



# **Old Colwyn Coastal Defence and Active Travel Scheme Environmental Statement**

Volume 2: Technical Appendix 15 - Other  
Environmental Disciplines

July 2020

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Volume 2: Technical Appendix 15 - Other  
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# Issue and Revision Record

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# Appendix 15.1 – Transport Statement



# **Old Colwyn Coastal Defence and Active Travel Scheme**

Transport Statement

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# **Old Colwyn Coastal Defence and Active Travel Scheme**

## **Transport Statement**

July 2020

# Issue and Revision Record

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# 1 Introduction

Conwy County Borough Council (CCBC) propose to undertake improvements to the Old Colwyn waterfront area, the 'Old Colwyn Coastal Defence and Active Travel Scheme' (the 'Scheme'). The Scheme comprises coastal defence works in the form of a new rock revetment and improved active travel.

Whilst the Scheme proposes improvements to the carriageway and active travel infrastructure, there will be no significant or permanent change to the transport network post construction. The existing active travel routes will be improved in terms of enhanced public realm, route comfort and attractiveness.

On completion of the works, the number of active travel trips along the Promenade are likely to increase. In terms of motorised vehicles, the volume and movement of traffic along the road is not anticipated to change.

The works will be completed in two phases, during which time sections of the Promenade will be closed to traffic. The plans include for a full two-way closure between Rotary Way and Splashpoint, and a primarily one-way closure (for eastbound traffic) between Rotary Way and Porth Eirias. Established diversion routes via the B5113 and A547 will be used during the construction period.

A Contractor for the works has not yet been appointed and therefore limited information is available in terms of the construction method and programme. However, it is known that the core material delivery will be revetment rock. Depending on timing and constraints the delivery of rock by barge may become necessary. This would reduce significantly the need for deliveries by road.

This Transport Statement has been prepared by Mott MacDonald Ltd and focuses on the likely traffic impact on the local highway during construction. The report is structured as follows:

- Section 2 – Background;
- Section 3 – Existing Information;
- Section 4 – Construction Traffic and Diversions;
- Section 5 – Construction Management Plan; and
- Section 6 – Summary and Conclusions.

## 2 Background

### 2.1 Overview

The North Wales coast was defined as a Strategic Regeneration Area (SRA) in 2008. CCBC established the Bay Life+ Programme in 2009, providing the framework for development of the Colwyn Bay Waterfront Project, combining coastal defence with regeneration in order to create a sustainable, modern and attractive waterfront.

CCBC commissioned further studies to establish detailed proposals for the different elements of the Colwyn Bay Waterfront Project, identifying three predominant phases of work - Phase 1 (central), Phase 2 (western) and Phase 3 (the eastern section at Old Colwyn, the Scheme).

This Transport Statement considers the Scheme only. All phases of work have been summarised in Table 2.1

**Table 2.1: Colwyn Bay Waterfront Project Phased Works**

Phase	Description	Completion Date
1 - General	Phase 1 was carried out in three stages covering the section of seafront by Marine Road, to the section of seafront parallel to the J22 eastbound slip road of the A55.	October 2014
1a	<p>Phase 1a engineering works:</p> <ul style="list-style-type: none"> <li>• Construction of a 150m rock groyne, with a linear rock revetment to the east</li> <li>• Construction of a sheet pile wall.</li> <li>• A short section of concrete stepped revetment was also built along the western edge of the promenade. Existing slipway access at this location was raised and extended to follow the design of the new structures.</li> </ul> <p>Phase 1a environmental works:</p> <ul style="list-style-type: none"> <li>• Construction of Porth Eirias, a new multi-use water sports building, and landscaping works.</li> </ul>	<p>Engineering works – March 2012</p> <p>Environmental works – April 2013</p>
1b	<p>The coastal defence works included beach recharge to the west of Porth Eirias, and between Cayley Promenade and Eirias Park.</p> <p>Promenade enhancement was carried out to the west of the completed Phase 1a works up to the pier area and extending below the Network Rail over-bridge as far as the interface with the train station. Works to the Promenade included: stepped revetment structures, 'headland' structures, access ramp, cycle ramp, car parking, promenade raising, secondary sea defence wall, streetlighting, street furniture and new town centre link works.</p>	<p>Coastal defence works – May 2013</p> <p>Promenade enhancement works – October 2014</p>
1c	Coastal defences consisting of beach recharge, extending surface water outfalls, repairs to the existing seawall and removal and replacement of rock armour. Works were completed in parallel with Phase 1b.	Coastal defence works – October 2014

Phase	Description	Completion Date
2a	<p>Regeneration of two areas of coastline (Areas A and B) located between Victoria Pier and Cayley Embankment.</p> <ul style="list-style-type: none"> <li>Area A works comprised improved recreational opportunities and enhanced coastal defences. This involved widening and raising the existing promenade and highway by constructing a new seawall approximately 7m seaward of the existing seawall, with three new headlands.</li> <li>Area B works included improved slipway access, beachfront access compliant with the Equalities Act 2010, car parking changes, seating, planting, railings, street furniture and lighting changes.</li> </ul>	September 2017
2b	Phase 2b works would be undertaken along the coastline from the Rydal Boat Store to Rhos on Sea Harbour for the promenade works and Horizon Shine kiosk to Rhos on Sea Harbour for beach recharge.	Future phase, start and end dates TBC
Splashpoint (Colwyn Bay Coastal Defence & Active Travel Scheme)	Emergency works, comprising a 30m deep rock revetment against the sea wall where the A55 bridge is located immediately north of the railway bridge – the easternmost section of the promenade (where a revetment is currently absent) known as 'Splashpoint'.	July 2020
<b>Old Colwyn Coastal Defence &amp; Active Travel Scheme</b>	<b>Current Scheme</b>	<b>TBC, Anticipated to be late 2022/early 2023</b>

Source: Mott Macdonald Ltd, 2020

## 2.2 Construction Activities

A summary of the main construction activities for the Scheme includes:

- The construction of a ~1.2km long ~32m wide rock revetment along the entire length of the Scheme (from Porth Eirias to Splashpoint);
- Traffic management along the Promenade in order to safely construct the works, including temporary road closures, reduced lane widths and speed limits, along with traffic signal control and diversions;
- The elevation of the Promenade for the entire length of the Scheme, including the raising the highway between Rotary Way and Splashpoint. Earthworks will be required to construct the embankment required for the designed highway alignment, as well as drainage, structures and landscaping works;
- Drainage systems to accommodate highway drainage and run off from adjacent land;
- A number of new structures, including outfall extensions, ramps, steps, fishing platforms and retaining walls. These works will require a combination of local earthworks and drainage, foundation construction, including piling and structural concrete and steelwork; and
- Construction of the new and improved sections of highway would be carried out. Include carriageway construction, traffic signs, road markings and street lighting (on completion of the revetment, earthworks, drainage and structures elements).

## 3 Existing Situation

### 3.1 Site Location and Highway Access

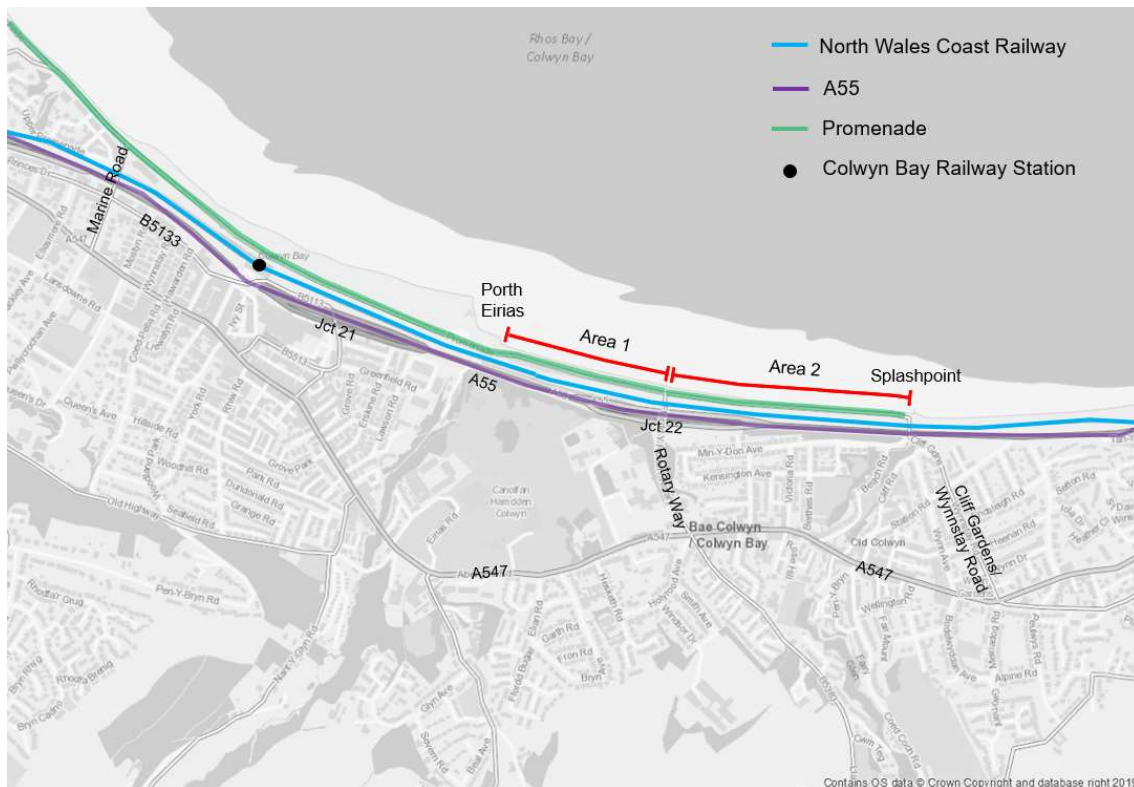
Old Colwyn is located immediately to the east of Colwyn Bay, located on North Wales coastline. The A55 is a strategic route that runs across North Wales, providing a direct link between Chester in the east to Bangor/Anglesey in the west.

The Promenade highway can be accessed directly from Junction 22 of the A55, via Rotary Way, which passes under the North Wales (NWC) Railway Line and forms a T-junction with the Promenade. Access to the Promenade can also be made from Junction 21 of the A55. This is however a more convoluted route, passing through Colwyn Bay via the B5113/A547 and along Marine Road.

The Scheme location is shown in Figure 3.1 and is formed by the Promenade, from Porth Eirias to Splashpoint. Currently it is proposed that the works will be undertaken in two phases from east to west, starting in Area 2:

- Area 1 – Porth Eirias to Rotary Way; and
- Area 2 – Rotary Way to Splashpoint

**Figure 3.1: Scheme Location**



Source: Mott Macdonald Ltd, 2020

The Scheme red line boundary is shown in Figure 3.2

**Figure 3.2: Red Line Boundary**

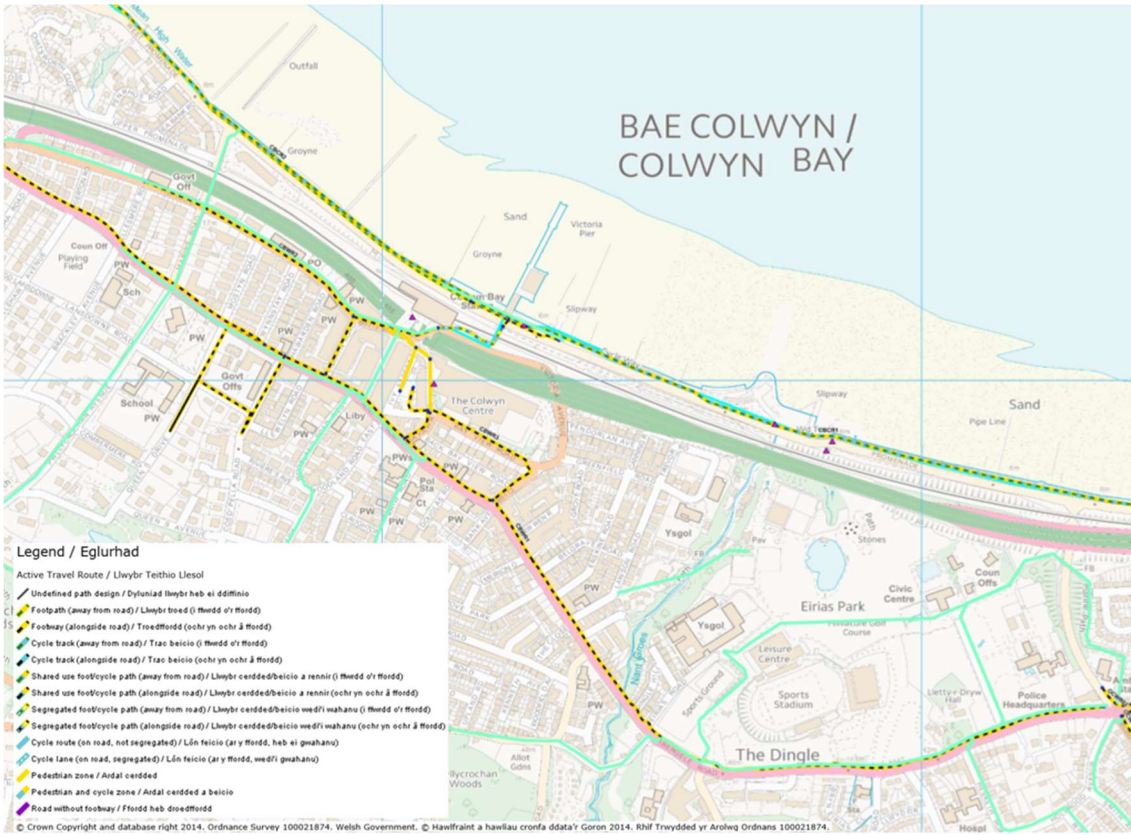


Source: Adapted from Red Line Boundary Plan Drawing 410895-MMD-00-XX-DR-N-1707

### 3.2 Active Travel

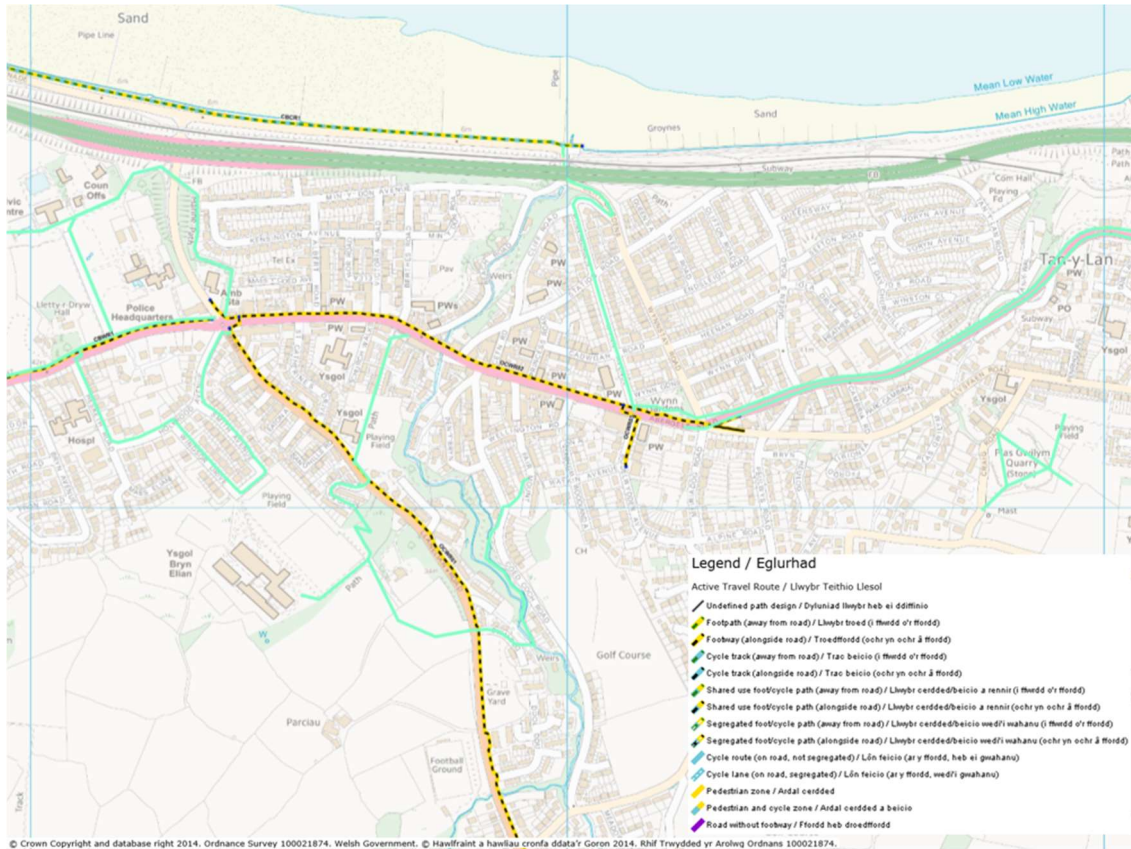
Figure 3.3 and Figure 3.4 identify the Integrated Network Map (INM) proposal for Colwyn Bay and Old Colwyn, which includes the active travel route along the Promenade that forms part of the Scheme proposals.

Figure 3.3: Colwyn Bay INM



Source: Conwy.gov.uk

**Figure 3.4: Old Colwyn INM**



Source: Conwy.gov.uk

### 3.3 Public Transport

#### 3.3.1 Bus Travel

Table 3.1 provides an overview of the existing bus services within Old Colwyn. The main bus route through the town is along the A547. Figure 3.5 displays the location of the bus stops within the study area. There are seven stops within close proximity of the Scheme location. The nearest stop to the site is located next to St Catherine’s Church along the A547, which is approximately a 600m walk to the Promenade via Rotary Way.

Table 3.1: Bus Timetables Service	Route	Provider	Approx. Frequency (Mon – Fri)
14/15 (Conwy – Llysfaen)	Via A547	Arriva Wales	Every 2.5 hours
13 (Prestatyn – Llandudno)	Via A547	Arriva Wales	Every 60 mins
12/X12 Sapphire (Rhyl – Llandudno)	Via A547	Arriva Wales	Every 60- 90 mins
23 (Old Colwyn – Old Colwyn)	Via A547	Arriva Wales	Every 90 mins
24 (Colwyn Bay – Mochdre)	Via Conway Road	Arriva Wales	Every 60- 90 mins

Source: traveline.cymru

**Figure 3.5: Bus Stop Network**



Source: Mott Macdonald Ltd, 2020

### 3.3.2 Rail Travel

The North Wales Coast Railway Line (London to Holyhead) runs parallel to the A55 and separates Old Colwyn from the waterfront.

The nearest station is Colwyn Bay Railway Station, which is on the NWC Railway Line and is approximately an 800m walk to Porth Eirias car park, via the Promenade. The services from this station include:

- An alternate hourly service between Holyhead and either Birmingham International or Cardiff Central, via Wrexham General (Mon-Sat). Operated by Transport for Wales;
- An hourly service (Mon-Sat) between Llandudno and Manchester Piccadilly, via Warrington Bank Quay. Operated by Transport for Wales; and
- Services between Holyhead to London Euston with approximately six trains per day to Holyhead (Mon- Sat). Operated by Avanti West Coast.

The site is considered to be well served by public transport and provides good opportunity for local construction workers to travel to the site by public transport or active modes.

### 3.4 Road Traffic Collisions

Figure 3.6 displays Department for Transport (DfT) personal injury collisions recorded between 2014 and 2018 within the immediate vicinity of the site<sup>1</sup>.

<sup>1</sup> Department for Transport dataset [online] available at: <https://data.gov.uk/dataset/cb7ae6f0-4be6-4935-9277-47e5ce24a11f/road-safety-data>

In summary the data indicates:

- No fatal traffic collisions have been recorded in the five year period; and
- Five collisions have occurred at the A55 (Jct 22) and Rotary Way, all of which have resulted in slight injury.

**Figure 3.6: Traffic Collisions 2014-2018**



Source: DfT

# 4 Construction Traffic and Diversions

## 4.1 Existing Traffic Flows

Due to the COVID-19 pandemic, planned surveys could not be undertaken given that road conditions were not considered to be representative of typical road conditions. However, historic traffic data has been obtained from CCBC. The data was captured for previous phases of work along the waterfront, and also to inform a feasibility study that considered a one-way system through Colwyn Bay Town Centre. Full traffic survey data is contained in Appendix **Error! Reference source not found.**

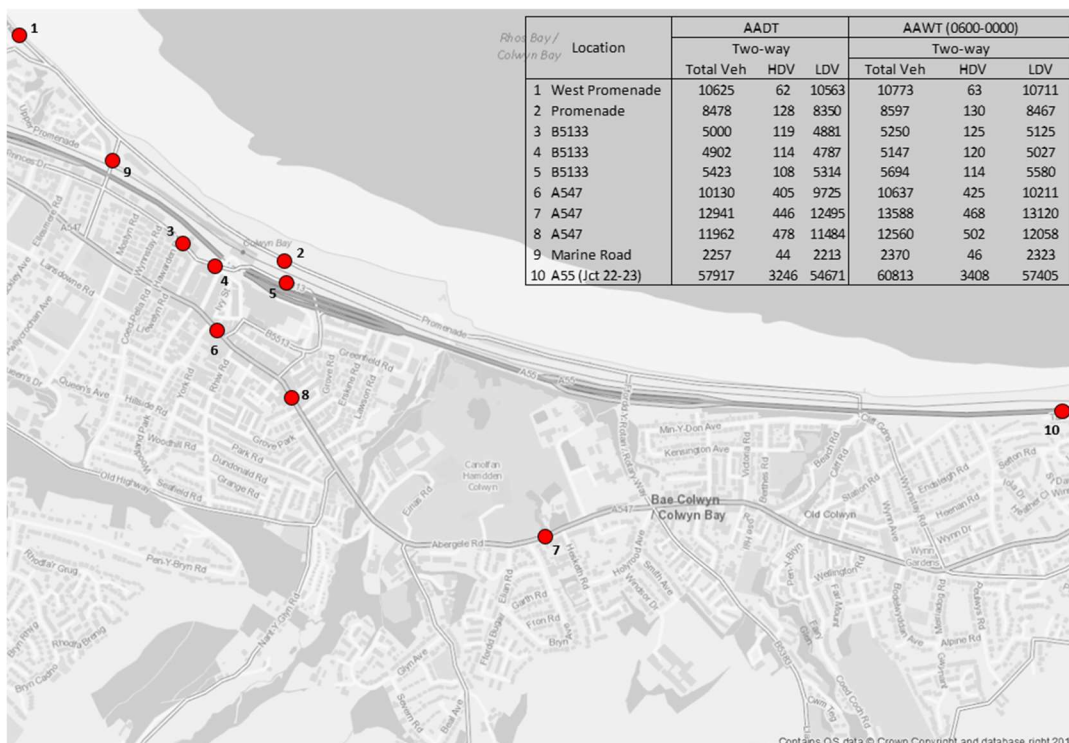
In addition, traffic flow information for the A55 and the A547 was taken from the DfT Road Traffic Statics website, where manual count or annual estimates are provided.

The traffic survey dates vary and include 2015, 2018 and 2019. The surveys are no more than five years old and within the recommended six year limit, when used for assessment purposes. Growth factors have been extracted from Temprow to convert the data to 2020 baseline and 2021 construction year as follows:

- 1.071 for 2015-2020;
- 1.028 for 2018-2020;
- 1.014 for 2019-2020; and
- 1.008 for 2020-2021.

The Annual Average Daily Traffic (AADT) flows and link locations are shown in Figure 4.1.

**Figure 4.1: AADT Traffic Flows Baseline 2020**



Source: Mott Macdonald Ltd 2020

## 4.2 Construction Deliveries/Materials

The information in this section has been collated through discussions with the Applicant, examining information from previous Phases of the Colwyn Bay Waterfront Project and some limited early contractor engagement.

At this stage, without an appointed contractor, limited information is available and construction method and programme details have not yet been finalised. However, the quantity of core bulk materials has been estimated and extracted from indicative budget cost estimates.

Whilst it is accepted that other materials (for the promenade and road works) will be delivered by road, these are considered minor relative to the major quantities of rock required for the coastal defence works.

It should be noted that depending on timing and constraints (and if rock cannot be sourced locally in sufficient quantities) delivery of rock by barge may become necessary. This would reduce the need for rock armour deliveries by road. For the purpose of this assessment it has been assumed that all delivery of rock will be by road (worst case).

Construction and completion of work is based on a period of 20 months. The effective programme for each phase of work is currently unknown. It has been assumed that each phase will take 10 months (43 weeks).

Table 4.1 sets out the estimated material requirements and associated number of vehicle trips.

**Table 4.1: Material Deliveries**

Material	Load per vehicle	Quantity (t)	Estimated Number of Vehicles
Under Rock Armour (0.1t to 3t)	30t	78,000	2,600
Primary Rock Armour (3t to 6t)	25t	170,000	6,800
		<b>248,000</b>	<b>9,400</b>

Source: Mott Macdonald Ltd, 2020

The following assumptions have been used to derive daily AM and PM peak hour movements:

- A six day working week (Mon-Sat):
  - $9,400 \text{ (trips)} / 43 \text{ (weeks)} / 6 \text{ (days)} = \text{approximately } 36 \text{ one-way HGV trips per day;}$   
and
- Trips are equally distributed across the working hours (07:00–19:00):
  - $36 / 12 = \text{approximately } 3 \text{ one-way HGV trips per hour.}$

This equates to approximately 6 two-way material delivery trips each hour.

Although minor in comparison to the rock deliveries, it is recognised that there will be other material deliveries (for the promenade and road works for example). Assuming an additional trip per hour for these trips the total number HGV trips to and from the site is expected to be no more than 8 per hour, which is 1 arrival and 1 departure every 15 minutes.

The site benefits from having convenient and direct access from the A55. Construction vehicles and deliveries will use Junction 22 for all trips to and from the site and compound areas, avoiding the need to use the local highway network. During the construction works, appropriate

traffic management and works signage will be placed at and on approach to Junction 22 to ensure a safe and suitable operation can be maintained for all users.

It is therefore considered that the construction related traffic associated with the works will not have a significant impact on the operation of the local highway network.

The A55 carries in the region of 55,000-60,000 vehicles (AADT) and the increase in traffic as a result of construction activities will be negligible.

It should be noted that the above estimate is considered a robust and worst-case scenario. For most of the construction period, the traffic impacts will likely be lower than those presented for the following reasons:

- The arrivals and departures have been based on a 43 week programme for the revetment works, although the full construction period could take up to 86 weeks;
- The construction material quantities are based on high level estimates and do not account for the optimisation of the revetment, which could reduce the amount of rock armour required by 5%; and
- Delivery of rock by barge may be necessary, which would remove the need to transport the 3t to 6t revetment stone by road.

### 4.3 Diversion routes

Although the impact of construction traffic and deliveries is not expected to have a material effect on the local road network, it is recognised that the planned road closures along the Promenade could result in a significant volume of traffic being diverted.

A detailed construction management plan and the diversion routes will need to be agreed in consultation with the CBCC Highways Department. As a basis for assessment the road closures and diversions anticipated have been outlined in **Error! Reference source not found.**

**Table 4.2: Traffic Diversions**

Location	Closure	Diversion	Comments
Area 1	Eastbound only, between Marine Road and Rotary Way. The westbound traffic along the Promenade will remain open to all traffic.	The signed diversion route for eastbound traffic will be via Marine Road, the B5113, Jct 21, A55, Jct 22.	Existing diversion route that is used when this section of the Promenade is closed due to storm flooding or planned events. The B5113 is a good standard road with limited on-street parking and considered a suitable diversion route.
Area 2	Full two-way road closure from Rotary Way to Cliff Gardens. The promenade will be closed to general traffic and the become a works area and compound.	The signed diversion route will be via Cliff Gardens and the A547.	Existing diversion route that is used when this section of the Promenade is closed due to flooding. At the time of writing this report the Promenade was closed in both directions (due to storm damage) and the diversion operational.

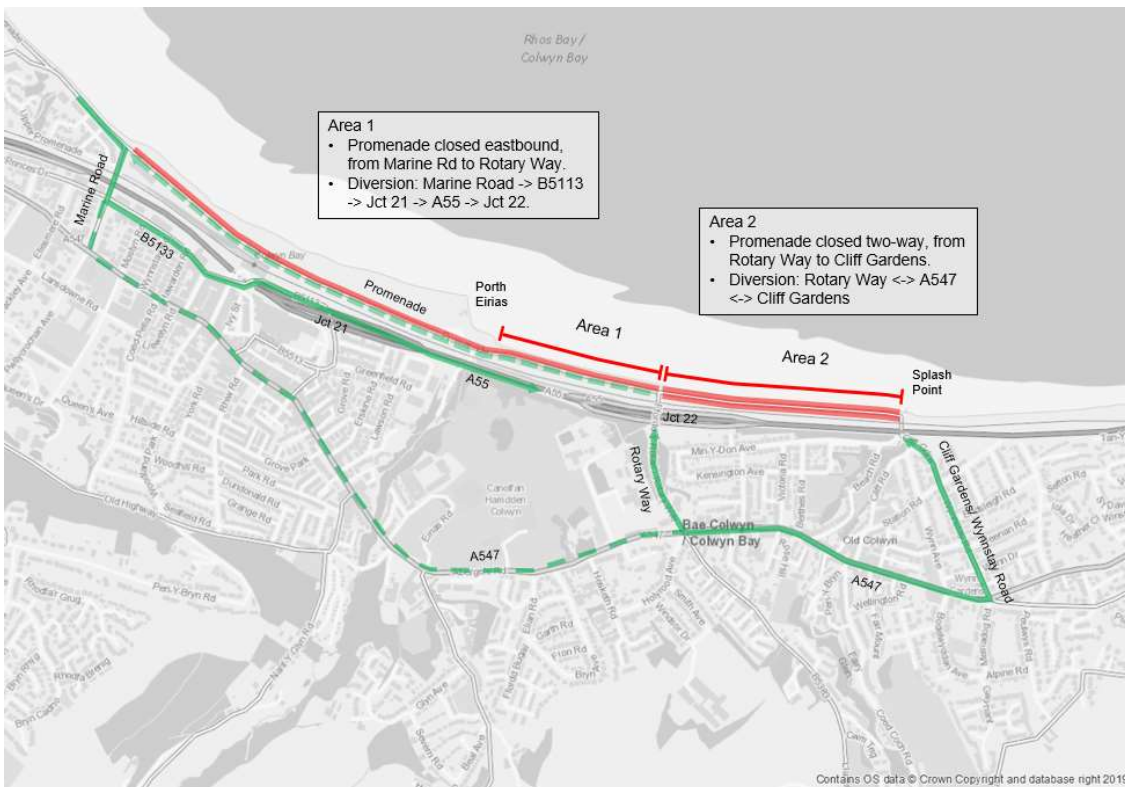
Source: Mott Macdonald Ltd, 2020

The diversion routes are indicated in Figure 4.2. It should be noted that the formal and signed routes are proposed as described in **Error! Reference source not found.** . However, it is likely that many drivers will choose to alter their journey well in advance of the formal diversion route. For example, westbound trips along the A55 that originate in Rhos-on-Sea, some of these trips may choose to divert their journey much earlier and access the A55 at Junction 20.

Without full origin and destination data it is not possible to predict exactly how many vehicles will use the signed diversion route.

The green dashed line in **Error! Reference source not found.** indicates that a number of drivers may choose to use the A547 as an alternative route, if for example their end destination is south along the B5383 towards Dolwen.

**Figure 4.2: Diversion Routes**



Source: Mott Macdonald Ltd, 2020

The Area 2 closure (between Rotary Way and Cliff Gardens) is not anticipated to result in a significant transfer of trips. At the time of writing this report, this section of road had just been re-opened after a 6 month closure due to the Splashpoint Project and the diversion route was in operation.

The proposed one-way closure for the Area 1 works is likely to see a more significant transfer of traffic. **Error! Reference source not found.** Figure 4.3 displays the anticipated AADT in 2021 when the Scheme is under construction, with the road closures in place and the diversion routes operational. 2021 Traffic flows have been forecast using Tempo growth factors.

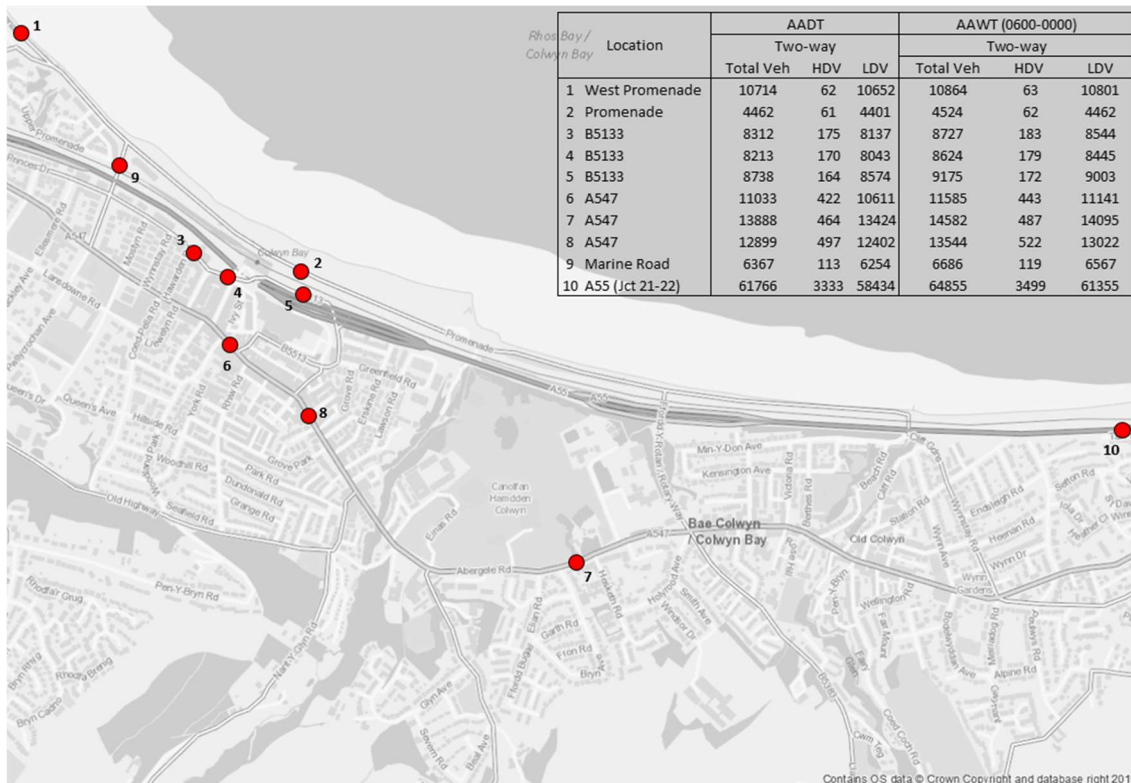
It has been assumed that 80% of traffic will use the signed diversion route along the B5133 and 20% will use the A547. Based on this assumption, whilst the proposed Promenade closures are in place and the diversion routes in operation, the changes in AADT are summarised below:

- Marine Road – an increase of up to 4,088 vehicles;
- B5133 – an increase of up to 3,270 vehicles; and
- A547 – an increase of up to 818 vehicles.

For reason mentioned earlier, this is considered to be a worst-case scenario. It is very unlikely that the numbers presented above will actually be met. Many road users will choose to alter their journey accordingly, well in advance of the closure, to avoid the works.

Although potentially a significant increase in traffic (particularly on Marine Road and the B5133) it is understood that these roads form part of a recognised diversion route, which has been used previously when the Promenade has been closed for earlier phases of work, storm flooding and planned events. The B5113 is a good standard road with limited on-street parking and considered a suitable diversion route.

**Figure 4.3: AADT Traffic (with Diversion) Construction Year 2021**



Source: Mott Macdonald Ltd, 2020

## 5 Construction Traffic Management Plan

The information in this section has been collated through discussions with the Applicant, examining information from previous Phases of the Colwyn Bay Waterfront Project and some limited early contractor engagement.

A detailed Construction Traffic Management Plan will be agreed with CCBC when a contractor is appointed for the works. The information in this section sets out a framework for the plan and considers the key items to be addressed.

The current proposal is for rock armour to be imported and the rock revetment constructed from Splashpoint in the east to Porth Eirias in the west, starting with the most vulnerable section. The rock armour would need to be imported and placed prior to any work being undertaken on the promenade.

### 5.1 Deliveries and Site Access

Access to the site for delivery of materials and plant will be by road from Junction 22 of the A55, via Rotary Way, which passes under the railway line. This route does not pass any properties or other sensitive receptors and avoids the need for vehicles to pass through the streets of Colwyn Bay and Old Colwyn.

During the construction works, appropriate traffic management and works signage will be placed at and on approach to Junction 22, to ensure a safe and suitable operation can be maintained for all users.

While delivery by road is the current anticipated method of delivery, dependent on timing and constraints and if rock cannot be sourced locally in enough quantities, delivery of rock by barge may become necessary. Rock armour deliveries would be stockpiled on the beach, immediately seaward from where they are to be placed within the revetment.

### 5.2 Operational Hours

The normal working hours within the site would be Monday to Friday between 07:00-20:00 and Saturday between 08:00-12:00. There may be exceptions to these hours for oversize deliveries and tie-ins or for traffic management or tidal reasons.

### 5.3 Construction Workers

It is anticipated that there are likely to be between 20-30 site staff present on site on a daily basis. Workers travelling to site will be encouraged to use sustainable modes where feasible.

### 5.4 Parking and Compounds

The location of the construction compounds for the scheme have not yet been finalised given, however all would be located within the existing red line boundary drawing on the hardstanding promenade area to the south of the sea wall.

The Splashpoint works utilised the Splashpoint promenade area as a compound and it is highly likely this area would be used as a compound for works in Construction Area 1. In Construction Area 2, the location of the compound would be dependent on the phasing of works, however the

pedestrian promenade area in front of Rotary Way (segregated from the highway from a retaining wall) is considered likely to be utilised.

Storage of revetment materials will be inside a contained works area, either on the upper beach directly seaward of where it is needed (providing additional protection to the sea wall during construction) or on the Promenade (should tides not permit beach access on delivery) awaiting to be transferred to the beach.

A sufficiently sized space will be maintained to enable construction vehicles to enter the site in a forward gear, load/unload and exit in a forward gear.

Compound areas will be agreed with the Contractor and CCBC. In addition to agreed primary compounds, secondary and transient compound areas are expected to move along the Promenade as the works are progressed.

## 5.5 Pre-Construction and Mobilisation

Pre-construction and mobilisation activities would aim to:

- Engage effectively with local communities to explain the planned works;
- Mobilise the site efficiently and provide where practical early mitigation measures;
- Mobilise the site so that disruption is minimised, safe access is provided, and adequate security provided to keep the public safe; and

## 5.6 Diversion routes

It is anticipated that established diversion routes will be used when road closures are in place, which have been used previously to accommodate earlier phases of work along the Promenade.

However, a detailed traffic management and signing strategy will be implemented in consultation with the CCBC Highways Department to ensure it would:

- Minimise disruption to road users during the works;
- Minimise disruption to local communities and businesses and emergency services during the works, providing access throughout;
- Provide a safe working area for the construction workforce;
- Provide safe and clearly signed traffic routes through the works; and
- Ensure non-motorised users are provided with suitable facilities.

Traffic management and restrictions will provide safe access and working areas for the construction workforce, plant and equipment and to permit safe passage of vehicles and non-motorised users, such as pedestrians and cyclists, through and adjacent to the works.

The diversion routes and any traffic restrictions (including relevant Temporary Traffic Regulation Orders) will be planned and agreed with CCBC. Traffic restrictions would be carefully planned and managed and would include a variety of measures, from separating works areas from public access areas to full closures of certain roads and speed restrictions.

## 5.7 Signage

Appropriate works and diversion signage will be provided. Full details and the proposed signage strategy will be agreed with CCBC and will be in accordance with the Traffic Signs and General Directions, and Traffic Signs Manual Chapter 8 guidance.

## 6 Summary and Conclusions

This report has considered the transport impacts of the construction of the Old Colwyn Coastal Defence and Active Travel Scheme, which involves the construction of a rock revetment along the length of the Promenade (from Porth Eirias to Splashpoint).

The report has demonstrated that:

- The site benefits from having convenient and direct access from the A55. Construction vehicles and material deliveries will be via Junction 22, avoiding the need to use the local highway network, with minimal disruption expected.
- There is good opportunity for construction staff to reach the site via sustainable modes of travel, with suitable footpaths, bus services and train connections within Colwyn Bay;
- The temporary diversion of traffic can be accommodated via recognised diversion routes, which are used when the Promenade is closed to traffic.

On the basis of this assessment it is considered that the traffic impacts associated with the construction of the coastal defences can be satisfactorily accommodated by the existing highway network and proposed diversion routes.

In addition, on completion, the Scheme improvements will ensure a high quality shared use foot/cycle path will be continued along the Promenade, encouraging active and healthy modes of travel.

