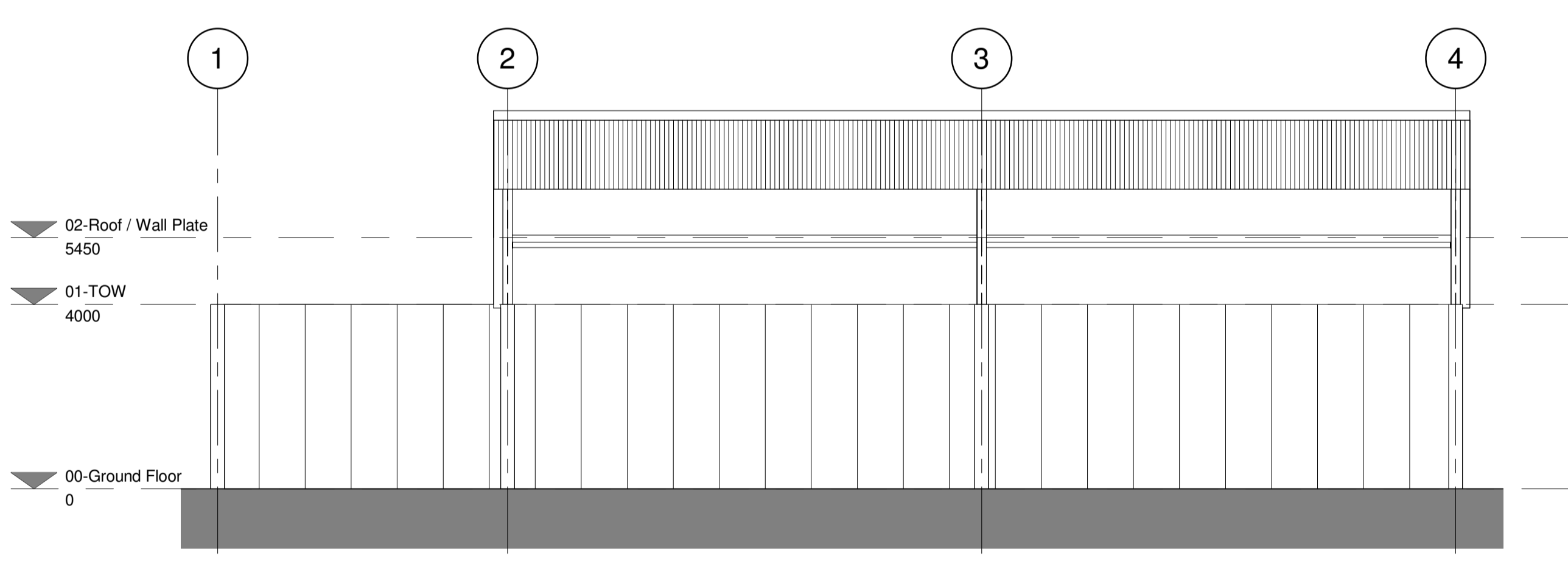
Job Number _____ Project*Originator*Zone*Level*Type*Role*Number _____ Revision _____
22024 GWS-TACP-OB- XX-DR-A-1001 P02