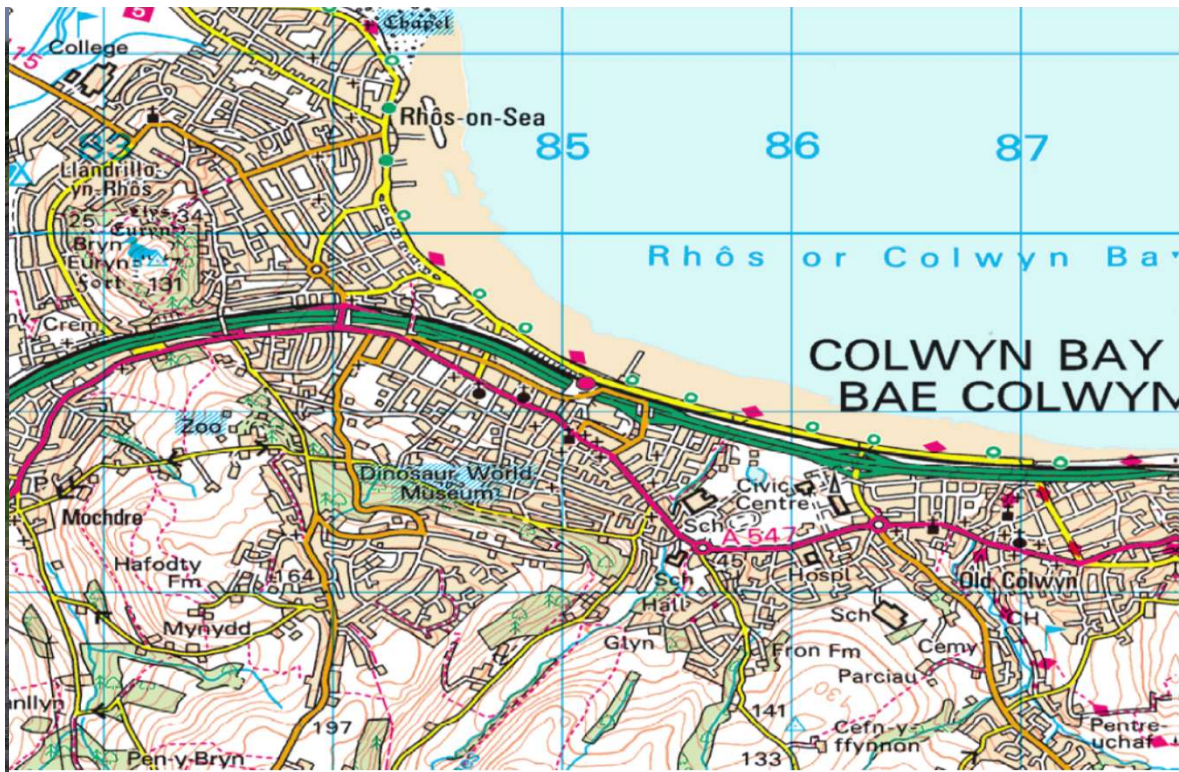
# Appendices

A. Traffic Surveys

19

## A. Traffic Surveys





## Daily Class Bins\_XML

### Column

<b>Time</b>	24-hour time (0000 - 2359)
<b>Total</b>	Number in time step
<b>Cls 1</b>	Class totals
<b>Cls 2</b>	Class totals
<b>Cls 3</b>	Class totals
<b>Cls 4</b>	Class totals
<b>Cls 5</b>	Class totals
<b>Cls 6</b>	Class totals
<b>Cls 7</b>	Class totals
<b>Cls 8</b>	Class totals
<b>Cls 9</b>	Class totals
<b>Cls 10</b>	Class totals
<b>Cls 11</b>	Class totals

## Daily Class Bins\_XML

Report Id - CustomList-138

Site Name - Colwyn Prom

Description - Colwyn Bay Prom[30]

Direction - North East South West

18 September 2015

Time	Total	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11
0000	27	0	0	11	16	0	0	0	0	0	0	0
0100	12	0	0	9	3	0	0	0	0	0	0	0
0200	4	0	0	1	3	0	0	0	0	0	0	0
0300	5	0	0	2	3	0	0	0	0	0	0	0
0400	5	0	0	2	3	0	0	0	0	0	0	0
0500	29	0	0	7	17	5	0	0	0	0	0	0
0600	92	0	1	37	46	7	1	0	0	0	0	0
0700	236	0	0	116	111	9	0	0	0	0	0	0
0800	865	1	2	425	425	10	0	0	1	0	0	1
0900	430	0	1	212	210	6	0	0	0	0	0	1
1000	438	0	0	224	204	8	0	0	1	0	0	1
1100	562	1	0	306	249	5	0	0	1	0	0	0
1200	578	1	1	285	287	4	0	0	0	0	0	0
1300	579	2	1	281	279	14	0	1	0	0	0	1
1400	647	4	3	321	306	10	1	0	1	0	0	1
1500	765	2	1	405	348	8	0	0	1	0	0	0
1600	740	4	0	377	353	4	0	0	1	0	0	1
1700	663	2	0	364	293	4	0	0	0	0	0	0
1800	529	2	1	261	258	6	0	0	1	0	0	0
1900	385	0	0	179	203	3	0	0	0	0	0	0
2000	217	0	0	103	112	0	0	0	1	0	0	1
2100	157	0	0	83	73	1	0	0	0	0	0	0
2200	101	0	1	64	33	3	0	0	0	0	0	0
2300	65	0	0	35	30	0	0	0	0	0	0	0
<b>07-19</b>	<b>7032</b>	<b>19</b>	<b>10</b>	<b>3577</b>	<b>3323</b>	<b>88</b>	<b>1</b>	<b>1</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>6</b>
<b>06-22</b>	<b>7883</b>	<b>19</b>	<b>11</b>	<b>3979</b>	<b>3757</b>	<b>99</b>	<b>2</b>	<b>1</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>7</b>
<b>06-00</b>	<b>8049</b>	<b>19</b>	<b>12</b>	<b>4078</b>	<b>3820</b>	<b>102</b>	<b>2</b>	<b>1</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>7</b>
<b>00-00</b>	<b>8131</b>	<b>19</b>	<b>12</b>	<b>4110</b>	<b>3865</b>	<b>107</b>	<b>2</b>	<b>1</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>7</b>

## Daily Class Bins\_XML

Report Id - CustomList-138

Site Name - Colwyn Prom

Description - Colwyn Bay Prom[30]

Direction - North East South West

19 September 2015

Time	Total	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11
0000	46	0	0	17	29	0	0	0	0	0	0	0
0100	22	0	0	6	16	0	0	0	0	0	0	0
0200	13	0	0	3	10	0	0	0	0	0	0	0
0300	9	0	0	4	4	1	0	0	0	0	0	0
0400	9	0	0	0	9	0	0	0	0	0	0	0
0500	14	0	0	5	6	3	0	0	0	0	0	0
0600	44	0	0	17	23	4	0	0	0	0	0	0
0700	101	0	0	45	52	4	0	0	0	0	0	0
0800	252	1	0	136	113	2	0	0	0	0	0	0
0900	375	1	0	197	177	0	0	0	0	0	0	0
1000	570	3	0	279	279	6	0	0	3	0	0	0
1100	653	2	2	342	299	5	0	0	2	0	0	1
1200	730	0	1	371	348	9	0	0	1	0	0	0
1300	679	2	3	339	332	3	0	0	0	0	0	0
1400	704	3	2	364	331	4	0	0	0	0	0	0
1500	702	11	4	344	335	8	0	0	0	0	0	0
1600	749	4	2	359	379	3	1	0	1	0	0	0
1700	675	2	0	337	332	4	0	0	0	0	0	0
1800	554	1	1	265	283	4	0	0	0	0	0	0
1900	380	0	0	168	208	3	0	0	1	0	0	0
2000	186	0	0	85	98	3	0	0	0	0	0	0
2100	163	0	0	79	83	1	0	0	0	0	0	0
2200	129	0	0	62	66	1	0	0	0	0	0	0
2300	80	0	1	31	45	3	0	0	0	0	0	0
<b>07-19</b>	<b>6744</b>	<b>30</b>	<b>15</b>	<b>3378</b>	<b>3260</b>	<b>52</b>	<b>1</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>06-22</b>	<b>7517</b>	<b>30</b>	<b>15</b>	<b>3727</b>	<b>3672</b>	<b>63</b>	<b>1</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>06-00</b>	<b>7726</b>	<b>30</b>	<b>16</b>	<b>3820</b>	<b>3783</b>	<b>67</b>	<b>1</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>00-00</b>	<b>7839</b>	<b>30</b>	<b>16</b>	<b>3855</b>	<b>3857</b>	<b>71</b>	<b>1</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>1</b>

## Daily Class Bins\_XML

Report Id - CustomList-138

Site Name - Colwyn Prom

Description - Colwyn Bay Prom[30]

Direction - North East South West

20 September 2015

Time	Total	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11
0000	61	0	1	22	37	1	0	0	0	0	0	0
0100	30	0	0	15	15	0	0	0	0	0	0	0
0200	18	0	0	7	11	0	0	0	0	0	0	0
0300	11	0	0	5	6	0	0	0	0	0	0	0
0400	12	0	0	0	11	1	0	0	0	0	0	0
0500	10	0	0	4	5	1	0	0	0	0	0	0
0600	35	0	0	21	13	1	0	0	0	0	0	0
0700	83	0	0	40	39	4	0	0	0	0	0	0
0800	133	0	1	58	72	2	0	0	0	0	0	0
0900	286	0	1	167	116	2	0	0	0	0	0	0
1000	475	0	0	224	243	7	0	0	0	0	0	1
1100	503	3	0	208	286	6	0	0	0	0	0	0
1200	668	1	1	323	337	5	1	0	0	0	0	0
1300	575	3	0	275	290	6	0	0	1	0	0	0
1400	625	2	3	266	351	2	0	0	1	0	0	0
1500	624	3	1	285	332	2	0	0	1	0	0	0
1600	626	3	2	275	342	4	0	0	0	0	0	0
1700	490	0	0	236	248	6	0	0	0	0	0	0
1800	347	0	1	158	184	4	0	0	0	0	0	0
1900	255	0	0	120	133	2	0	0	0	0	0	0
2000	164	1	0	74	87	2	0	0	0	0	0	0
2100	81	0	2	41	37	1	0	0	0	0	0	0
2200	77	0	0	41	35	1	0	0	0	0	0	0
2300	36	0	0	22	14	0	0	0	0	0	0	0
<b>07-19</b>	<b>5435</b>	<b>15</b>	<b>10</b>	<b>2515</b>	<b>2840</b>	<b>50</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>06-22</b>	<b>5970</b>	<b>16</b>	<b>12</b>	<b>2771</b>	<b>3110</b>	<b>56</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>06-00</b>	<b>6083</b>	<b>16</b>	<b>12</b>	<b>2834</b>	<b>3159</b>	<b>57</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>00-00</b>	<b>6225</b>	<b>16</b>	<b>13</b>	<b>2887</b>	<b>3244</b>	<b>60</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>1</b>

## Daily Class Bins\_XML

Report Id - CustomList-138

Site Name - Colwyn Prom

Description - Colwyn Bay Prom[30]

Direction - North East South West

21 September 2015

Time	Total	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11
0000	17	0	0	9	8	0	0	0	0	0	0	0
0100	9	0	0	4	5	0	0	0	0	0	0	0
0200	3	0	0	1	2	0	0	0	0	0	0	0
0300	2	0	0	1	1	0	0	0	0	0	0	0
0400	5	0	0	1	4	0	0	0	0	0	0	0
0500	28	0	0	9	15	4	0	0	0	0	0	0
0600	83	0	1	34	42	5	1	0	0	0	0	0
0700	268	0	0	131	127	8	1	0	1	0	0	0
0800	871	2	1	472	386	8	0	1	1	0	0	0
0900	417	1	1	209	199	7	0	0	0	0	0	0
1000	391	0	0	191	187	12	0	0	1	0	0	0
1100	434	2	0	198	225	8	1	0	0	0	0	0
1200	537	0	0	278	251	8	0	0	0	0	0	0
1300	542	0	0	286	246	10	0	0	0	0	0	0
1400	584	1	0	311	262	8	0	0	1	0	1	0
1500	694	1	2	356	324	10	1	0	0	0	0	0
1600	598	1	2	305	277	12	0	0	1	0	0	0
1700	681	2	0	389	284	6	0	0	0	0	0	0
1800	448	0	0	250	194	4	0	0	0	0	0	0
1900	297	1	0	162	129	5	0	0	0	0	0	0
2000	208	0	0	113	91	3	0	0	0	0	0	1
2100	119	0	0	68	51	0	0	0	0	0	0	0
2200	63	0	0	37	26	0	0	0	0	0	0	0
2300	36	0	0	21	15	0	0	0	0	0	0	0
<b>07-19</b>	<b>6465</b>	<b>10</b>	<b>6</b>	<b>3376</b>	<b>2962</b>	<b>101</b>	<b>3</b>	<b>1</b>	<b>5</b>	<b>0</b>	<b>1</b>	<b>0</b>
<b>06-22</b>	<b>7172</b>	<b>11</b>	<b>7</b>	<b>3753</b>	<b>3275</b>	<b>114</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>0</b>	<b>1</b>	<b>1</b>
<b>06-00</b>	<b>7271</b>	<b>11</b>	<b>7</b>	<b>3811</b>	<b>3316</b>	<b>114</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>0</b>	<b>1</b>	<b>1</b>
<b>00-00</b>	<b>7335</b>	<b>11</b>	<b>7</b>	<b>3836</b>	<b>3351</b>	<b>118</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>0</b>	<b>1</b>	<b>1</b>

## Daily Class Bins\_XML

Report Id - CustomList-138

Site Name - Colwyn Prom

Description - Colwyn Bay Prom[30]

Direction - North East South West

22 September 2015

Time	Total	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11
0000	15	0	0	9	6	0	0	0	0	0	0	0
0100	8	0	1	3	4	0	0	0	0	0	0	0
0200	3	0	0	1	2	0	0	0	0	0	0	0
0300	8	0	0	2	6	0	0	0	0	0	0	0
0400	6	0	0	0	4	2	0	0	0	0	0	0
0500	22	0	0	4	16	2	0	0	0	0	0	0
0600	96	0	0	48	42	6	0	0	0	0	0	0
0700	252	1	0	136	107	7	0	0	1	0	0	0
0800	813	0	1	453	349	10	0	0	0	0	0	0
0900	449	1	0	230	206	11	0	0	1	0	0	0
1000	449	0	0	224	210	13	1	0	1	0	0	0
1100	474	0	0	254	212	7	1	0	0	0	0	0
1200	513	0	1	306	194	10	0	0	2	0	0	0
1300	503	1	0	281	213	7	0	0	1	0	0	0
1400	578	1	0	292	272	10	0	0	3	0	0	0
1500	685	3	3	382	289	8	0	0	0	0	0	0
1600	665	1	0	378	272	12	0	0	1	0	0	1
1700	704	1	3	400	290	9	0	0	1	0	0	0
1800	469	0	2	279	185	3	0	0	0	0	0	0
1900	340	3	0	190	139	8	0	0	0	0	0	0
2000	200	0	0	111	89	0	0	0	0	0	0	0
2100	171	0	0	119	51	0	0	0	1	0	0	0
2200	81	0	0	50	31	0	0	0	0	0	0	0
2300	35	0	0	21	14	0	0	0	0	0	0	0
<b>07-19</b>	<b>6554</b>	<b>9</b>	<b>10</b>	<b>3615</b>	<b>2799</b>	<b>107</b>	<b>2</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>06-22</b>	<b>7361</b>	<b>12</b>	<b>10</b>	<b>4083</b>	<b>3120</b>	<b>121</b>	<b>2</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>06-00</b>	<b>7477</b>	<b>12</b>	<b>10</b>	<b>4154</b>	<b>3165</b>	<b>121</b>	<b>2</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>00-00</b>	<b>7539</b>	<b>12</b>	<b>11</b>	<b>4173</b>	<b>3203</b>	<b>125</b>	<b>2</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>1</b>

## Daily Class Bins\_XML

Report Id - CustomList-138

Site Name - Colwyn Prom

Description - Colwyn Bay Prom[30]

Direction - North East South West

23 September 2015

Time	Total	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11
0000	9	0	1	6	2	0	0	0	0	0	0	0
0100	5	0	0	4	1	0	0	0	0	0	0	0
0200	6	0	0	4	2	0	0	0	0	0	0	0
0300	6	0	0	2	4	0	0	0	0	0	0	0
0400	9	0	0	2	7	0	0	0	0	0	0	0
0500	27	0	0	8	17	2	0	0	0	0	0	0
0600	93	0	2	39	46	5	0	0	1	0	0	0
0700	237	0	0	115	110	10	1	0	1	0	0	0
0800	794	1	0	432	355	6	0	0	0	0	0	0
0900	479	1	0	266	202	9	0	0	0	0	1	0
1000	491	0	0	257	227	5	0	0	1	0	0	1
1100	513	1	1	265	234	12	0	0	0	0	0	0
1200	530	2	1	266	248	12	0	1	0	0	0	0
1300	580	0	2	308	262	7	0	0	0	0	0	1
1400	598	1	0	302	285	9	0	0	1	0	0	0
1500	693	2	0	354	328	9	0	0	0	0	0	0
1600	621	2	1	349	256	13	0	0	0	0	0	0
1700	705	1	0	402	290	11	0	0	0	0	0	1
1800	482	0	0	262	215	5	0	0	0	0	0	0
1900	326	0	0	142	180	4	0	0	0	0	0	0
2000	192	0	0	107	83	2	0	0	0	0	0	0
2100	151	0	0	84	66	1	0	0	0	0	0	0
2200	100	0	1	57	42	0	0	0	0	0	0	0
2300	34	0	0	17	17	0	0	0	0	0	0	0
<b>07-19</b>	<b>6723</b>	<b>11</b>	<b>5</b>	<b>3578</b>	<b>3012</b>	<b>108</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>3</b>
<b>06-22</b>	<b>7485</b>	<b>11</b>	<b>7</b>	<b>3950</b>	<b>3387</b>	<b>120</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>3</b>
<b>06-00</b>	<b>7619</b>	<b>11</b>	<b>8</b>	<b>4024</b>	<b>3446</b>	<b>120</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>3</b>
<b>00-00</b>	<b>7681</b>	<b>11</b>	<b>9</b>	<b>4050</b>	<b>3479</b>	<b>122</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>3</b>

## Daily Class Bins\_XML

Report Id - CustomList-138

Site Name - Colwyn Prom

Description - Colwyn Bay Prom[30]

Direction - North East South West

24 September 2015

Time	Total	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11
0000	14	0	0	4	10	0	0	0	0	0	0	0
0100	14	0	0	4	10	0	0	0	0	0	0	0
0200	9	0	0	2	7	0	0	0	0	0	0	0
0300	7	0	0	3	3	1	0	0	0	0	0	0
0400	8	0	0	2	6	0	0	0	0	0	0	0
0500	30	0	0	8	17	5	0	0	0	0	0	0
0600	89	0	0	46	40	3	0	0	0	0	0	0
0700	253	0	0	140	106	7	0	0	0	0	0	0
0800	840	0	0	464	363	10	1	1	0	0	0	1
0900	464	0	3	233	213	13	0	0	0	0	0	2
1000	463	0	0	264	186	10	0	0	3	0	0	0
1100	518	2	0	294	214	4	0	0	3	0	0	1
1200	551	2	1	318	223	7	0	0	0	0	0	0
1300	580	0	0	305	268	7	0	0	0	0	0	0
1400	585	3	0	297	274	10	0	0	1	0	0	0
1500	742	0	0	412	317	12	1	0	0	0	0	0
1600	660	1	0	388	263	7	0	0	1	0	0	0
1700	712	0	0	393	307	12	0	0	0	0	0	0
1800	456	0	0	273	180	3	0	0	0	0	0	0
1900	362	0	0	195	164	3	0	0	0	0	0	0
2000	191	0	1	103	83	3	0	0	0	0	0	1
2100	185	0	2	113	68	2	0	0	0	0	0	0
2200	81	0	0	37	43	1	0	0	0	0	0	0
2300	50	0	1	27	22	0	0	0	0	0	0	0
<b>07-19</b>	<b>6824</b>	<b>8</b>	<b>4</b>	<b>3781</b>	<b>2914</b>	<b>102</b>	<b>2</b>	<b>1</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>4</b>
<b>06-22</b>	<b>7651</b>	<b>8</b>	<b>7</b>	<b>4238</b>	<b>3269</b>	<b>113</b>	<b>2</b>	<b>1</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>5</b>
<b>06-00</b>	<b>7782</b>	<b>8</b>	<b>8</b>	<b>4302</b>	<b>3334</b>	<b>114</b>	<b>2</b>	<b>1</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>5</b>
<b>00-00</b>	<b>7864</b>	<b>8</b>	<b>8</b>	<b>4325</b>	<b>3387</b>	<b>120</b>	<b>2</b>	<b>1</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>5</b>

## Daily Class Bins\_XML

Report Id - CustomList-138

Site Name - Colwyn Prom

Description - Colwyn Bay Prom[30]

Direction - North East South West

25 September 2015

Time	Total	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11
0000	23	0	1	11	11	0	0	0	0	0	0	0
0100	6	0	0	2	4	0	0	0	0	0	0	0
0200	4	0	0	0	4	0	0	0	0	0	0	0
0300	5	0	0	5	0	0	0	0	0	0	0	0
0400	7	0	0	4	2	1	0	0	0	0	0	0
0500	21	0	0	11	8	2	0	0	0	0	0	0
0600	96	0	2	49	38	6	0	0	1	0	0	0
0700	248	0	0	118	122	7	0	0	1	0	0	0
0800	781	0	0	450	322	8	0	0	0	0	0	1
0900	461	2	1	247	197	11	0	0	1	0	1	1
1000	527	1	0	280	238	8	0	0	0	0	0	0
1100	620	0	1	344	267	8	0	0	0	0	0	0
1200	625	1	0	355	263	6	0	0	0	0	0	0
1300	606	1	4	339	251	6	0	0	4	0	0	1
1400	737	0	2	408	315	11	0	0	1	0	0	0
1500	835	4	1	464	357	9	0	0	0	0	0	0
1600	737	3	3	396	323	10	0	0	0	0	0	2
1700	668	4	0	367	285	12	0	0	0	0	0	0
1800	562	2	0	275	276	9	0	0	0	0	0	0
1900	377	2	0	193	178	4	0	0	0	0	0	0
2000	224	0	1	118	102	3	0	0	0	0	0	0
2100	176	0	0	111	64	1	0	0	0	0	0	0
2200	131	0	0	62	69	0	0	0	0	0	0	0
2300	54	0	0	34	19	1	0	0	0	0	0	0
<b>07-19</b>	<b>7407</b>	<b>18</b>	<b>12</b>	<b>4043</b>	<b>3216</b>	<b>105</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>1</b>	<b>5</b>
<b>06-22</b>	<b>8280</b>	<b>20</b>	<b>15</b>	<b>4514</b>	<b>3598</b>	<b>119</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>1</b>	<b>5</b>
<b>06-00</b>	<b>8465</b>	<b>20</b>	<b>15</b>	<b>4610</b>	<b>3686</b>	<b>120</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>1</b>	<b>5</b>
<b>00-00</b>	<b>8531</b>	<b>20</b>	<b>16</b>	<b>4643</b>	<b>3715</b>	<b>123</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>1</b>	<b>5</b>

## Daily Class Bins\_XML

Report Id - CustomList-138

Site Name - Colwyn Prom

Description - Colwyn Bay Prom[30]

Direction - North East South West

26 September 2015

Time	Total	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11
0000	33	0	0	17	15	1	0	0	0	0	0	0
0100	19	0	0	11	8	0	0	0	0	0	0	0
0200	10	0	0	2	8	0	0	0	0	0	0	0
0300	6	0	0	1	5	0	0	0	0	0	0	0
0400	7	0	0	1	6	0	0	0	0	0	0	0
0500	22	0	1	10	7	4	0	0	0	0	0	0
0600	74	0	0	32	40	2	0	0	0	0	0	0
0700	122	0	0	62	57	3	0	0	0	0	0	0
0800	229	0	1	125	97	6	0	0	0	0	0	0
0900	401	1	1	210	185	4	0	0	0	0	0	0
1000	606	5	2	312	285	2	0	0	0	0	0	0
1100	741	3	0	378	354	5	0	0	1	0	0	0
1200	753	1	1	365	384	2	0	0	0	0	0	0
1300	741	1	3	347	384	6	0	0	0	0	0	0
1400	686	5	1	342	334	4	0	0	0	0	0	0
1500	689	7	3	357	315	5	0	0	1	0	0	1
1600	708	8	1	329	362	6	1	0	1	0	0	0
1700	674	4	1	306	361	2	0	0	0	0	0	0
1800	570	0	1	289	275	5	0	0	0	0	0	0
1900	359	1	0	168	190	0	0	0	0	0	0	0
2000	171	0	2	78	90	1	0	0	0	0	0	0
2100	123	1	1	65	56	0	0	0	0	0	0	0
2200	141	0	0	76	63	2	0	0	0	0	0	0
2300	105	0	0	57	48	0	0	0	0	0	0	0
<b>07-19</b>	<b>6920</b>	<b>35</b>	<b>15</b>	<b>3422</b>	<b>3393</b>	<b>50</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>06-22</b>	<b>7647</b>	<b>37</b>	<b>18</b>	<b>3765</b>	<b>3769</b>	<b>53</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>06-00</b>	<b>7893</b>	<b>37</b>	<b>18</b>	<b>3898</b>	<b>3880</b>	<b>55</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>1</b>
<b>00-00</b>	<b>7990</b>	<b>37</b>	<b>19</b>	<b>3940</b>	<b>3929</b>	<b>60</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>1</b>

## Daily Class Bins\_XML

Report Id - CustomList-138

Site Name - Colwyn Prom

Description - Colwyn Bay Prom[30]

Direction - North East South West

27 September 2015

Time	Total	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11
0000	59	0	0	33	25	1	0	0	0	0	0	0
0100	39	0	0	17	21	1	0	0	0	0	0	0
0200	15	0	0	5	10	0	0	0	0	0	0	0
0300	14	0	0	7	7	0	0	0	0	0	0	0
0400	5	0	0	2	3	0	0	0	0	0	0	0
0500	9	0	0	4	5	0	0	0	0	0	0	0
0600	31	0	0	22	8	0	0	0	0	0	0	1
0700	106	0	0	50	53	3	0	0	0	0	0	0
0800	154	0	0	75	77	2	0	0	0	0	0	0
0900	276	0	1	138	131	5	0	0	0	0	0	1
1000	527	2	0	268	254	2	0	0	0	0	0	1
1100	628	1	2	275	338	9	0	0	2	0	0	1
1200	761	1	1	390	366	2	0	1	0	0	0	0
1300	771	4	3	359	402	3	0	0	0	0	0	0
1400	782	3	4	407	365	3	0	0	0	0	0	0
1500	747	3	2	381	357	3	0	1	0	0	0	0
1600	847	4	4	379	453	6	0	0	1	0	0	0
1700	756	6	1	352	393	3	0	0	1	0	0	0
1800	493	0	0	219	271	3	0	0	0	0	0	0
1900	325	1	0	162	160	2	0	0	0	0	0	0
2000	200	0	2	95	102	1	0	0	0	0	0	0
2100	111	0	0	72	39	0	0	0	0	0	0	0
2200	121	0	1	61	59	0	0	0	0	0	0	0
2300	48	0	0	29	19	0	0	0	0	0	0	0
<b>07-19</b>	<b>6848</b>	<b>24</b>	<b>18</b>	<b>3293</b>	<b>3460</b>	<b>44</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>3</b>
<b>06-22</b>	<b>7515</b>	<b>25</b>	<b>20</b>	<b>3644</b>	<b>3769</b>	<b>47</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>
<b>06-00</b>	<b>7684</b>	<b>25</b>	<b>21</b>	<b>3734</b>	<b>3847</b>	<b>47</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>
<b>00-00</b>	<b>7825</b>	<b>25</b>	<b>21</b>	<b>3802</b>	<b>3918</b>	<b>49</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>4</b>

## Daily Class Bins\_XML

Report Id - CustomList-138

Site Name - Colwyn Prom

Description - Colwyn Bay Prom[30]

Direction - North East South West

28 September 2015

Time	Total	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11
0000	25	0	0	9	16	0	0	0	0	0	0	0
0100	12	0	0	5	7	0	0	0	0	0	0	0
0200	8	0	0	3	4	1	0	0	0	0	0	0
0300	6	0	0	1	5	0	0	0	0	0	0	0
0400	7	0	0	3	4	0	0	0	0	0	0	0
0500	20	0	0	4	12	4	0	0	0	0	0	0
0600	99	0	2	61	30	5	1	0	0	0	0	0
0700	255	0	1	132	117	3	1	0	1	0	0	0
0800	871	0	0	459	403	8	0	0	0	0	0	1
0900	447	0	1	204	228	12	0	0	2	0	0	0
1000	483	1	1	241	225	15	0	0	0	0	0	0
1100	531	1	0	255	264	11	0	0	0	0	0	0
1200	612	0	0	306	294	10	0	0	2	0	0	0
1300	581	4	1	294	275	7	0	0	0	0	0	0
1400	686	3	2	320	349	11	0	0	1	0	0	0
1500	760	3	0	384	362	9	0	0	0	0	0	2
1600	736	1	4	342	377	11	0	0	1	0	0	0
1700	766	2	2	358	394	10	0	0	0	0	0	0
1800	478	2	0	253	219	3	0	0	0	0	0	1
1900	329	1	0	199	126	3	0	0	0	0	0	0
2000	201	0	0	115	86	0	0	0	0	0	0	0
2100	140	0	0	98	39	3	0	0	0	0	0	0
2200	71	0	0	37	34	0	0	0	0	0	0	0
2300	35	0	0	21	14	0	0	0	0	0	0	0
<b>07-19</b>	<b>7206</b>	<b>17</b>	<b>12</b>	<b>3548</b>	<b>3507</b>	<b>110</b>	<b>1</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>4</b>
<b>06-22</b>	<b>7975</b>	<b>18</b>	<b>14</b>	<b>4021</b>	<b>3788</b>	<b>121</b>	<b>2</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>4</b>
<b>06-00</b>	<b>8081</b>	<b>18</b>	<b>14</b>	<b>4079</b>	<b>3836</b>	<b>121</b>	<b>2</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>4</b>
<b>00-00</b>	<b>8159</b>	<b>18</b>	<b>14</b>	<b>4104</b>	<b>3884</b>	<b>126</b>	<b>2</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>4</b>

## Daily Class Bins\_XML

Report Id - CustomList-138

Site Name - Colwyn Prom

Description - Colwyn Bay Prom[30]

Direction - North East South West

29 September 2015

Time	Total	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11
0000	9	0	0	5	3	1	0	0	0	0	0	0
0100	4	0	0	2	2	0	0	0	0	0	0	0
0200	3	0	0	1	2	0	0	0	0	0	0	0
0300	3	0	0	2	1	0	0	0	0	0	0	0
0400	16	0	0	6	7	3	0	0	0	0	0	0
0500	25	0	0	6	16	3	0	0	0	0	0	0
0600	92	0	1	46	41	4	0	0	0	0	0	0
0700	258	0	0	132	120	6	0	0	0	0	0	0
0800	936	1	1	535	379	19	0	0	1	0	0	0
0900	457	0	0	232	204	21	0	0	0	0	0	0
1000	526	0	1	279	230	16	0	0	0	0	0	0
1100	599	0	1	316	268	11	1	0	0	1	0	1
1200	557	1	0	311	232	12	0	0	1	0	0	0
1300	615	0	1	350	253	11	0	0	0	0	0	0
1400	706	2	2	370	320	11	0	0	1	0	0	0
1500	816	2	4	450	348	11	0	0	0	0	0	1
1600	800	4	0	417	369	9	0	0	1	0	0	0
1700	797	2	1	428	356	9	0	0	1	0	0	0
1800	566	2	1	285	273	5	0	0	0	0	0	0
1900	341	1	0	168	169	3	0	0	0	0	0	0
2000	226	0	1	121	102	2	0	0	0	0	0	0
2100	146	0	0	89	55	2	0	0	0	0	0	0
2200	110	1	1	63	45	0	0	0	0	0	0	0
2300	38	0	0	21	17	0	0	0	0	0	0	0
<b>07-19</b>	<b>7633</b>	<b>14</b>	<b>12</b>	<b>4105</b>	<b>3352</b>	<b>141</b>	<b>1</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>2</b>
<b>06-22</b>	<b>8438</b>	<b>15</b>	<b>14</b>	<b>4529</b>	<b>3719</b>	<b>152</b>	<b>1</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>2</b>
<b>06-00</b>	<b>8586</b>	<b>16</b>	<b>15</b>	<b>4613</b>	<b>3781</b>	<b>152</b>	<b>1</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>2</b>
<b>00-00</b>	<b>8646</b>	<b>16</b>	<b>15</b>	<b>4635</b>	<b>3812</b>	<b>159</b>	<b>1</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>2</b>

## Daily Class Bins\_XML

Report Id - CustomList-138

Site Name - Colwyn Prom

Description - Colwyn Bay Prom[30]

Direction - North East South West

30 September 2015

Time	Total	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11
0000	24	0	1	9	13	1	0	0	0	0	0	0
0100	12	0	0	6	6	0	0	0	0	0	0	0
0200	2	0	0	2	0	0	0	0	0	0	0	0
0300	3	0	0	0	3	0	0	0	0	0	0	0
0400	6	0	0	2	1	3	0	0	0	0	0	0
0500	17	0	0	2	14	1	0	0	0	0	0	0
0600	84	0	0	41	42	1	0	0	0	0	0	0
0700	253	0	0	116	131	6	0	0	0	0	0	0
0800	890	0	1	525	355	8	0	0	0	0	0	1
0900	477	1	1	246	213	14	0	0	0	0	0	2
1000	475	0	1	247	213	12	0	0	0	0	2	0
1100	554	2	1	300	242	9	0	0	0	0	0	0
1200	569	1	0	293	263	11	0	0	0	0	1	0
1300	595	2	0	314	268	11	0	0	0	0	0	0
1400	632	0	0	336	283	12	0	0	1	0	0	0
1500	852	2	3	450	380	14	0	0	2	0	0	1
1600	784	1	3	406	355	15	0	0	4	0	0	0
1700	795	1	1	443	340	8	0	0	2	0	0	0
1800	535	1	1	272	257	3	0	0	0	0	0	1
1900	380	1	1	209	166	3	0	0	0	0	0	0
2000	179	0	0	95	84	0	0	0	0	0	0	0
2100	152	0	0	85	63	4	0	0	0	0	0	0
2200	118	0	0	72	46	0	0	0	0	0	0	0
2300	38	0	0	24	14	0	0	0	0	0	0	0
<b>07-19</b>	<b>7411</b>	<b>11</b>	<b>12</b>	<b>3948</b>	<b>3300</b>	<b>123</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>3</b>	<b>5</b>
<b>06-22</b>	<b>8206</b>	<b>12</b>	<b>13</b>	<b>4378</b>	<b>3655</b>	<b>131</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>3</b>	<b>5</b>
<b>06-00</b>	<b>8362</b>	<b>12</b>	<b>13</b>	<b>4474</b>	<b>3715</b>	<b>131</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>3</b>	<b>5</b>
<b>00-00</b>	<b>8426</b>	<b>12</b>	<b>14</b>	<b>4495</b>	<b>3752</b>	<b>136</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>3</b>	<b>5</b>

## Daily Class Bins\_XML

**Report Id** - CustomList-138

**Site Name** - Colwyn Prom

**Description** - Colwyn Bay Prom[30]

**Direction** - North East South West

### Grand Total

Time	Total	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11
--	102191	235	175	52855	47396	1376	17	6	84	1	6	40

# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : WESTBOUND

Monday 08/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	17	0	0	0	0	0	0	0	0	0	0	0	0	17
2	18	0	0	0	0	0	0	0	0	0	0	0	0	18
3	5	0	0	0	0	0	0	0	0	0	0	0	0	5
4	2	0	0	0	0	0	0	0	0	0	0	0	0	2
5	10	0	0	0	0	0	0	0	0	0	0	0	0	10
6	18	2	0	0	0	0	0	0	0	0	0	2	0	22
7	56	2	0	0	0	0	0	0	0	0	0	1	0	59
8	196	5	0	0	0	0	0	0	0	0	0	2	0	203
9	377	6	0	0	0	0	0	1	0	0	0	4	0	388
10	346	7	0	0	0	0	0	1	0	0	0	2	0	356
11	352	6	0	0	0	0	0	0	0	0	0	3	0	361
12	410	6	0	0	0	0	0	0	0	0	0	0	0	416
13	389	5	0	0	0	0	0	0	0	0	0	5	0	399
14	382	6	0	0	0	0	0	1	0	0	0	1	0	390
15	385	5	0	0	0	0	0	0	0	0	0	5	0	395
16	445	6	1	0	0	0	0	1	0	0	0	0	0	453
17	382	5	0	0	0	0	0	1	0	0	0	2	0	390
18	380	5	0	0	0	0	0	2	0	0	0	4	0	391
19	297	3	0	0	0	0	0	0	0	0	0	2	0	302
20	264	3	0	0	0	0	0	0	0	0	0	3	0	270
21	191	2	0	0	0	0	0	0	0	0	0	1	0	194
22	127	0	0	0	0	0	0	0	0	0	0	0	0	127
23	72	2	0	0	0	0	0	0	0	0	0	2	0	76
24	35	0	0	0	0	0	0	0	0	0	0	0	0	35
7-19	4341	65	1	0	0	0	0	7	0	0	0	30	0	4444
6-22	4979	72	1	0	0	0	0	7	0	0	0	35	0	5094
6-24	5086	74	1	0	0	0	0	7	0	0	0	37	0	5205
0-24	5156	76	1	0	0	0	0	7	0	0	0	39	0	5279

Direction : EASTBOUND

Monday 08/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	17	0	0	0	0	0	0	0	0	0	0	1	0	18
2	13	0	0	0	0	0	0	0	0	0	0	0	0	13
3	4	0	0	0	0	0	0	0	0	0	0	0	0	4
4	2	0	0	0	0	0	0	0	0	0	0	0	0	2
5	1	0	0	0	0	0	0	0	0	0	0	0	0	1
6	12	0	0	0	0	0	0	0	0	0	0	0	0	12
7	34	3	0	0	0	0	0	0	0	0	0	3	0	40
8	108	3	0	0	0	0	0	0	0	0	0	9	0	120
9	230	4	0	1	0	0	0	1	0	0	0	9	0	245
10	306	5	0	0	0	0	0	0	0	0	0	9	0	320
11	321	6	0	0	0	0	0	0	0	0	0	9	0	336
12	350	5	0	0	0	0	0	0	0	0	0	8	0	363
13	370	5	0	1	0	0	0	0	0	0	0	8	0	384
14	349	4	0	0	0	0	0	0	0	0	0	10	0	363
15	353	4	0	0	0	0	0	1	0	0	0	7	0	365
16	380	5	0	0	0	0	0	0	0	0	0	10	0	395
17	320	4	0	0	0	0	0	0	0	0	0	6	0	330
18	319	4	0	1	0	0	0	1	0	0	0	5	0	330
19	283	3	0	0	0	0	0	0	0	0	0	6	0	292
20	197	3	0	0	0	0	0	0	0	0	0	5	0	205
21	181	2	0	0	0	0	0	0	0	0	0	2	0	185
22	86	0	0	0	0	0	0	0	0	0	0	3	0	89
23	55	0	0	0	0	0	0	0	0	0	0	4	0	59
24	41	0	0	0	0	0	0	0	0	0	0	1	0	42
7-19	3689	52	0	3	0	0	0	3	0	0	0	96	0	3843
6-22	4187	60	0	3	0	0	0	3	0	0	0	109	0	4362
6-24	4283	60	0	3	0	0	0	3	0	0	0	114	0	4463
0-24	4332	60	0	3	0	0	0	3	0	0	0	115	0	4513

# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : WESTBOUND

Monday 08/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	1	1	14	1	0	0	0	0	0	0	0	0	17
2	0	2	10	4	2	0	0	0	0	0	0	0	18
3	0	0	1	3	1	0	0	0	0	0	0	0	5
4	0	2	0	0	0	0	0	0	0	0	0	0	2
5	0	1	4	4	1	0	0	0	0	0	0	0	10
6	1	0	14	7	0	0	0	0	0	0	0	0	22
7	0	2	41	13	3	0	0	0	0	0	0	0	59
8	2	22	150	25	4	0	0	0	0	0	0	0	203
9	2	84	283	16	1	2	0	0	0	0	0	0	388
10	9	186	159	1	1	0	0	0	0	0	0	0	356
11	6	219	134	2	0	0	0	0	0	0	0	0	361
12	27	270	118	1	0	0	0	0	0	0	0	0	416
13	40	248	110	1	0	0	0	0	0	0	0	0	399
14	23	272	95	0	0	0	0	0	0	0	0	0	390
15	24	252	118	1	0	0	0	0	0	0	0	0	395
16	34	298	121	0	0	0	0	0	0	0	0	0	453
17	22	202	161	5	0	0	0	0	0	0	0	0	390
18	9	178	203	1	0	0	0	0	0	0	0	0	391
19	1	100	194	6	1	0	0	0	0	0	0	0	302
20	1	63	196	9	1	0	0	0	0	0	0	0	270
21	1	30	153	9	1	0	0	0	0	0	0	0	194
22	0	9	102	13	3	0	0	0	0	0	0	0	127
23	0	12	52	10	2	0	0	0	0	0	0	0	76
24	1	4	22	5	3	0	0	0	0	0	0	0	35
7-19	199	2331	1846	59	7	2	0	0	0	0	0	0	4444
6-22	201	2435	2338	103	15	2	0	0	0	0	0	0	5094
6-24	202	2451	2412	118	20	2	0	0	0	0	0	0	5205
0-24	204	2457	2455	137	24	2	0	0	0	0	0	0	5279

Direction : EASTBOUND

Monday 08/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	0	16	1	1	0	0	0	0	0	0	0	18
2	1	1	7	4	0	0	0	0	0	0	0	0	13
3	0	0	3	1	0	0	0	0	0	0	0	0	4
4	0	0	1	1	0	0	0	0	0	0	0	0	2
5	0	0	1	0	0	0	0	0	0	0	0	0	1
6	0	0	10	1	1	0	0	0	0	0	0	0	12
7	1	4	27	6	2	0	0	0	0	0	0	0	40
8	0	17	90	11	2	0	0	0	0	0	0	0	120
9	0	50	191	4	0	0	0	0	0	0	0	0	245
10	5	144	171	0	0	0	0	0	0	0	0	0	320
11	5	188	143	0	0	0	0	0	0	0	0	0	336
12	3	269	91	0	0	0	0	0	0	0	0	0	363
13	13	283	86	2	0	0	0	0	0	0	0	0	384
14	9	253	100	1	0	0	0	0	0	0	0	0	363
15	4	250	111	0	0	0	0	0	0	0	0	0	365
16	8	289	98	0	0	0	0	0	0	0	0	0	395
17	5	198	126	1	0	0	0	0	0	0	0	0	330
18	2	150	178	0	0	0	0	0	0	0	0	0	330
19	1	90	197	4	0	0	0	0	0	0	0	0	292
20	3	32	158	10	1	1	0	0	0	0	0	0	205
21	1	30	143	11	0	0	0	0	0	0	0	0	185
22	0	11	71	7	0	0	0	0	0	0	0	0	89
23	1	6	42	9	1	0	0	0	0	0	0	0	59
24	0	5	26	11	0	0	0	0	0	0	0	0	42
7-19	55	2181	1582	23	2	0	0	0	0	0	0	0	3843
6-22	60	2258	1981	57	5	1	0	0	0	0	0	0	4362
6-24	61	2269	2049	77	6	1	0	0	0	0	0	0	4463
0-24	62	2270	2087	85	8	1	0	0	0	0	0	0	4513

# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : WESTBOUND

Tuesday 09/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	17	0	0	0	0	0	0	0	0	0	0	0	0	17
2	12	0	0	0	0	0	0	0	0	0	0	0	0	12
3	6	0	0	0	0	0	0	0	0	0	0	0	0	6
4	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5	6	2	0	0	0	0	0	0	0	0	0	0	0	8
6	19	0	0	0	0	0	0	0	0	0	0	2	0	21
7	59	2	0	0	0	0	0	0	0	0	0	1	0	62
8	188	5	0	0	0	0	0	0	0	0	0	3	0	196
9	480	6	0	1	1	0	0	0	1	0	0	7	0	496
10	357	6	0	1	0	0	0	0	0	0	0	4	0	368
11	382	6	0	1	0	0	0	0	0	0	0	1	0	390
12	345	5	0	0	0	0	0	0	0	0	0	2	0	352
13	374	6	0	1	0	0	0	0	1	0	0	5	0	387
14	363	5	0	0	0	0	0	0	0	0	0	3	0	371
15	374	4	0	1	0	0	0	1	0	0	0	3	0	383
16	452	5	0	0	0	0	0	0	1	0	0	6	0	464
17	364	7	0	1	0	0	0	1	0	0	0	2	0	375
18	408	5	0	0	0	0	0	1	0	0	0	4	0	418
19	315	3	0	0	0	0	0	0	0	0	0	3	0	321
20	283	3	0	0	0	0	0	0	0	0	0	1	0	287
21	158	2	0	0	0	0	0	0	0	0	0	1	0	161
22	139	2	0	0	0	0	0	1	0	0	0	0	0	142
23	87	2	0	0	0	0	0	0	0	0	0	1	0	90
24	29	0	0	0	0	0	0	0	0	0	0	0	0	29
7-19	4402	63	0	6	1	0	0	3	3	0	0	43	0	4521
6-22	5041	72	0	6	1	0	0	4	3	0	0	46	0	5173
6-24	5157	74	0	6	1	0	0	4	3	0	0	47	0	5292
0-24	5218	76	0	6	1	0	0	4	3	0	0	49	0	5357

Direction : EASTBOUND

Tuesday 09/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	20	0	0	0	0	0	0	0	0	0	0	1	0	21
2	10	0	0	0	0	0	0	0	0	0	0	0	0	10
3	9	0	0	0	0	0	0	0	0	0	0	0	0	9
4	4	0	0	0	0	0	0	0	0	0	0	0	0	4
5	5	0	0	0	0	0	0	0	0	0	0	0	0	5
6	16	0	0	0	0	0	0	0	0	0	0	0	0	16
7	32	2	0	0	0	0	0	0	0	0	0	3	0	37
8	109	4	0	0	0	0	0	0	0	0	0	9	0	122
9	273	5	0	0	0	0	0	0	0	0	0	9	0	287
10	282	5	0	0	0	0	0	0	0	0	0	12	0	299
11	276	6	0	0	0	0	0	0	0	0	0	10	0	292
12	358	6	0	0	0	0	0	0	1	0	0	12	0	377
13	379	7	0	0	0	0	0	1	0	0	0	8	0	395
14	395	6	0	0	0	0	0	2	0	0	0	5	0	408
15	335	4	0	0	0	0	0	1	0	0	0	8	0	348
16	364	4	0	0	0	0	0	0	1	0	0	6	0	375
17	332	5	0	0	0	0	0	0	0	0	0	8	0	345
18	324	2	0	0	0	0	0	0	0	0	0	5	0	331
19	267	4	0	0	0	0	0	0	0	0	0	8	0	279
20	203	2	0	0	0	0	0	0	0	0	0	6	0	211
21	188	2	0	0	0	0	0	0	0	0	0	3	0	193
22	126	2	0	0	0	0	0	0	0	0	0	2	0	130
23	77	0	0	0	0	0	0	0	0	0	0	5	0	82
24	37	0	0	0	0	0	0	0	0	0	0	2	0	39
7-19	3694	58	0	0	0	0	0	4	2	0	0	100	0	3858
6-22	4243	66	0	0	0	0	0	4	2	0	0	114	0	4429
6-24	4357	66	0	0	0	0	0	4	2	0	0	121	0	4550
0-24	4421	66	0	0	0	0	0	4	2	0	0	122	0	4615

# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : WESTBOUND

Tuesday 09/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	1	12	2	2	0	0	0	0	0	0	0	17
2	0	0	8	2	0	2	0	0	0	0	0	0	12
3	0	0	2	3	1	0	0	0	0	0	0	0	6
4	0	0	1	0	0	0	0	0	0	0	0	0	1
5	0	0	6	0	1	1	0	0	0	0	0	0	8
6	0	1	11	7	2	0	0	0	0	0	0	0	21
7	0	5	42	11	2	0	2	0	0	0	0	0	62
8	1	25	139	28	3	0	0	0	0	0	0	0	196
9	20	191	281	4	0	0	0	0	0	0	0	0	496
10	7	222	139	0	0	0	0	0	0	0	0	0	368
11	20	256	114	0	0	0	0	0	0	0	0	0	390
12	16	237	99	0	0	0	0	0	0	0	0	0	352
13	28	258	101	0	0	0	0	0	0	0	0	0	387
14	17	259	95	0	0	0	0	0	0	0	0	0	371
15	28	226	129	0	0	0	0	0	0	0	0	0	383
16	27	299	138	0	0	0	0	0	0	0	0	0	464
17	5	213	157	0	0	0	0	0	0	0	0	0	375
18	8	176	230	4	0	0	0	0	0	0	0	0	418
19	1	102	208	10	0	0	0	0	0	0	0	0	321
20	4	66	200	14	3	0	0	0	0	0	0	0	287
21	0	20	121	19	1	0	0	0	0	0	0	0	161
22	1	27	106	6	0	2	0	0	0	0	0	0	142
23	1	12	64	11	2	0	0	0	0	0	0	0	90
24	0	2	27	0	0	0	0	0	0	0	0	0	29
7-19	178	2464	1830	46	3	0	0	0	0	0	0	0	4521
6-22	183	2582	2299	96	9	2	2	0	0	0	0	0	5173
6-24	184	2596	2390	107	11	2	2	0	0	0	0	0	5292
0-24	184	2598	2430	121	17	5	2	0	0	0	0	0	5357

Direction : EASTBOUND

Tuesday 09/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	5	16	0	0	0	0	0	0	0	0	0	21
2	0	2	5	2	1	0	0	0	0	0	0	0	10
3	0	0	6	2	1	0	0	0	0	0	0	0	9
4	0	1	2	0	0	1	0	0	0	0	0	0	4
5	0	0	5	0	0	0	0	0	0	0	0	0	5
6	0	1	8	5	2	0	0	0	0	0	0	0	16
7	0	1	26	8	2	0	0	0	0	0	0	0	37
8	0	19	90	13	0	0	0	0	0	0	0	0	122
9	0	73	209	3	1	0	1	0	0	0	0	0	287
10	8	180	111	0	0	0	0	0	0	0	0	0	299
11	4	190	98	0	0	0	0	0	0	0	0	0	292
12	10	248	119	0	0	0	0	0	0	0	0	0	377
13	13	323	59	0	0	0	0	0	0	0	0	0	395
14	9	311	88	0	0	0	0	0	0	0	0	0	408
15	3	256	89	0	0	0	0	0	0	0	0	0	348
16	5	263	106	0	0	0	0	0	0	0	0	1	375
17	4	221	118	0	0	2	0	0	0	0	0	0	345
18	0	167	162	1	1	0	0	0	0	0	0	0	331
19	1	72	202	4	0	0	0	0	0	0	0	0	279
20	1	42	159	9	0	0	0	0	0	0	0	0	211
21	1	38	144	10	0	0	0	0	0	0	0	0	193
22	2	21	97	10	0	0	0	0	0	0	0	0	130
23	0	6	70	6	0	0	0	0	0	0	0	0	82
24	1	6	25	6	1	0	0	0	0	0	0	0	39
7-19	57	2323	1451	21	2	2	1	0	0	0	0	1	3858
6-22	61	2425	1877	58	4	2	1	0	0	0	0	1	4429
6-24	62	2437	1972	70	5	2	1	0	0	0	0	1	4550
0-24	62	2446	2014	79	9	3	1	0	0	0	0	1	4615

# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : WESTBOUND

Wednesday 10/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	20	0	0	0	0	0	0	0	0	0	0	0	0	20
2	10	0	0	0	0	0	0	0	0	0	0	0	0	10
3	5	0	0	0	0	0	0	0	0	0	0	0	0	5
4	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5	5	0	0	0	0	0	0	0	0	0	0	0	0	5
6	15	2	0	0	0	0	0	0	0	0	0	0	0	17
7	55	2	0	0	0	0	0	0	0	0	0	2	0	59
8	196	6	0	0	0	0	0	1	0	0	0	2	0	205
9	433	7	0	0	0	0	0	1	0	0	0	6	0	447
10	343	6	0	1	0	0	0	1	0	0	0	4	0	355
11	341	6	0	0	0	0	0	0	0	0	0	5	0	352
12	403	6	0	1	0	0	0	0	0	0	0	4	0	414
13	370	6	0	0	0	0	0	0	0	0	0	1	0	377
14	354	6	0	0	0	0	0	0	0	0	0	2	0	362
15	363	5	0	1	0	0	0	2	0	0	0	2	0	373
16	406	4	0	0	0	0	0	0	0	0	0	0	0	410
17	428	3	0	1	0	0	0	1	0	0	0	0	0	433
18	395	3	0	0	0	0	0	1	0	0	0	1	0	400
19	355	2	0	0	0	0	0	1	0	0	0	1	0	359
20	297	3	0	1	0	0	0	0	0	0	0	0	0	301
21	214	2	0	0	0	0	0	0	0	0	0	0	0	216
22	143	0	0	0	0	0	0	1	0	0	0	0	0	144
23	72	0	0	0	0	0	0	0	0	0	0	0	0	72
24	30	0	0	0	0	0	0	0	0	0	0	0	0	30
7-19	4387	60	0	4	0	0	0	8	0	0	0	28	0	4487
6-22	5096	67	0	5	0	0	0	9	0	0	0	30	0	5207
6-24	5198	67	0	5	0	0	0	9	0	0	0	30	0	5309
0-24	5254	69	0	5	0	0	0	9	0	0	0	30	0	5367

Direction : EASTBOUND

Wednesday 10/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	19	0	0	0	0	0	0	0	0	0	0	0	0	19
2	9	0	0	0	0	0	0	0	0	0	0	0	0	9
3	2	0	0	0	0	0	0	0	0	0	0	0	0	2
4	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5	5	0	0	0	0	0	0	0	0	0	0	0	0	5
6	10	0	0	0	0	0	0	0	0	0	0	0	0	10
7	35	2	0	0	0	0	0	0	0	0	1	4	0	42
8	95	4	0	0	0	0	0	0	0	0	0	11	0	110
9	296	4	0	0	0	0	0	0	0	0	0	13	0	313
10	263	6	0	0	0	0	0	0	0	0	0	9	0	278
11	307	6	0	0	0	0	0	0	0	0	0	9	0	322
12	341	5	0	0	0	0	0	0	0	0	0	6	0	352
13	356	4	0	0	0	0	0	0	0	0	0	10	0	370
14	317	6	0	0	0	0	0	0	0	0	0	8	0	331
15	336	4	0	0	0	0	0	1	0	0	0	5	0	346
16	375	4	0	1	0	0	0	1	0	0	0	10	0	391
17	326	4	0	0	0	0	0	0	0	0	0	8	0	338
18	351	4	0	1	0	0	0	0	2	0	0	5	0	363
19	277	3	0	0	0	0	0	2	0	0	0	4	0	286
20	213	2	0	0	0	0	0	0	0	0	0	4	0	219
21	186	2	0	0	0	0	0	0	0	0	0	2	0	190
22	112	2	0	0	0	0	0	0	0	0	0	2	0	116
23	73	0	0	0	0	0	0	0	0	0	0	2	0	75
24	37	0	0	0	0	0	0	0	0	0	0	3	0	40
7-19	3640	54	0	2	0	0	0	4	2	0	0	98	0	3800
6-22	4186	62	0	2	0	0	0	4	2	0	1	110	0	4367
6-24	4296	62	0	2	0	0	0	4	2	0	1	115	0	4482
0-24	4342	62	0	2	0	0	0	4	2	0	1	115	0	4528

# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : WESTBOUND

Wednesday 10/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	0	14	3	3	0	0	0	0	0	0	0	20
2	0	0	7	2	1	0	0	0	0	0	0	0	10
3	0	0	1	3	1	0	0	0	0	0	0	0	5
4	0	0	1	0	0	0	0	0	0	0	0	0	1
5	0	0	3	1	1	0	0	0	0	0	0	0	5
6	0	0	6	9	1	1	0	0	0	0	0	0	17
7	0	2	36	15	5	1	0	0	0	0	0	0	59
8	2	18	151	31	3	0	0	0	0	0	0	0	205
9	7	121	306	12	1	0	0	0	0	0	0	0	447
10	16	161	178	0	0	0	0	0	0	0	0	0	355
11	13	178	159	2	0	0	0	0	0	0	0	0	352
12	16	230	167	1	0	0	0	0	0	0	0	0	414
13	9	230	136	1	0	0	0	1	0	0	0	0	377
14	19	227	110	4	0	0	0	2	0	0	0	0	362
15	14	223	136	0	0	0	0	0	0	0	0	0	373
16	27	275	106	2	0	0	0	0	0	0	0	0	410
17	15	248	170	0	0	0	0	0	0	0	0	0	433
18	7	205	186	2	0	0	0	0	0	0	0	0	400
19	19	145	191	4	0	0	0	0	0	0	0	0	359
20	2	68	225	5	1	0	0	0	0	0	0	0	301
21	4	39	164	9	0	0	0	0	0	0	0	0	216
22	0	15	115	14	0	0	0	0	0	0	0	0	144
23	0	12	49	9	2	0	0	0	0	0	0	0	72
24	0	5	18	7	0	0	0	0	0	0	0	0	30
7-19	164	2261	1996	59	4	0	0	3	0	0	0	0	4487
6-22	170	2385	2536	102	10	1	0	3	0	0	0	0	5207
6-24	170	2402	2603	118	12	1	0	3	0	0	0	0	5309
0-24	170	2402	2635	136	19	2	0	3	0	0	0	0	5367

Direction : EASTBOUND

Wednesday 10/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	5	10	4	0	0	0	0	0	0	0	0	19
2	0	1	5	1	1	1	0	0	0	0	0	0	9
3	0	0	0	0	2	0	0	0	0	0	0	0	2
4	0	0	1	0	0	0	0	0	0	0	0	0	1
5	0	0	4	1	0	0	0	0	0	0	0	0	5
6	0	0	7	2	1	0	0	0	0	0	0	0	10
7	0	4	27	10	1	0	0	0	0	0	0	0	42
8	0	10	92	8	0	0	0	0	0	0	0	0	110
9	0	74	234	5	0	0	0	0	0	0	0	0	313
10	6	135	135	2	0	0	0	0	0	0	0	0	278
11	9	181	131	1	0	0	0	0	0	0	0	0	322
12	7	225	119	1	0	0	0	0	0	0	0	0	352
13	16	249	104	1	0	0	0	0	0	0	0	0	370
14	6	201	123	1	0	0	0	0	0	0	0	0	331
15	4	240	102	0	0	0	0	0	0	0	0	0	346
16	6	267	118	0	0	0	0	0	0	0	0	0	391
17	9	179	146	2	2	0	0	0	0	0	0	0	338
18	2	175	183	2	1	0	0	0	0	0	0	0	363
19	2	107	174	3	0	0	0	0	0	0	0	0	286
20	0	36	173	9	1	0	0	0	0	0	0	0	219
21	2	34	147	4	3	0	0	0	0	0	0	0	190
22	0	15	94	5	2	0	0	0	0	0	0	0	116
23	2	9	54	9	1	0	0	0	0	0	0	0	75
24	0	6	30	4	0	0	0	0	0	0	0	0	40
7-19	67	2043	1661	26	3	0	0	0	0	0	0	0	3800
6-22	69	2132	2102	54	10	0	0	0	0	0	0	0	4367
6-24	71	2147	2186	67	11	0	0	0	0	0	0	0	4482
0-24	71	2153	2213	75	15	1	0	0	0	0	0	0	4528

# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : WESTBOUND

Thursday 11/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	11	0	0	0	0	0	0	0	0	0	0	0	0	11
2	10	0	0	0	0	0	0	0	0	0	0	0	0	10
3	5	0	0	0	0	0	0	0	0	0	0	0	0	5
4	4	0	0	0	0	0	0	0	0	0	0	0	0	4
5	7	0	0	0	0	0	0	0	0	0	0	0	0	7
6	20	0	0	0	0	0	0	0	0	0	0	0	0	20
7	62	2	0	0	0	0	0	0	0	0	0	2	0	66
8	225	4	0	1	0	0	0	0	1	0	0	0	0	231
9	456	7	0	0	0	0	0	1	0	0	0	3	0	467
10	361	6	0	0	0	0	0	0	0	0	0	2	0	369
11	373	6	0	0	0	0	0	0	0	0	0	4	0	383
12	385	6	0	0	0	0	0	0	0	0	0	5	0	396
13	419	6	0	1	0	0	0	0	0	0	0	3	0	429
14	382	6	0	0	0	0	0	0	0	0	0	3	0	391
15	365	5	0	0	0	0	0	2	0	0	0	3	0	375
16	439	5	0	1	0	0	0	0	0	0	0	5	0	450
17	381	4	0	0	0	0	0	2	0	0	0	1	0	388
18	365	3	0	0	0	0	0	2	1	0	0	3	0	374
19	363	2	0	1	0	0	0	1	1	0	0	0	0	368
20	280	2	0	0	0	0	0	0	0	0	0	0	0	282
21	193	1	0	0	0	0	0	0	0	0	0	1	0	195
22	173	1	0	0	0	0	0	0	0	0	0	1	0	175
23	81	0	0	0	0	0	0	0	0	0	0	0	0	81
24	45	0	0	0	0	0	0	0	0	0	0	0	0	45
7-19	4514	60	0	4	0	0	0	8	3	0	0	32	0	4621
6-22	5222	66	0	4	0	0	0	8	3	0	0	36	0	5339
6-24	5348	66	0	4	0	0	0	8	3	0	0	36	0	5465
0-24	5405	66	0	4	0	0	0	8	3	0	0	36	0	5522

Direction : EASTBOUND

Thursday 11/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	15	0	0	0	0	0	0	0	0	0	0	0	0	15
2	7	0	0	0	0	0	0	0	0	0	0	0	0	7
3	5	0	0	0	0	0	0	0	0	0	0	0	0	5
4	2	0	0	0	0	0	0	0	0	0	0	0	0	2
5	5	0	0	0	0	0	0	0	0	0	0	0	0	5
6	16	2	0	0	0	0	0	0	0	0	0	0	0	18
7	31	2	0	0	0	0	0	0	0	0	0	3	0	36
8	112	4	0	0	0	0	0	0	0	0	0	9	0	125
9	319	5	0	0	0	0	0	0	0	0	0	11	0	335
10	362	6	0	0	0	0	0	1	0	0	0	14	0	383
11	349	6	0	0	0	0	0	1	0	0	0	8	0	364
12	355	6	0	0	0	0	0	0	0	0	0	12	0	373
13	384	5	0	0	0	0	0	1	0	0	0	6	0	396
14	385	4	0	1	0	0	0	0	0	0	0	9	0	399
15	352	3	0	0	0	0	0	0	0	0	0	5	0	360
16	330	6	0	0	0	0	0	0	0	0	0	9	0	345
17	347	4	0	0	0	0	0	1	0	0	0	7	0	359
18	372	4	0	0	0	0	0	2	1	0	0	2	0	381
19	293	3	0	0	0	0	0	0	0	0	0	2	0	298
20	261	2	0	1	0	0	0	1	0	0	0	5	0	270
21	219	1	0	0	0	0	0	0	0	0	0	3	0	223
22	118	1	0	0	0	0	0	1	0	0	0	3	0	123
23	83	1	0	0	0	0	0	1	0	0	0	4	0	89
24	36	0	0	0	0	0	0	0	0	0	0	1	0	37
7-19	3960	56	0	1	0	0	0	6	1	0	0	94	0	4118
6-22	4589	62	0	2	0	0	0	8	1	0	0	108	0	4770
6-24	4708	63	0	2	0	0	0	9	1	0	0	113	0	4896
0-24	4758	65	0	2	0	0	0	9	1	0	0	113	0	4948

# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : WESTBOUND

Thursday 11/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	1	9	1	0	0	0	0	0	0	0	0	11
2	0	1	5	4	0	0	0	0	0	0	0	0	10
3	0	0	4	1	0	0	0	0	0	0	0	0	5
4	0	0	0	2	1	1	0	0	0	0	0	0	4
5	0	0	3	2	1	1	0	0	0	0	0	0	7
6	0	0	14	5	1	0	0	0	0	0	0	0	20
7	0	1	30	29	5	1	0	0	0	0	0	0	66
8	1	24	170	31	4	0	1	0	0	0	0	0	231
9	7	157	292	10	1	0	0	0	0	0	0	0	467
10	14	183	171	1	0	0	0	0	0	0	0	0	369
11	10	219	153	1	0	0	0	0	0	0	0	0	383
12	26	266	104	0	0	0	0	0	0	0	0	0	396
13	15	305	108	1	0	0	0	0	0	0	0	0	429
14	22	254	113	0	0	0	0	0	0	2	0	0	391
15	9	215	151	0	0	0	0	0	0	0	0	0	375
16	26	289	134	1	0	0	0	0	0	0	0	0	450
17	14	203	169	2	0	0	0	0	0	0	0	0	388
18	7	216	148	3	0	0	0	0	0	0	0	0	374
19	16	180	171	1	0	0	0	0	0	0	0	0	368
20	7	87	181	7	0	0	0	0	0	0	0	0	282
21	5	51	133	5	1	0	0	0	0	0	0	0	195
22	2	32	134	7	0	0	0	0	0	0	0	0	175
23	5	13	54	9	0	0	0	0	0	0	0	0	81
24	0	6	33	5	1	0	0	0	0	0	0	0	45
7-19	167	2511	1884	51	5	0	1	0	0	2	0	0	4621
6-22	181	2682	2362	99	11	1	1	0	0	2	0	0	5339
6-24	186	2701	2449	113	12	1	1	0	0	2	0	0	5465
0-24	186	2703	2484	128	15	3	1	0	0	2	0	0	5522

Direction : EASTBOUND

Thursday 11/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	2	10	3	0	0	0	0	0	0	0	0	15
2	1	1	5	0	0	0	0	0	0	0	0	0	7
3	0	1	3	1	0	0	0	0	0	0	0	0	5
4	0	0	1	1	0	0	0	0	0	0	0	0	2
5	0	1	3	1	0	0	0	0	0	0	0	0	5
6	0	2	11	4	1	0	0	0	0	0	0	0	18
7	0	1	22	11	1	0	1	0	0	0	0	0	36
8	0	13	100	10	1	1	0	0	0	0	0	0	125
9	3	105	221	6	0	0	0	0	0	0	0	0	335
10	21	216	145	0	1	0	0	0	0	0	0	0	383
11	3	233	128	0	0	0	0	0	0	0	0	0	364
12	15	264	94	0	0	0	0	0	0	0	0	0	373
13	9	284	103	0	0	0	0	0	0	0	0	0	396
14	9	289	101	0	0	0	0	0	0	0	0	0	399
15	5	250	105	0	0	0	0	0	0	0	0	0	360
16	8	212	125	0	0	0	0	0	0	0	0	0	345
17	3	196	159	1	0	0	0	0	0	0	0	0	359
18	5	203	172	1	0	0	0	0	0	0	0	0	381
19	1	124	171	2	0	0	0	0	0	0	0	0	298
20	2	89	177	0	2	0	0	0	0	0	0	0	270
21	0	49	166	7	1	0	0	0	0	0	0	0	223
22	5	20	88	7	2	1	0	0	0	0	0	0	123
23	0	15	63	10	1	0	0	0	0	0	0	0	89
24	1	7	24	4	1	0	0	0	0	0	0	0	37
7-19	82	2389	1624	20	2	1	0	0	0	0	0	0	4118
6-22	89	2548	2077	45	8	2	1	0	0	0	0	0	4770
6-24	90	2570	2164	59	10	2	1	0	0	0	0	0	4896
0-24	91	2577	2197	69	11	2	1	0	0	0	0	0	4948

# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : WESTBOUND

Friday 12/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	15	0	0	0	0	0	0	0	0	0	0	0	0	15
2	15	0	0	0	0	0	0	0	0	0	0	0	0	15
3	4	0	0	0	0	0	0	0	0	0	0	0	0	4
4	4	0	0	0	0	0	0	0	0	0	0	0	0	4
5	9	0	0	0	0	0	0	0	0	0	0	0	0	9
6	16	1	0	0	0	0	0	0	0	0	0	0	0	17
7	50	0	0	0	0	0	0	0	0	0	0	2	0	52
8	219	2	0	0	0	0	0	0	0	0	0	1	0	222
9	444	4	0	0	0	0	0	0	0	0	0	3	0	451
10	331	5	0	1	0	0	0	0	0	0	0	4	0	341
11	407	3	0	0	0	0	0	1	0	0	0	2	0	413
12	360	4	0	0	0	0	0	1	0	0	0	3	0	368
13	423	5	0	1	0	0	0	0	0	0	0	2	0	431
14	393	4	0	0	0	0	0	0	0	0	0	5	0	402
15	418	5	0	0	0	0	0	0	0	0	0	5	0	428
16	516	4	0	0	0	0	0	1	0	0	0	2	0	523
17	446	5	0	1	0	0	0	2	0	0	0	2	0	456
18	414	3	0	0	0	0	0	0	0	0	0	2	0	419
19	337	1	0	1	0	0	0	1	1	0	0	2	0	343
20	313	1	0	0	0	0	0	1	0	0	0	0	0	315
21	214	1	0	0	0	0	0	1	0	0	0	1	0	217
22	132	1	0	0	0	0	0	0	0	0	0	1	0	134
23	108	0	0	0	0	0	0	0	0	0	0	1	0	109
24	62	0	0	0	0	0	0	0	0	0	0	0	0	62
7-19	4708	45	0	4	0	0	0	6	1	0	0	33	0	4797
6-22	5417	48	0	4	0	0	0	8	1	0	0	37	0	5515
6-24	5587	48	0	4	0	0	0	8	1	0	0	38	0	5686
0-24	5650	49	0	4	0	0	0	8	1	0	0	38	0	5750

Direction : EASTBOUND

Friday 12/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	17	0	0	0	0	0	0	0	0	0	0	1	0	18
2	10	0	0	0	0	0	0	0	0	0	0	0	0	10
3	9	0	0	0	0	0	0	0	0	0	0	0	0	9
4	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5	2	0	0	0	0	0	0	0	0	0	0	0	0	2
6	16	1	0	0	0	0	0	0	0	0	0	0	0	17
7	30	1	0	0	0	0	0	0	0	0	0	4	0	35
8	129	3	0	0	0	0	0	0	0	0	0	10	0	142
9	328	4	0	1	0	0	0	0	0	0	0	8	0	341
10	302	5	0	1	0	0	0	0	0	0	0	12	0	320
11	324	6	0	0	0	0	0	0	0	0	0	10	0	340
12	367	4	0	0	0	0	0	0	0	0	0	5	0	376
13	384	3	0	0	0	0	0	0	0	0	0	8	0	395
14	363	4	0	0	0	0	0	0	0	0	0	8	0	375
15	347	3	0	0	0	0	0	1	0	0	0	5	0	356
16	364	4	0	0	0	0	0	0	0	0	0	6	0	374
17	394	3	0	1	0	0	0	1	0	0	0	4	0	403
18	312	3	0	1	0	0	0	1	0	0	0	3	0	320
19	276	2	0	0	0	0	0	1	0	0	0	6	0	285
20	263	2	0	0	0	0	0	0	0	0	0	4	0	269
21	200	1	0	0	0	0	0	1	0	0	0	1	0	203
22	132	2	0	0	0	0	0	0	0	0	0	3	0	137
23	111	1	0	0	0	0	0	0	0	0	0	4	0	116
24	56	0	0	0	0	0	0	0	0	0	0	1	0	57
7-19	3890	44	0	4	0	0	0	4	0	0	0	85	0	4027
6-22	4515	50	0	4	0	0	0	5	0	0	0	97	0	4671
6-24	4682	51	0	4	0	0	0	5	0	0	0	102	0	4844
0-24	4737	52	0	4	0	0	0	5	0	0	0	103	0	4901

# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : WESTBOUND

Friday 12/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	3	9	3	0	0	0	0	0	0	0	0	15
2	0	3	6	5	0	1	0	0	0	0	0	0	15
3	0	1	1	2	0	0	0	0	0	0	0	0	4
4	0	0	2	1	1	0	0	0	0	0	0	0	4
5	0	0	2	7	0	0	0	0	0	0	0	0	9
6	0	0	8	6	2	1	0	0	0	0	0	0	17
7	2	3	30	13	4	0	0	0	0	0	0	0	52
8	1	19	175	27	0	0	0	0	0	0	0	0	222
9	7	142	290	9	2	1	0	0	0	0	0	0	451
10	14	183	142	2	0	0	0	0	0	0	0	0	341
11	41	296	74	2	0	0	0	0	0	0	0	0	413
12	27	210	130	1	0	0	0	0	0	0	0	0	368
13	32	281	118	0	0	0	0	0	0	0	0	0	431
14	20	243	139	0	0	0	0	0	0	0	0	0	402
15	16	289	121	2	0	0	0	0	0	0	0	0	428
16	29	351	141	0	0	2	0	0	0	0	0	0	523
17	30	311	114	1	0	0	0	0	0	0	0	0	456
18	14	228	173	0	1	0	0	0	0	3	0	0	419
19	7	154	176	5	1	0	0	0	0	0	0	0	343
20	12	92	203	5	2	0	0	1	0	0	0	0	315
21	6	52	155	4	0	0	0	0	0	0	0	0	217
22	2	26	100	4	2	0	0	0	0	0	0	0	134
23	2	12	83	9	3	0	0	0	0	0	0	0	109
24	0	2	49	10	1	0	0	0	0	0	0	0	62
7-19	238	2707	1793	49	4	3	0	0	0	3	0	0	4797
6-22	260	2880	2281	75	12	3	0	1	0	3	0	0	5515
6-24	262	2894	2413	94	16	3	0	1	0	3	0	0	5686
0-24	262	2901	2441	118	19	5	0	1	0	3	0	0	5750

Direction : EASTBOUND

Friday 12/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	1	2	11	4	0	0	0	0	0	0	0	0	18
2	1	2	6	0	1	0	0	0	0	0	0	0	10
3	0	1	6	0	2	0	0	0	0	0	0	0	9
4	0	0	1	0	0	0	0	0	0	0	0	0	1
5	0	0	1	0	1	0	0	0	0	0	0	0	2
6	0	0	12	4	1	0	0	0	0	0	0	0	17
7	0	0	27	6	2	0	0	0	0	0	0	0	35
8	0	6	121	11	4	0	0	0	0	0	0	0	142
9	0	87	251	3	0	0	0	0	0	0	0	0	341
10	21	168	131	0	0	0	0	0	0	0	0	0	320
11	6	220	114	0	0	0	0	0	0	0	0	0	340
12	5	254	116	1	0	0	0	0	0	0	0	0	376
13	5	284	106	0	0	0	0	0	0	0	0	0	395
14	6	244	125	0	0	0	0	0	0	0	0	0	375
15	17	205	134	0	0	0	0	0	0	0	0	0	356
16	5	231	137	0	0	1	0	0	0	0	0	0	374
17	3	297	102	1	0	0	0	0	0	0	0	0	403
18	5	150	164	1	0	0	0	0	0	0	0	0	320
19	5	121	156	3	0	0	0	0	0	0	0	0	285
20	1	95	169	4	0	0	0	0	0	0	0	0	269
21	3	62	136	1	0	1	0	0	0	0	0	0	203
22	2	31	99	5	0	0	0	0	0	0	0	0	137
23	0	23	81	10	2	0	0	0	0	0	0	0	116
24	0	4	47	5	1	0	0	0	0	0	0	0	57
7-19	78	2267	1657	20	4	1	0	0	0	0	0	0	4027
6-22	84	2455	2088	36	6	2	0	0	0	0	0	0	4671
6-24	84	2482	2216	51	9	2	0	0	0	0	0	0	4844
0-24	86	2487	2253	59	14	2	0	0	0	0	0	0	4901

# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : WESTBOUND

Saturday 13/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	45	0	0	0	0	0	0	0	0	0	0	0	0	45
2	27	0	0	0	0	0	0	0	0	0	0	0	0	27
3	24	0	0	0	0	0	0	0	0	0	0	0	0	24
4	15	0	0	0	0	0	0	0	0	0	0	0	0	15
5	7	0	0	0	0	0	0	0	0	0	0	0	0	7
6	13	0	0	0	0	0	0	0	0	0	0	0	0	13
7	24	0	0	0	0	0	0	0	0	0	0	0	0	24
8	90	1	0	0	0	0	0	0	0	0	0	1	0	92
9	152	3	0	0	0	0	0	0	0	0	0	1	0	156
10	266	4	0	0	0	0	0	1	0	0	0	1	0	272
11	365	2	0	0	0	0	0	1	0	0	0	2	0	370
12	385	3	0	0	0	0	0	1	0	0	0	1	0	390
13	383	3	0	0	0	0	0	0	0	0	0	1	0	387
14	392	3	0	0	0	0	0	1	0	0	0	1	0	397
15	329	2	0	2	0	0	0	0	0	0	0	1	0	334
16	333	3	0	0	0	0	0	0	0	0	0	1	0	337
17	353	2	0	0	0	0	0	0	0	0	0	1	0	356
18	293	3	0	1	0	0	0	0	0	0	0	3	0	300
19	308	1	0	0	0	0	0	0	0	0	0	1	0	310
20	251	1	0	0	0	0	0	0	0	0	0	0	0	252
21	176	1	0	0	0	0	0	0	0	0	0	0	0	177
22	183	0	0	0	0	0	0	0	0	0	0	0	0	183
23	113	0	0	0	0	0	0	0	0	0	0	1	0	114
24	97	0	0	1	0	0	0	0	0	0	0	0	0	98
7-19	3649	30	0	3	0	0	0	4	0	0	0	15	0	3701
6-22	4283	32	0	3	0	0	0	4	0	0	0	15	0	4337
6-24	4493	32	0	4	0	0	0	4	0	0	0	16	0	4549
0-24	4624	32	0	4	0	0	0	4	0	0	0	16	0	4680

Direction : EASTBOUND

Saturday 13/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	47	0	0	0	0	0	0	0	0	0	0	1	0	48
2	22	0	0	0	0	0	0	0	0	0	0	0	0	22
3	15	0	0	0	0	0	0	0	0	0	0	0	0	15
4	11	0	0	0	0	0	0	0	0	0	0	0	0	11
5	11	0	0	0	0	0	0	0	0	0	0	0	0	11
6	9	0	0	0	0	0	0	0	0	0	0	0	0	9
7	19	0	0	0	0	0	0	0	0	0	0	3	0	22
8	51	1	0	0	0	0	0	0	0	0	0	7	0	59
9	143	2	0	0	0	0	0	1	0	0	0	9	0	155
10	225	3	0	0	0	0	0	0	0	0	0	8	0	236
11	339	3	0	0	0	0	0	0	0	0	0	8	0	350
12	394	3	0	0	0	0	0	1	0	0	0	6	0	404
13	363	3	0	0	0	0	0	3	1	0	0	10	0	380
14	325	3	0	0	0	0	0	0	0	0	0	4	0	332
15	327	2	0	0	0	0	0	1	0	0	0	6	0	336
16	308	2	0	2	0	0	0	0	0	0	0	8	0	320
17	332	2	0	0	0	0	0	0	0	0	0	7	0	341
18	261	2	0	0	0	0	0	0	0	0	0	8	0	271
19	253	2	0	0	0	0	0	1	0	0	0	7	0	263
20	195	1	0	0	0	0	0	0	0	0	0	5	0	201
21	170	1	0	0	0	0	0	2	0	0	0	2	0	175
22	139	0	0	0	0	0	0	0	0	0	0	2	0	141
23	104	0	0	0	0	0	0	0	0	0	0	0	0	104
24	80	0	0	0	0	0	0	0	0	0	0	1	0	81
7-19	3321	28	0	2	0	0	0	7	1	0	0	88	0	3447
6-22	3844	30	0	2	0	0	0	9	1	0	0	100	0	3986
6-24	4028	30	0	2	0	0	0	9	1	0	0	101	0	4171
0-24	4143	30	0	2	0	0	0	9	1	0	0	102	0	4287

# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : WESTBOUND

Saturday 13/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	0	34	11	0	0	0	0	0	0	0	0	45
2	0	4	19	2	2	0	0	0	0	0	0	0	27
3	0	2	14	5	3	0	0	0	0	0	0	0	24
4	0	1	9	3	1	1	0	0	0	0	0	0	15
5	0	0	5	2	0	0	0	0	0	0	0	0	7
6	2	0	6	4	1	0	0	0	0	0	0	0	13
7	0	2	16	4	2	0	0	0	0	0	0	0	24
8	1	1	61	26	2	0	1	0	0	0	0	0	92
9	1	19	115	17	4	0	0	0	0	0	0	0	156
10	5	91	172	4	0	0	0	0	0	0	0	0	272
11	5	178	184	3	0	0	0	0	0	0	0	0	370
12	19	249	122	0	0	0	0	0	0	0	0	0	390
13	15	255	116	1	0	0	0	0	0	0	0	0	387
14	17	225	145	4	4	0	0	2	0	0	0	0	397
15	1	196	132	5	0	0	0	0	0	0	0	0	334
16	12	161	160	1	3	0	0	0	0	0	0	0	337
17	6	176	172	2	0	0	0	0	0	0	0	0	356
18	5	105	185	5	0	0	0	0	0	0	0	0	300
19	6	122	177	4	0	1	0	0	0	0	0	0	310
20	5	37	202	5	3	0	0	0	0	0	0	0	252
21	3	34	134	5	1	0	0	0	0	0	0	0	177
22	1	41	136	5	0	0	0	0	0	0	0	0	183
23	1	6	97	9	1	0	0	0	0	0	0	0	114
24	0	11	74	11	2	0	0	0	0	0	0	0	98
7-19	93	1778	1741	72	13	1	1	2	0	0	0	0	3701
6-22	102	1892	2229	91	19	1	1	2	0	0	0	0	4337
6-24	103	1909	2400	111	22	1	1	2	0	0	0	0	4549
0-24	105	1916	2487	138	29	2	1	2	0	0	0	0	4680

Direction : EASTBOUND

Saturday 13/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	5	31	11	1	0	0	0	0	0	0	0	48
2	0	4	13	5	0	0	0	0	0	0	0	0	22
3	0	3	9	2	1	0	0	0	0	0	0	0	15
4	0	1	8	2	0	0	0	0	0	0	0	0	11
5	0	0	9	2	0	0	0	0	0	0	0	0	11
6	0	1	7	1	0	0	0	0	0	0	0	0	9
7	0	2	15	5	0	0	0	0	0	0	0	0	22
8	0	6	44	5	1	3	0	0	0	0	0	0	59
9	0	21	116	16	2	0	0	0	0	0	0	0	155
10	2	81	149	4	0	0	0	0	0	0	0	0	236
11	5	176	168	1	0	0	0	0	0	0	0	0	350
12	5	306	93	0	0	0	0	0	0	0	0	0	404
13	13	248	119	0	0	0	0	0	0	0	0	0	380
14	6	215	110	1	0	0	0	0	0	0	0	0	332
15	2	198	136	0	0	0	0	0	0	0	0	0	336
16	2	164	153	1	0	0	0	0	0	0	0	0	320
17	4	161	176	0	0	0	0	0	0	0	0	0	341
18	2	93	170	4	2	0	0	0	0	0	0	0	271
19	0	91	168	4	0	0	0	0	0	0	0	0	263
20	0	31	159	9	2	0	0	0	0	0	0	0	201
21	0	30	131	13	1	0	0	0	0	0	0	0	175
22	1	24	110	5	1	0	0	0	0	0	0	0	141
23	0	20	70	14	0	0	0	0	0	0	0	0	104
24	0	15	55	10	0	0	1	0	0	0	0	0	81
7-19	41	1760	1602	36	5	3	0	0	0	0	0	0	3447
6-22	42	1847	2017	68	9	3	0	0	0	0	0	0	3986
6-24	42	1882	2142	92	9	3	1	0	0	0	0	0	4171
0-24	42	1896	2219	115	11	3	1	0	0	0	0	0	4287

# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : WESTBOUND

Sunday 14/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	50	0	0	0	0	0	0	0	0	0	0	0	0	50
2	46	0	0	0	0	0	0	0	0	0	0	0	0	46
3	30	1	0	0	0	0	0	0	0	0	0	0	0	31
4	16	0	0	0	0	0	0	0	0	0	0	0	0	16
5	9	0	0	0	0	0	0	0	0	0	0	0	0	9
6	7	0	0	0	0	0	0	0	0	0	0	0	0	7
7	16	0	0	0	0	0	0	0	0	0	0	0	0	16
8	80	1	0	0	0	0	0	0	0	0	0	0	0	81
9	79	1	0	0	0	0	0	0	0	0	0	0	0	80
10	161	2	0	0	0	0	0	1	0	0	0	0	0	164
11	271	2	0	0	0	0	0	0	0	0	0	0	0	273
12	309	1	0	0	0	0	0	2	0	0	0	1	0	313
13	328	2	0	1	0	0	0	1	0	0	0	2	0	334
14	259	2	0	3	0	0	0	0	0	0	0	3	0	267
15	306	2	0	0	0	0	0	1	0	0	0	0	0	309
16	280	1	0	0	0	0	0	0	0	0	0	2	0	283
17	295	2	0	0	0	0	0	0	0	0	0	2	0	299
18	197	2	0	0	0	0	0	0	0	0	0	1	0	200
19	177	1	0	0	0	0	0	0	0	0	0	1	0	179
20	190	1	0	0	0	0	0	2	0	0	0	0	0	193
21	144	0	0	0	0	0	0	0	0	0	0	0	0	144
22	96	1	0	0	0	0	0	0	0	0	0	0	0	97
23	89	0	0	0	0	0	0	0	0	0	0	1	0	90
24	44	0	0	0	0	0	0	0	0	0	0	0	0	44
7-19	2742	19	0	4	0	0	0	5	0	0	0	12	0	2782
6-22	3188	21	0	4	0	0	0	7	0	0	0	12	0	3232
6-24	3321	21	0	4	0	0	0	7	0	0	0	13	0	3366
0-24	3479	22	0	4	0	0	0	7	0	0	0	13	0	3525

Direction : EASTBOUND

Sunday 14/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	59	0	0	0	0	0	0	0	0	0	0	0	0	59
2	40	1	0	0	0	0	0	0	0	0	0	0	0	41
3	22	0	0	0	0	0	0	0	0	0	0	0	0	22
4	17	0	0	0	0	0	0	0	0	0	0	0	0	17
5	11	0	0	0	0	0	0	0	0	0	0	0	0	11
6	7	0	0	0	0	0	0	0	0	0	0	0	0	7
7	12	0	0	0	0	0	0	0	0	0	0	0	0	12
8	36	0	0	0	0	0	0	0	0	0	0	1	0	37
9	78	1	0	0	0	0	0	0	0	0	0	1	0	80
10	133	1	0	0	0	0	0	0	0	0	0	2	0	136
11	215	2	0	0	0	0	0	0	0	0	0	4	0	221
12	226	1	0	0	0	0	0	0	1	0	0	5	0	233
13	288	1	0	1	0	0	0	0	0	0	0	4	0	294
14	268	1	0	0	0	0	0	1	0	0	0	4	0	274
15	283	2	0	0	0	0	0	1	0	0	0	5	0	291
16	278	2	0	0	0	0	0	1	0	0	0	3	0	284
17	270	1	0	0	0	0	0	0	0	0	0	5	0	276
18	239	1	0	1	0	0	0	0	0	0	0	5	0	246
19	176	1	0	0	0	0	0	0	0	0	0	3	0	180
20	154	1	0	0	0	0	0	0	0	0	0	2	0	157
21	180	1	0	0	0	0	0	2	0	0	0	2	0	185
22	104	1	0	0	0	0	0	0	1	0	0	2	0	108
23	70	0	0	0	0	0	0	0	0	0	0	2	0	72
24	58	0	0	0	0	0	0	0	0	0	0	1	0	59
7-19	2490	14	0	2	0	0	0	3	1	0	0	42	0	2552
6-22	2940	17	0	2	0	0	0	5	2	0	0	48	0	3014
6-24	3068	17	0	2	0	0	0	5	2	0	0	51	0	3145
0-24	3224	18	0	2	0	0	0	5	2	0	0	51	0	3302

# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : WESTBOUND

Sunday 14/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	3	32	13	2	0	0	0	0	0	0	0	50
2	0	5	32	9	0	0	0	0	0	0	0	0	46
3	0	6	17	4	4	0	0	0	0	0	0	0	31
4	0	1	11	3	1	0	0	0	0	0	0	0	16
5	0	1	4	3	1	0	0	0	0	0	0	0	9
6	0	1	2	4	0	0	0	0	0	0	0	0	7
7	0	0	9	6	0	0	1	0	0	0	0	0	16
8	0	2	59	19	1	0	0	0	0	0	0	0	81
9	0	4	61	11	2	2	0	0	0	0	0	0	80
10	0	17	126	13	4	2	1	1	0	0	0	0	164
11	0	35	231	7	0	0	0	0	0	0	0	0	273
12	5	74	229	5	0	0	0	0	0	0	0	0	313
13	15	117	199	3	0	0	0	0	0	0	0	0	334
14	3	68	193	3	0	0	0	0	0	0	0	0	267
15	1	79	220	9	0	0	0	0	0	0	0	0	309
16	5	88	181	9	0	0	0	0	0	0	0	0	283
17	9	74	207	6	1	2	0	0	0	0	0	0	299
18	0	27	166	7	0	0	0	0	0	0	0	0	200
19	1	20	137	20	1	0	0	0	0	0	0	0	179
20	0	34	141	16	2	0	0	0	0	0	0	0	193
21	1	11	113	14	5	0	0	0	0	0	0	0	144
22	0	12	69	16	0	0	0	0	0	0	0	0	97
23	1	13	63	13	0	0	0	0	0	0	0	0	90
24	0	1	32	9	2	0	0	0	0	0	0	0	44
7-19	39	605	2009	112	9	6	1	1	0	0	0	0	2782
6-22	40	662	2341	164	16	6	2	1	0	0	0	0	3232
6-24	41	676	2436	186	18	6	2	1	0	0	0	0	3366
0-24	41	693	2534	222	26	6	2	1	0	0	0	0	3525

Direction : EASTBOUND

Sunday 14/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	5	44	9	1	0	0	0	0	0	0	0	59
2	0	6	28	6	1	0	0	0	0	0	0	0	41
3	0	5	14	2	1	0	0	0	0	0	0	0	22
4	1	0	9	5	2	0	0	0	0	0	0	0	17
5	0	0	7	2	2	0	0	0	0	0	0	0	11
6	0	0	4	3	0	0	0	0	0	0	0	0	7
7	0	0	10	1	1	0	0	0	0	0	0	0	12
8	0	1	28	5	3	0	0	0	0	0	0	0	37
9	0	6	65	9	0	0	0	0	0	0	0	0	80
10	0	16	110	7	3	0	0	0	0	0	0	0	136
11	1	52	167	1	0	0	0	0	0	0	0	0	221
12	2	72	158	1	0	0	0	0	0	0	0	0	233
13	5	125	162	2	0	0	0	0	0	0	0	0	294
14	1	91	176	6	0	0	0	0	0	0	0	0	274
15	2	89	196	4	0	0	0	0	0	0	0	0	291
16	0	72	204	7	1	0	0	0	0	0	0	0	284
17	2	56	210	8	0	0	0	0	0	0	0	0	276
18	3	35	193	15	0	0	0	0	0	0	0	0	246
19	1	18	151	10	0	0	0	0	0	0	0	0	180
20	0	16	127	11	1	2	0	0	0	0	0	0	157
21	4	27	138	14	2	0	0	0	0	0	0	0	185
22	2	17	77	7	4	1	0	0	0	0	0	0	108
23	2	15	45	10	0	0	0	0	0	0	0	0	72
24	0	7	44	7	1	0	0	0	0	0	0	0	59
7-19	17	633	1820	75	7	0	0	0	0	0	0	0	2552
6-22	23	693	2172	108	15	3	0	0	0	0	0	0	3014
6-24	25	715	2261	125	16	3	0	0	0	0	0	0	3145
0-24	26	731	2367	152	23	3	0	0	0	0	0	0	3302