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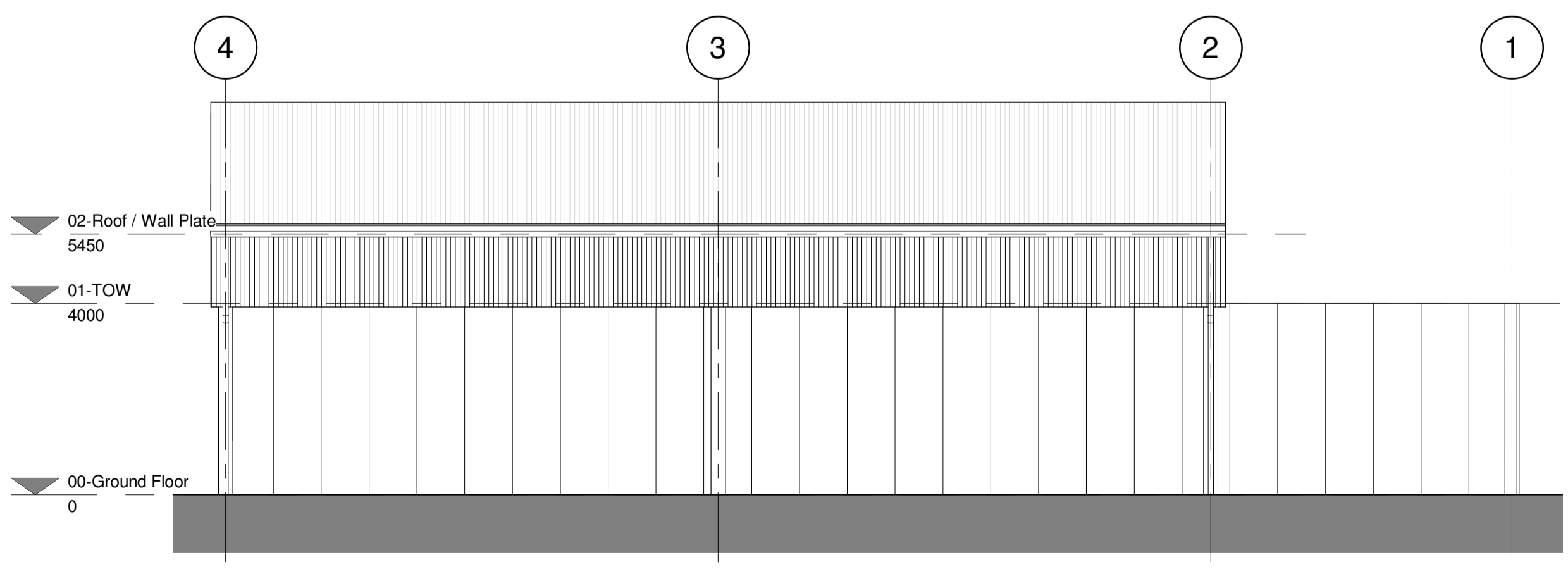
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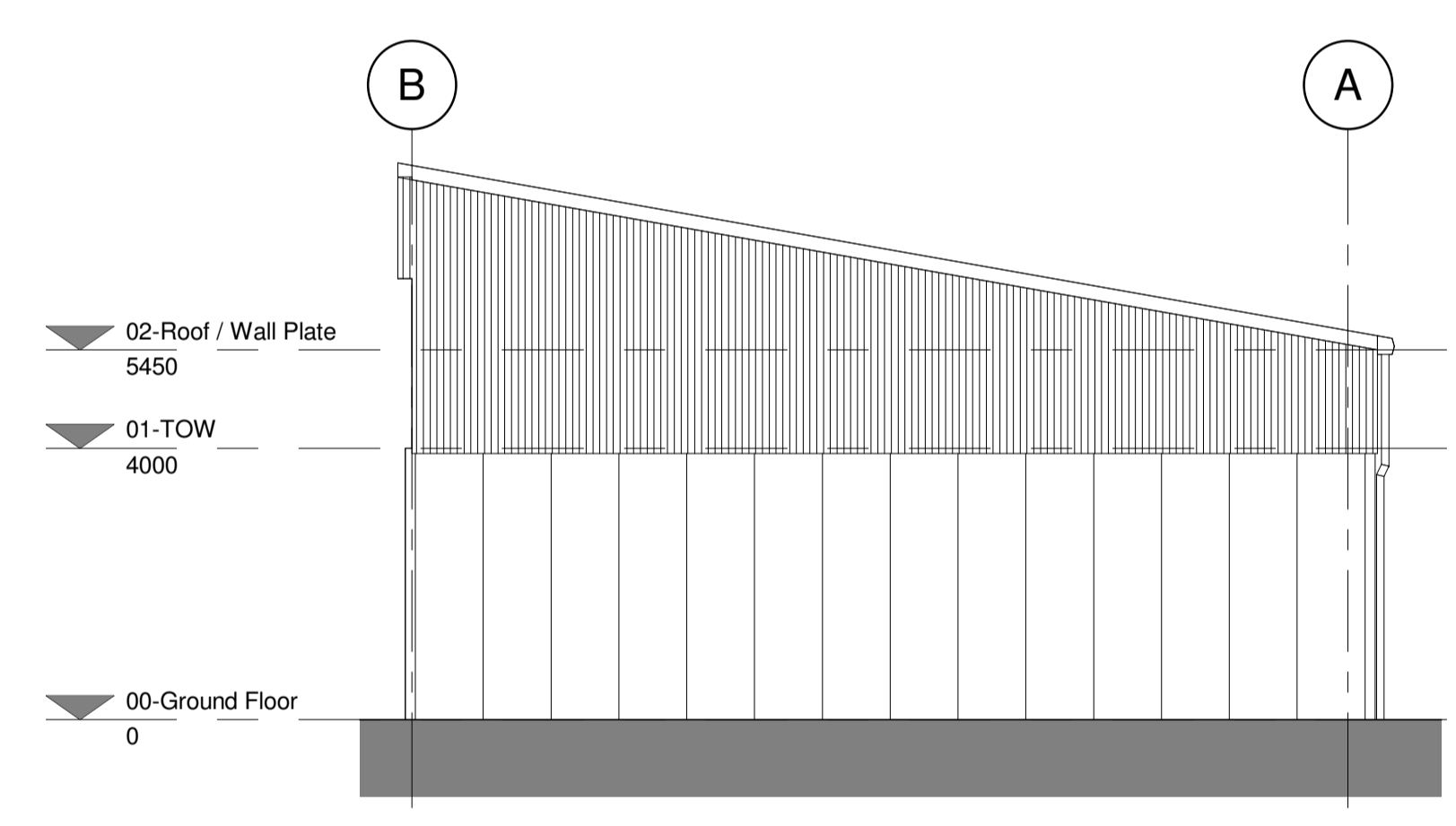
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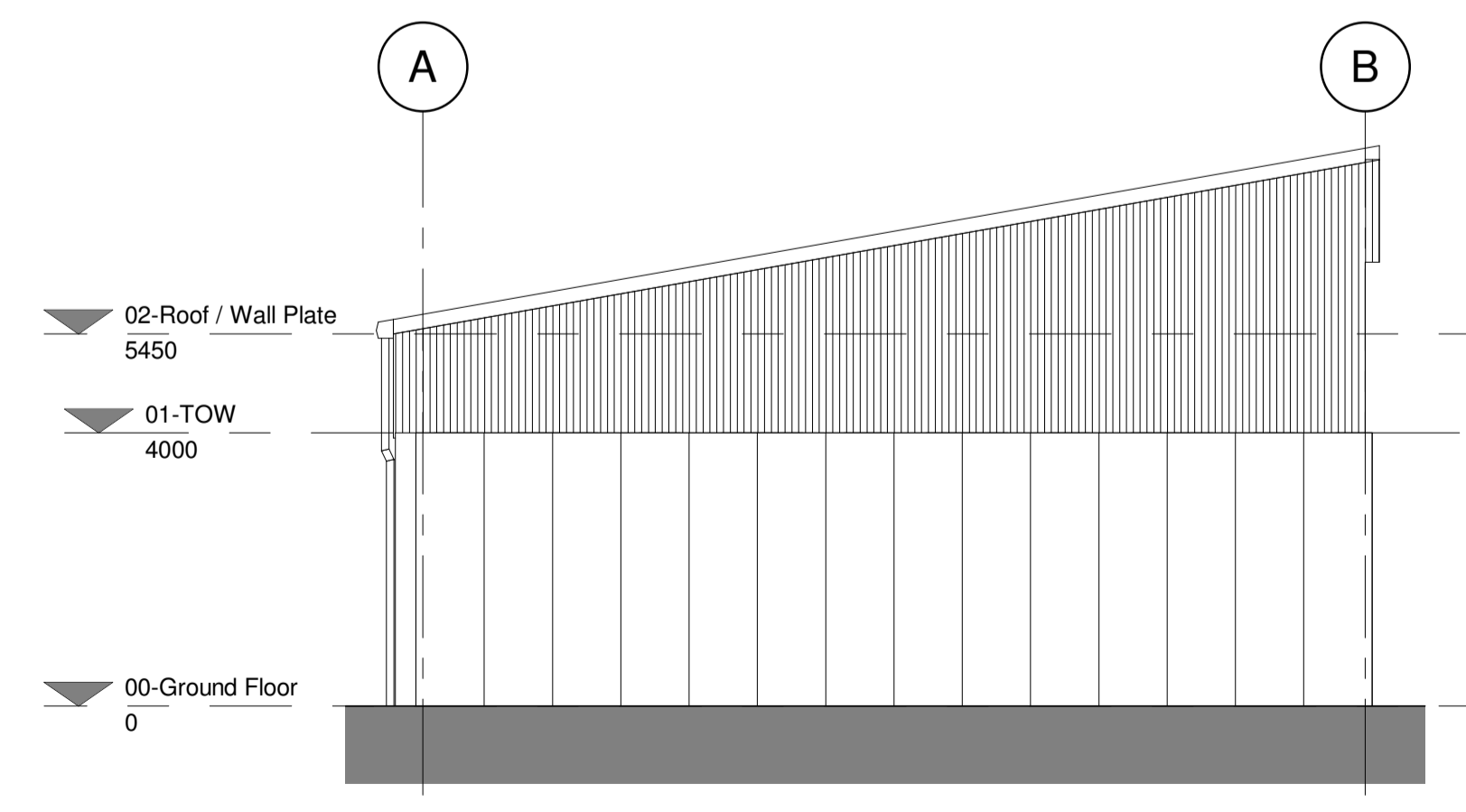
Front Elevation
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Rear Elevation
1 : 100



Side Elevation (i)
1 : 100



Side Elevations (ii)
1 : 100

- General Notes
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NOTES:

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Rev	Date	Description	By	Check
P01	01/03/23	Issued for Information \ Comments	KA	DM
P02	10/03/23	Updated in accordance with clients comments	DW	KA
P03	15/03/23	Updated in accordance with clients comments	DW	KA

Client
Conwy County Council

Project Title
Gofer Waste Transfer Site - Scheme 01

Sheet Name
Out-building 02 - Plans & Elevations

Purpose of Issue _____ Status _____

Scale	Date	Drawn By	Checked By	Office
1 : 100@A1	28/02/23	KA	DM	Wrexham
Job Number	Project*Originator*Zone*Level*Type*Role*Number	Revision		
22058	GWS-TACP-OB- XX-DR-A-1002	P03		

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