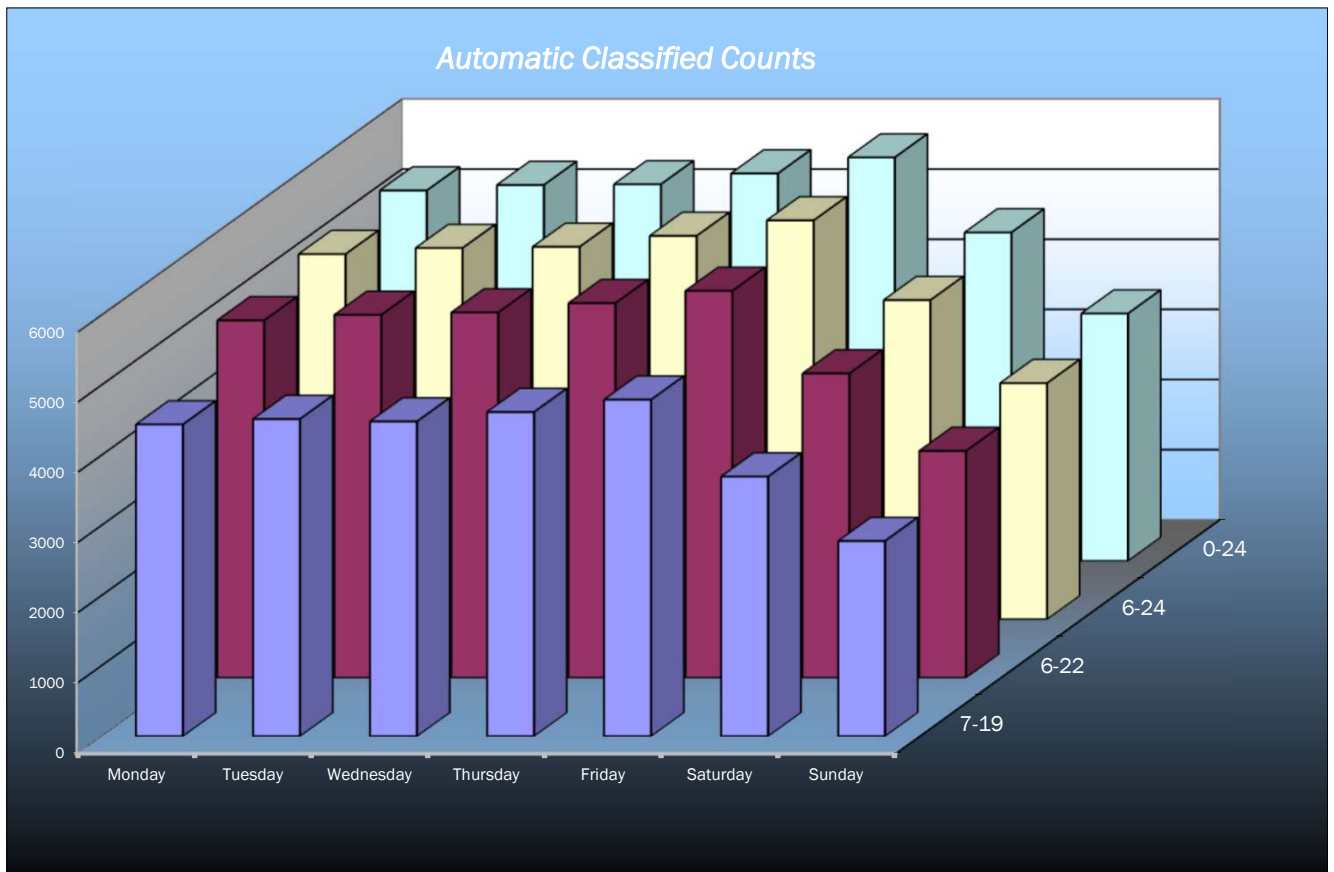
# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : WESTBOUND

## VEHICLE FLOWS

Hr Ending	Monday 8-Jul-19	Tuesday 9-Jul-19	Wednesday 10-Jul-19	Thursday 11-Jul-19	Friday 12-Jul-19	Saturday 13-Jul-19	Sunday 14-Jul-19	WEEKDAY AVERAGE	WEEK AVERAGE
1	17	17	20	11	15	45	50	16	25
2	18	12	10	10	15	27	46	13	20
3	5	6	5	5	4	24	31	5	11
4	2	1	1	4	4	15	16	2	6
5	10	8	5	7	9	7	9	8	8
6	22	21	17	20	17	13	7	19	17
7	59	62	59	66	52	24	16	60	48
8	203	196	205	231	222	92	81	211	176
9	388	496	447	467	451	156	80	450	355
10	356	368	355	369	341	272	164	358	318
11	361	390	352	383	413	370	273	380	363
12	416	352	414	396	368	390	313	389	378
13	399	387	377	429	431	387	334	405	392
14	390	371	362	391	402	397	267	383	369
15	395	383	373	375	428	334	309	391	371
16	453	464	410	450	523	337	283	460	417
17	390	375	433	388	456	356	299	408	385
18	391	418	400	374	419	300	200	400	357
19	302	321	359	368	343	310	179	339	312
20	270	287	301	282	315	252	193	291	271
21	194	161	216	195	217	177	144	197	186
22	127	142	144	175	134	183	97	144	143
23	76	90	72	81	109	114	90	86	90
24	35	29	30	45	62	98	44	40	49
7-19	4444	4521	4487	4621	4797	3701	2782	4574	4193
6-22	5094	5173	5207	5339	5515	4337	3232	5266	4842
6-24	5205	5292	5309	5465	5686	4549	3366	5391	4982
0-24	5279	5357	5367	5522	5750	4680	3525	5455	5069

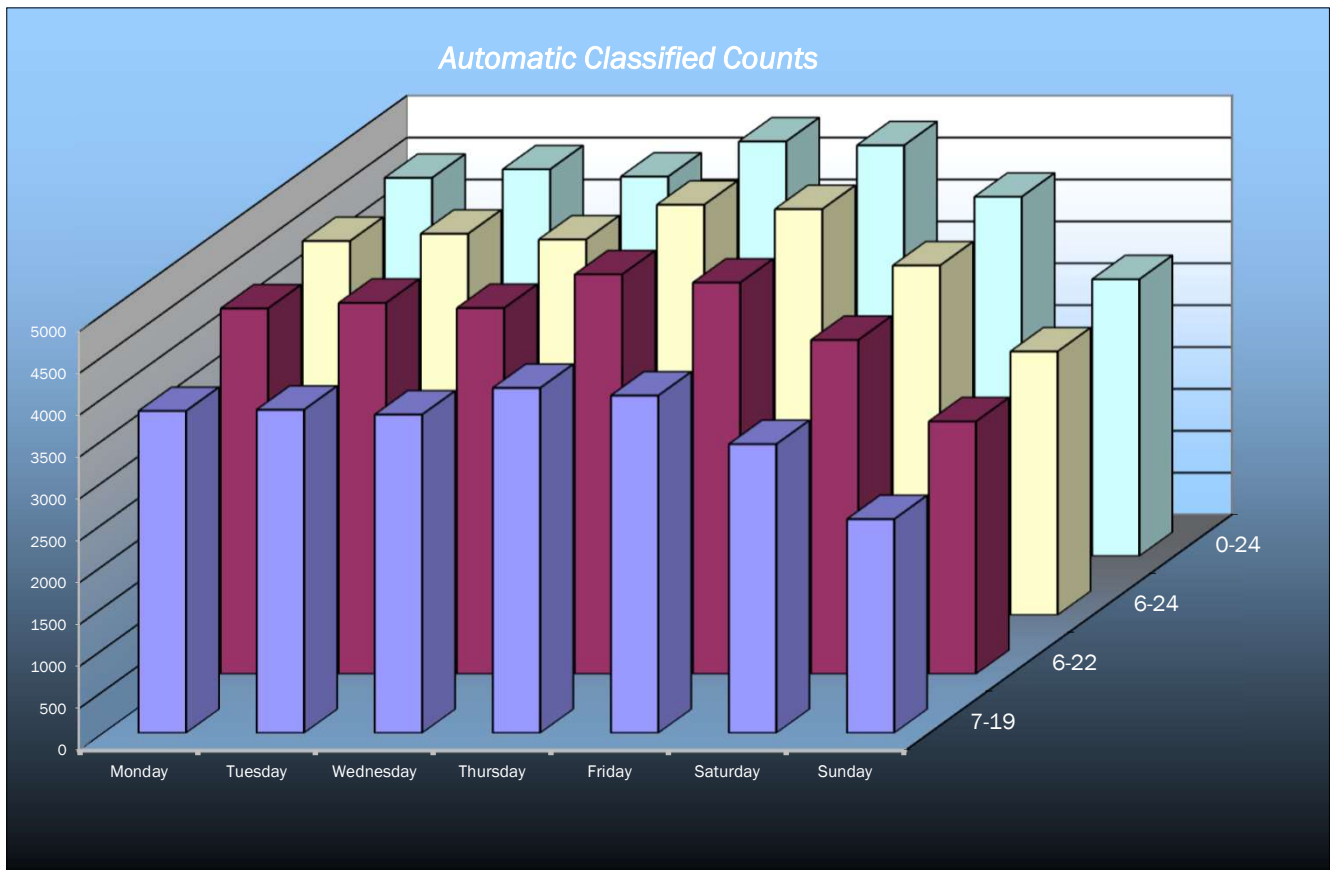


# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : EASTBOUND

EASTBOUND									
Hr Ending	Monday 8-Jul-19	Tuesday 9-Jul-19	Wednesday 10-Jul-19	Thursday 11-Jul-19	Friday 12-Jul-19	Saturday 13-Jul-19	Sunday 14-Jul-19	WEEKDAY AVERAGE	WEEK AVERAGE
1	18	21	19	15	18	48	59	18	28
2	13	10	9	7	10	22	41	10	16
3	4	9	2	5	9	15	22	6	9
4	2	4	1	2	1	11	17	2	5
5	1	5	5	5	2	11	11	4	6
6	12	16	10	18	17	9	7	15	13
7	40	37	42	36	35	22	12	38	32
8	120	122	110	125	142	59	37	124	102
9	245	287	313	335	341	155	80	304	251
10	320	299	278	383	320	236	136	320	282
11	336	292	322	364	340	350	221	331	318
12	363	377	352	373	376	404	233	368	354
13	384	395	370	396	395	380	294	388	373
14	363	408	331	399	375	332	274	375	355
15	365	348	346	360	356	336	291	355	343
16	395	375	391	345	374	320	284	376	355
17	330	345	338	359	403	341	276	355	342
18	330	331	363	381	320	271	246	345	320
19	292	279	286	298	285	263	180	288	269
20	205	211	219	270	269	201	157	235	219
21	185	193	190	223	203	175	185	199	193
22	89	130	116	123	137	141	108	119	121
23	59	82	75	89	116	104	72	84	85
24	42	39	40	37	57	81	59	43	51
7-19	3843	3858	3800	4118	4027	3447	2552	3929	3664
6-22	4362	4429	4367	4770	4671	3986	3014	4520	4228
6-24	4463	4550	4482	4896	4844	4171	3145	4647	4364
0-24	4513	4615	4528	4948	4901	4287	3302	4701	4442



# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : WESTBOUND

AVERAGE SPEEDS							
Hr Ending	Monday 8-Jul-19	Tuesday 9-Jul-19	Wednesday 10-Jul-19	Thursday 11-Jul-19	Friday 12-Jul-19	Saturday 13-Jul-19	Sunday 14-Jul-19
1	24.2	27.3	28.5	25.3	25.0	27.3	27.4
2	27.4	29.7	28.3	27.5	27.2	25.5	25.9
3	32.5	31.3	32.5	27.0	26.8	27.8	26.1
4	15.5	25.5	25.5	36.8	30.5	28.3	27.1
5	28.8	29.3	29.5	31.9	31.3	27.6	28.3
6	27.0	28.7	31.2	28.0	30.6	25.7	28.4
7	27.4	27.2	28.4	29.9	27.0	27.0	29.7
8	25.4	25.4	25.7	25.7	25.5	27.8	27.2
9	23.7	20.9	22.7	22.0	22.3	25.3	26.8
10	19.8	19.1	20.1	19.8	19.4	21.9	25.9
11	19.1	17.9	19.7	19.3	16.4	20.5	24.4
12	17.7	17.9	19.2	17.5	18.3	18.1	22.9
13	17.3	17.4	19.0	17.7	17.5	18.2	21.2
14	17.3	17.6	18.4	18.1	18.5	19.3	22.8
15	17.9	18.1	18.8	19.3	18.0	19.7	23.1
16	17.4	17.9	17.5	17.9	17.7	20.1	22.3
17	19.3	19.6	19.1	19.6	17.4	20.3	22.7
18	20.5	21.0	20.1	19.4	19.7	21.8	24.4
19	22.3	22.5	20.5	19.8	20.7	21.3	25.2
20	23.4	23.4	23.3	22.1	22.1	23.9	24.5
21	24.3	25.2	23.6	22.6	22.7	23.5	25.8
22	25.9	24.0	25.2	23.7	23.7	23.4	25.5
23	25.2	25.1	25.1	23.5	25.0	25.5	24.9
24	25.9	24.8	25.6	25.3	26.6	25.5	27.4
10-12	18.4	17.9	19.5	18.4	17.4	19.3	23.7
14-16	17.7	18.0	18.1	18.6	17.9	19.9	22.7
0-24	22.7	23.2	23.6	23.3	22.9	23.6	25.4

85TH PERCENTILE							
Hr Ending	Monday 8-Jul-19	Tuesday 9-Jul-19	Wednesday 10-Jul-19	Thursday 11-Jul-19	Friday 12-Jul-19	Saturday 13-Jul-19	Sunday 14-Jul-19
1	29.9	32.7	33.4	29.2	30.8	30.6	32.2
2	33.7	36.5	32.9	33.1	34.9	31.1	30.6
3	37.0	36.2	37.0	30.4	35.0	33.8	33.1
4	15.5	-	-	41.5	36.6	34.9	32.1
5	35.2	36.3	35.3	38.8	34.6	31.3	34.9
6	32.9	34.1	36.3	32.1	36.3	35.6	35.0
7	32.0	33.3	33.7	34.8	33.8	32.4	35.8
8	30.4	30.4	30.6	30.7	29.6	32.8	31.0
9	28.6	26.7	27.9	27.4	27.8	30.3	31.6
10	25.4	24.3	25.9	25.5	25.1	27.3	31.4
11	24.4	23.3	25.5	24.7	21.7	25.9	28.0
12	23.3	23.1	24.8	22.9	24.3	23.5	27.9
13	23.2	22.9	24.6	22.7	23.1	23.4	27.1
14	22.5	22.7	24.6	24.5	24.0	25.8	27.7
15	23.5	24.0	24.2	24.6	23.2	24.9	27.9
16	23.0	23.4	23.0	23.4	23.3	26.1	27.7
17	25.3	24.7	24.6	25.3	22.7	25.7	28.5
18	26.0	26.4	25.5	24.8	26.5	27.2	28.2
19	27.4	27.6	26.6	25.6	26.4	26.9	29.7
20	28.2	28.8	27.9	27.7	28.2	28.8	29.3
21	28.7	29.7	28.6	28.2	28.0	28.5	30.4
22	29.9	29.2	29.2	28.4	28.8	28.0	30.2
23	30.5	30.5	30.4	30.1	30.2	29.3	30.1
24	32.7	27.4	31.1	30.1	30.3	30.1	31.6
10-12	23.8	23.2	25.1	23.8	23.0	24.7	28.0
14-16	23.2	23.7	23.6	24.0	23.2	25.5	27.8
0-24	27.9	28.4	28.8	28.6	28.6	28.9	30.5

7 DAY AVERAGE SPEED	23.5
7 DAY AVERAGE 85th PERCENTILE	28.8

# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : EASTBOUND

AVERAGE SPEEDS							
Hr Ending	Monday 8-Jul-19	Tuesday 9-Jul-19	Wednesday 10-Jul-19	Thursday 11-Jul-19	Friday 12-Jul-19	Saturday 13-Jul-19	Sunday 14-Jul-19
1	26.6	23.1	24.4	25.7	24.9	26.4	26.0
2	25.5	25.5	25.5	25.5	22.8	25.4	25.4
3	27.4	27.4	27.4	27.4	27.2	25.3	24.5
4	29.3	29.3	29.3	29.3	25.5	26.0	28.0
5	25.5	25.5	27.0	25.0	31.8	26.9	29.1
6	27.2	28.8	28.3	26.8	28.0	25.2	28.7
7	25.8	27.5	26.6	28.5	27.5	26.3	27.2
8	25.0	24.7	25.1	25.3	26.0	26.2	27.3
9	23.6	23.2	23.3	22.3	23.0	25.1	25.6
10	20.7	18.9	20.3	18.8	18.9	22.0	25.0
11	19.6	18.7	19.3	18.9	18.7	20.2	23.1
12	17.9	18.4	18.7	17.6	18.5	17.7	22.3
13	17.5	16.7	17.9	17.9	18.1	18.3	21.0
14	18.1	17.4	19.1	17.8	18.7	18.7	22.3
15	18.4	18.0	18.3	18.3	18.8	19.5	22.4
16	17.8	18.4	18.4	18.9	19.1	20.3	23.2
17	19.2	19.0	19.8	19.9	18.0	20.5	23.5
18	20.8	20.5	20.6	19.9	20.5	22.1	24.3
19	22.5	23.0	21.7	21.3	21.0	22.2	24.8
20	24.2	23.7	24.2	22.1	22.0	24.4	25.3
21	24.2	23.8	23.9	23.6	22.3	24.4	24.3
22	24.9	24.2	24.7	23.8	23.2	24.0	24.7
23	25.5	25.3	24.8	24.8	24.4	24.6	23.9
24	26.3	24.9	24.8	24.2	25.7	24.9	25.4
10-12	18.8	18.6	19.0	18.3	18.6	18.9	22.7
14-16	18.1	18.2	18.3	18.6	18.9	19.9	22.8
0-24	23.0	22.7	23.1	22.6	22.7	23.2	24.9

85TH PERCENTILE							
Hr Ending	Monday 8-Jul-19	Tuesday 9-Jul-19	Wednesday 10-Jul-19	Thursday 11-Jul-19	Friday 12-Jul-19	Saturday 13-Jul-19	Sunday 14-Jul-19
1	30.0	27.5	30.7	30.8	31.9	31.6	30.5
2	33.3	33.4	36.7	29.1	31.4	31.1	30.7
3	31.1	33.4	38.0	31.2	34.1	31.7	30.4
4	34.6	38.8	-	34.6	-	30.5	35.4
5	-	25.5	30.4	31.2	40.6	29.9	34.4
6	31.2	34.7	32.9	32.5	32.1	29.6	32.7
7	31.8	32.0	31.7	34.0	31.4	31.0	31.2
8	29.7	29.3	28.8	29.6	29.6	32.0	31.8
9	27.8	27.9	27.7	27.4	27.5	29.7	29.3
10	26.0	24.2	25.8	24.6	24.9	27.2	29.2
11	24.8	23.7	24.8	23.9	23.7	25.5	27.5
12	22.4	23.5	23.9	22.6	23.4	22.1	27.2
13	22.3	20.8	23.2	22.6	22.7	23.5	26.4
14	23.0	21.9	24.3	22.5	23.7	23.8	27.3
15	23.2	22.5	23.1	23.1	24.4	24.5	27.4
16	22.4	24.8	23.2	24.1	24.3	25.4	27.9
17	24.4	24.2	25.5	25.1	22.5	25.8	28.1
18	26.0	25.6	25.9	25.2	25.9	27.4	28.9
19	27.3	27.6	26.8	26.4	26.4	27.1	28.7
20	29.1	28.3	28.5	27.2	27.1	28.7	29.7
21	28.7	28.5	28.7	28.2	27.6	29.0	29.6
22	28.9	29.2	28.9	30.0	28.3	28.6	30.6
23	30.9	28.7	30.4	29.8	29.5	29.7	30.0
24	31.4	31.2	29.3	30.5	29.5	30.5	30.1
10-12	23.6	23.6	24.3	23.2	23.6	23.8	27.4
14-16	22.8	23.6	23.2	23.6	24.4	25.0	27.6
0-24	27.8	27.8	28.2	27.8	27.9	28.2	29.8

7 DAY AVERAGE SPEED	23.2
7 DAY AVERAGE 85th PERCENTILE	28.2

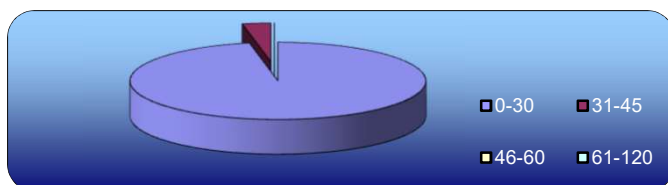
# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

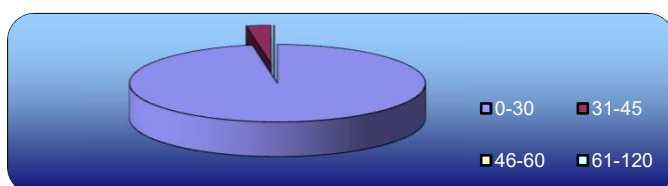
Direction : WESTBOUND

SPEED SUMMARY							
SPEED (MPH)	Monday 8-Jul-19	Tuesday 9-Jul-19	Wednesday 10-Jul-19	Thursday 11-Jul-19	Friday 12-Jul-19	Saturday 13-Jul-19	Sunday 14-Jul-19
0-30	5116	5212	5207	5373	5604	4508	3268
31-45	163	143	157	146	142	169	254
46-60	0	2	3	1	1	3	3
61-120	0	0	0	2	3	0	0
<b>TOTAL</b>	<b>5279</b>	<b>5357</b>	<b>5367</b>	<b>5522</b>	<b>5750</b>	<b>4680</b>	<b>3525</b>

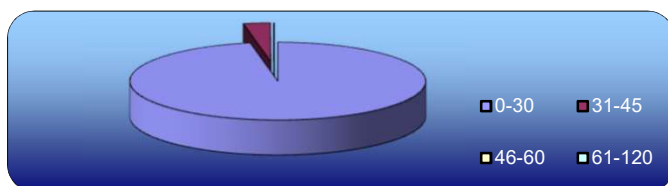
Monday  
8-Jul-19



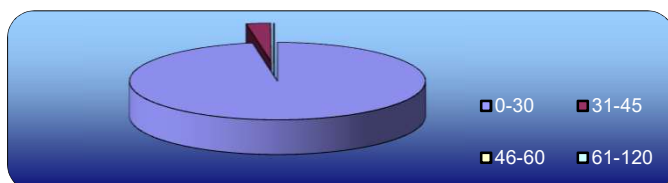
Tuesday  
9-Jul-19



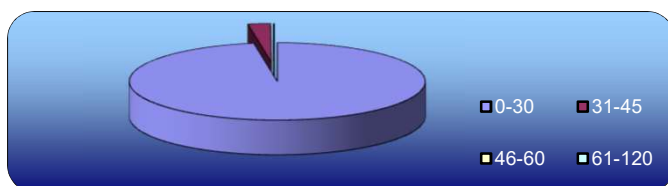
Wednesday  
10-Jul-19



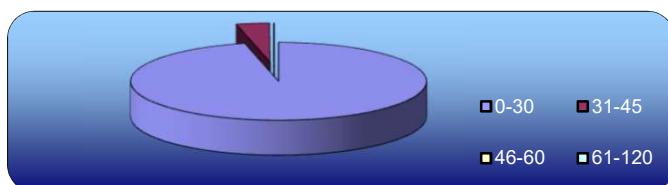
Thursday  
11-Jul-19



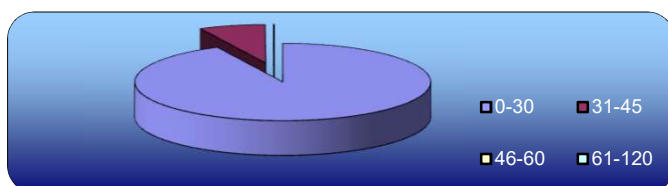
Friday  
12-Jul-19



Saturday  
13-Jul-19



Sunday  
14-Jul-19



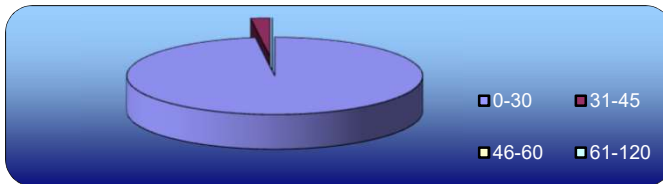
# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

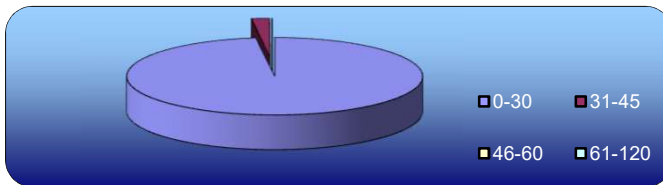
Direction : EASTBOUND

SPEED SUMMARY							
SPEED (MPH)	Monday 8-Jul-19	Tuesday 9-Jul-19	Wednesday 10-Jul-19	Thursday 11-Jul-19	Friday 12-Jul-19	Saturday 13-Jul-19	Sunday 14-Jul-19
0-30	4419	4522	4437	4865	4826	4157	3124
31-45	94	91	91	82	75	129	178
46-60	0	1	0	1	0	1	0
61-120	0	1	0	0	0	0	0
<b>TOTAL</b>	<b>4513</b>	<b>4615</b>	<b>4528</b>	<b>4948</b>	<b>4901</b>	<b>4287</b>	<b>3302</b>

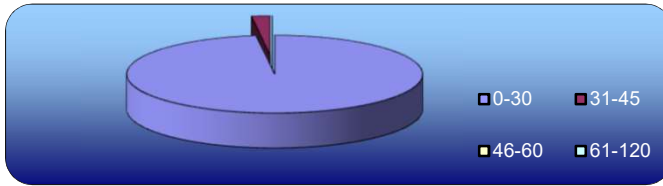
Monday  
8-Jul-19



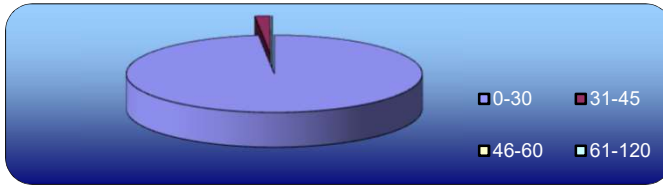
Tuesday  
9-Jul-19



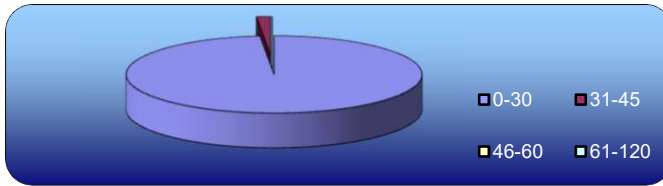
Wednesday  
10-Jul-19



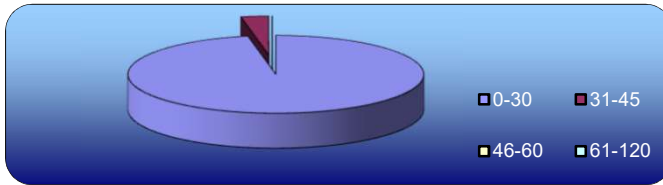
Thursday  
11-Jul-19



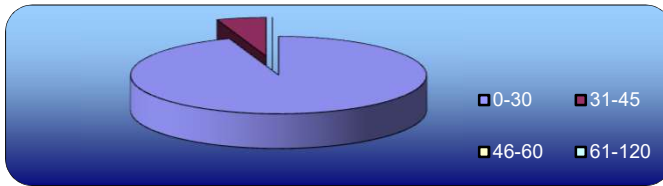
Friday  
12-Jul-19



Saturday  
13-Jul-19



Sunday  
14-Jul-19

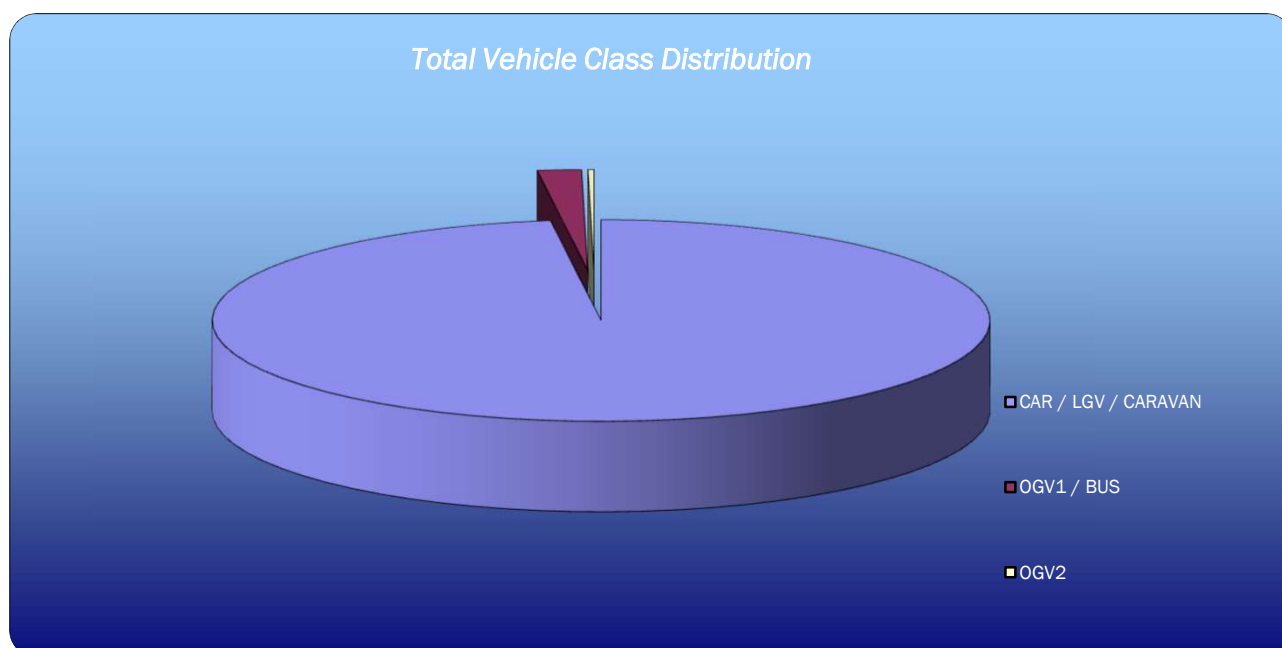


# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : WESTBOUND

VEHICLE CLASSIFICATION				
	CAR / LGV / CARAVAN	OGV1 / BUS	OGV2	TOTAL
<b>8-Jul-19</b>				
7-19	4341	96	7	4444
6-22	4979	108	7	5094
6-24	5086	112	7	5205
0-24	5156	116	7	5279
<b>9-Jul-19</b>				
7-19	4402	107	12	4521
6-22	5041	119	13	5173
6-24	5157	122	13	5292
0-24	5218	126	13	5357
<b>10-Jul-19</b>				
7-19	4387	88	12	4487
6-22	5096	97	14	5207
6-24	5198	97	14	5309
0-24	5254	99	14	5367
<b>11-Jul-19</b>				
7-19	4514	92	15	4621
6-22	5222	102	15	5339
6-24	5348	102	15	5465
0-24	5405	102	15	5522
<b>12-Jul-19</b>				
7-19	4708	78	11	4797
6-22	5417	85	13	5515
6-24	5587	86	13	5686
0-24	5650	87	13	5750
<b>13-Jul-19</b>				
7-19	3649	45	7	3701
6-22	4283	47	7	4337
6-24	4493	48	8	4549
0-24	4624	48	8	4680
<b>14-Jul-19</b>				
7-19	2742	31	9	2782
6-22	3188	33	11	3232
6-24	3321	34	11	3366
0-24	3479	35	11	3525
<b>AVERAGE</b>				
7-19	4106	77	10	4193
6-22	4747	84	11	4842
6-24	4884	86	12	4982
0-24	4969	88	12	5069

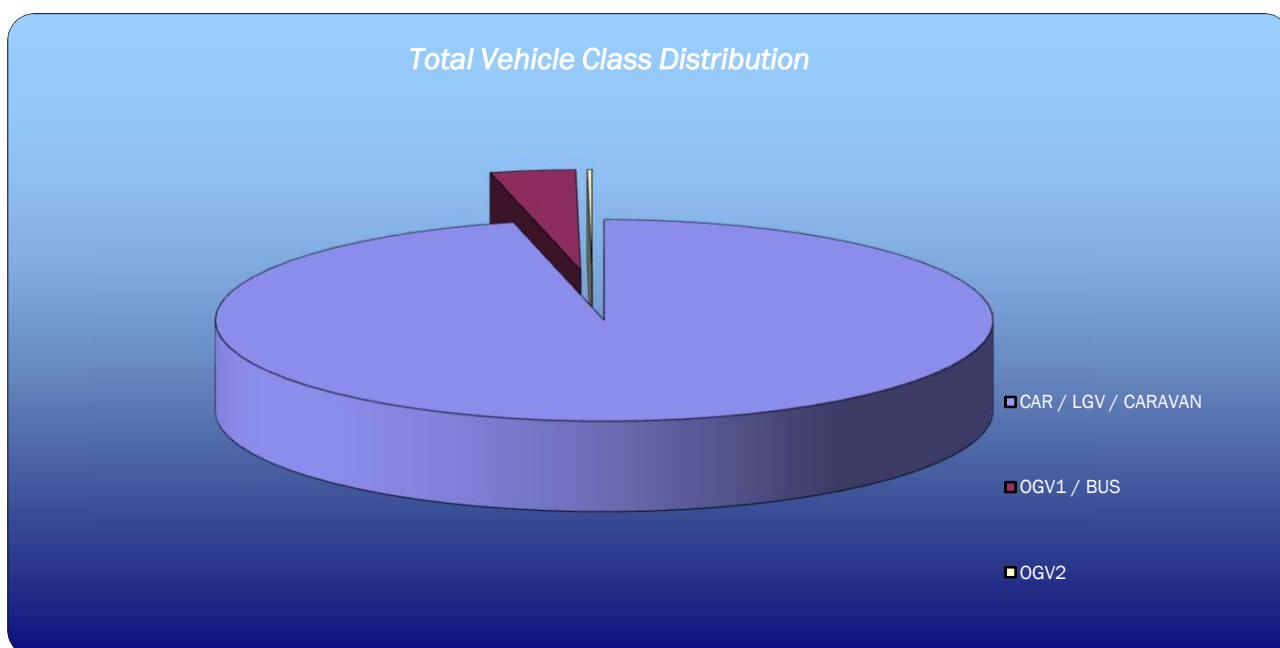


# Automatic Classified Counts, Colwyn Bay

LOCATION: A547 (WEEK 1)

Direction : EASTBOUND

VEHICLE CLASSIFICATION				
	CAR / LGV / CARAVAN	OGV1 / BUS	OGV2	TOTAL
<b>8-Jul-19</b>				
7-19	3689	148	6	3843
6-22	4187	169	6	4362
6-24	4283	174	6	4463
0-24	4332	175	6	4513
<b>9-Jul-19</b>				
7-19	3694	158	6	3858
6-22	4243	180	6	4429
6-24	4357	187	6	4550
0-24	4421	188	6	4615
<b>10-Jul-19</b>				
7-19	3640	152	8	3800
6-22	4186	172	9	4367
6-24	4296	177	9	4482
0-24	4342	177	9	4528
<b>11-Jul-19</b>				
7-19	3960	150	8	4118
6-22	4589	170	11	4770
6-24	4708	176	12	4896
0-24	4758	178	12	4948
<b>12-Jul-19</b>				
7-19	3890	129	8	4027
6-22	4515	147	9	4671
6-24	4682	153	9	4844
0-24	4737	155	9	4901
<b>13-Jul-19</b>				
7-19	3321	116	10	3447
6-22	3844	130	12	3986
6-24	4028	131	12	4171
0-24	4143	132	12	4287
<b>14-Jul-19</b>				
7-19	2490	56	6	2552
6-22	2940	65	9	3014
6-24	3068	68	9	3145
0-24	3224	69	9	3302
<b>AVERAGE</b>				
7-19	3526	130	7	3664
6-22	4072	148	9	4228
6-24	4203	152	9	4364
0-24	4280	153	9	4442



# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : WESTBOUND

Tuesday 09/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	1	2	0	0	0	0	0	0	0	0	0	1	0	4
2	1	2	0	0	0	0	0	0	0	0	0	0	0	3
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	2	1	0	0	0	0	0	0	0	0	0	0	0	3
5	3	1	0	0	0	0	0	0	0	0	0	0	0	4
6	4	3	0	0	0	0	0	0	0	0	0	0	0	7
7	32	3	0	0	0	0	0	0	0	0	0	1	0	36
8	76	10	1	0	0	0	0	0	0	0	1	1	0	89
9	300	19	1	0	0	0	0	0	0	0	0	1	0	321
10	188	18	0	0	0	0	0	0	0	0	0	2	0	208
11	132	11	2	0	0	0	1	0	0	0	0	3	0	149
12	186	10	0	0	0	0	0	0	0	0	0	1	0	197
13	179	12	0	0	0	0	0	0	0	0	0	3	0	194
14	202	14	0	0	2	0	0	0	0	0	0	1	0	219
15	166	13	0	0	0	0	0	0	0	0	0	1	0	180
16	217	18	0	0	1	0	0	0	0	0	0	0	0	236
17	193	13	0	0	0	0	0	0	0	0	0	1	0	207
18	175	9	0	0	1	0	0	0	0	0	0	1	0	186
19	102	7	0	0	0	0	0	0	0	0	0	1	0	110
20	68	4	0	0	0	0	0	0	0	0	0	1	0	73
21	46	2	0	0	0	0	0	0	0	0	0	0	0	48
22	22	1	0	0	0	0	0	0	0	0	0	0	0	23
23	17	0	0	0	0	0	0	0	0	0	0	0	0	17
24	4	0	0	0	0	0	0	0	0	0	0	0	0	4
7-19	2116	154	4	0	4	0	1	0	0	0	1	16	0	2296
6-22	2284	164	4	0	4	0	1	0	0	0	1	18	0	2476
6-24	2305	164	4	0	4	0	1	0	0	0	1	18	0	2497
0-24	2316	173	4	0	4	0	1	0	0	0	1	19	0	2518

Direction : EASTBOUND

Tuesday 09/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	4	1	0	0	0	0	0	0	0	0	0	1	0	6
2	5	0	0	0	0	0	0	0	0	0	0	0	0	5
3	2	1	0	0	0	0	0	0	0	0	0	0	0	3
4	1	1	0	0	0	0	0	0	0	0	0	0	0	2
5	4	1	1	0	0	0	0	0	0	0	0	0	0	6
6	10	2	1	0	0	0	0	0	0	0	0	0	0	13
7	40	2	0	0	0	0	0	0	0	0	0	0	0	42
8	93	9	0	0	0	0	0	0	0	0	0	0	0	102
9	184	11	0	0	1	0	0	0	0	0	0	2	0	198
10	141	13	0	0	0	0	0	0	0	0	0	0	0	154
11	181	19	0	0	0	0	0	0	0	0	0	0	0	200
12	172	15	0	0	1	0	0	0	0	0	0	0	0	188
13	191	16	0	0	0	0	0	0	0	0	0	1	0	208
14	220	24	0	0	0	0	0	0	0	0	0	1	0	245
15	209	12	0	0	0	0	0	0	0	0	0	0	0	221
16	213	8	1	1	0	0	0	0	0	0	0	2	0	225
17	238	11	0	0	1	0	0	0	0	0	0	0	0	250
18	275	22	1	0	0	0	0	0	0	0	0	0	0	298
19	142	11	0	0	0	0	0	0	0	0	0	0	0	153
20	96	1	0	0	0	0	0	0	0	0	0	0	0	97
21	56	2	0	0	0	0	0	0	0	0	0	1	0	59
22	39	1	0	0	0	0	0	0	0	0	0	0	0	40
23	20	0	0	0	0	0	0	0	0	0	0	0	0	20
24	11	0	0	0	0	0	0	0	0	0	0	0	0	11
7-19	2259	171	2	1	3	0	0	0	0	0	0	6	0	2442
6-22	2490	177	2	1	3	0	0	0	0	0	0	7	0	2680
6-24	2521	177	2	1	3	0	0	0	0	0	0	7	0	2711
0-24	2547	183	4	1	3	0	0	0	0	0	0	8	0	2746

# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : WESTBOUND

Tuesday 09/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	0	3	1	0	0	0	0	0	0	0	0	4
2	0	0	3	0	0	0	0	0	0	0	0	0	3
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	3	0	0	0	0	0	0	0	0	0	3
5	0	0	2	2	0	0	0	0	0	0	0	0	4
6	0	0	5	1	1	0	0	0	0	0	0	0	7
7	0	0	24	12	0	0	0	0	0	0	0	0	36
8	0	1	68	20	0	0	0	0	0	0	0	0	89
9	0	3	274	43	1	0	0	0	0	0	0	0	321
10	0	1	182	24	1	0	0	0	0	0	0	0	208
11	0	0	133	16	0	0	0	0	0	0	0	0	149
12	0	3	179	14	1	0	0	0	0	0	0	0	197
13	0	1	163	29	0	1	0	0	0	0	0	0	194
14	0	16	189	14	0	0	0	0	0	0	0	0	219
15	0	0	155	24	1	0	0	0	0	0	0	0	180
16	0	4	204	28	0	0	0	0	0	0	0	0	236
17	0	1	182	22	2	0	0	0	0	0	0	0	207
18	0	0	155	28	3	0	0	0	0	0	0	0	186
19	0	0	91	16	2	1	0	0	0	0	0	0	110
20	0	0	63	9	1	0	0	0	0	0	0	0	73
21	0	0	32	15	1	0	0	0	0	0	0	0	48
22	0	0	17	5	0	0	1	0	0	0	0	0	23
23	0	0	13	4	0	0	0	0	0	0	0	0	17
24	0	0	2	2	0	0	0	0	0	0	0	0	4
7-19	0	30	1975	278	11	2	0	0	0	0	0	0	2296
6-22	0	30	2111	319	13	2	1	0	0	0	0	0	2476
6-24	0	30	2126	325	13	2	1	0	0	0	0	0	2497
0-24	0	30	2142	329	14	2	1	0	0	0	0	0	2518

Direction : EASTBOUND

Tuesday 09/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	0	5	1	0	0	0	0	0	0	0	0	6
2	0	0	5	0	0	0	0	0	0	0	0	0	5
3	0	0	3	0	0	0	0	0	0	0	0	0	3
4	0	0	1	0	1	0	0	0	0	0	0	0	2
5	0	1	4	1	0	0	0	0	0	0	0	0	6
6	0	0	4	7	1	1	0	0	0	0	0	0	13
7	0	0	26	12	3	1	0	0	0	0	0	0	42
8	0	6	82	12	2	0	0	0	0	0	0	0	102
9	1	18	169	8	2	0	0	0	0	0	0	0	198
10	0	15	128	10	1	0	0	0	0	0	0	0	154
11	0	34	154	9	3	0	0	0	0	0	0	0	200
12	0	31	156	1	0	0	0	0	0	0	0	0	188
13	2	49	146	10	1	0	0	0	0	0	0	0	208
14	1	56	174	14	0	0	0	0	0	0	0	0	245
15	0	46	167	8	0	0	0	0	0	0	0	0	221
16	2	50	158	14	1	0	0	0	0	0	0	0	225
17	0	49	189	11	1	0	0	0	0	0	0	0	250
18	4	56	217	21	0	0	0	0	0	0	0	0	298
19	0	18	118	14	3	0	0	0	0	0	0	0	153
20	0	10	76	6	4	1	0	0	0	0	0	0	97
21	0	1	50	6	2	0	0	0	0	0	0	0	59
22	0	7	26	4	3	0	0	0	0	0	0	0	40
23	0	1	12	5	2	0	0	0	0	0	0	0	20
24	0	0	8	3	0	0	0	0	0	0	0	0	11
7-19	10	428	1858	132	14	0	0	0	0	0	0	0	2442
6-22	10	446	2036	160	26	2	0	0	0	0	0	0	2680
6-24	10	447	2056	168	28	2	0	0	0	0	0	0	2711
0-24	10	448	2078	177	30	3	0	0	0	0	0	0	2746

# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : WESTBOUND

Wednesday 10/07/2019	VEHICLE CLASSIFICATION													TOTAL	
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13		
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Direction : EASTBOUND

Wednesday 10/07/2019	VEHICLE CLASSIFICATION													TOTAL	
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13		
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : WESTBOUND

Wednesday 10/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0

Direction : EASTBOUND

Wednesday 10/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0

# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : WESTBOUND

Thursday 11/07/2019	VEHICLE CLASSIFICATION													TOTAL	
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13		
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Direction : EASTBOUND

Thursday 11/07/2019	VEHICLE CLASSIFICATION													TOTAL	
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13		
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : WESTBOUND

Thursday 11/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0

Direction : EASTBOUND

Thursday 11/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0

# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : WESTBOUND

Friday 12/07/2019 Hr Ending	VEHICLE CLASSIFICATION													TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Direction : EASTBOUND

Friday 12/07/2019 Hr Ending	VEHICLE CLASSIFICATION													TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : WESTBOUND

Friday 12/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0

Direction : EASTBOUND

Friday 12/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0

# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : WESTBOUND

Saturday 13/07/2019	VEHICLE CLASSIFICATION													TOTAL	
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13		
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Direction : EASTBOUND

Saturday 13/07/2019	VEHICLE CLASSIFICATION													TOTAL	
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13		
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : WESTBOUND

Saturday 13/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0

Direction : EASTBOUND

Saturday 13/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0

# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : WESTBOUND

Sunday 14/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Direction : EASTBOUND

Sunday 14/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : WESTBOUND

Sunday 14/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0

Direction : EASTBOUND

Sunday 14/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0

# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : WESTBOUND

Monday 15/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Direction : EASTBOUND

Monday 15/07/2019	VEHICLE CLASSIFICATION													TOTAL
Hr Ending	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : WESTBOUND

Monday 15/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0

Direction : EASTBOUND

Monday 15/07/2019	VEHICLE SPEED (MPH)												TOTAL
Hr Ending	0-10	11-20	21-30	31-35	36-40	41-45	46-50	51-55	56-60	61-70	71-80	81-120	
1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0
7-19	0	0	0	0	0	0	0	0	0	0	0	0	0
6-22	0	0	0	0	0	0	0	0	0	0	0	0	0
6-24	0	0	0	0	0	0	0	0	0	0	0	0	0
0-24	0	0	0	0	0	0	0	0	0	0	0	0	0

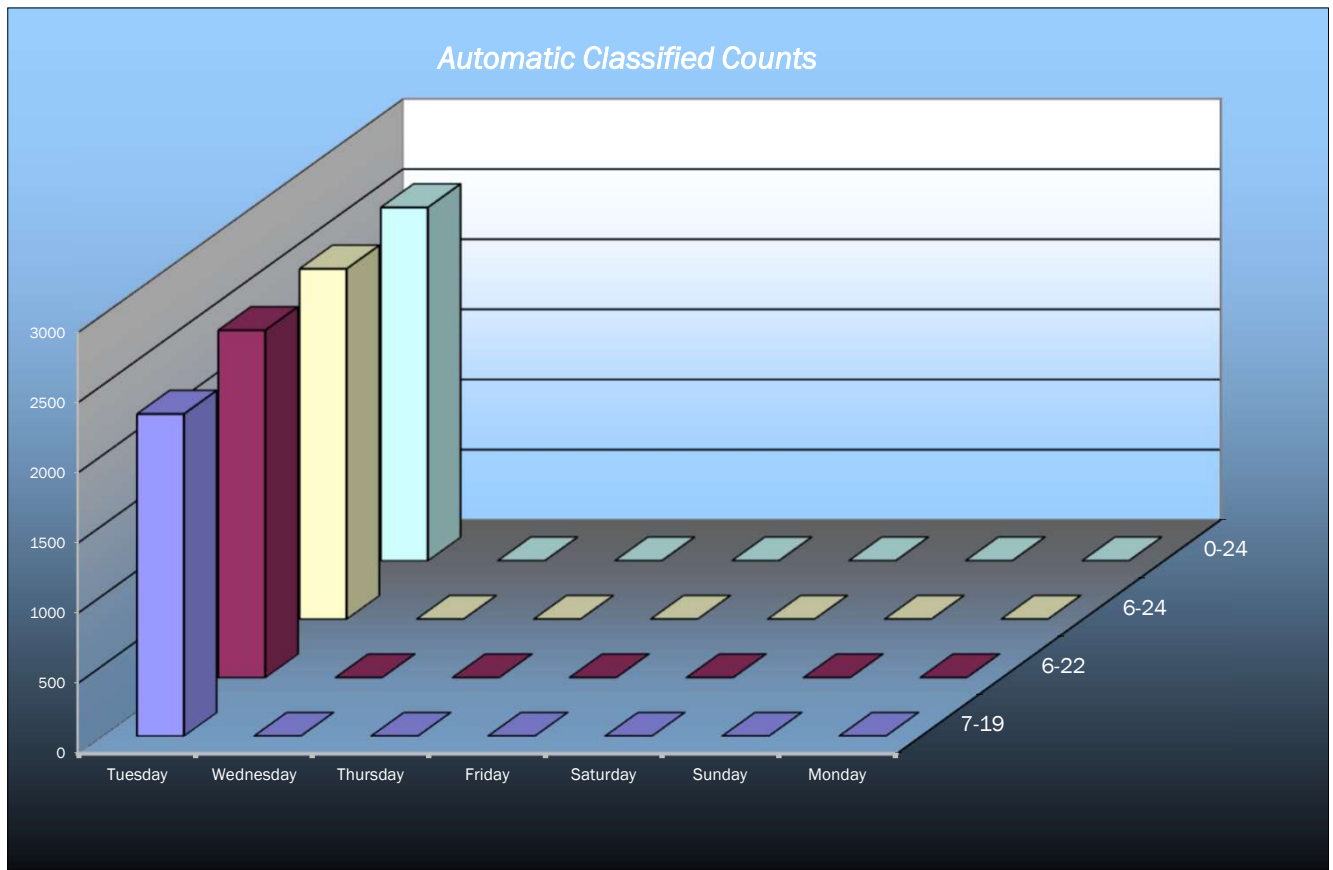
# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : WESTBOUND

## VEHICLE FLOWS

Hr Ending	Tuesday 9-Jul-19	Wednesday 10-Jul-19	Thursday 11-Jul-19	Friday 12-Jul-19	Saturday 13-Jul-19	Sunday 14-Jul-19	Monday 15-Jul-19	WEEKDAY AVERAGE	WEEK AVERAGE
1	4	0	0	0	0	0	0	4	4
2	3	0	0	0	0	0	0	3	3
3	0	0	0	0	0	0	0	0	0
4	3	0	0	0	0	0	0	3	3
5	4	0	0	0	0	0	0	4	4
6	7	0	0	0	0	0	0	7	7
7	36	0	0	0	0	0	0	36	36
8	89	0	0	0	0	0	0	89	89
9	321	0	0	0	0	0	0	321	321
10	208	0	0	0	0	0	0	208	208
11	149	0	0	0	0	0	0	149	149
12	197	0	0	0	0	0	0	197	197
13	194	0	0	0	0	0	0	194	194
14	219	0	0	0	0	0	0	219	219
15	180	0	0	0	0	0	0	180	180
16	236	0	0	0	0	0	0	236	236
17	207	0	0	0	0	0	0	207	207
18	186	0	0	0	0	0	0	186	186
19	110	0	0	0	0	0	0	110	110
20	73	0	0	0	0	0	0	73	73
21	48	0	0	0	0	0	0	48	48
22	23	0	0	0	0	0	0	23	23
23	17	0	0	0	0	0	0	17	17
24	4	0	0	0	0	0	0	4	4
7-19	2296	0	0	0	0	0	0	2296	2296
6-22	2476	0	0	0	0	0	0	2476	2476
6-24	2497	0	0	0	0	0	0	2497	2497
0-24	2518	0	0	0	0	0	0	2518	2518

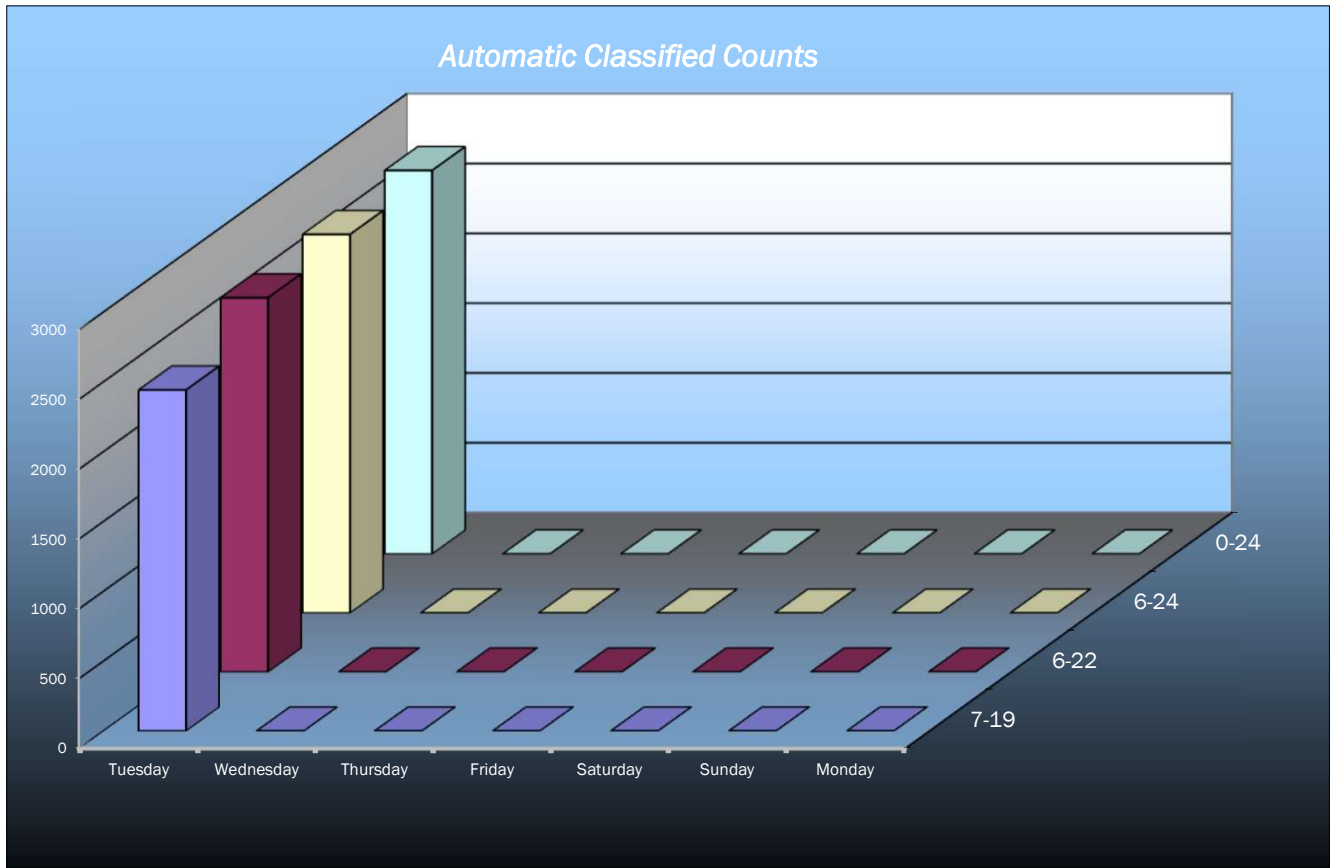


# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : EASTBOUND

EASTBOUND									
Hr Ending	Tuesday 9-Jul-19	Wednesday 10-Jul-19	Thursday 11-Jul-19	Friday 12-Jul-19	Saturday 13-Jul-19	Sunday 14-Jul-19	Monday 15-Jul-19	WEEKDAY AVERAGE	WEEK AVERAGE
1	6	0	0	0	0	0	0	6	6
2	5	0	0	0	0	0	0	5	5
3	3	0	0	0	0	0	0	3	3
4	2	0	0	0	0	0	0	2	2
5	6	0	0	0	0	0	0	6	6
6	13	0	0	0	0	0	0	13	13
7	42	0	0	0	0	0	0	42	42
8	102	0	0	0	0	0	0	102	102
9	198	0	0	0	0	0	0	198	198
10	154	0	0	0	0	0	0	154	154
11	200	0	0	0	0	0	0	200	200
12	188	0	0	0	0	0	0	188	188
13	208	0	0	0	0	0	0	208	208
14	245	0	0	0	0	0	0	245	245
15	221	0	0	0	0	0	0	221	221
16	225	0	0	0	0	0	0	225	225
17	250	0	0	0	0	0	0	250	250
18	298	0	0	0	0	0	0	298	298
19	153	0	0	0	0	0	0	153	153
20	97	0	0	0	0	0	0	97	97
21	59	0	0	0	0	0	0	59	59
22	40	0	0	0	0	0	0	40	40
23	20	0	0	0	0	0	0	20	20
24	11	0	0	0	0	0	0	11	11
7-19	2442	0	0	0	0	0	0	2442	2442
6-22	2680	0	0	0	0	0	0	2680	2680
6-24	2711	0	0	0	0	0	0	2711	2711
0-24	2746	0	0	0	0	0	0	2746	2746



# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : WESTBOUND

AVERAGE SPEEDS							
Hr Ending	Tuesday 9-Jul-19	Wednesday 10-Jul-19	Thursday 11-Jul-19	Friday 12-Jul-19	Saturday 13-Jul-19	Sunday 14-Jul-19	Monday 15-Jul-19
1	27.4	-	-	-	-	-	-
2	25.5	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	25.5	-	-	-	-	-	-
5	29.3	-	-	-	-	-	-
6	28.4	-	-	-	-	-	-
7	28.0	-	-	-	-	-	-
8	27.1	-	-	-	-	-	-
9	26.5	-	-	-	-	-	-
10	26.4	-	-	-	-	-	-
11	26.3	-	-	-	-	-	-
12	25.9	-	-	-	-	-	-
13	26.7	-	-	-	-	-	-
14	25.2	-	-	-	-	-	-
15	26.6	-	-	-	-	-	-
16	26.2	-	-	-	-	-	-
17	26.4	-	-	-	-	-	-
18	26.8	-	-	-	-	-	-
19	27.0	-	-	-	-	-	-
20	26.6	-	-	-	-	-	-
21	28.1	-	-	-	-	-	-
22	28.1	-	-	-	-	-	-
23	27.3	-	-	-	-	-	-
24	29.3	-	-	-	-	-	-
10-12	26.1	-	-	-	-	-	-
14-16	26.4	-	-	-	-	-	-
0-24	27.0	-	-	-	-	-	-

85TH PERCENTILE							
Hr Ending	Tuesday 9-Jul-19	Wednesday 10-Jul-19	Thursday 11-Jul-19	Friday 12-Jul-19	Saturday 13-Jul-19	Sunday 14-Jul-19	Monday 15-Jul-19
1	31.1	-	-	-	-	-	-
2	25.5	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	25.5	-	-	-	-	-	-
5	33.6	-	-	-	-	-	-
6	33.4	-	-	-	-	-	-
7	31.6	-	-	-	-	-	-
8	30.5	-	-	-	-	-	-
9	29.3	-	-	-	-	-	-
10	29.0	-	-	-	-	-	-
11	28.6	-	-	-	-	-	-
12	28.4	-	-	-	-	-	-
13	29.7	-	-	-	-	-	-
14	28.5	-	-	-	-	-	-
15	29.3	-	-	-	-	-	-
16	29.0	-	-	-	-	-	-
17	29.1	-	-	-	-	-	-
18	29.9	-	-	-	-	-	-
19	30.4	-	-	-	-	-	-
20	29.4	-	-	-	-	-	-
21	31.9	-	-	-	-	-	-
22	33.5	-	-	-	-	-	-
23	30.5	-	-	-	-	-	-
24	33.6	-	-	-	-	-	-
10-12	28.5	-	-	-	-	-	-
14-16	29.1	-	-	-	-	-	-
0-24	30.1	-	-	-	-	-	-

7 DAY AVERAGE SPEED	27.0
7 DAY AVERAGE 85th PERCENTILE	30.1

# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : EASTBOUND

AVERAGE SPEEDS							
Hr Ending	Tuesday 9-Jul-19	Wednesday 10-Jul-19	Thursday 11-Jul-19	Friday 12-Jul-19	Saturday 13-Jul-19	Sunday 14-Jul-19	Monday 15-Jul-19
1	26.8	-	-	-	-	-	-
2	25.5	-	-	-	-	-	-
3	25.5	-	-	-	-	-	-
4	31.8	-	-	-	-	-	-
5	25.1	-	-	-	-	-	-
6	31.8	-	-	-	-	-	-
7	29.0	-	-	-	-	-	-
8	26.0	-	-	-	-	-	-
9	24.9	-	-	-	-	-	-
10	25.1	-	-	-	-	-	-
11	24.3	-	-	-	-	-	-
12	23.9	-	-	-	-	-	-
13	23.4	-	-	-	-	-	-
14	23.6	-	-	-	-	-	-
15	23.7	-	-	-	-	-	-
16	23.6	-	-	-	-	-	-
17	23.9	-	-	-	-	-	-
18	23.9	-	-	-	-	-	-
19	25.3	-	-	-	-	-	-
20	25.6	-	-	-	-	-	-
21	26.5	-	-	-	-	-	-
22	25.4	-	-	-	-	-	-
23	28.1	-	-	-	-	-	-
24	27.5	-	-	-	-	-	-
10-12	24.1	-	-	-	-	-	-
14-16	23.7	-	-	-	-	-	-
0-24	25.8	-	-	-	-	-	-

85TH PERCENTILE							
Hr Ending	Tuesday 9-Jul-19	Wednesday 10-Jul-19	Thursday 11-Jul-19	Friday 12-Jul-19	Saturday 13-Jul-19	Sunday 14-Jul-19	Monday 15-Jul-19
1	29.8	-	-	-	-	-	-
2	25.5	-	-	-	-	-	-
3	25.5	-	-	-	-	-	-
4	40.6	-	-	-	-	-	-
5	30.7	-	-	-	-	-	-
6	37.1	-	-	-	-	-	-
7	33.8	-	-	-	-	-	-
8	30.0	-	-	-	-	-	-
9	28.8	-	-	-	-	-	-
10	28.9	-	-	-	-	-	-
11	28.9	-	-	-	-	-	-
12	27.7	-	-	-	-	-	-
13	28.5	-	-	-	-	-	-
14	28.5	-	-	-	-	-	-
15	28.1	-	-	-	-	-	-
16	28.8	-	-	-	-	-	-
17	28.4	-	-	-	-	-	-
18	28.9	-	-	-	-	-	-
19	29.7	-	-	-	-	-	-
20	30.5	-	-	-	-	-	-
21	30.0	-	-	-	-	-	-
22	31.4	-	-	-	-	-	-
23	33.5	-	-	-	-	-	-
24	31.0	-	-	-	-	-	-
10-12	28.3	-	-	-	-	-	-
14-16	28.5	-	-	-	-	-	-
0-24	30.2	-	-	-	-	-	-

7 DAY AVERAGE SPEED	25.8
7 DAY AVERAGE 85th PERCENTILE	30.2

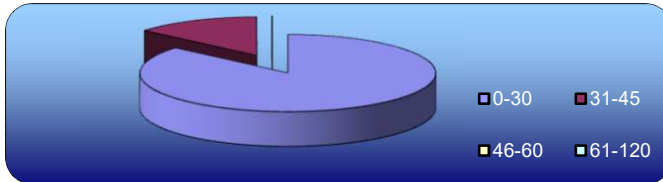
# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

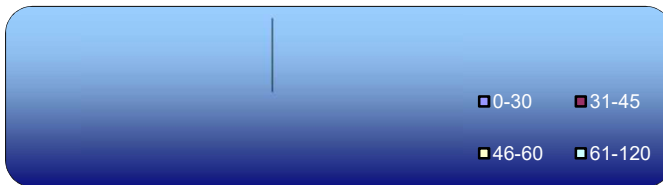
Direction : WESTBOUND

SPEED SUMMARY							
SPEED (MPH)	Tuesday 9-Jul-19	Wednesday 10-Jul-19	Thursday 11-Jul-19	Friday 12-Jul-19	Saturday 13-Jul-19	Sunday 14-Jul-19	Monday 15-Jul-19
0-30	2172	0	0	0	0	0	0
31-45	345	0	0	0	0	0	0
46-60	1	0	0	0	0	0	0
61-120	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>2518</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Tuesday  
9-Jul-19



Wednesday  
10-Jul-19



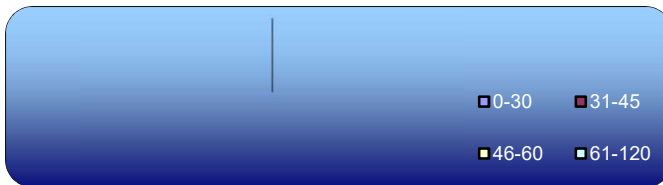
Thursday  
11-Jul-19



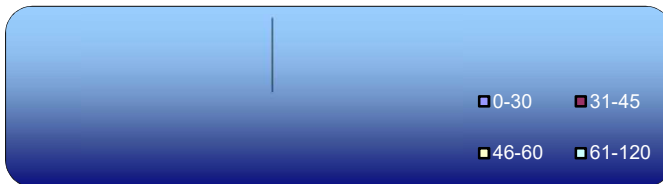
Friday  
12-Jul-19



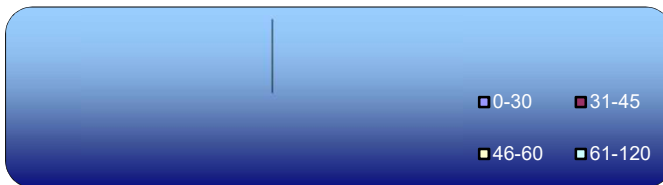
Saturday  
13-Jul-19



Sunday  
14-Jul-19



Monday  
15-Jul-19



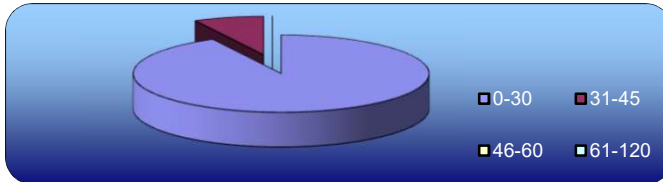
# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

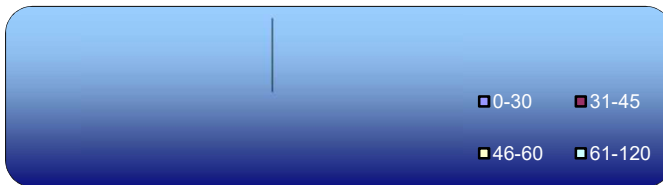
Direction : EASTBOUND

SPEED SUMMARY							
SPEED (MPH)	Tuesday 9-Jul-19	Wednesday 10-Jul-19	Thursday 11-Jul-19	Friday 12-Jul-19	Saturday 13-Jul-19	Sunday 14-Jul-19	Monday 15-Jul-19
0-30	2536	0	0	0	0	0	0
31-45	210	0	0	0	0	0	0
46-60	0	0	0	0	0	0	0
61-120	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>2746</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Tuesday  
9-Jul-19



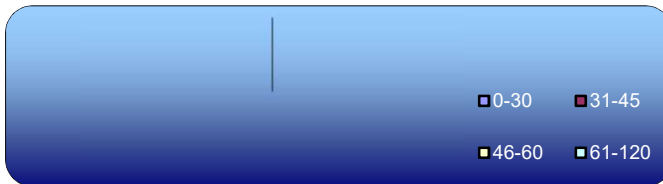
Wednesday  
10-Jul-19



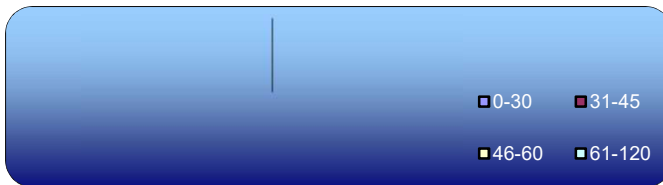
Thursday  
11-Jul-19



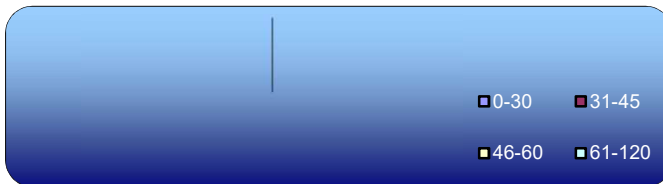
Friday  
12-Jul-19



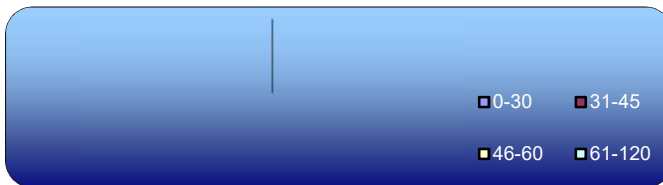
Saturday  
13-Jul-19



Sunday  
14-Jul-19



Monday  
15-Jul-19

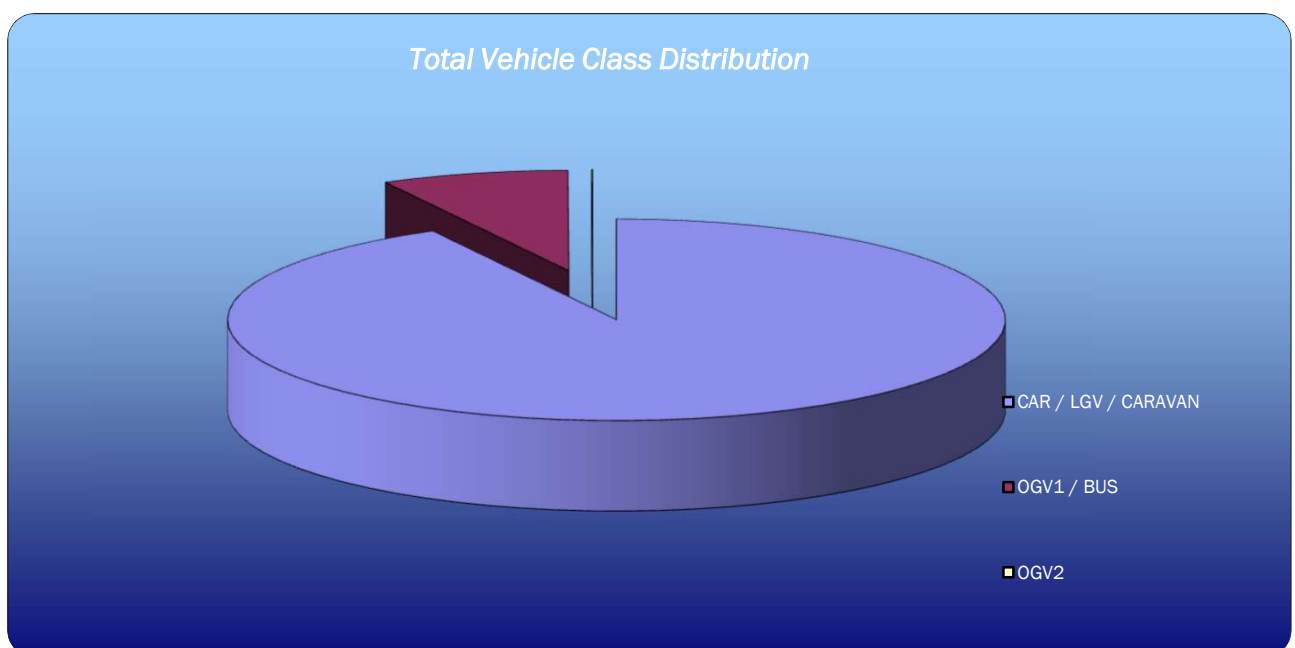


# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : WESTBOUND

VEHICLE CLASSIFICATION				
	CAR / LGV / CARAVAN	OGV1 / BUS	OGV2	TOTAL
<b>9-Jul-19</b>				
7-19	2116	179	1	2296
6-22	2284	191	1	2476
6-24	2305	191	1	2497
0-24	2316	201	1	2518
<b>10-Jul-19</b>				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
<b>11-Jul-19</b>				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
<b>12-Jul-19</b>				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
<b>13-Jul-19</b>				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
<b>14-Jul-19</b>				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
<b>15-Jul-19</b>				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
<b>AVERAGE</b>				
7-19	302	26	0	328
6-22	326	27	0	354
6-24	329	27	0	357
0-24	331	29	0	360

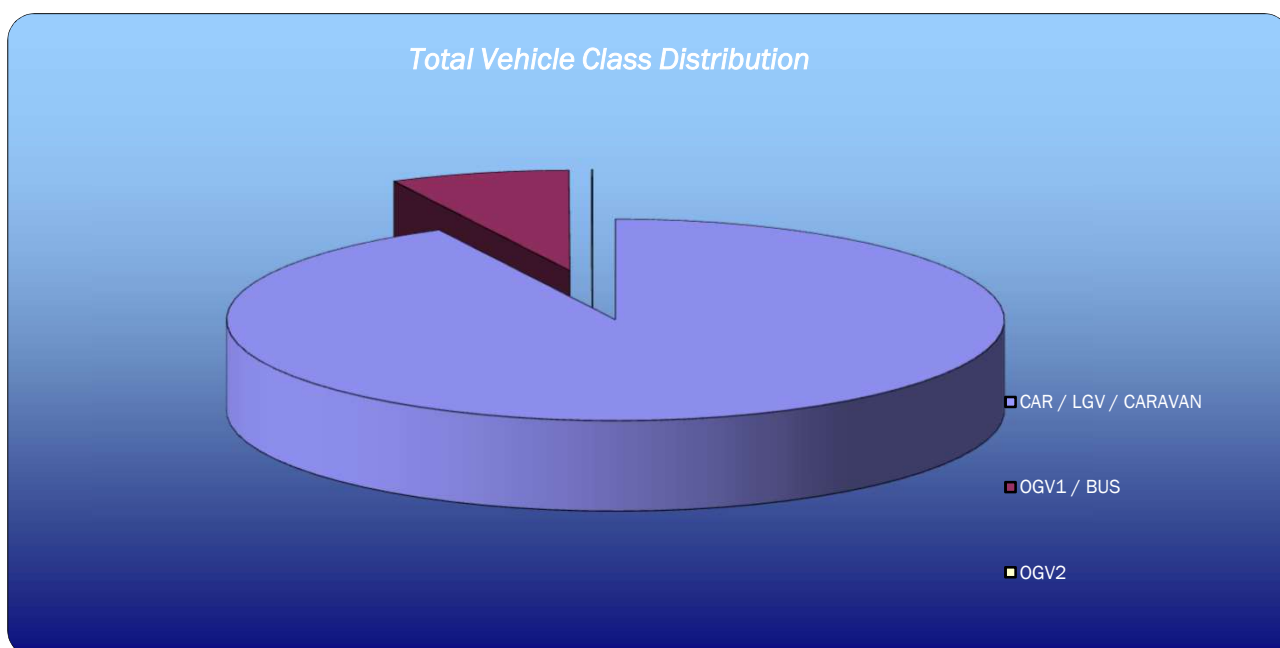


# Automatic Classified Counts, Colwyn Bay

LOCATION: B5113

Direction : EASTBOUND

VEHICLE CLASSIFICATION				
	CAR / LGV / CARAVAN	OGV1 / BUS	OGV2	TOTAL
<b>9-Jul-19</b>				
7-19	2259	182	1	2442
6-22	2490	189	1	2680
6-24	2521	189	1	2711
0-24	2547	198	1	2746
<b>10-Jul-19</b>				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
<b>11-Jul-19</b>				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
<b>12-Jul-19</b>				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
<b>13-Jul-19</b>				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
<b>14-Jul-19</b>				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
<b>15-Jul-19</b>				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
<b>AVERAGE</b>				
7-19	323	26	0	349
6-22	356	27	0	383
6-24	360	27	0	387
0-24	364	28	0	392



# Manual Classified Turning Counts, Colwyn Bay

DATE: TUESDAY 9th JULY 2019

LOCATION: B5113 / PENRRHYN ROAD

ARM: B5113 EAST

TIME / CLASS	LEFT TO PENRRHYN ROAD								STRAIGHT TO B5113 WEST								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	4	1	0	0	0	5	1	1	20	3	0	0	0	25	30
7:45 - 8:00	0	0	7	0	1	0	1	9	0	0	25	6	0	0	0	31	40
8:00 - 8:15	0	0	11	2	0	0	1	14	0	0	29	7	0	0	0	36	50
8:15 - 8:30	0	0	17	2	0	0	0	19	0	1	56	4	0	0	0	61	80
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>39</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>47</b>	<b>1</b>	<b>2</b>	<b>130</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>153</b>	<b>200</b>
8:30 - 8:45	0	0	18	2	0	0	0	20	0	0	76	6	1	0	1	84	104
8:45 - 9:00	0	0	23	1	0	0	0	24	0	1	65	11	3	0	0	80	104
9:00 - 9:15	0	0	16	1	0	0	1	18	0	0	38	7	0	0	0	45	63
9:15 - 9:30	0	0	14	4	0	0	1	19	0	1	27	6	0	0	0	34	53
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>71</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>81</b>	<b>0</b>	<b>2</b>	<b>206</b>	<b>30</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>243</b>	<b>324</b>
<b>PERIOD TOTAL</b>	<b>0</b>	<b>0</b>	<b>110</b>	<b>13</b>	<b>1</b>	<b>0</b>	<b>4</b>	<b>128</b>	<b>1</b>	<b>4</b>	<b>336</b>	<b>50</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>396</b>	<b>524</b>
16:30 - 16:45	0	0	10	1	0	0	0	11	0	1	27	8	0	0	0	36	47
16:45 - 17:00	1	0	9	3	0	0	0	13	0	0	46	6	0	0	0	52	65
17:00 - 17:15	0	0	7	0	0	0	1	8	0	0	39	1	0	0	1	41	49
17:15 - 17:30	0	1	18	2	0	0	0	21	0	0	40	2	0	0	0	42	63
<b>HOURLY TOTAL</b>	<b>1</b>	<b>1</b>	<b>44</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>53</b>	<b>0</b>	<b>1</b>	<b>152</b>	<b>17</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>171</b>	<b>224</b>
17:30 - 17:45	0	0	11	2	0	0	0	13	0	0	34	3	0	0	0	37	50
17:45 - 18:00	0	0	4	0	0	0	0	4	0	3	34	4	1	0	0	42	46
18:00 - 18:15	0	0	10	0	0	0	1	11	0	0	30	4	0	0	0	34	45
18:15 - 18:30	0	0	9	1	0	0	2	12	0	0	26	2	0	0	0	28	40
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>34</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>40</b>	<b>0</b>	<b>3</b>	<b>124</b>	<b>13</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>141</b>	<b>181</b>
<b>PERIOD TOTAL</b>	<b>1</b>	<b>1</b>	<b>78</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>93</b>	<b>0</b>	<b>4</b>	<b>276</b>	<b>30</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>312</b>	<b>405</b>

# Manual Classified Turning Counts, Colwyn Bay

DATE: TUESDAY 9th JULY 2019

LOCATION: B5113 / PENRHYN ROAD

ARM: PENRHYN ROAD

TIME / CLASS	LEFT TO B5113 WEST								RIGHT TO B5113 EAST								TOTAL MOVEMENT FROM ARM	
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL		
7:30 - 7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
8:30 - 8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 - 9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 - 9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>PERIOD TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
16:30 - 16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15 - 18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>PERIOD TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

# Manual Classified Turning Counts, Colwyn Bay

DATE: TUESDAY 9th JULY 2019

LOCATION: B5113 / PENRHYN ROAD

ARM: B5113 WEST

TIME / CLASS	STRAIGHT TO B5113 EAST								RIGHT TO PENRHYN ROAD								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	#REF!	
7:30 - 7:45	0	0	25	3	0	0	0	28	0	0	4	2	0	0	0	6	34
7:45 - 8:00	0	0	28	4	1	0	0	33	0	0	11	4	0	0	0	15	48
8:00 - 8:15	0	0	45	3	3	1	0	52	0	0	22	5	0	0	0	27	79
8:15 - 8:30	0	0	48	4	0	0	0	52	0	0	12	1	0	0	0	13	65
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>146</b>	<b>14</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>165</b>	<b>0</b>	<b>0</b>	<b>49</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>61</b>	<b>226</b>
8:30 - 8:45	0	0	48	3	0	0	0	51	0	1	17	4	0	0	0	22	73
8:45 - 9:00	0	0	40	5	0	0	0	45	0	1	29	6	0	0	0	36	81
9:00 - 9:15	0	0	36	9	0	0	0	45	1	0	21	6	0	0	0	28	73
9:15 - 9:30	0	0	40	7	0	0	0	47	0	0	33	7	1	0	0	41	88
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>164</b>	<b>24</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>188</b>	<b>1</b>	<b>2</b>	<b>100</b>	<b>23</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>127</b>	<b>315</b>
<b>PERIOD TOTAL</b>	<b>0</b>	<b>0</b>	<b>310</b>	<b>38</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>353</b>	<b>1</b>	<b>2</b>	<b>149</b>	<b>35</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>188</b>	<b>541</b>
16:30 - 16:45	1	0	53	6	0	0	0	60	0	0	25	6	0	0	0	31	91
16:45 - 17:00	0	0	60	3	0	0	0	63	0	0	36	4	0	0	0	40	103
17:00 - 17:15	0	0	88	11	0	0	0	99	0	0	28	0	0	0	0	28	127
17:15 - 17:30	0	0	58	3	0	0	0	61	0	0	25	5	0	0	0	30	91
<b>HOURLY TOTAL</b>	<b>1</b>	<b>0</b>	<b>259</b>	<b>23</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>283</b>	<b>0</b>	<b>0</b>	<b>114</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>129</b>	<b>412</b>
17:30 - 17:45	0	2	48	6	0	0	1	57	0	0	31	1	0	0	0	32	89
17:45 - 18:00	2	0	50	4	0	0	0	56	0	0	30	4	0	0	0	34	90
18:00 - 18:15	0	0	30	2	0	0	0	32	0	0	25	2	0	0	0	27	59
18:15 - 18:30	1	0	27	4	0	0	0	32	0	0	17	3	0	0	0	20	52
<b>HOURLY TOTAL</b>	<b>3</b>	<b>2</b>	<b>155</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>177</b>	<b>0</b>	<b>0</b>	<b>103</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>113</b>	<b>290</b>
<b>PERIOD TOTAL</b>	<b>4</b>	<b>2</b>	<b>414</b>	<b>39</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>460</b>	<b>0</b>	<b>0</b>	<b>217</b>	<b>25</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>242</b>	<b>702</b>

# Manual Classified Turning Counts, Colwyn Bay

DATE: TUESDAY 9th JULY 2019

LOCATION: B5113 / GREENFIELD ROAD / BAY VIEW ROAD / RETAIL PARK

ARM: B5113

TIME / CLASS	LEFT TO GREENFIELD ROAD								STRAIGHT TO BAY VIEW ROAD								RIGHT TO RETAIL PARK								TOTAL MOVEMENT FROM ARM	
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL		
7:30 - 7:45	0	0	24	5	2	0	0	31	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	35
7:45 - 8:00	0	0	33	4	0	0	0	37	0	0	0	0	0	0	0	0	0	0	0	9	1	1	0	0	11	48
8:00 - 8:15	0	0	50	8	0	0	0	58	0	0	0	0	0	0	0	0	0	0	0	24	1	1	1	0	27	85
8:15 - 8:30	0	0	67	13	1	0	0	81	0	0	0	0	0	0	0	0	0	0	0	27	0	0	0	0	27	108
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>174</b>	<b>30</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>207</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>64</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>69</b>	<b>276</b>
8:30 - 8:45	0	2	65	7	0	0	0	74	0	0	0	0	0	0	0	0	0	0	0	22	1	0	0	0	23	97
8:45 - 9:00	0	1	96	12	0	0	0	109	0	0	0	0	0	0	0	0	0	0	0	27	3	0	0	0	30	139
9:00 - 9:15	0	2	71	8	1	0	1	83	0	0	0	0	0	0	0	0	0	0	0	36	1	0	1	0	38	121
9:15 - 9:30	0	0	61	7	2	0	0	70	0	0	0	0	0	0	0	0	0	0	0	33	3	1	0	0	37	107
<b>HOURLY TOTAL</b>	<b>0</b>	<b>5</b>	<b>293</b>	<b>34</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>336</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>118</b>	<b>8</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>128</b>	<b>464</b>
<b>PERIOD TOTAL</b>	<b>0</b>	<b>5</b>	<b>467</b>	<b>64</b>	<b>6</b>	<b>0</b>	<b>1</b>	<b>543</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>182</b>	<b>10</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>197</b>	<b>740</b>
16:30 - 16:45	0	0	72	10	0	0	0	82	0	0	0	0	0	0	0	0	0	0	0	28	1	0	0	0	29	111
16:45 - 17:00	0	0	89	9	0	0	0	98	0	0	0	0	0	0	0	0	0	0	0	28	5	0	0	0	33	131
17:00 - 17:15	0	0	88	17	0	0	1	106	0	0	0	0	0	0	0	0	0	0	0	33	1	0	0	0	34	140
17:15 - 17:30	0	0	84	11	0	0	0	95	0	0	0	0	0	0	0	0	0	0	0	31	3	0	0	0	34	129
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>333</b>	<b>47</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>381</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>120</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>130</b>	<b>511</b>
17:30 - 17:45	0	0	71	8	0	0	0	79	0	0	0	0	0	0	0	0	0	0	0	15	1	0	0	0	16	95
17:45 - 18:00	0	0	71	6	0	0	1	78	0	0	0	0	0	0	0	0	0	1	0	17	1	0	0	0	19	97
18:00 - 18:15	1	0	56	6	0	0	0	63	0	0	0	0	0	0	0	0	0	0	0	18	3	0	0	0	21	84
18:15 - 18:30	0	0	48	8	0	0	0	56	0	0	0	0	0	0	0	0	0	0	0	10	1	0	0	0	11	67
<b>HOURLY TOTAL</b>	<b>1</b>	<b>0</b>	<b>246</b>	<b>28</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>276</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>60</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>67</b>	<b>343</b>
<b>PERIOD TOTAL</b>	<b>1</b>	<b>0</b>	<b>579</b>	<b>75</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>657</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>180</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>197</b>	<b>854</b>

# Manual Classified Turning Counts, Colwyn Bay

DATE: TUESDAY 9th JULY 2019

LOCATION: B5113 / GREENFIELD ROAD / BAY VIEW ROAD / RETAIL PARK

ARM: GREENFIELD ROAD

TIME / CLASS	LEFT TO BAY VIEW ROAD								STRAIGHT TO RETAIL PARK								RIGHT TO B5113								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
8:30 - 8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 - 9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 - 9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>PERIOD TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
16:30 - 16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15 - 18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>PERIOD TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

# Manual Classified Turning Counts, Colwyn Bay

DATE: TUESDAY 9th JULY 2019

LOCATION: B5113 / GREENFIELD ROAD / BAY VIEW ROAD / RETAIL PARK

ARM: BAY VIEW ROAD

TIME / CLASS	LEFT TO RETAIL PARK								STRAIGHT TO B5113								RIGHT TO GREENFIELD ROAD								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	1	1	0	0	0	0	2	0	0	13	6	0	0	0	19	0	0	3	0	1	0	0	4	25
7:45 - 8:00	0	0	1	0	0	0	0	1	0	0	16	4	1	0	1	22	0	0	1	1	0	0	0	2	25
8:00 - 8:15	0	0	8	0	0	0	0	8	0	0	24	4	1	0	0	29	0	0	3	1	1	0	0	5	42
8:15 - 8:30	0	0	0	1	0	0	0	1	0	0	32	5	0	0	0	37	0	0	3	4	0	0	0	7	45
<b>HOURLY TOTAL</b>	<b>0</b>	<b>1</b>	<b>10</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>85</b>	<b>19</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>107</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>6</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>18</b>	<b>137</b>
8:30 - 8:45	0	0	7	0	1	0	0	8	0	0	38	6	0	0	0	44	0	0	8	4	0	0	0	12	64
8:45 - 9:00	0	0	18	0	0	0	0	18	0	0	27	7	0	1	1	36	0	0	5	0	0	0	0	5	59
9:00 - 9:15	0	0	18	2	0	0	0	20	1	0	26	7	0	0	2	36	0	0	6	2	0	0	0	8	64
9:15 - 9:30	0	0	12	3	1	0	0	16	0	0	16	4	0	0	1	21	0	0	4	3	0	0	0	7	44
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>55</b>	<b>5</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>62</b>	<b>1</b>	<b>0</b>	<b>107</b>	<b>24</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>137</b>	<b>0</b>	<b>0</b>	<b>23</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>32</b>	<b>231</b>
<b>PERIOD TOTAL</b>	<b>0</b>	<b>1</b>	<b>65</b>	<b>6</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>74</b>	<b>1</b>	<b>0</b>	<b>192</b>	<b>43</b>	<b>2</b>	<b>1</b>	<b>5</b>	<b>244</b>	<b>0</b>	<b>0</b>	<b>33</b>	<b>15</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>50</b>	<b>368</b>
16:30 - 16:45	0	0	14	5	0	0	0	19	0	0	24	5	0	0	0	29	0	0	12	3	0	0	0	15	63
16:45 - 17:00	0	0	20	5	0	0	0	25	0	0	38	3	0	0	0	41	0	0	7	0	0	0	0	7	73
17:00 - 17:15	0	0	22	3	0	0	0	25	0	0	53	6	0	0	2	61	0	0	4	1	0	0	0	5	91
17:15 - 17:30	0	0	13	1	0	0	0	14	1	0	48	3	1	0	0	53	0	0	5	0	0	0	0	5	72
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>69</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>83</b>	<b>1</b>	<b>0</b>	<b>163</b>	<b>17</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>184</b>	<b>0</b>	<b>0</b>	<b>28</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>32</b>	<b>299</b>
17:30 - 17:45	0	0	15	1	0	0	0	16	1	0	41	1	0	0	0	43	0	0	6	1	0	0	0	7	66
17:45 - 18:00	0	0	9	0	0	0	0	9	0	0	30	4	0	0	0	34	0	0	7	1	0	0	1	9	52
18:00 - 18:15	0	0	5	0	0	0	0	5	0	2	21	2	0	0	1	26	0	0	5	0	0	0	0	5	36
18:15 - 18:30	0	0	10	4	0	0	0	14	0	0	17	2	0	0	0	19	0	0	7	0	0	0	0	7	40
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>39</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>44</b>	<b>1</b>	<b>2</b>	<b>109</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>122</b>	<b>0</b>	<b>0</b>	<b>25</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>28</b>	<b>194</b>
<b>PERIOD TOTAL</b>	<b>0</b>	<b>0</b>	<b>108</b>	<b>19</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>127</b>	<b>2</b>	<b>2</b>	<b>272</b>	<b>26</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>306</b>	<b>0</b>	<b>0</b>	<b>53</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>60</b>	<b>493</b>

survey and presentation by traffic**sense** Ltd.

# Manual Classified Turning Counts, Colwyn Bay

DATE: TUESDAY 9th JULY 2019

LOCATION: B5113 / GREENFIELD ROAD / BAY VIEW ROAD / RETAIL PARK

ARM: RETAIL PARK

TIME / CLASS	LEFT TO B5113								STRAIGHT TO GREENFIELD ROAD								RIGHT TO BAY VIEW ROAD								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	2	0	0	0	0	2	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	3
7:45 - 8:00	0	0	1	0	0	0	0	1	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	0	3
8:00 - 8:15	0	0	6	0	0	0	0	6	0	0	5	0	1	0	0	6	0	0	0	0	0	0	0	0	12
8:15 - 8:30	0	0	10	1	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>19</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>29</b>
8:30 - 8:45	0	0	7	2	1	0	0	10	0	0	7	1	0	0	0	8	0	0	0	0	0	0	0	0	18
8:45 - 9:00	0	0	7	2	1	0	0	10	0	0	1	2	0	0	0	3	0	0	0	0	0	0	0	0	13
9:00 - 9:15	0	0	15	3	0	1	0	19	0	0	16	0	0	0	0	16	0	0	0	0	0	0	0	0	35
9:15 - 9:30	0	0	13	3	0	0	0	16	0	0	8	2	0	0	0	10	0	0	0	0	0	0	0	0	26
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>42</b>	<b>10</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>55</b>	<b>0</b>	<b>0</b>	<b>32</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>37</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>92</b>
<b>PERIOD TOTAL</b>	<b>0</b>	<b>0</b>	<b>61</b>	<b>11</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>75</b>	<b>0</b>	<b>0</b>	<b>39</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>46</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>121</b>
16:30 - 16:45	0	0	37	4	0	0	0	41	0	0	24	2	0	0	0	26	0	0	0	0	0	0	0	0	67
16:45 - 17:00	0	0	29	2	0	0	0	31	0	0	30	1	0	0	0	31	0	0	0	0	0	0	0	0	62
17:00 - 17:15	0	0	28	3	0	0	0	31	0	0	28	5	0	0	0	33	0	0	0	0	0	0	0	0	64
17:15 - 17:30	0	0	32	4	0	0	0	36	0	0	30	4	0	0	0	34	0	0	0	0	0	0	0	0	70
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>126</b>	<b>13</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>139</b>	<b>0</b>	<b>0</b>	<b>112</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>124</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>263</b>
17:30 - 17:45	0	0	40	5	0	0	0	45	0	0	23	1	0	0	0	24	0	0	0	0	0	0	0	0	69
17:45 - 18:00	1	0	33	0	0	0	0	34	0	0	26	1	0	0	0	27	0	0	0	0	0	0	0	0	61
18:00 - 18:15	0	0	27	3	0	0	0	30	0	0	13	0	0	0	0	13	0	0	0	0	0	0	0	0	43
18:15 - 18:30	0	0	20	2	0	0	0	22	0	0	7	1	0	0	0	8	0	0	0	0	0	0	0	0	30
<b>HOURLY TOTAL</b>	<b>1</b>	<b>0</b>	<b>120</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>131</b>	<b>0</b>	<b>0</b>	<b>69</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>72</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>203</b>
<b>PERIOD TOTAL</b>	<b>1</b>	<b>0</b>	<b>246</b>	<b>23</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>270</b>	<b>0</b>	<b>0</b>	<b>181</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>196</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>466</b>

# Manual Classified Turning Counts, Colwyn Bay

DATE: TUESDAY 9th JULY 2019

LOCATION: GREENFIELD ROAD / A547 / RHIW BANK AVENUE

ARM: GREENFIELD ROAD

TIME / CLASS	LEFT TO A547 SOUTH								STRAIGHT TO RHIW BANK AVENUE								RIGHT TO A547 NORTH								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	14	2	1	0	0	17	0	0	0	0	1	0	0	1	0	0	12	2	1	0	0	15	33
7:45 - 8:00	0	0	24	3	0	0	0	27	0	0	0	0	0	0	0	0	0	0	9	3	0	0	0	12	39
8:00 - 8:15	0	0	29	4	2	0	0	35	0	0	0	0	0	0	0	0	0	0	28	6	0	0	0	34	69
8:15 - 8:30	0	0	42	5	0	0	0	47	0	0	0	1	0	0	0	1	0	1	29	8	1	0	0	39	87
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>109</b>	<b>14</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>126</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>78</b>	<b>19</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>100</b>	<b>228</b>
8:30 - 8:45	0	1	34	2	0	0	0	37	0	0	1	1	0	0	0	2	0	1	45	8	0	0	0	54	93
8:45 - 9:00	0	2	37	5	0	0	0	44	0	0	0	0	0	0	0	0	0	0	56	6	0	0	0	62	106
9:00 - 9:15	0	0	43	3	1	0	1	48	0	0	0	0	0	0	0	0	0	0	35	6	0	0	0	41	89
9:15 - 9:30	0	0	28	5	0	0	0	33	0	0	0	0	0	0	0	0	0	0	38	6	1	0	0	45	78
<b>HOURLY TOTAL</b>	<b>0</b>	<b>3</b>	<b>142</b>	<b>15</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>162</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>174</b>	<b>26</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>202</b>	<b>366</b>
<b>PERIOD TOTAL</b>	<b>0</b>	<b>3</b>	<b>251</b>	<b>29</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>288</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>2</b>	<b>252</b>	<b>45</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>302</b>	<b>594</b>
16:30 - 16:45	0	0	38	6	0	0	0	44	0	0	1	0	0	0	0	1	0	0	45	6	0	0	0	51	96
16:45 - 17:00	0	0	54	5	0	0	0	59	0	0	2	0	0	0	0	2	0	0	42	3	0	0	0	45	106
17:00 - 17:15	0	0	48	9	0	0	0	57	0	0	1	1	0	0	0	2	0	0	44	9	0	0	1	54	113
17:15 - 17:30	0	0	55	5	0	0	0	60	0	0	1	0	0	0	0	1	0	0	31	7	0	0	0	38	99
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>195</b>	<b>25</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>220</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>162</b>	<b>25</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>188</b>	<b>414</b>
17:30 - 17:45	0	0	40	5	0	0	0	45	0	0	0	0	0	0	0	0	0	0	39	5	0	0	0	44	89
17:45 - 18:00	0	0	48	4	0	0	0	52	0	0	0	0	0	0	0	0	0	0	32	3	0	0	2	37	89
18:00 - 18:15	0	0	31	3	0	0	0	34	0	0	1	0	0	0	0	1	0	0	28	3	0	0	0	31	66
18:15 - 18:30	0	0	26	4	0	0	0	30	0	0	1	0	0	0	0	1	0	0	29	4	0	0	0	33	64
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>145</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>161</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>128</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>145</b>	<b>308</b>
<b>PERIOD TOTAL</b>	<b>0</b>	<b>0</b>	<b>340</b>	<b>41</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>381</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>290</b>	<b>40</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>333</b>	<b>722</b>

# Manual Classified Turning Counts, Colwyn Bay

DATE: TUESDAY 9th JULY 2019

LOCATION: GREENFIELD ROAD / A547 / RHIW BANK AVENUE

ARM: A547 SOUTH

TIME / CLASS	LEFT TO RHIW BANK AVENUE								STRAIGHT TO A547 NORTH								RIGHT TO GREENFIELD ROAD								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	0	0	0	0	0	0	0	1	48	8	0	0	2	59	0	0	0	0	0	0	0	0	59
7:45 - 8:00	0	0	0	0	1	0	0	1	0	2	57	19	1	0	3	82	0	0	0	0	0	0	0	0	83
8:00 - 8:15	0	0	0	0	0	0	0	0	0	1	76	20	0	0	1	98	0	0	0	0	0	0	0	0	98
8:15 - 8:30	0	0	1	0	0	0	0	1	1	0	99	15	2	1	2	120	0	0	0	0	0	0	0	0	121
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>4</b>	<b>280</b>	<b>62</b>	<b>3</b>	<b>1</b>	<b>8</b>	<b>359</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>361</b>
8:30 - 8:45	0	0	1	0	0	0	0	1	0	0	110	14	0	0	4	128	0	0	0	0	0	0	0	0	129
8:45 - 9:00	0	0	4	1	0	0	0	5	0	0	95	10	1	0	2	108	0	0	0	0	0	0	0	0	113
9:00 - 9:15	0	0	0	0	0	0	0	0	1	0	87	12	0	0	3	103	0	0	0	0	0	0	0	0	103
9:15 - 9:30	1	0	1	0	0	0	0	2	1	1	79	16	1	0	3	101	0	0	0	0	0	0	0	0	103
<b>HOURLY TOTAL</b>	<b>1</b>	<b>0</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>2</b>	<b>1</b>	<b>371</b>	<b>52</b>	<b>2</b>	<b>0</b>	<b>12</b>	<b>440</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>448</b>
<b>PERIOD TOTAL</b>	<b>1</b>	<b>0</b>	<b>7</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>3</b>	<b>5</b>	<b>651</b>	<b>114</b>	<b>5</b>	<b>1</b>	<b>20</b>	<b>799</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>809</b>
16:30 - 16:45	0	0	1	2	0	0	0	3	0	0	71	13	0	0	2	86	0	0	0	0	0	0	0	0	89
16:45 - 17:00	0	0	1	0	0	0	0	1	0	0	68	10	0	0	2	80	0	0	0	0	0	0	0	0	81
17:00 - 17:15	0	0	1	0	0	0	0	1	0	0	107	7	0	0	3	117	0	0	0	0	0	0	0	0	118
17:15 - 17:30	2	1	3	0	0	0	0	6	0	0	63	9	1	0	2	75	0	0	0	0	0	0	0	0	81
<b>HOURLY TOTAL</b>	<b>2</b>	<b>1</b>	<b>6</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>309</b>	<b>39</b>	<b>1</b>	<b>0</b>	<b>9</b>	<b>358</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>369</b>
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	74	8	0	0	2	84	0	0	0	0	0	0	0	0	84
17:45 - 18:00	0	0	3	0	0	0	0	3	0	0	73	10	0	0	2	85	0	0	0	0	0	0	0	0	88
18:00 - 18:15	0	0	0	0	0	0	0	0	0	3	74	6	0	0	4	87	0	0	0	0	0	0	0	0	87
18:15 - 18:30	0	0	3	0	0	0	0	3	1	0	56	3	0	0	1	61	0	0	0	0	0	0	0	0	64
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>1</b>	<b>3</b>	<b>277</b>	<b>27</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>317</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>323</b>
<b>PERIOD TOTAL</b>	<b>2</b>	<b>1</b>	<b>12</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>17</b>	<b>1</b>	<b>3</b>	<b>586</b>	<b>66</b>	<b>1</b>	<b>0</b>	<b>18</b>	<b>675</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>692</b>

survey and presentation by traffic**sense** Ltd.

# Manual Classified Turning Counts, Colwyn Bay

DATE: TUESDAY 9th JULY 2019

LOCATION: GREENFIELD ROAD / A547 / RHIW BANK AVENUE

ARM: RHIW BANK AVENUE

TIME / CLASS	LEFT TO A547 NORTH								STRAIGHT TO GREENFIELD ROAD								RIGHT TO A547 SOUTH								TOTAL MOVEMENT FROM ARM	
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL		
7:30 - 7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
8:15 - 8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>
8:30 - 8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1
8:45 - 9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	4	4
9:00 - 9:15	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	3	4
9:15 - 9:30	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	3
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>6</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>12</b>
<b>PERIOD TOTAL</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>7</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>13</b>
16:30 - 16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45 - 17:00	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2
17:00 - 17:15	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	4
17:15 - 17:30	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	3	4
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>10</b>
17:30 - 17:45	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2
18:00 - 18:15	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	5
18:15 - 18:30	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	3
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>12</b>
<b>PERIOD TOTAL</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>22</b>

# Manual Classified Turning Counts, Colwyn Bay

DATE: TUESDAY 9th JULY 2019

LOCATION: GREENFIELD ROAD / A547 / RHIW BANK AVENUE

ARM: A547 NORTH

TIME / CLASS	LEFT TO GREENFIELD ROAD								STRAIGHT TO A547 SOUTH								RIGHT TO RHIW BANK AVENUE								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	0	0	0	0	0	0	0	1	17	8	0	0	2	28	0	0	0	0	0	0	0	0	28
7:45 - 8:00	0	0	0	0	0	0	0	0	0	0	40	7	0	0	3	50	0	0	0	0	0	0	0	0	50
8:00 - 8:15	0	0	0	0	0	0	0	0	0	1	58	7	0	0	2	68	0	0	0	0	0	0	0	0	68
8:15 - 8:30	0	0	0	0	0	0	0	0	0	0	59	13	1	0	4	77	0	0	0	0	0	0	0	0	77
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>174</b>	<b>35</b>	<b>1</b>	<b>0</b>	<b>11</b>	<b>223</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>223</b>
8:30 - 8:45	0	0	0	0	0	0	0	0	0	0	66	8	0	0	4	78	0	0	0	0	0	0	0	0	78
8:45 - 9:00	0	0	0	0	0	0	0	0	0	1	56	9	0	0	2	68	0	0	2	0	0	0	0	2	70
9:00 - 9:15	0	0	0	0	0	0	0	0	0	0	54	8	1	0	5	68	0	0	1	0	0	0	0	1	69
9:15 - 9:30	0	0	0	0	0	0	0	0	0	1	45	10	1	1	0	58	0	0	0	0	0	0	0	0	58
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>221</b>	<b>35</b>	<b>2</b>	<b>1</b>	<b>11</b>	<b>272</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>275</b>
<b>PERIOD TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>395</b>	<b>70</b>	<b>3</b>	<b>1</b>	<b>22</b>	<b>495</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>498</b>
16:30 - 16:45	0	0	0	0	0	0	0	0	0	0	61	8	0	0	3	72	0	0	1	0	0	0	0	1	73
16:45 - 17:00	0	0	0	0	0	0	0	0	0	0	78	17	0	0	3	98	0	0	2	1	0	0	0	3	101
17:00 - 17:15	0	0	0	0	0	0	0	0	0	1	77	5	0	0	2	85	0	0	1	0	0	0	0	1	86
17:15 - 17:30	0	0	0	0	0	0	0	0	1	0	66	8	0	0	2	77	0	0	1	0	0	0	0	1	78
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>282</b>	<b>38</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>332</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>338</b>
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	76	6	0	0	3	85	0	0	2	0	0	0	0	2	87
17:45 - 18:00	0	0	0	0	0	0	0	0	0	2	81	3	0	0	1	87	0	0	3	0	0	0	0	3	90
18:00 - 18:15	0	0	0	0	0	0	0	0	0	2	63	7	0	0	3	75	0	0	0	0	0	0	0	0	75
18:15 - 18:30	0	0	0	0	0	0	0	0	0	1	53	5	1	0	1	61	0	0	1	0	0	0	0	1	62
<b>HOURLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>273</b>	<b>21</b>	<b>1</b>	<b>0</b>	<b>8</b>	<b>308</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>314</b>
<b>PERIOD TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>6</b>	<b>555</b>	<b>59</b>	<b>1</b>	<b>0</b>	<b>18</b>	<b>640</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>652</b>



# **Appendix 15.2 – Archaeological and Historical Assessment (Colwyn Bay Waterfront Project)**

# birmingham archaeology

COLWYN BAY  
WATERFRONT  
PROJECT

ARCHAEOLOGICAL  
AND HISTORICAL  
ASSESSMENT

UNIVERSITY OF  
BIRMINGHAM



**Project No. 2126**

**October 2010**

**Colwyn Bay Waterfront Project**

Colwyn Bay, Conwy, Wales

**ARCHAEOLOGICAL AND HISTORICAL ASSESSMENT**

**By**

**Jon Halsted and Chris Hewitson**

	<b>Name</b>	<b>Position</b>
<b>Edited by/ Reviewed by:</b>	Chris Hewitson	Project Manager
<b>Approved by:</b>	Chris Hewitson	Project Manager
	<b>Signature: C. Hewitson</b>	
<b>Version: v1</b>	<b>Version Date: 13-10-2010</b>	
<b>File location:</b> <i>P:\BArchinfo\03_Templates and logos\01_Reports\07_DBA\DBA Template (Urban) v1.doc</i>		

**for**

**Mott MacDonald**

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# Colwyn Bay Waterfront Project

Archaeological Desk-Based Assessment, October 2010

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## Colwyn Bay Waterfront Project

Archaeological Desk-Based Assessment, October 2010

### **SUMMARY**

*Birmingham Archaeology was commissioned in October 2010 by Mott MacDonald, acting on behalf of Conwy County Borough Council, to undertake an archaeological desk-based assessment at Colwyn Bay Waterfront for a distance of c. 3.5 km between Rhos Jetty and Old Colwyn (NGR 284229 380455 to NGR 287009 378697).*

*The assessment comprised a search of the readily accessible documentary and historic cartographic sources and a site walkover.*

*The assessment found that the study area may have contained remains of submerged prehistoric forests, that extended into the northern area of the beach from Rhos-on-Sea although no confirmation of these was seen on the ground. Spot finds of prehistoric and Roman remains were also found in the study area but do not indicate settlement. The most significant archaeological monument located within the study area was a series of fish traps dated to the medieval and post-medieval period located at the north-western end of the beach.*

*The post-medieval period sees little significant development of the area and it essentially remains rural in character. By the 19th century the railway is constructed and subsequently the resort town of Colwyn Bay is developed. These leads to rapid development of the urban area of Colwyn Bay, Old Colwyn and Rhos-on-Sea at the start of the 20th century and the vast majority of the archaeological and historical evidence for the town dates to this period. The most significant of these remains in the study area include those associated with the railway including the station and the late Victorian pier.*

# Colwyn Bay Waterfront Project

Archaeological Desk-Based Assessment, October 2010

## 1. INTRODUCTION

### 1.1. Background to the project

- 1.1.1. In October 2010, Birmingham Archaeology carried out an archaeological and historical assessment in relation to the proposed scheme of development associated with the Colwyn Bay Waterfront. The assessment was commissioned by Mott MacDonald, acting on behalf of Conwy County Borough Council.
- 1.1.2. This report outlines the results of the assessment, which has been prepared in accordance with the Institute for Archaeologists *Standard and Guidance for Archaeological Desk-Based Assessment* (IFA, 2008).
- 1.1.3. The assessment conformed to an outline proposal within the quotation agreed by Mott MacDonald in advance of the work (Appendix 1) and based around the requirements outlined in the Colwyn Bay Environmental Scoping Report (Mott MacDonald 2010; Section 7.5) and in consultation with CADW (Appendix 2).
- 1.1.4. This report has been prepared based upon information current and available as of October 2010. Details of archaeological terms used in this report are given in the glossary appended as Appendix 3.

### 1.2. The planning background

- 1.2.1. The Colwyn Bay Waterfront Project has not reached formal planning and as such this report has been produced in advance of any Planning Application.
- 1.2.2. In accordance with government guidelines laid down in *Heritage Protection for the 21st Century* (Department of Culture, Media and Sport, Welsh Assembly Government 2007) and until such time as guidance is specifically available for Wales *PPS5 Planning for the Historic Environment: Historic Environment Planning Practice Guide* (English Heritage 2010).

## 2. LOCATION AND GEOLOGY

### 2.1. Site location

- 2.1.1. The proposed development site is located at Colwyn Bay, Conwy along the Colwyn Bay Waterfront, on a transect starting at Rhos Jetty (NGR 284229, 380455); to (NGR 284725: 379500); to Colwyn Bay Pier (NGR 285229, 379121); to (NGR 286045, 378839); to Beach Rd. Old Colwyn Bay (NGR 287009 378697; Figure 1).
- 2.1.2. The development site covers a distance of c. 3km and for the purposes of the current assessment, a buffer zone around the site has been designed to cover an area from the waterfront to the normal Low Tide Mark and from the waterfront to c. 200m inland. The development site and buffer zone together are referred to hereafter as the 'study area'. Where relevant, sites located beyond the study area have been included, where they have been shown to be of direct significance to the understanding the study area within its local context.

## **2.2. Geology and Topography**

- 2.2.1. The underlying geology of the study area comprising that of the town of Colwyn Bay stands at the foot of a steep crescent scarp of Carboniferous Limestone rocks which marks an old cliff-line. The upper edge of the scarp is c. 150m AOD, and southward extends in an undulating plateau culminating on Mynydd Du, 4½ miles to the south. The plateau is traversed by steep-sided valleys eroded by streams which flow northwards towards the bay or westward into the estuary of the River Conway. The watershed between Conway and the bay drainage pursues a zigzag course in a general north-west and south-east direction (Jones 1939, 335-82).
- 2.2.2. The overlying drift geology consists of blue-grey till of decomposed particles of Silurian and limestone rocks, and full of striated slaty rocks, Carboniferous grits, conglomerates, and trappean and ash rocks common to North Wales. These are overlain by low-level boulder clay and sands. The beach currently extends out into the bay to a distance of c. 250m at low tide and consists of yellow fine granular sand (Mellard Reade 1885, 102-7).

## **3. AIMS AND OBJECTIVES**

### **3.1. General aims and objectives**

- 3.1.1. The general aim of the archaeological and historical assessment was to collate existing archaeological and historic information relating to the proposed development and its immediate environs (the study area), to enable informed decisions to be made regarding any further archaeological input which may be required by means of mitigation as the proposed development proceeds through the planning process.
- 3.1.2. The objective of the project was to gain an understanding of the archaeological and historical development of the development site and wider study area, and in doing so enable the assessment of the potential for the survival of below-ground archaeological remains.

## **4. METHODOLOGY**

### **4.1. Documentary research**

- 4.1.1. A search was made of the readily available primary and secondary historical sources held at the Denbighshire Record Office, Rhuthin, The Conwy Record Office in Llandudno and the libraries of the University of Birmingham. The Clwyd-Powys Sites and Monuments Record (SMR), the primary source for archaeological information for the county, was also consulted, together with the CADW database of listed buildings, Scheduled Ancient monuments, Designated Wrecks and registered parks and gardens.

### **4.2. Walkover survey**

- 4.2.1. Subsequent to the completion of initial documentary research as outlined above, a walkover survey of the promenade and beach at low tide was undertaken in order to assess the topography and any above-ground archaeology within the study area, including listed buildings.

## 5. ARCHAEOLOGICAL AND HISTORICAL CONTEXT

### 5.1. Introduction

- 5.1.1. This section of the assessment summarises the known archaeological and historical development of the study area within the context of the development of Colwyn Bay and the immediate coastline; the development of the study area and development site itself is described in more detail in Section 6 below.

### 5.2. The prehistoric period

- 5.2.1. The north Wales coastline has evidence for well preserved submerged forests and land-surfaces which have been dated to the later Mesolithic and earlier Neolithic period (Bell 2007). Significant sites have been recorded in the vicinity of Rhyl and Prestatyn. At Splash Point Rhyl, a significantly well-preserved submerged forest has been recorded, with tree stumps clearly visible on the beach, together with human and animal footprints (ibid. 306-308). An assemblage of Mesolithic and Neolithic artefacts includes an antler mattock dated to c. 5600-5630 BC (OxA-1009; ibid. 266). It is notable that submerged forest sites are also recorded at Rhos-on-Sea and Llandudno (ibid. 2) with the later associated with a date which calibrates to 5983-5753 BC (using Oxcal 4.1, Bronk Ramsey 2010; SRR-5266; Bell 2007, 11).
- 5.2.2. A Neolithic Axe 'factory' has been recorded at Graig Llwyd, Penmaenmawr, on the coast to the west, where stone was exploited for the production of axes. These axes have been recorded distributed across Britain (Bradley and Edmonds 1993). At Llandudno some of the most extensive evidence for Bronze Age copper mining in Britain has been recorded at the Great Orme, c.6km west of the present site.

### 5.3. The Roman period

- 5.3.1. The advent of the Romans to Wales in the first century AD saw profound changes in the types and patterns of settlement in North-West Wales. Once the area was pacified the troops were billeted in auxiliary forts such as at Segontium (Caernarfon). The headquarters of the legions responsible for maintaining the 'Roman Peace' in Wales were the legionary fortresses of Deva (Chester) for the north, and the main land-based transport route between Deva and Segontium roughly corresponded with the present day A55.
- 5.3.2. Several sites have been published in recent years that shed further light on the period. Assessing the impact of the Roman invasion is made easier by the publication of the excavations at Segontium (Casey and Davies 1993). Evidence from the Romano-British periods has been recently summarised (Arnold and Davies 2000). These do not indicate intensive settlement in the Colwyn Bay Area.

### 5.4. The medieval period

- 5.4.1. A number of sites and monuments dating to the early medieval period have been recorded in the region of the north Wales coast. These include the monastic settlement at Bangor, the early church at St Tudno's on the Great Orme, Llandudno, and the coastal sites associated with St Seiriol at Penmon Priory, Anglesey, and Ynys Seiriol, on what is now known as Puffin Island, off Anglesey.
- 5.4.2. The Grade II listed St Trillo's Chapel in Rhos-on-Sea (*Llandrillo-yn-Rhos*) is suggested to be 6th century, and was the mother church of a large parish which included places as far apart as Eglwysbach and Eglwys Rhos (*Llan Rhos*) (Lowe 1912). It is located about 300m outside the study area close to Rhos Point the

finger of land jutting out into the Irish sea between Penrhyn Bay and Colwyn Bay and appears to have been the medieval foci for settlement in the Colwyn Bay area.

- 5.4.3. A Cistercian monastery has been documented in the vicinity of Rhos-on-Sea (*Llandrillo-yn-Rhos*) dating to between the 9<sup>th</sup> and 12<sup>th</sup> century, although its specific site is unknown (HER 100503; Jones 1997, 93).
- 5.4.4. The monks built a fishing weir on the sea shore below Bryn Euryn. The place became known as Rhos Fynach, *heath of the monks*. In a charter of 1230 Llywelyn sanctioned the purchase by Ednyfed Fychan of land at Rhos Fynach and in 1289 the abbey moved to Maenan and the weir was ceded to Ednyfed's estate. These are located just north of the study area beyond Rhos Jetty.
- 5.4.5. Llandrillo yn Rhos Church was built on the site of Ednyfed Fychan's private chapel and incorporates what was his tombstone. Parts of the church date to the 13<sup>th</sup> century, but it has been rebuilt several times with the oldest parts of the present church dating to the 15<sup>th</sup> century. The majority of the church was restored in 1857 (Lowe 1912).

## **5.5. The post-medieval and modern period**

- 5.5.1. The town of Colwyn Bay, alongside other British seaside resorts in the early 20<sup>th</sup> century, was a focal destination of an increasing proportion of the population of all classes as a result of rising prosperity and a population with more disposable time and income (Walton 2000, 27). Movement to such resorts was facilitated by the development of the railways in the 19<sup>th</sup> century. As a result, Colwyn Bay became a focus for a dramatic population influx. The population of the town expanded by 76 per cent, from c. 12000 to over 22000, between 1911 and 1951, (Walton 1997).
- 5.5.2. The climate of Colwyn Bay was considered beneficial to health, and was the focus of a detailed study by the medical profession in the late 19<sup>th</sup> century (Lord 1896). The geographical position and climate of the town was compared with other towns and 'health resorts'. For example Colwyn Bay was recorded as having 242 hours of sunshine on average in June comparing well with other resorts such as Torquay, but being noticeably higher than industrial towns such as Manchester, with 144 average hours. Health benefits of the climate were highlighted and it was noted, for example, that 'Scrofula and Tuberculosis...are not common among residents and as such patients derive much benefit here' (*ibid.*, 15). Specific cases of people having moved to Colwyn Bay to ease the suffering of 'lung mischief' are noted. It may be possible that the considered benefit to health contributed, in part, to the popularity of the town as both a resort and place of residence in the late 19<sup>th</sup> and early 20<sup>th</sup> century.
- 5.5.3. The development of the transport system including both the railway and a tram-line, must be seen as a catalyst to the development of Colwyn Bay as a resort. The railway, constructed by the Chester and Holyhead Railway Company, was opened in 1848, with Colwyn Bay Station opening in 1849 (Wynne-Jones 1995, 10). A second station the 'Pwllcrochan Halt' was constructed for the private use of Lady Erskine, and was located to the west. The public station was rudimentary with wooden platforms made up of railway sleepers and was not enlarged until 1906 (*ibid.*).
- 5.5.4. Four road tunnels below the railway line originally connected the town of Colwyn Bay with the promenade and shore (*ibid.* 11). This included a link via steps with the railway station (*ibid.*).
- 5.5.5. In 1906 a tram line began construction linking Colwyn Bay with Old Colwyn to the east and the resorts of Rhos-on-Sea and Llandudno to the west (Anderson 1967). The trams are considered a significant factor in the development of Colwyn Bay

providing in particular a more convenient connection with Llandudno than that offered by the railway network (Wynne-Jones 1995, 70-72). The trams continued in use until the 1950s when falling profits led to them being replaced by bus services (Anderson 1967).

## 6. ARCHAEOLOGICAL SITES

6.1.1. A total of 7 archaeological sites are registered on the Clwyd Powys Archaeological Trust SMR within the study area. Full listings are given in Appendix 4.

TABLE 1: Archaeological Sites registered with the Clwyd-Powys Archaeological Trust SMR within the study area (Figs 3-4)

SMR Ref	Type*	Site name/ description	NGR	Period/ Date
100457	FS	Broken Stone Axe	SH 8600 7900	Neolithic
10056	FS	Stone Tranchet or Chisel	SH 8430 8070	Neolithic
35860	FS	Palstave	SH 8500 7900	Bronze Age
106447	FS	Cu Alloy Brooch	SH 8426 8022	Roman
34278	AS	Fish Weir	SH 8450 8030	Medieval/ Post-medieval
38520	AFW	Topographical Survey of Fish Weir	SH 8450 8030	Medieval/ Post-medieval
58178	AFW	Peat Deposit	SH 8423 8075	Unknown?
104550	AS	Colwyn Bay Hotel	SH 8475 7940	Modern
106489	AS	Ivy Street Hut	SH 8508 7893	Modern

**\* Site classification:**

AS: Archaeological Site	LB: Listed Building
FS: Archaeological Find-spot	LLB: Locally Listed Building
PAW: Previous Archaeological Work	HPG: Historic Park or Garden
SAM: Scheduled Ancient Monument	

### 6.2. The prehistoric period

6.2.1. A Neolithic stone axe has been recorded from the beach at Colwyn Bay (SMR 100457).

6.2.2. A Neolithic green-stone tranchet or chisel has been recorded from the 'Old ground surface' at Rhos-on-Sea in an area described by the Ordnance Survey as 'mud' on historic and recent mapping (SMR 10056). It may be possible that this find is from submerged forest deposits noted in this area by Bell (Bell 2007, 2). The extent of any submerged forest at Rhos-on-Sea is unknown. However, the area lies to the north of the study area.

6.2.3. A Middle Bronze Age palstave has also been recorded at Colwyn Bay, although its provenance is not specific (SMR 35860).

### 6.3. The Roman period

6.3.1. A copper alloy brooch of possible late 1<sup>st</sup>/ early 2<sup>nd</sup> century AD (Flavian) date has been recorded on the beach at Rhos-on-Sea (SMR 106447).

#### 6.4. The medieval period

- 6.4.1. A fish-weir has been recorded on the shore south of Llandrillo-yn-Rhos (Jones 1997). The weir is made up of timber posts and rounded pebbles within a low bank. This structure encloses a sub-rectangular area marked by the Ordnance Survey as a tidal pond. The feature is thought to be medieval on the basis of comparisons with other similar structures along this coastline, although no specific dating evidence has been retrieved (*ibid.* 93) (SMR 34278).

#### 6.5. The post-medieval period

- 6.5.1. Fish weirs, recorded in the northern part of the study area, made up of banks of stone and timber posts, appear to have continued in use into the 20<sup>th</sup> century (Jones 1997, 93) (SMR 34278).

#### 6.6. The modern period

- 6.6.1. The modern period in Colwyn Bay, Old Colwyn and Rhos-on-Sea was characterised by the transition from an essentially rural economy to one dominated by the railway and the tourist industry that it brought. Two archaeological sites have been identified on the Sites and Monument Record as pertaining to the modern period. The Colwyn Bay Hotel formed part of the earliest development of the town and was opened in 1871, although no longer survives (SMR 104550; Wynne-Jones 1995, 8). The remains of a building believed to be a 19th century fisherman's hut were uncovered on Ivy Street (SMR 106489). In addition a number of extant listed buildings date to the modern period (see below).

### 7. PREVIOUS ARCHAEOLOGICAL WORK

- 7.1.1. Limited archaeological work has been conducted in the Colwyn Bay area prior to the present date. The fish weir, possibly of medieval date was surveyed and recorded by Clwyd-Powys Archaeological Trust in 1996 and a plan produced (Jones 1997; see above for details; SMR 38520). Further north a comparable fish weir was recorded at Rhos-on-Sea (*Llandrillo-yn-Rhos*), outside the study area, and was considered to date to between 1450 and 1670 (*ibid.*).
- 7.1.2. An archaeological watching brief recorded a peat deposit at the Abbey Hotel, Rhos-on-Sea (*Llandrillo-yn-Rhos*). The deposit pre-dated modern build up layers but only modern finds were recovered (SMR 58178). The location of this work lies to the north of the study area.

### 8. MAP REGRESSION

#### 8.1. 1847 Tithe Map (Figs 7-9 )

- 8.1.1. The Tithe map of the Parish of Rhos-on-Sea (*Llandrillo-yn-Rhos*) indicates that the study area was almost wholly rural at this time. The small town of Colwyn to the south-west of the study area was the main centre of population. A road network exists inland from the shore, with a north-west to south-east road forming a basis for the later development of the town as depicted on subsequent maps. Significantly a transect through the landscape is marked on the plan outlining the route of the planned railway. This is listed in the apportionment as belonging to the Chester and Holyhead Railway Company.

- 8.1.2. The area is otherwise characterised by agricultural fields and areas of woodland interspersed by farms and cottages. A small group of cottages with gardens is present in the north adjacent to the coast. A larger house to the south set back from the coast but linked to the shore by a small road, is named Bryn Evan and is owned by Lady Eskine. Further south in the vicinity of a small stream is 'Eirias', a house, buildings with arable pasture and meadowland. Min-y-Don, a large house at the southern extent of the study area, is described as a house with buildings, yards and plantations with a mixture of pasture and arable land.

## **8.2. Ordnance Survey 1891 (Fig. 10)**

- 8.2.1. The London and North Western Railway is shown running along the coastline before sweeping to the west mid-way along the study area. The area remains largely rural at this date and is characterised by fields, woodlands and a scattering of cottages. The main focus of settlement is at the town of Colwyn, just outside the study area in the east.
- 8.2.2. At Colwyn Bay the railway station is accompanied by a number of hotels set back from the shore line, including the Colwyn Bay Hotel. It is notable that a short promenade has been constructed in front of the hotel running parallel with the shore line for approximately 200m.
- 8.2.3. A former access road to the shore, as shown on the map of 1847, has now been redeveloped, and buildings owned by Lady Erskine have apparently been demolished to make way for the railway and the re-development of this area. A tree lined avenue links the Hotel and promenade with 'Erskine Villas' to the west, at the junction with a north-west to south-east road. This road provides access to a focus of settlement to the east, close to railway sidings and a Presbyterian Chapel. To the west of the Colwyn Bay hotel is a Brick Works close to the railway line, reflecting the influence of the railways to the industrial development of the area in the 19<sup>th</sup> century.
- 8.2.4. Further to the north a bath house is located adjacent to the shore line with an access track running to the west. The remaining area to the north is characterised by cottages and small fields. It is notable that one cottage, just outside the study area at Llaandrillo-yn-Rhos, is named 'Weir View', suggesting the presence of fish weirs on the shore.

## **8.3. Ordnance Survey 1901 (Fig. 11)**

- 8.3.1. Colwyn Bay is a larger town at this date with a clearly planned grid-like street pattern. An extended West Promenade is present in the area of Colwyn Bay Hotel, which has also seen further development to its west on the sea front. An east promenade has also been constructed by this date, running from the railway station mid-way towards the town of Colwyn. It is notable that the railway station at Colwyn, just east of the study area, is known as 'Old Colwyn Station' at this date, distinguishing it from the new development of Colwyn Bay to the west.
- 8.3.2. The railway station buildings at Colwyn Bay have expanded in size by this date. A large sand-pit is recorded to the south-east of the station, linked by a railway line, in the location of a former area of railway sidings. This reflects the small scale industrial development in the town. Elsewhere, 'Old Clay pits' are marked, indicating that a former brickworks in this area has gone out of use by this date.
- 8.3.3. The town's development is reflected in the presence of Penrhos College, inland of the seafront development at Colwyn Bay Hotel. Roads such as 'Marine Drive' and

'East Parade' may reflect the conscious planning of the town as a seaside resort at this time.

- 8.3.4. Features on the shore south of Rhos Trillo appear to mark wooden posts, as indicated on later maps. Linear groups of these features and sub-rectangular clusters extend onto the beach in this area and may represent fish weirs. Similar features, parallel with the shore-line are present around Colwyn Bay Hotel and on the shore between Colwyn Bay and Colwyn. More obvious linear 'groynes' are present extending onto the beach around Colwyn Bay Hotel.

#### **8.4. Ordnance Survey 1915 (Fig. 12)**

- 8.4.1. Further urban development has occurred to the west of Colwyn Bay and to the north around Llandrillo-yn-Rhos.
- 8.4.2. The Victoria Pier is marked on the historic mapping for the first time, on which stood a pavilion and a beacon. A Pavilion is also marked close to the Colwyn Bay Hotel. The promenade has been extended to the west as far as Llandrillo-yn-Rhos and is split between two sections at its north west end, accompanied by a band stand. To the east the promenade has been extended as far as the town of Colwyn. A large sand extraction pit close to the railway station has now been restored to railway sidings.
- 8.4.3. In the northern part of the study area at Llandrillo Yn Rhos, planned streets and housing are now present set back from the shore, with a small number of buildings fronting the promenade.
- 8.4.4. It is notable that a clear fish-weir structure is recorded on the shore at the northern part of the study area. The dimensions of the structure are the same as those that have been surveyed archaeologically (Jones 1997), with further features of the structure recorded on its southern side. A vague linear group of possible posts or stones are marked extending to the north-east, with a further sub-rectangular group of similar features to the south. Although these are not annotated they appear to represent structures relating to fishing activities on the shore.
- 8.4.5. Further 'groynes' and slip-ways are recorded along the shore line between Rhos and the pier, and further possible stone or wood features on the shore east of the pier. A rectangular group of stones or timbers are indicated at the seaward end of the pier on its eastern side, and at the eastern most extent of the study area. Other possible wooden or stone features are marked parallel with the edge of the shore line, with a notable cluster north of Colwyn Bay Hotel.

#### **8.5. Ordnance Survey 1938 (Fig. 13)**

- 8.5.1. A greater density of planned urban development is notable between Colwyn Bay and Llandrillo-yn-Rhos, with the two areas effectively forming one large town. The town of Colwyn to the east has also expanded by this date, with a notable group of housing close to the shore in the eastern part of the study area, replacing the former house of Min-y-Don and Min-y-Don cottages.
- 8.5.2. Notable new features along the sea front at Colwyn Bay include a 'sports ground' adjacent to the West Promenade with an adjoining chapel, possibly associated with Penrhos College. 'Erias Park' is recorded south of the eastern promenade in the former location of Eirias House, present since at least 1847. The park contained a number of formal rectangular garden features, a pavilion and a lake. To the west of the park a large school has been set up by this date adjacent to East Parade.
- 8.5.3. Shore features including fish weirs remain the same as the earlier mapping.

## 9. LISTED BUILDINGS, PARKS AND GARDENS, CONSERVATION AREAS, HISTORIC WRECKS AND HISTORIC MARINE RESOURCES

9.1.1. A total of 7 listed buildings are registered on the Clwyd Powys Archaeological Trust HER within the study area. Full listings are given in Appendix 4.

TABLE 2: Listed Buildings registered with the Clwyd-Powys Archaeological Trust SMR within the development site and wider study area (Figs 3-4)

SMR Ref	LB No.	Type*	Site name/ description	NGR	Period/ Date
25324	25324	LB	Victoria Pier	SH 8527 7919	Modern
41149	14698	LB	Head Post Office, Princess Drive	SH 8482 7926	Modern
41137	14686	LB	Ridge Cottage, Penrhos Road	SH 8456 7953	Modern
41148	14697	LB	Princess Bingo and Social Club, Princess Drive	SH 8493 7914	Modern
41138-45	14687-94	LB	Princess Drive, Row of Shops	SH 8497 7901	Modern
36056	14666	LB	Former Glan Y Don Hall	SH 8603 7858	Modern

**\* Site classification:**

AS: Archaeological Site	LB: Listed Building
FS: Archaeological Find-spot	LLB: Locally Listed Building
PAW: Previous Archaeological Work	HPG: Historic Park or Garden
SAM: Scheduled Ancient Monument	

### 9.2. The pier

9.2.1. Victoria Pier is a Grade II listed structure (SMR 25354; LB 25324). It began construction in 1899 and was designed by Magnalls and Littlewood of Manchester and built by the Widness Foundry Company (<http://www.victoriapier.com>). The pier has a structure of cast iron columns with "composite capitals and wrought iron lattice work" and was constructed in four sections (SMR/ CADW). The pier and Pavilion were officially opened in June 1900 with the Pavilion capable of seating 2,400 people (Jones 1995; Plates 1-4). Photographs show a grand pier pavilion dominating both the pier and the promenade. It is notable that a number of contemporary photographs show the pier structure projecting no further than the end of the pavilion and terminating at the rounded corner features projecting from the pier to the east of the pavilion (Plates 2-3.). Other photographs show the original pier pavilion with a larger pier structure projecting further into the sea, with a smaller structure at the end, possibly a small theatre (Plate 4; Roberts 1991). It is possible, therefore that either the pier was extended, following the construction of the original pavilion, or was destroyed during the life of the first pavilion.

9.2.2. The pier pavilion was destroyed by fire in 1922 and a second pavilion was built in 1923 (Plate 5; Wynne-Jones 1995, 19). The superstructure was recorded after the pavilion was destroyed and are shown extending beyond the area of the former pavilion (Fig. 5). Plans of the second pier pavilion construction show flanking towers fronting onto a curved façade at the entrance to the pier, as with the original design, and a grand pier pavilion on a slightly smaller scale to the original (Fig. 6).

9.2.3. The second pier pavilion was destroyed by fire in 1933 and a third pier pavilion had been constructed by 1934 which was smaller and more modest in style with only 700 seats (Plate 6; Edwards 1984; Wynne-Jones 1995, 19). By 1968 the pier

business was in debt and was sold to a succession of owners and finally closed in 1993 (ibid.).

### **9.3. Other Buildings**

- 9.3.1. In addition to the Victorian pier discussed above a number of other significant buildings are present within the study area which are of architectural importance a number of which are Grade II Listed (Appendix 4).
- 9.3.2. A number of inter-war buildings of the 1920s and 1930s have been listed for their architectural significance. These include the Neo-Georgian style Post Office built between 1923 and 1926 (Plate 7; SMR 41149; LB 14698) and the small Neo-Georgian style Ridge Cottage built in 1919, considered "remarkable" for a small house design (Cadw; Plate 8; SMR 41137; LB 14686).
- 9.3.3. Three buildings from the 1930s reflect the development of Colwyn Bay as a commercial and entertainment centre. The original Princess Picture House built in 1932 (now a Wetherspoons Pub), is significant for its Art Deco interior and façade (Plate 9; SMR 41148; LB 14697).
- 9.3.4. A shop development on the corner of Princess Drive (Nos. 1, 3, 4 and 7) and Penrhyn Road (Nos. 28, 30, 32 and 34) is significant for its Art Deco shop fronts and prominent corner positioning (Plate 10; SMR 41138-45; LB 14687-94). Just outside the study area are the Queens buildings on Station Road, comprising nine shop-fronts constructed of red brick in 1887 and considered a significant example of the second phase of construction in Colwyn Bay (Plate 11).
- 9.3.5. Just outside the study area to the south is a former convalescent home overlooking Eirias Park which may reflect the attraction of Colwyn Bay for its health benefits (Lord 1896). The building was constructed in 1909-10 and was originally named 'Glan Y Don Hall'. It became a civic centre from the 1960s, and is significant for its Arts and Crafts architecture (SMR 36056; LB 14666).
- 9.3.6. In addition to this Colwyn Bay Station, is unlisted but is an attractive example of mid-19th century railway architecture but is heavily altered. It opened in 1849 (Wynne-Jones 1995, 10) and is in an unusual location straddling a curved section of track.

### **9.4. Parks and gardens**

- 9.4.1. No registered parks and gardens are present within the study area.
- 9.4.2. The northern part of Colwyn Bay may, however, be within the field of view of a Grade II listed park at The Flagstaff, 1km west of the study area (CADW: GD 61).

### **9.5. Conservation Areas**

- 9.5.1. The study area contains two statutory designated areas on its southern boundary. The Colwyn Bay Town Centre Conservation Area (Figure 14; CCBC 2008a) lies just to the south of the study area.
- 9.5.2. Likewise Old Colwyn Town Centre (Figure 15; CCBC 2008b) lies just outside the study area and is designated a Conservation Area. In this case the conservation area extends to the sea front.
- 9.5.3. None of the listed buildings within either conservation area fall within the study area. However, both areas have potential for important views that may be affected by the proposed development. In the case of the Colwyn Bay Town Centre

Conservation Area, it is separated from the beach and promenade by the route of the A55 and the railway line and station. Likewise, in the case of Old Colwyn Conservation Area the A55 separates the town centre from the promenade and beach. The presence of these two transport routes may negate the impact on any important views within the conservation area.

- 9.5.4. Rhos-on-Sea Conservation Area extends to the beach by Rhos Jetty (Figure 16; CCBC 2008c). There are no listed buildings in the conservation area but important views include the view down Rhos Road and Penrhyn Avenue to the promenade and sea and the view towards the bottom end of Rhos Road from the promenade.

## **9.6. Historic Wrecks, Marine Resources**

- 9.6.1. No historic wrecks were identified within the study area. The extent of the survey was the limitations of the low tide mark and as such no historic marine resources were identified in the area.
- 9.6.2. To the north of the study area in the vicinity of Rhos-on-Sea, just below the level of the lowest tides, part of the wreck in 1908 of the paddle-steamer Rhosneigr appears above water at low spring tides (Wilson 1977, 209-12). The Mary Catherine Shipwreck was identified in close vicinity, but lay outside the study area.
- 9.6.3. Submerged Forests were noted north of the study area at Rhos-on-Sea (Hall 1866). These continue to be exposed during extreme low tides and may extend into the Study Area. The peat bed, with tree trunks and roots, on the shore at Rhos-on-Sea, just below the promenade near the Rhos Abbey Hotel, and at a little lower level farther out (Wilson 1975, 211).

## **10. WALKOVER SURVEY**

- 10.1.1. A walkover survey was conducted along the Colwyn Bay promenade and the beach at low tide over a distance of 3.5km. Any potentially historic features were noted and photographed and features on the beach were logged with a hand-held GPS accurate on the day to within 3m<sup>2</sup>.

### **10.2. The promenade**

- 10.2.1. The promenade was characterised by 20th century shelters dating to the 1960s (Plate 12) and late twentieth century street furniture. A toilet block dating to 1908 was noted on the south side of the promenade road.
- 10.2.2. A railway viaduct at the southern end of the study area provides a road link with Eirias Park to the south (Plate 13). This feature is contemporary with the original railway, and has also been subject to a number of historic photographs dating to the mid-twentieth century, which emphasise the link between the park and the promenade (Plate 14). Further to the north-west a small access road was present directly opposite the pier connecting with the town, and running beneath a cast-iron railway bridge. A sandstone railway bridge was noted alongside the modern A55 flyover, where Marine Road links the town and promenade and sea-front (Plate 15).

### **10.3. The Pier**

- 10.3.1. The pier was in a derelict state. The entrance was flanked by two towers, connected by a covered section (Plates 16-17). The towers are different in form to those recorded in photographs of the first phase pier pavilion, and are different to those drawn in the plans of 1923. It is possible therefore that these towers relate to the

third redevelopment of the pier in the 1930s. The curving forecourt to the pier retains its original form as depicted in the 1923 plan. A section of promenade currently running beneath the pier remains in use and was also depicted on the plan of 1923.

- 10.3.2. The pier superstructure remains largely intact, albeit in a state of disrepair (Plate 18). The form of the structure is nevertheless recognisable to that drawn in the 1923 plan, much of which belonging to the original structure, including: the rounded projecting corners around the pavilion (Plate 19); decorative iron column capitals (Plates 20-21); iron cross pieces and railings (Plates 22-23).

#### **10.4. The Beach**

- 10.4.1. The beach was characterised by several wooden 'groynes' (Plates 24-30), designed to prevent beach erosion. Similar features are recorded on historic mapping, at it may be possible that some wooden 'groynes' may be the same as those depicted on the 1915 map east of the pier. However, none of the GPS points equate exactly with the 'groynes' on the 1915 map and they may be later 20<sup>th</sup> century in date. More modern and substantial boulder constructed barriers divided the beach at regular intervals and extended to the low tide level.

- 10.4.2. To the west of the pier the small stumps of iron posts were noted alongside lengths of tubular cast iron (Plate 31). These appear to relate to a slip-way feature depicted on historic photographs contemporary with the first phase of the pier pavilion in the early 1900s. This feature is also present on the historic mapping, and the features recorded are located at the end of the former slipway.

- 10.4.3. The fish weir was located to the northern end of the study area, and was clearly visible close to the low tide mark (Plate 32). This feature was constructed of banks of larger pebbles in a sub-rectangular arrangement, and survived as recorded in 1997 (Jones 1997). The feature appears to have been designed to retain sea water at low tide and water was visible within the weir at a higher level than the surrounding beach and tide (Plate 33). A preserved wooden timber was noted amongst the stones (Plate 34) and there may potentially have been further such timbers within the pebble structure.

- 10.4.4. No submerged forest deposits were encountered at low tide level. The scoping document highlights the presence of submerged forests present at extreme low tides and exposed during storm events but the current work was unable to further the current knowledge of these features.

#### **10.5. Colwyn Bay Station**

- 10.5.1. Colwyn Bay Station lay at the southern edge of the study area (Plates 35-38). Originally opened in 1849, elements of the internal structure retain historically significant character. These include columns and roof structure, railings and the footbridge. These appear to date to the late-19th or early 20th century. Unfortunately these have been subsumed externally by 20th century alterations which add little to the original historical character.

## 11. DISCUSSION

### 11.1. Summary of the archaeological and historical development of the study area

- 11.1.1. The Colwyn Bay Waterfront area was relatively undeveloped until the modern period. Examination of the available evidence suggests that Colwyn Bay was either sparsely occupied or unoccupied until the medieval period. The identification of fish traps dated to the medieval or post-medieval period supports the beginnings of limited occupation. The likelihood is that these remains were associated with the settlement of Llandrillo-yn-Rhos at the northern end of beach outside the study area.
- 11.1.2. The post-medieval period sees little significant development of the area and it essentially remains rural characterised by agricultural fields and areas of woodland interspersed by farms and cottages with limited settlement sites identified along the coast line including cottages to the north of the Study area, and isolated individual houses.
- 11.1.3. Significant development of the study area occurs at the end of the 19th century when the railway is constructed and subsequently the resort town of Colwyn Bay is developed. These leads to rapid development of the urban area of Colwyn Bay, Old Colwyn and Rhos-on-Sea at the start of the 20th century and the vast majority of the archaeological and historical evidence for the town dates to this period. This includes remains of the railway and the development of the pier and beach.

### 11.2. Archaeological potential of the study area

- 11.2.1. Prior to the medieval period archaeological remains have been limited to chance finds. These include a Neolithic stone axe, a Neolithic green-stone chisel and a Roman Brooch dated to the late 1st to 2nd century AD. No archaeological structures, buried archaeological remains or flint, pottery or ceramic building material spreads have been recorded associated with the finds. The absence of associated evidence for archaeological sites means these spot finds are of low archaeological significance.
- 11.2.2. The presence of the submerged forest noted at the beach at Rhos-on-Sea cannot be confirmed or denied to extend into the study area. These features are only exposed at extreme low tides and the walkover survey was not able to confirm or deny their presence.
- 11.2.3. Archaeological remains dating to the medieval period have been found within the study area. The remains of the medieval fish weirs that continue to be occupied into the post-medieval period at the northern end of the beach are archaeologically significant but are not designated as a Scheduled Ancient Monument.
- 11.2.4. Remains relating to post-medieval and modern period are more plentiful but of reduced significance. The most significant surviving remain on the waterfront is the Grade II listed pier dated 1899/1900.
- 11.2.5. A number of other Grade II listed buildings exist in the study area but these lie away from the waterfront and as such are unlikely to be affected by proposed developments. A toilet block dating to 1908 and a number of elements of the railway transport structure are unlisted but may be deemed locally significant as heritage assets, but retain a low level of historical and archaeological significance on a regional and national level.

- 11.2.6. In addition Colwyn Bay Railway Station retains elements of historical character internally within the fabric, but externally is of late-20th century date. The railway itself has two viaducts within the study area which are unlisted but striking examples of stone railway architecture.
- 11.2.7. Both Colwyn Bay Town Centre Conservation Area and Old Colwyn Conservation Area lie on the southern boundary of the study area. The Conservation Areas are separated from the beach and promenade by the route of the A55 and the railway. The Rhos-on-Sea Conservation Area extends to the promenade and may impact on the very northern end of the proposed development.
- 11.2.8. The remains of 'groins' and cast iron posts on the sea front appear to date no earlier than the late-19th and 20th century and probably reflect a desire to preserve the beach. These are of low archaeological and historical significance.

## **12. ACKNOWLEDGEMENTS**

The project was commissioned by Mott MacDonald working on behalf of Conwy County Borough Council; thanks are extended to Josh Williams for his help and cooperation throughout the course of the project.

The historical research and site assessment were undertaken by Jon Halsted of Birmingham Archaeology who also produced the current report. Illustrations were the work of Jemma Elliott and Jon Halsted and the report was edited by Chris Hewitson. The project was managed for Birmingham Archaeology by Chris Hewitson.

## **13. LIST OF SOURCES**

### **13.1. Cartographic sources**

- 1847 Tithe Map Title of the Parish of Llandrillo-yn-Rhos
- 1891 Ordnance Survey County Series 1:2500 map, 1st Edition
- 1901 Ordnance Survey County Series 1:2500 map, 1st Revision
- 1915 Ordnance Survey County Series 1:2500 map, 2nd Revision
- 1923 Colwyn Bay-Victoria Pier, Ministry of Transport
- 1938 Ordnance Survey National Grid Series 1:2500 map, 1st Edition

### **13.2. Primary Photographic Sources (Denbighshire Record Office)**

N23/ 5  
N23/15  
N23/ 21  
N23/22  
N23/ 41  
N23/ 42  
N23/ 43  
N23/ 44  
N23/ 60  
N23/ 109  
N23/ 193

### **13.3. Secondary sources**

- Anderson, R.C. 1967. *A history of the Llandudno and Colwyn Bay Electric Railway Limited*, Quail: Devon.
- Arnold, C.J. and Davies, J.L. 2000. *Roman and Early Medieval Wales*, Stroud: Sutton.
- Bell, M. 2007. *Prehistoric Coastal Communities: The Mesolithic in western Britain*, York: CBA Research Report 149
- Bradley, R. and Edmonds, M. 1993. *Interpreting the axe trade: production and exchange in Neolithic Britain*, Cambridge : Cambridge University Press
- Casey P.J. and Davies J.L. *Excavations at Segontium (Caernarfon) Roman Fort, 1975-1979*, Council for British Archaeology.
- Conwy County Borough Council 2008a *Colwyn Bay Town Centre Conservation Area Appraisal* www.conwy.gov.uk/ accessed Oct 2010
- Conwy County Borough Council 2008b *Old Colwyn Conservation Area Appraisal* www.conwy.gov.uk/ accessed Oct 2010
- Conwy County Borough Council 2008c *Rhos-on-Sea Conservation Area Appraisal* www.conwy.gov.uk/ accessed Oct 2010
- DCMS (Department for Culture, Media and Sport) 2007 *Heritage Protection for the 21st Century*
- Edwards, G. 1984. *The Borough of Colwyn Bay: a social history 1934-1974*, Colwyn Bay Borough Council.
- English Heritage 2010 *PPS5 Planning for the Historic Environment: Historic Environment Practice Guide*
- Hall, H.F. 1866. 'Notice of submerged forests at Rhos, near Colwyn'. in *Proceedings of the Liverpool Geological Society* I, 31-7.
- Jones, O.T. 1939 'The geology of the Colwyn Bay District: a Study of Submarine Slumping during the Salopian Period' *Journal of the Geological Society* 95/ 1-4, 335-82.
- Jones, N. 1997. 'Llandrillo-yn-Rhos fish weir', *Archaeology in Wales* 37, 91-3.
- IfA (Institute for Archaeologists) 2008 *Standards and Guidance for the Production of Archaeological Desk-Based Assessments*
- Lord, R.E. 1896. 'The climate of Colwyn Bay, with some remarks on its uses in the treatment of disease', reprinted from *The Medical Chronicle*, University of Birmingham Special Collections.
- Lowe, B.W. 1912. *The Heart of Northern Wales*. Llanfairfechan.
- Mellard Reade, T. 1885 'The Drift-deposits of Colwyn Bay' *Journal of the Geological Society* 41; 102-7.
- Mott MacDonald 2010 *Colwyn Bay Environmental Scoping Report*.
- Roberts, G. 1991. *Colwyn Bay and district: a collection of pictures 1*, Wrexham: Bridge Books.
- Walton, J.K. 1997. 'The seaside resorts of England and Wales, 1900-1950: growth, diffusion and the emergence of new forms of coastal tourism', G. Shaw and A. Williams (eds.) *The rise and Fall of British Coastal Resorts*, London: Mansell, 21-48.
- Walton, J.K. 2000. *The British Seaside: holidays and resorts in the twentieth century*, Manchester: Manchester University Press.
- Wilson, D. 1977 'The stability during many years of the mid-tidal shore at Penrhyn Bay, North Wales, and a note on the Peat Beds at Rhos-on-Sea' *Estuarine and Coastal Marine Science* 5/2, 209-12.
- Wynne-Jones, I. 1995. *Colwyn Bay: a brief history*, Clwyd Library Service.

#### **13.4. On-line sources**

Bronk-Ramsey, C. 2010. *OxCal*, <http://c14.arch.ox.ac.uk/>

[www.victoriapier.com](http://www.victoriapier.com)

## **APPENDIX 1: Outline of Extent of Assessment**

The assessment of the area will include all monuments in a transect along the coastline designated in the scoping document. This will include;

- Walkover Survey and Photographic Record;
- Historic environment resource assessment;
- Historic maritime resources assessment;
- Background research at applicable local studies centres and archives;
- Cartographic map regression of all available sources;
- Applicable background assessment of secondary sources;
- Full illustrated report on the findings.

## APPENDIX 2: Archaeological Element of the Scoping Document

### 7.5 Archaeology and Cultural Heritage

Cultural heritage assets comprise buildings, areas (e.g. landscapes, archaeological complexes) and sites (e.g. ancient monuments), and may include both above ground and buried features. The significance of heritage features depends largely upon their importance (e.g. statutory designations such as Scheduled Ancient Monuments or Listed Building Status, identified archaeological sites which are not protected, and other designations such as World Heritage Sites), reasons for importance, and the inter-relationships between heritage features.

#### 7.5.1 Baseline

##### Historical land use

The town of Colwyn Bay was first developed in 1865, around the railway which predates the town by approximately 20 years. By 1878, Colwyn Bay is described as a seaside resort comprising numerous residential properties and hotels. Development of the town continued during the early part of the twentieth century with the opening of Victoria Pier in around 1900, construction of the promenade along the seafront between 1898 and 1911, continued residential development and the extension of the railway. The A55 highway was constructed by 1987. Vertical masonry sea walls were initially constructed between Rhos-on-Sea and Old Colwyn in the later part of the nineteenth century. Historical records indicate that the beach level has fallen considerably over the last century, with a historical loss of beach level across the foreshore of approximately 10-20mm per year, resulting in increased exposure and in some areas undermining of the sea defences. To prevent beach erosion, wooden groynes were initially constructed in the early part of the 20th century, with further boulder groynes constructed in the 1990s. Rhos Breakwater was constructed in 1983 and has been successful in preventing overtopping of the seawall at Rhos and has encouraged the accumulation of a beach in that area.

##### Archaeological features

There are not believed to be any Scheduled Ancient Monuments directly impacted by the scheme, however, there are several marine archaeological features of note in the vicinity of the site, including:

- Medieval fish traps, located offshore to the east of Rhos on sea;
- A number of historic shipwrecks, including the Mary Catherine Shipwreck; and
- Submerged forests along the bay.

The Victoria Pier and pavilion which bisects the central section of the beach, is a Grade II listed building. Although not a listed building, Colwyn Bay Railway Station is a historic building of archaeological importance. St Trillo's Chapel is a Grade II listed building located just above the beach near Rhos Head, just beyond the western boundary of the scheme. Additional listed buildings may be present along the promenade in the vicinity of Rhos Head.

#### 7.5.2 Potential Effects and Mitigation

The Grade II listed pier and pavilion is located within the centre of the scheme and is likely to be impacted, however the majority of any significant impacts are anticipated to be positive. The recharging of the beach will act to protect the lowest part of the structure which is currently exposed. The improvements of the waterfront in general may potentially lead to greater opportunities for the pier Colwyn Bay Waterfront Project in years to come. Under the 'Do Nothing' scenario the pier would eventually become detached from the shoreline and its condition would deteriorate significantly. The submerged forest is currently exposed at low tide following storm events. The recharge of the beach would provide additional protection of the tree stumps, rootlets and other features found in the area.

The proposed coastal defences will protect the railway embankment and the historic railway station, along with the railway bridges and listed buildings within the town. The sea walls are not understood to be archaeologically protected structures, however they currently suffer annual storm damage and overtopping. The scheme in general will act to protect the historic walls which were first constructed over a century ago, and ensure they remain for the generations to come. In general, the scheme will have significant beneficial impacts on cultural heritage, bringing the waterfront area back into its intended initial use as a seaside resort, with the attraction of visitors and protection of historic features.

### **7.5.3 Requirement for Inclusion in ES**

*A scoping opinion for the inclusion of an archaeology and cultural heritage chapter in the ES is requested from CCBC and any relevant statutory consultees.*

## **APPENDIX 3: Glossary of terms**

### **Archaeological periods and date ranges**

<b>Period</b>	<b>Date range</b>
<b><i>Prehistoric</i></b>	
Paleolithic	500,000 BC – 10,000 BC
Mesolithic	10,000 BC – 4,000 BC
Neolithic	4,000 BC – 2,400 BC
Bronze Age	2,400 BC – 700 BC
Iron Age	700 BC – AD 43
<b><i>Historic</i></b>	
Roman	AD 43 – AD 410
Anglo-Saxon/ Early medieval	AD 410 – AD 1066
Medieval	AD 1066 – AD 1539
Post-medieval	AD 1540 – AD 1800
Industrial Revolution	c.AD 1750 – AD 1825
Modern	AD 1801 - present

### **Statutory designations**

#### ***Scheduled Ancient Monument (SAM)***

'Scheduling' is the process through which nationally important sites and monuments are given legal protection. A schedule has been kept since 1882 of monuments whose preservation is given priority over other land uses. The current legislation, the Ancient Monuments and Archaeological Areas Act 1979, supports a formal system of Scheduled Monument Consent (SMC, see below) for any work to a designated monument.

#### ***Conservation Area (CA)***

Conservation Areas are any areas of '*special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance*' and are designated by Local Authorities. There are now more than 8,000 conservation areas in England. Designation introduces a general control over the demolition of unlisted buildings and provides the basis for policies designed to preserve or enhance all the aspects of character or appearance that define an area's special interest.

#### ***Listed Building (LB)***

A 'Listed Building' is a structure that has been placed on the statutory lists of buildings of '*special architectural or historic interest*' compiled by the Secretary of State for Culture, Media and Sport on advice from English Heritage. When a building is listed, it is listed in its entirety, which means that both the exterior and the interior are protected. In addition, any object or structure fixed to the building, and any object or structure within the curtilage of the building, which although not fixed to the building, forms part of the land and has done so since before 1 July 1948, are treated as part of the listed building.

#### ***Locally Listed Building (LLB)***

A Locally Listed Building is a building, structure or feature which, whilst not Statutorily listed by the Secretary of State, a local authority feels makes a significant contribution to the local environment and an important part of an area's heritage due to its architectural, archaeological significance or historical associations. Inclusion on a Local List does not give a building any statutory protection.

#### ***Registered Parks and Gardens***

The *Register of Parks and Gardens of special historic interest in England*, compiled and maintained by English Heritage, currently includes nearly 1450 sites, divided into three grade bands. The majority of the sites identified through the *Register* as being of a sufficiently high level of interest to merit a national designation, are designated Grade II. Around 30% of the 1450 are considered to be of exceptional

historic interest and are awarded a star giving them Grade II\* status while a further 10% are of international importance, and are classified as Grade I.

### **Historic Battlefields**

The English Heritage Register of Historic Battlefields identifies forty-three important English battlefields. Its purpose is to offer them protection and to promote a better understanding of their significance.

## **The planning process**

### **Scheduled Monument Consent (SMC)**

The Secretary of State must be informed about any work which might affect a monument above or below ground, and English Heritage gives advice to the Government on each application. In assessing each application the Secretary of State will try to ensure that damage done to protected sites is kept to a minimum. **Written consent must always be obtained before any work can begin.** Some development may also need planning permission.

### **Listed Building Consent (LBC)**

Listed Building Consent (LBC) is required in order to carry out any works to a Listed Building which will affect its special value for listing purposes. This will almost certainly be necessary for any major works, but may also be necessary for minor alterations and possibly even repairs and maintenance. LBC may also be necessary for a change of use of the property. **It is a criminal offence to carry out work which needs listed building consent without obtaining it beforehand.**

## **The archaeological process**

The principal stages for handling archaeology within the planning process, in line with the Government's *Planning Policy Guidance notes PPG 15 and PPG16* are:

- **Pre-determination:** desk-based assessment, archaeological evaluation;
- **Post-determination:** preservation *in situ*, preservation by record (excavation).

## **Stages of archaeological work**

### **Written Scheme of Investigation (WSI)**

Any programme of archaeological work will normally be undertaken in accordance with a Written Scheme of Investigation (WSI), clearly stating the scope and extent of work, the aims and objectives, and the methodology to be employed during the course of work. The WSI will be prepared by the contracted archaeological organisation and approved in advance of work by the archaeological officer of the relevant LPA.

### **Archaeological Desk-Based Assessment (DBA)**

An archaeological desk-based assessment (DBA) constitutes a first stage, non-invasive assessment of the archaeological potential of a site, undertaken in advance of any development. Research will normally comprise a search of all readily available documentary and archival sources pertaining to a site combined with an on-site 'walkover' survey to assess surviving archaeological remains/ built heritage of the area.

### **Archaeological Evaluation**

An archaeological evaluation is a limited programme of intrusive or non-intrusive fieldwork undertaken to establish the extent of survival of archaeological deposits within a site and to determine the character, date, state of preservation and potential significance of any buried remains. An evaluation is often required prior to the determination of a planning application for development and will normally be undertaken subsequent to a desk-based assessment. A variety of techniques may be employed including geophysical survey, fieldwalking, trial trenching and test pitting. The results of evaluation will be used to establish the necessity for and determine the requirements of any further stage of archaeological work.

### **Archaeological Excavation**

An archaeological excavation is a programme of controlled, intrusive fieldwork, normally undertaken by means of open area excavation, with the purpose of examining and recording archaeological deposits, features and structures identified by documentary research and/ or archaeological evaluation. Archaeological excavation will normally lead on to a programme of post-excavation analysis and publication.

**Archaeological Watching Brief**

An archaeological watching brief is a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons within an area or site where there is a possibility of archaeological deposits being disturbed or destroyed. Groundworks will normally be undertaken by a principal contractor under the supervision of an attending archaeologist.

**Preservation in-situ**

Foundation design to avoid or minimise impact on archaeology may be sought. This might include locating buildings to avoid archaeology; display of remains; sympathetic location of piled foundations and piling techniques; raising floor or ground beam levels; the routing of services; management of ground water. Landscaping and planting may also be constrained. Monitoring over a number of years after completion may be needed to assess if the preservation techniques have been successful.

**Historic Building Recording (HBR)**

A Historic Building Record (HBR) is a programme of work intended to establish the character, history, dating, form and archaeological development of a specified building, structure or complex and its setting. A programme of historic building recording will often be required as a condition of planning consent/ listed building consent, to be taken in advance of (pre-determination) and/ or during building refurbishment/ alterations/ demolitions (post determination).

HBR can be undertaken to a range of different levels (Levels 1 – 4 as defined by English Heritage) dependent upon the significance of the building under consideration and the extent of the proposed works.

## **APPENDIX 4: Full Listings in Sites and Monuments Records**

### **ARCHAEOLOGICAL FIND SPOTS, SITES AND INTERVENTIONS**

#### **35860 - Colwyn Bay palstave**

**NGR :- SH8579 (SH87NE)**

**Unitary authority :- Conwy**

**Community :- Colwyn Bay**

**Preferred site type :- Bronze Age - Find** (Finds only - Unknown )

Palstave. Replica in Grosvenor Museum.

Sources:- **Davies, E** , 1929 , *The Prehistoric and Roman remains of Denbighshire* , 197

Finds:- 1 / Bronze / Axehead / Bronze Age / /Private - owner ( ) - Replica Grosvenor Museum

#### **100457 - Colwyn Beach Axe**

**NGR :- SH8679 (SH87NE)**

**Unitary authority :- Conwy**

**Community :- Colwyn Bay**

**Preferred site type :- Neolithic - Find** (Finds only - Unknown )

A broken stone axe probably of Craig Lwyd stone found on the beach at Colwyn Bay. Now in St Asaph Cathedral Museum (?): listed by NMW as their accession number 44.315/2.

Sources:- **CPAT** , 2002 , *CPAT Project Archive - lithics* , **Council for British Archaeology** , 1982 , *CBA implement petrology report - Rhos Isaf Caves (multiple)* , **Davies, E** , 1929 , *The Prehistoric and Roman remains of Denbighshire* , 196 **Ordnance Survey** record card , 1962 , SH 87 NE 1 ,

Events:- Visit Ordnance Survey / 1962(/ /) -

Finds:- 1 / Stone / Axehead / Neolithic / /NMW ?/Denbighshire Museums Service (44.315/2) - Stone axe probably of Craig Lwyd stone

#### **34278 - Llandrillo-yn-rhos Fish Weir**

**NGR :- SH84508030 (SH88SW)**

**Unitary authority :- Conwy**

**Community :- Rhos-on-sea**

**Preferred site type :- Medieval - Fish trap** (Structure - Damaged )

Possible fishing weir comprising a horeshoe-shaped stone bank near LWM, 12m wide, with some evidence of timbers. The whole is 180m across and forms a shallow lagoon at low water. A detailed survey was carried out in 1997 showing that the basic construction of the weir is that of a curving bank composed of rounded pebbles, average size 0.20 to 0.30m across, reinforced with timber posts between 0.18m and 0.25m in diameter. The main bank stretches for 260m from close to the shore to the low water mark. At this point the bank turns sharply to the east to run along the low water mark in a slight curve for 170m. At the western end the bank curves inland through c310 degrees to form a horn 86m in length with a further arm extending towards the shore for 38m (Jones, N W 1997b).

Sources:- **CPAT** visit form , 1996, **Jones, N** survey, 1997, **Jones, N W** survey , 1997, **Jones, NW** survey 1997,

Events:- Topographical survey CPAT - Jones, N W / 1997(04/03/97) – Intertidal, Visit CPAT - Jones, N W / 1996(26/06/96) -

#### **38520 - Llandrillo-yn-rhos Fish Weir, topographical survey 1997**

**NGR :- SH84508030 (SH88SW)**

**Unitary authority :- Conwy**

*Community :- Rhos-on-sea*

*Preferred site type :- 20th century - Topographical survey (Event - )*

A detailed survey was carried out in 1997 showing that the basic construction of the weir is that of a curving bank composed of rounded pebbles, average size 0.20 to 0.30m across, reinforced with timber posts between 0.18m and 0.25m in diameter. The main bank stretches for 260m from close to the shore to the low water mark. At this point the bank turns sharply to the east to run along the low water mark in a slight curve for 170m. At the western end the bank curves inland through c310 degrees to form a horn 86m in length with a further arm extending towards the shore for 38m. (Jones, N W 1997b).

Sources:- **Jones, N** survey, 1997 , **Jones, N W** survey , 1997, **Jones, N W** survey , 1997 , ,

**100503 - Llandrillo-yn-rhos Monastery**

*NGR :- SH842807 (SH88SW)*

*Unitary authority :- Conwy*

*Community :- Rhos-on-sea*

*Preferred site type :- Medieval - Monastery (Document - Unknown )*

An early monastery with a community of canons under an abbot. dated probably 9th century to 12th century.;

Sources:- **Jones, N** , 1997 , "Llandrillo-yn-Rhos fish weir " , *Archaeology in Wales* 37 , 91-2 .  
**Knowles, D & Hadcock, R N** , 1953 , *Medieval Religious Houses in England and Wales* , 356-7  
**Lloyds, J E** , 1939 , *title unknown - Llandrillo-yn-rhos Monastery* , 240  
**Ordnance Survey** record card , 1963 , SH 88 SW 9 ,  
Events:- Visit Ordnance Survey / 1963(/ /) -

**106447 - Rhos-on-Sea brooch**

*NGR :- SH84268022 (SH88SW)*

*Unitary authority :- Conwy*

*Community :- Rhos-on-sea*

*Preferred site type :- Roman - Find (Finds only - Damaged )*

A small copper or bronze brooch, probably of late 1st century/early 2nd century date, found on the beach at rhos-on-sea. It has been loaned to the great orme mines for display.

Sources:- **Lynch, F** , 1991 , "Rhos on Sea, beach " , *Archaeology in Wales* 31 , 31 .  
Finds:- 1 / Copper alloy / Brooch / Roman ( 1st/2nd century) / /Great Orme Mines (on loan) ( ) -

**58179 - Rhos-on-Sea, Abbey Hotel**

*NGR :- SH84238075 (SH88SW)*

*Unitary authority :- Conwy*

*Community :- Rhos-on-sea*

*Preferred site type :- 19th century - Hotel (Building - Destroyed )*

Archaeological monitoring of test pits carried out by Earthworks Archaeology in 2000 ahead of demolition of Rhos on Sea Abbey Hotel and subsequent residential development. A layer of peat was identified below the level of made ground, of which a fairly modern boot was removed. No other features of archaeological interest were identified. (Earthworks Archaeology, 2000)

Sources:- **Earthworks Archaeology** , 2000 , *title unknown - Rhos-on-Sea, Abbey Hotel, watching brief 2000* ,

**100506 - Rhos-on-Sea, Abbey Hotel, chisel**

NGR :- **SH843807 (SH88SW)**

Unitary authority :- **Conwy**

Community :- **Rhos-on-sea**

Prefered site type :- **Neolithic - Find** (Finds only - Unknown )

A stone tranchet or chisel of green stone found on the old ground surface on the beach at rhos on sea.

Sources:- **CPAT** , 2002 , *CPAT Project Archive - lithics* , **Davies, E** , 1949 , *Prehistoric and Roman Remains of Flintshire* , 442 **Ordnance Survey** record card , 1963 , SH 88 SW 12 ,

Events:- Visit Ordnance Survey / 1963(/ /) - Coastal

Finds:- 1 / Stone / Chisel / Neolithic ? / / ( ) - A STONE TRANCHET OR CHISEL OF GREEN STONE FOUND ON THE OLD GROUND SURFACE ON THE BEACH AT RHOS ON SEA.

**58178 - Rhos-on-Sea, Abbey Hotel, peat deposit**

NGR :- **SH84238075 (SH88SW)**

Unitary authority :- **Conwy**

Community :- **Rhos-on-sea**

Prefered site type :- **Prehistoric - Peat deposit** (Buried feature - Unknown )

Archaeological monitoring of test pits carried out by Earthworks Archaeology in 2000 ahead of demolition of Rhos on Sea Abbey Hotel and subsequent residential development. A layer of peat was identified below the level of made ground, ot of which a fairly modern boot was removed. No other features of archaeological interest were identified. (Earthworks Archaeology, 2000)

Sources:- **Earthworks Archaeology** , 2000 , *title unknown - Rhos-on-Sea, Abbey Hotel, watching brief 2000* ,

Events:- Watching brief Earthworks / 2000(/ /) -

**87510 - Rhos-on-Sea, Abbey Hotel, watching brief 2000**

NGR:-**SH84238075 (SH88SW)**

Unitary authority :- **Conwy**

Community :- **Rhos-on-sea**

Prefered site type :- **21st century - Watching brief** (Event - )

Archaeological monitoring of test pits carried out by Earthworks Archaeology in 2000 ahead of demolition of Rhos on Sea Abbey Hotel and subsequent residential development. A layer of peat was identified below the level of made ground, ot of which a fairly modern boot was removed. No other features of archaeological interest were identified. (Earthworks Archaeology, 2000)

Sources:- **Earthworks Archaeology** , 2000 , *title unknown - Rhos-on-Sea, Abbey Hotel, watching brief 2000* ,

**104550 - Colwyn Bay Hotel**

NGR :- **SH84757940 (SH87NW)**

Unitary authority :- **Conwy**

Community :- **Colwyn Bay**

Prefered site type :- **Post Medieval - House** (Building - Unknown )

A large victorian stone building consisting of a 3.5 storey main block with 4.5 storey wings. N0985;

Sources:- **Ordnance Survey** record card , 1978 , SH 87 NW 10 ,

**106489 - Ivy Street Hut**

NGR :- **SH85087893 (SH87NE)**

Unitary authority :- **Conwy**

Community :- **Colwyn Bay**

Preferred site type :- **19th century - Hut** (Building - Damaged )

Remains of building uncovered during construction of the foundations. Two buckets of mussel shells were recovered from the floor of the building. A wooden needle was also uncovered. Probable mid 19th century fishermans hut.

Sources:- **Clwyd Archaeology Service** visit form , 1993 , ,

Events:- Visit Clwyd County Council / 1993(/ /) -

Finds:- 0 / Shell / Mussel / Post Medieval / / ( ) - 2 buckets of mussel shells recovered from the floor of Prn 106489 1 / Wood / Needle / Post Medieval / / ( ) - Wood needle recovered from the floor of Prn 106489

**LISTED BUILDINGS**

**25354 - Colwyn Bay, Victoria Pier**

**Listed Building 253 (II )**

NGR :- **SH8527979192 (SH87NE)**

Unitary authority :- **Conwy**

Community :- **Colwyn Bay**

Preferred site type :- **20th century - Pier** (Structure - Unknown ) Grade II listed pier

*The following is from Cadw's Listed Buildings database*

Prominently sited at about the mid-point of the bay. The pier was developed by a private company, and was designed by Messrs. Mangnalls and Littlewood of Manchester, architects and engineers. The contractors were the Widnes Foundry Company. The original pavilion was destroyed by fire in 1923. There were further fires in the pavilion and the theatre at the end of the pier in 1933, and the pavilion that replaced these was a smaller structure.

The pier is linked to the promenade by a massive stone retaining wall which curves upwards from the low level walkway of the promenade to the higher level of the roadway. The pier itself has a substructure of cast iron columns with composite capitals and wrought iron lattice work. Wooden deck with cast iron balustrading, formed of panels of interlaced foliated incorporating a monogram. The pier extends from the land in 4 sections. The first has small pavilion entrance booths and an amusement hall which replace earlier structures. The hall extends out to the westernmost edge, but an open gangway remains to the east. The second section extends out to the east, and it carried the pavilion, the present structure again a modern replacement of earlier buildings lost in successive fires. The main superstructure incorporates circular projections at its 2 eastern corners, but the original balustrading is lost where the pavilion extends to the E boundary of the pier. Linking the main pavilion with the landward hall is the remains of a length of arcade which one formed a covered way. Cast iron columns with fan-decoration in the spandrels. Beyond the pavilion, the third section forms the main length of the pier, of about the same length as the first section, with 4 pairs of rectangular projections. Edward Hubbard, Clwyd, Buildings of Wales series, 1986 p 138; Norman Tucker, Colwyn Bay, its origins and growth, 1953 p 210.

Sources:- **Cadw** listing database , 2000, **Cadw** listing database , 2006 , 253 ,

**41149 - HEAD POST OFFICE, PRINCES DRIVE (N SIDE)**

**Listed Building 14698 (II )**

NGR :- **SH8482579259 (SH87NW)**

Unitary authority :- **Conwy**

**Community :- Colwyn Bay**

**Preferred site type :- 20th century - Post office** (Building - Intact )

Grade II listed post office.

*The following is from Cadw's Listed Buildings database*

Above the road and set back facing up Wynnstay Road; steps up to narrow terrace at either end and retaining contemporary handrails. Built c1923-26 (dated 1925) by C P Wilkinson, architect of the office of works. Enlarge in 1985.

Grandly detailed post-office in a neo-georgian style. 2-storey and attic red brick building with hipped roman tiled roof, dentilled eaves and egg and dart cornice. Symmetrical 7-bay front with channel-rusticated pilaster strips to ends and freestone window dressings. Small pane metal-frame casement glazing. Five pedimented dormers. The ground floor is distinctive for its liberal use of freestone facing including plinth, surrounds to the large semicircular headed windows, together with the similar doorways at either end, and the panelled pilasters between each opening; all arches have lions head keystones. The doorways have similarly glazed fanlights over guilloche moulded lintels with 'public entrance' inscribed panels, panelled double doors. 1st floor window surrounds have sills and cornices; modern po signs between floors. Right hand end has projecting bay and downpipe dated 1925. Linked to this is a square single storey building in similar style with bullseye window to centre (now with EIIR Jubilee Plaque); attached to right is a red brick screen wall including concave niche. To left is a single storey range of 3 bays including door to left; similar pilasters etc but has freestone blocking course and square headed openings with simpler keystones. The central window includes clock and downpipes here are dated 1925. Stepped forward beyond is the modern, but in keeping, extension. Cross-ranges to either end at rear.

Retains substantial amount of original detail and is entered through square shaped lobbies. At either end of post office hall are pilastered and panelled screens with half glazed doors and egg and dart dentil cornices.

Listed as an especially good example of an inter-war post office, and of the Neo-georgian style of architecture favoured in the 1920's.

Edward Hubbard, Clwyd, Buildings of Wales Series 1986, p138

Sources:- **Cadw** listing database, 2000, **Cadw** listing database, 2006, 14698,

**41142 - NO 1 PRINCES DRIVE, PENRHYN ROAD (E SIDE)**

**Listed Building 14691 (II)**

**NGR :- SH8497979090 (SH87NW)**

**Unitary authority :- Conwy**

**Community :- Colwyn Bay**

**Preferred site type :- 20th century - Shop** (Building - Intact ) Grade II listed shop.

*The following is from Cadw's Listed Buildings database*

On the corner of Penrhyn Road and Princess Drive. Built c1930 (certainly before 1937), as a row of shops with accommodation over. Buff brick with white faience dressings. 3 storeys, curved in plan, and comprising 3 distinct elements, symmetrically grouped about a central block. This comprises 3 shops, with white faience to shop fronts at ground floor, and articulated 1-3-2-3-1 above, with narrow end bays over side entrances, and pediment over 2 central bays. Plain brick pilasters between the windows, which are 2 pane sashes with margin lights, and greek key frieze in entablatures to first floor, 12-pane sash windows to second floor. White faience cornice, side entrances in moulded architraves with flat entablature hoods. Shop fronts: the right hand unit has been renewed but the others retain the original shop fronts with curved glazing with margin lights in upper panes, tiled stall risers and mosaic floors. This central block is flanked by symmetrical outer bays: these are also 3 storeyed, and have steep hipped green slate roofs, with leaded upper panes to first floor, and 5 12 pane sash

windows in second floor . White failence architraves to first floor windows , and white cornice band. Many of the shop fronts survive, although some of the glazing has been renewed

Ambitiously composed on a prominent corner site, the development represents a well detailed example of the commercial architecture of its period, intergrating the Art Deco elements of the shop fronts within a loose Neo-georgian design; it survives almost intact

Sources:- **Cadw** listing database , 2000 , **Cadw** listing database , 2006 , 14691 ,

**41146 - NO 20, PRINCESS BINGO AND SOCIAL CLUB, PRINCES DRIVE (N SIDE)**  
**Listed Building 14695 (II )**

NGR :- **SH8494679137 (SH87NW)**

Unitary authority :- **Conwy**

Community :- **Colwyn Bay**

Prefered site type :- **20th century - Cinema** (Building - Intact ) Grade II listed cinema.

*The following is from Cadw's Listed Buildings database*

Almost opposite the end of Penrhyn Road.

Built by 1932, as a cinema ( The Princess Picture House). The cinema is a plain printed brick building with a rendered facade. This is 2 storeyed, and 3 bays, with advanced central range. Glass canopy carried on cast iron columns with ornamental rackets to ground floor. Central entrance (the detail renewed) and shop front incorporating to right (renewed). Above the canopy, the central block is articulated by sunk coupled lotus leaf pilasters,flanking the low-set windows of the first floor, and set in panel with roughcast rendered surround. Splayed fluted cornice and blocking course with eagle in low relief. Paired tall windows in flanking outer bays, in roughcast rendered panels.

the original Art Deco interior survives almost intact: auditorium with gallery to rear, and stage.Walls articulated by ribbed pilasters.Deco grills over side doors. Neo-Egyptian captitals to fluted columns supporting gallery. Scrolled ribbed beams across ceiling. Some original doors to auditorium and former bar, with stepped grids of glazing, and original ceiling and wall lights in auditorium.

The cinema is a good example of a small picture house which,although simply planned, exploits a distinctive architectural vocabulary in its main facade, and which retains a contemporary interior of some quality.

Sources:- **Cadw** listing database , 2000, **Cadw** listing database , 2006 , 14695,

**36056 - Old Colwyn, Abergele Road, Civic centre (former Glan Y Don Hall)**  
**Listed Building 14666 (II )**

NGR :- **SH8603478581 (SH87NE)**

Unitary authority :- **Conwy**

Community :- **Colwyn Bay**

Prefered site type :- **20th century - Civic centre** (Building - Intact )

Grade II listed civic centre

*The following is from Cadw's Listed Buildings database*

At the E edge of the community, overlooking Eirias Park.

Originally known as Glan Y Don Hall and built as a convalescent home 1909-10, by Percy Worthington, architect, of Manchester. It has been used as the civic centre since 1964.

Roughcast render with stone dressings and concrete tiled roofs in imitation of the original cotswold stone.Brick axial and end wall stacks. 3 storeys, a staggeredredt-plan. The 3 arms of the

T- project from a central tower (over the staircase within), and the entrance in the NE arm, facing S. Belonging to the Arts and Crafts movement in its free and expressive planning, its stylistic references are northern, with its use of roughcast and the dominance of the central tower, steep roofs and gables. Small-paned (mainly 24-pane) sash windows throughout. Entrance front is 2 storeyed with attics, a 5-window range with wide pedimented doorway up steps, flanked by paired windows on each floor, and with tripartite window above the entrance. Continuous sill band to first floor; hipped dormer windows in roof. Projecting lateral chimney stack to the right.

Stair tower to the left is stressed with stone lower storey, bands and angle quoins, and has, hipped roof with central gabled dormer facing E with tall round headed window cutting the eaves line; irregular fenestration in lower stages; side wall stacks. Advanced S wing has narrow paired gables advanced from its E elevation, with sash windows on each floor and a wider gable beyond, with heavy stonework and scrolled gable coping stressing its angle, windows grouped in 3's with continuous sill bands. Projecting oval stair turret, lit by long windows set into full height recesses with continuous sill band at the angle of this outer gable and the wide main block of this wing. Secondary entrance (renewed) in this gable wall, with triple window above and paired windows to attic. W facing elevation of this wing is loosely articulated as 4 bays, with composite window of 5 sashes in inner bay to left, the plastered architrave suggesting a Venetian window, and canted bay windows with ogival leaded roofs in bays 2 and 4. These bays are stressed by gables which rise above the level of the eaves line, and have quoins and scrolled copings. Other windows are the characteristic tall sashes, with continuous sill band to first floor, and hipped dormers in the roof. S facing elevation to main EW range has paired gables advanced from the main roof line, each with a single window on each floor, and advanced gabled cross wing to left, with single tall architrave panel to stair windows over a sundial. Lower gable projects from the W of this wing, with canted bay window with ogival leaded roof to ground floor, tripartite sash window above. Rear of EW range is planned in 2 sections: W range is planned in central sect 2 sections: W range has asymmetrical gables to either side of a 4-window iron: triple windows in ground floor of left hand gable, and canted bay window with swept ogival roof in central section. E range is slightly recessed and has 3 gables, with deep canted bay window leaded roof projecting from ground floor of central gable. Lead work over canted bay windows is enriched with vine-scroll decoration to guttering.

Much of the original planning of the building survives: it is characterised by long and very wide corridors with number of small rooms opening off them. The main staircase is contained in the central tower, and winds round an arcaded central well. An excellent example of the eclectic Arts and Crafts architecture of Percy Worthington, which combines bold, picturesque massing with restrained and consistent detailing in a building of considerable architectural quality.

Edward Hubbard, Clwyd, Buildings of Wales Series 1986, pp. 137-8; Colwyn Bay Building Control Plans, Clwyd Record Office, Ruthin (plan 377).

Sources:- **Cadw** listing database, 2000, **Cadw** listing database, 2006, 14666, *Additional sources*:- Edward Hubbard, Clwyd, Buildings of Wales series 1986, pp. 137-8; Colwyn Bay building control plans, Clwyd Record Office, Ruthin (plan 377) Edward Hubbard, Clwyd, Buildings of Wales series 1986, pp. 137-8; Colwyn Bay building control plans, Clwyd Record Office, Ruthin (plan 377)

**41137 - RIDGE COTTAGE, PENRHOS ROAD (S SIDE)**

**Listed Building 14686 (II)**

**NGR :- SH8455579528 (SH87NW)**

**Unitary authority :- Conwy**

**Community :- Colwyn Bay**

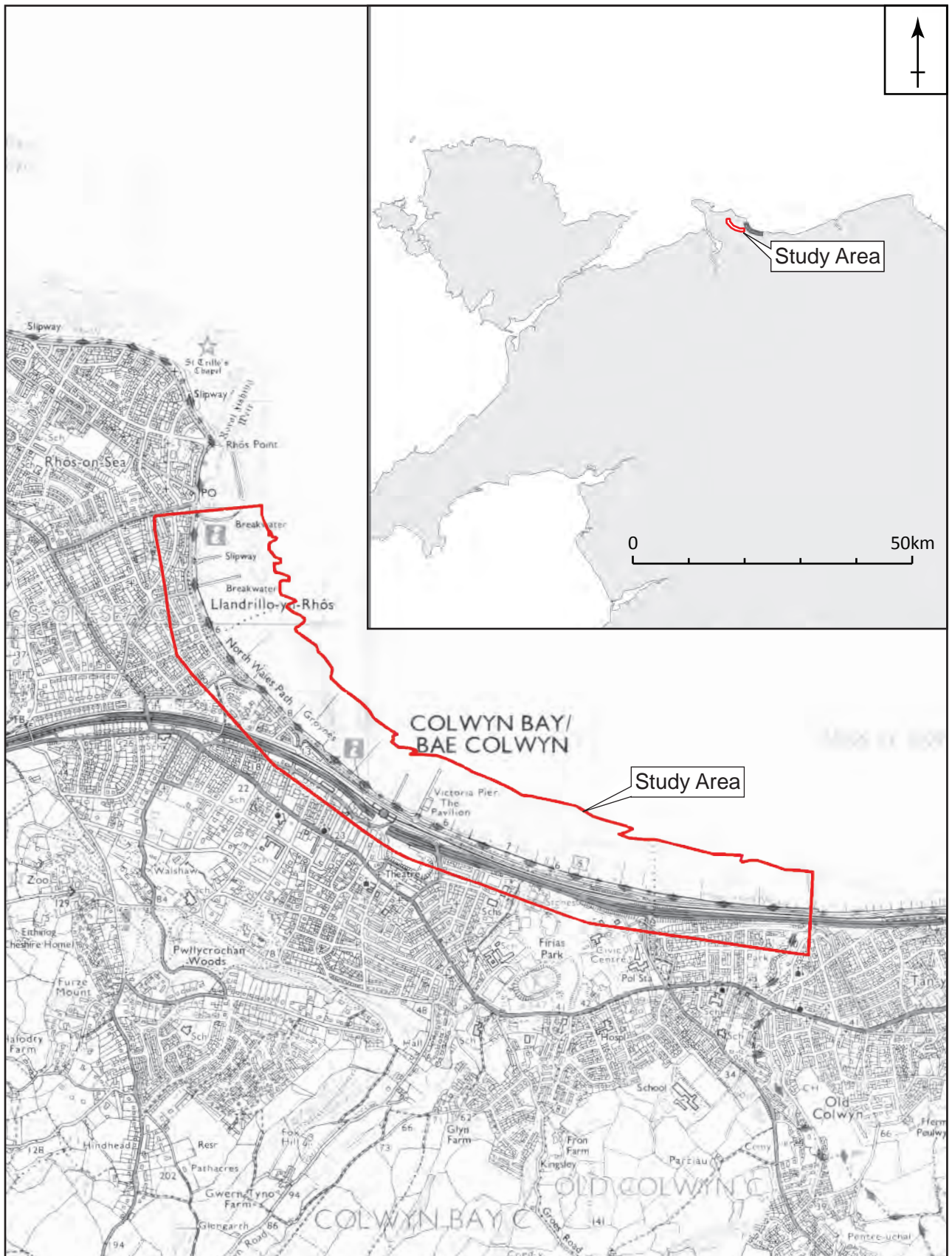
**Preferred site type :- 20th century - House** (Building - Intact ) Grade II listed house.

*The following is from Cadw's Listed Buildings database*

High above the level of the road. Built in 1919, and designed by S. Colwyn Foulkes, architect, of Colwyn Bay. Render over brick with slate gambrel roof with end wall stacks. Two storeyed, but with upper storey almost entirely contained in the roof. Neo-georgian style in its detailing. Central entrance, a panelled door with small-paned side lights and overlight, flanked by tripartite small-paned sash windows. A verandah with ogee leaded roof carried on slender square-section columns (probably cast-iron) spans the frontage. The upper windows are all dormers: the small central 6-pane sash window has swept architrave with pedimented head, and a shallow panelled apron below the eaves. Outer windows are groups of 3 small 6-paned sashes with moulded cornice to flat roofs. All the upper windows have delicate wrought ironwork rails suggestive of scaled-down balconettes.

The house combines economical planning and construction with delicate and precise Neo-georgian detail, and is a remarkable example of a small house design for its date. Colwyn Bay building control plans, Clwyd Record office, Ruthin (plan 590).

Sources:- **Cadw** listing database, 2000, **Cadw** listing database, 2006, 14686,





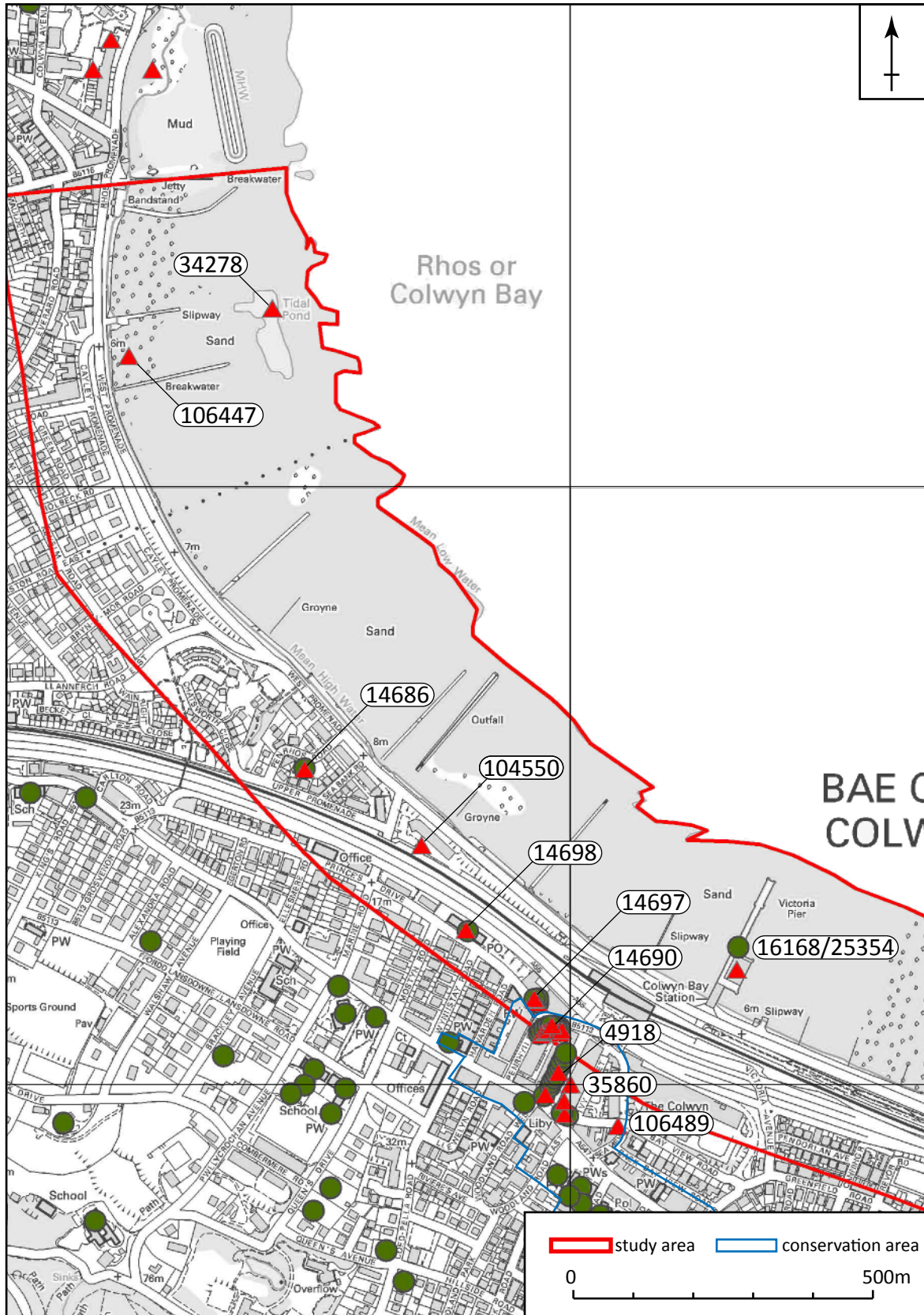


Figure 3 Northern Part of Study Area- SMR Sites

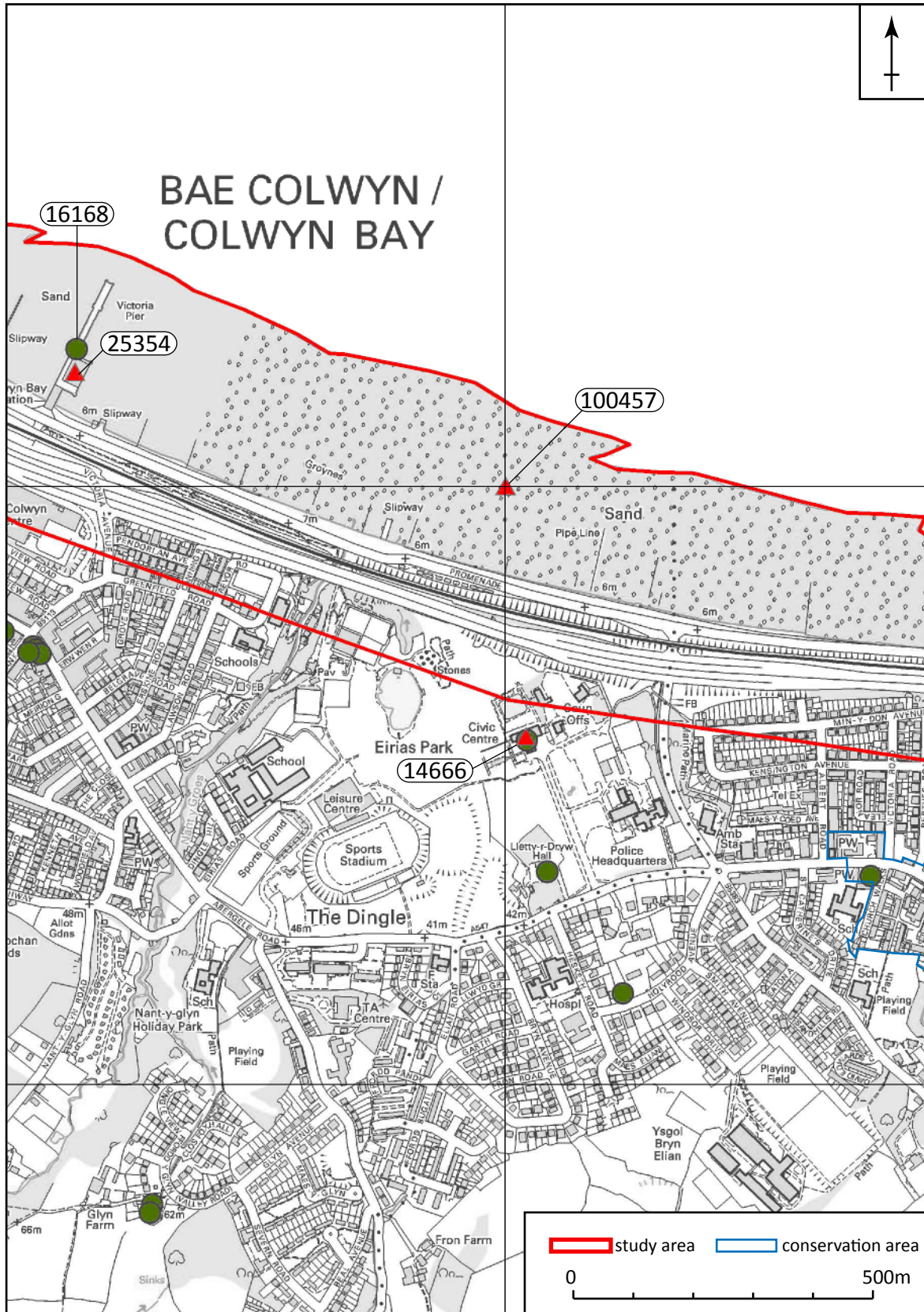


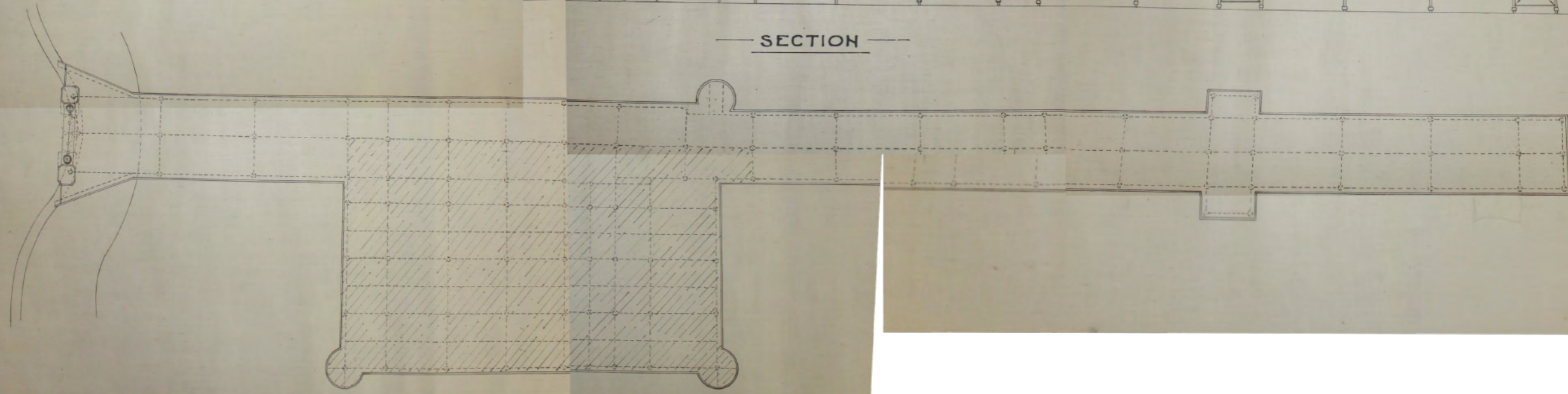
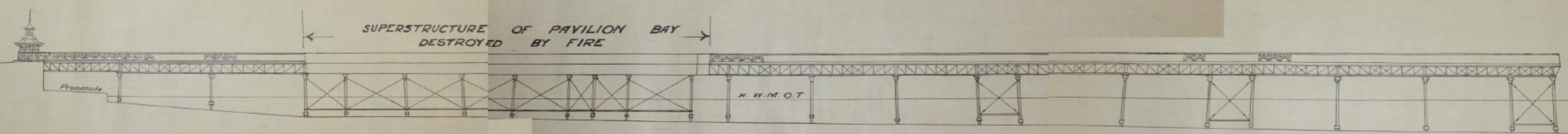
Figure 4 Southern Part of Study Area- SMR Sites

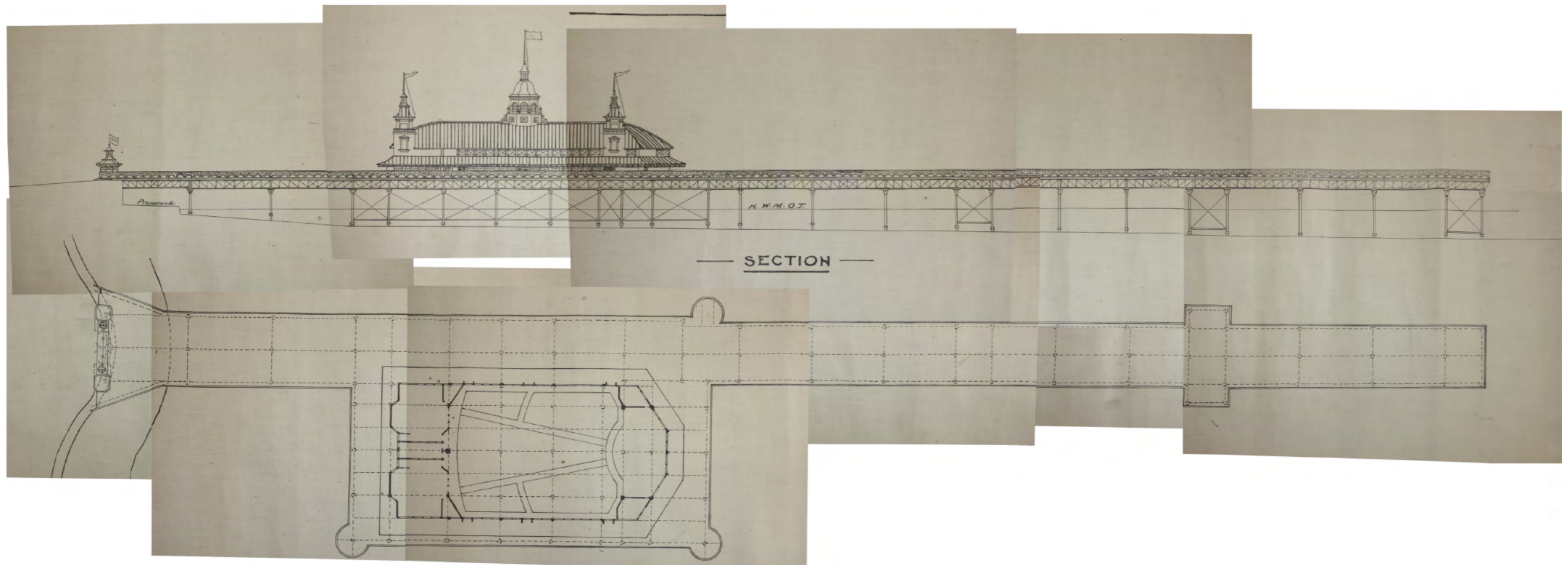
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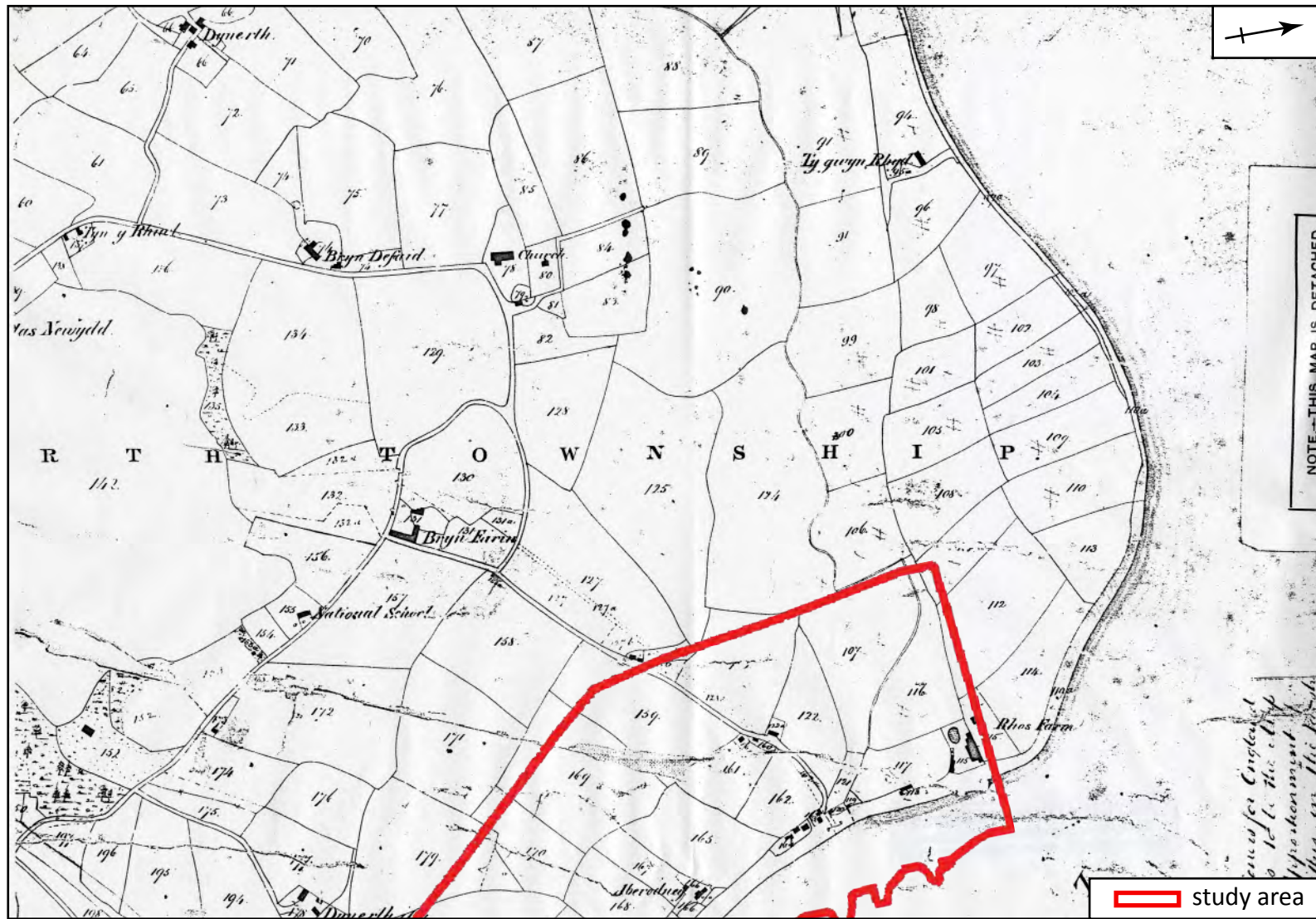
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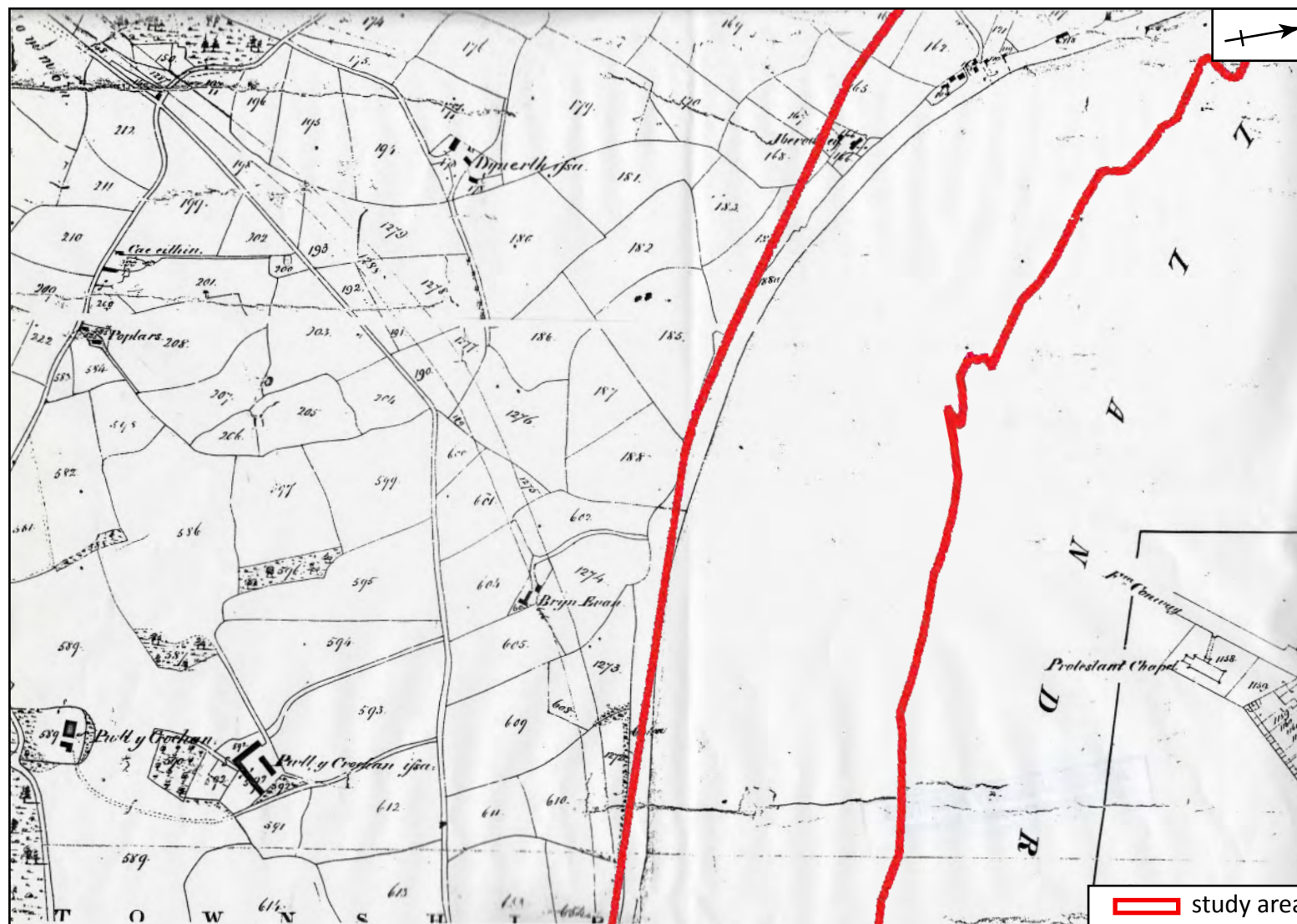
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COLWYN - BAY (VICTORIA) PIER

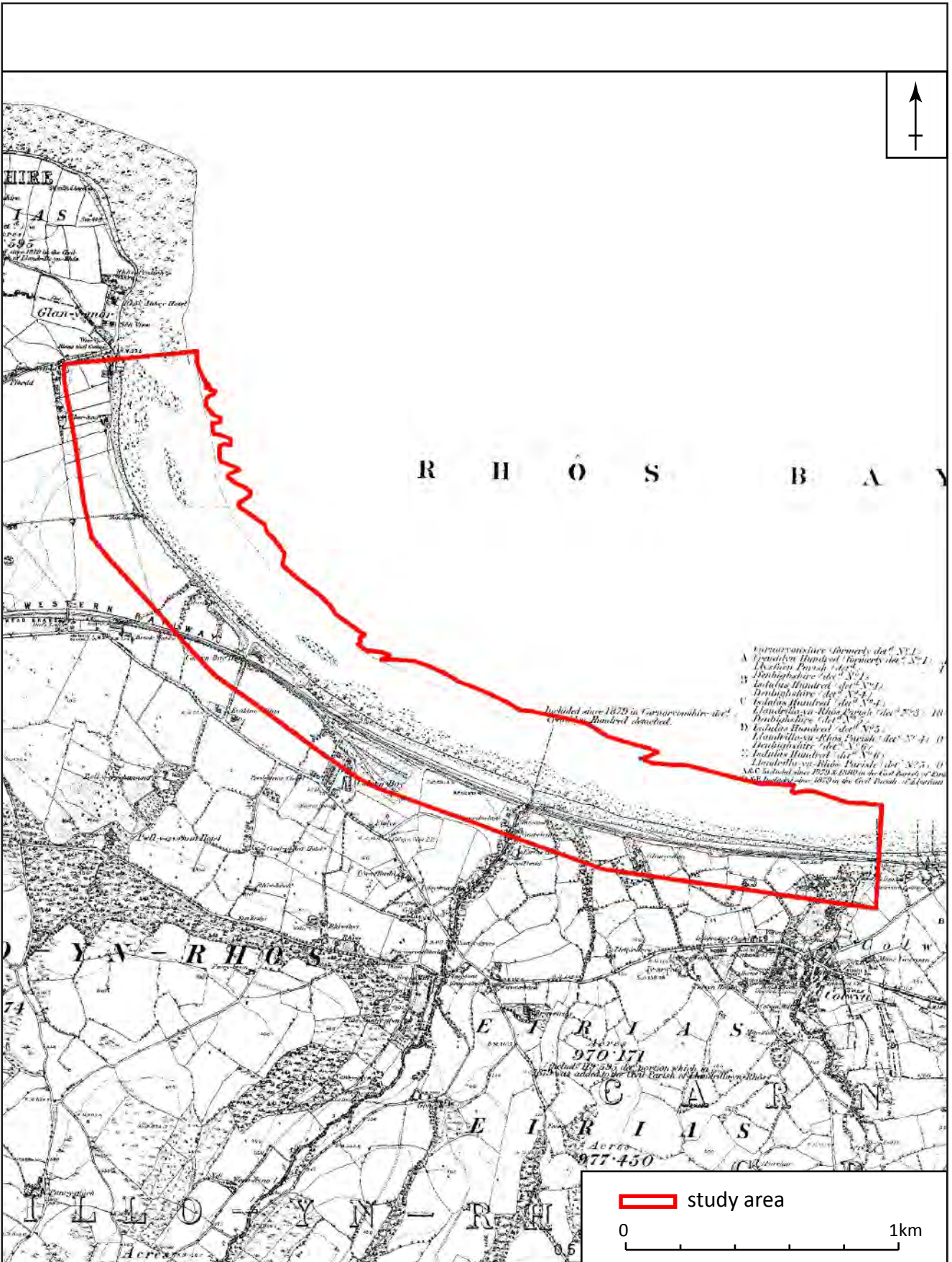


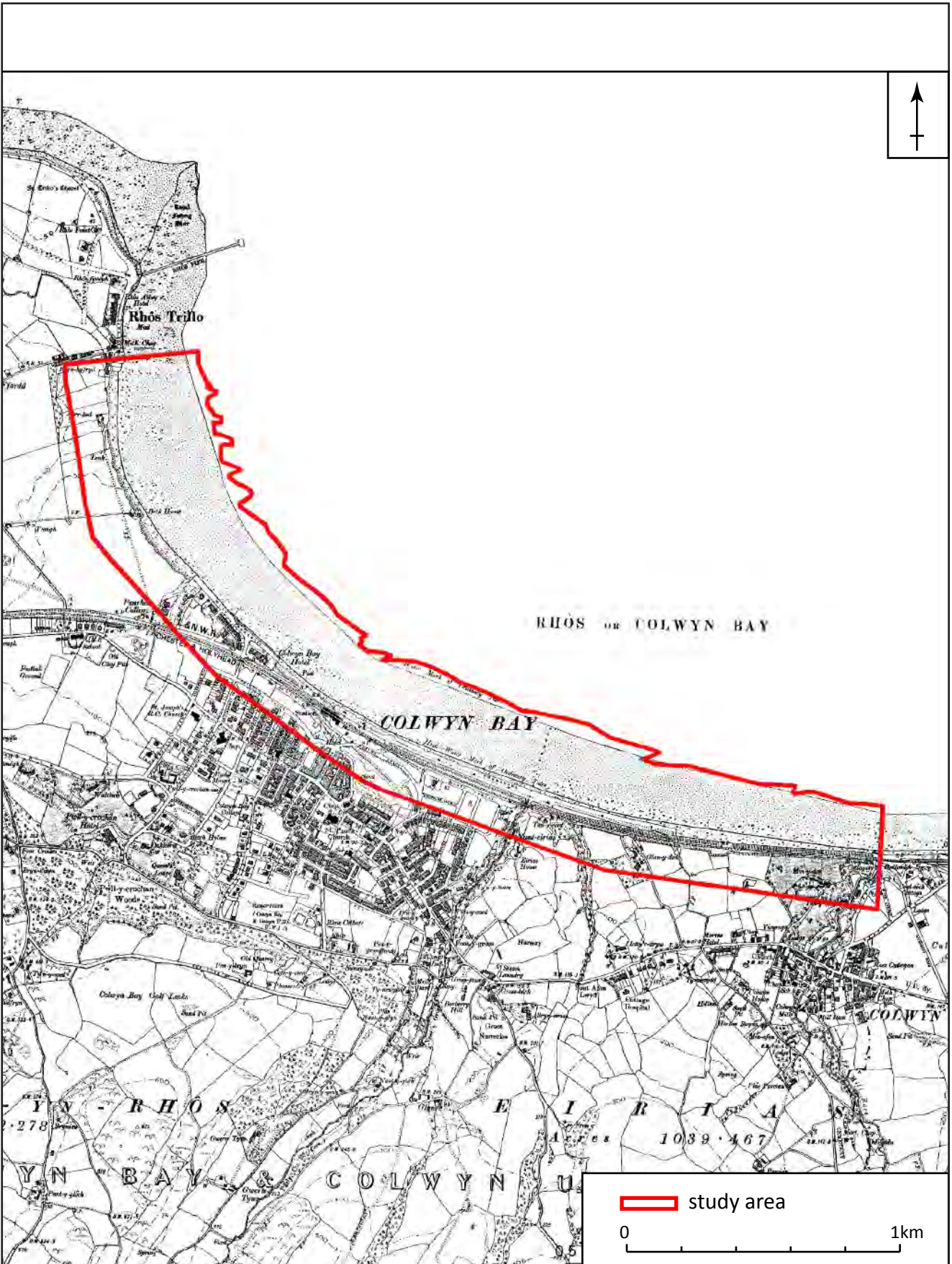


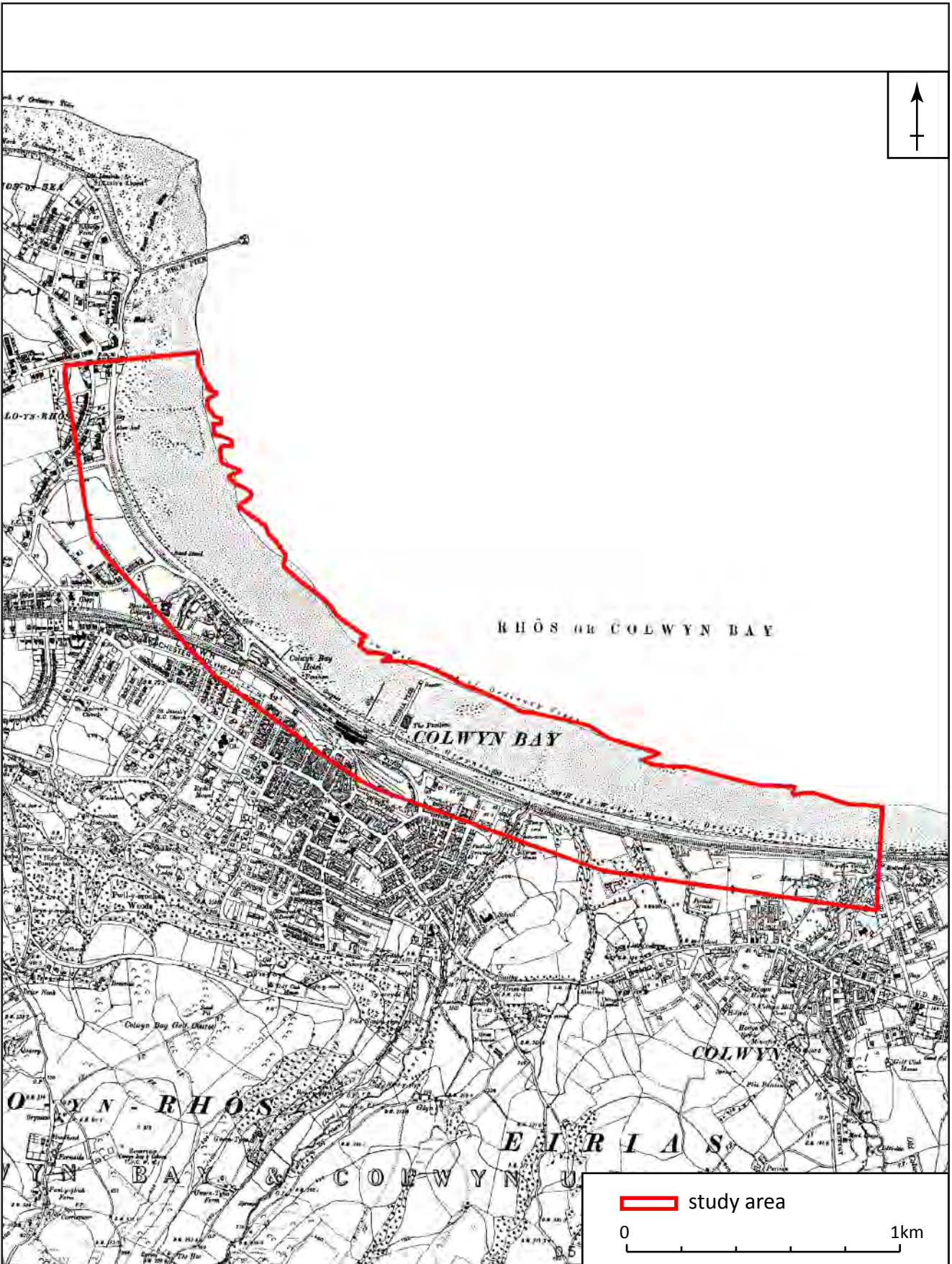


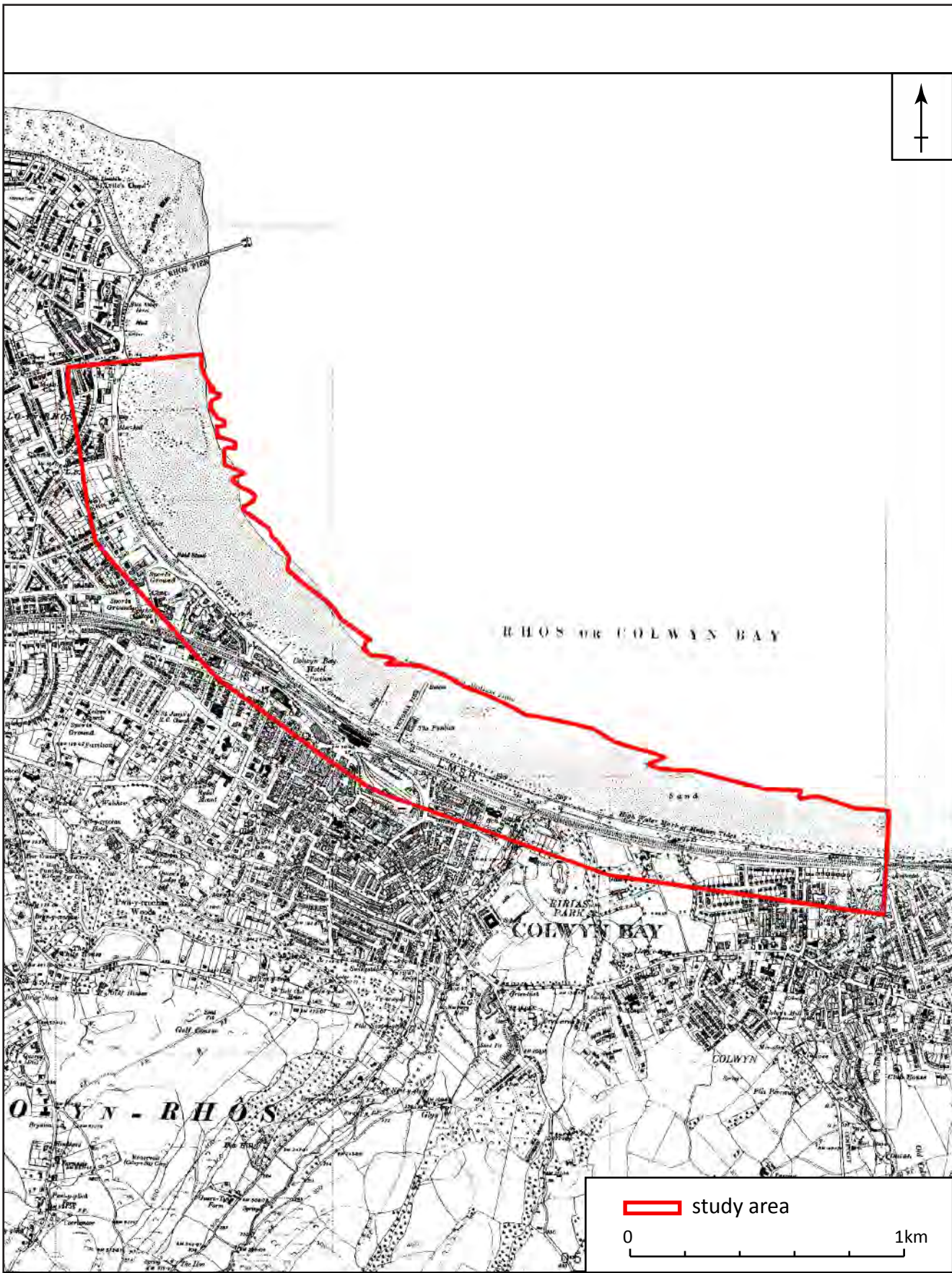
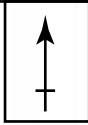


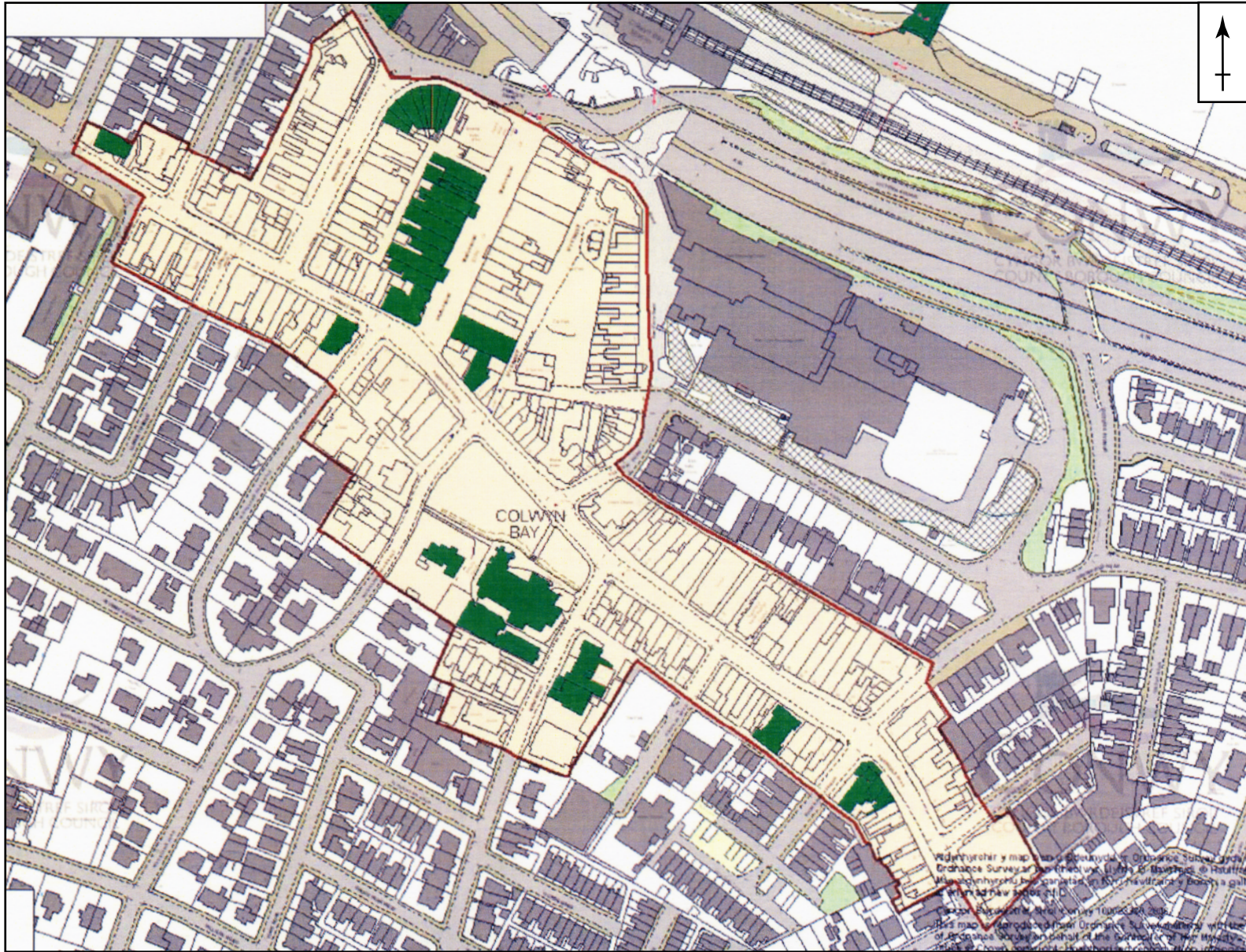


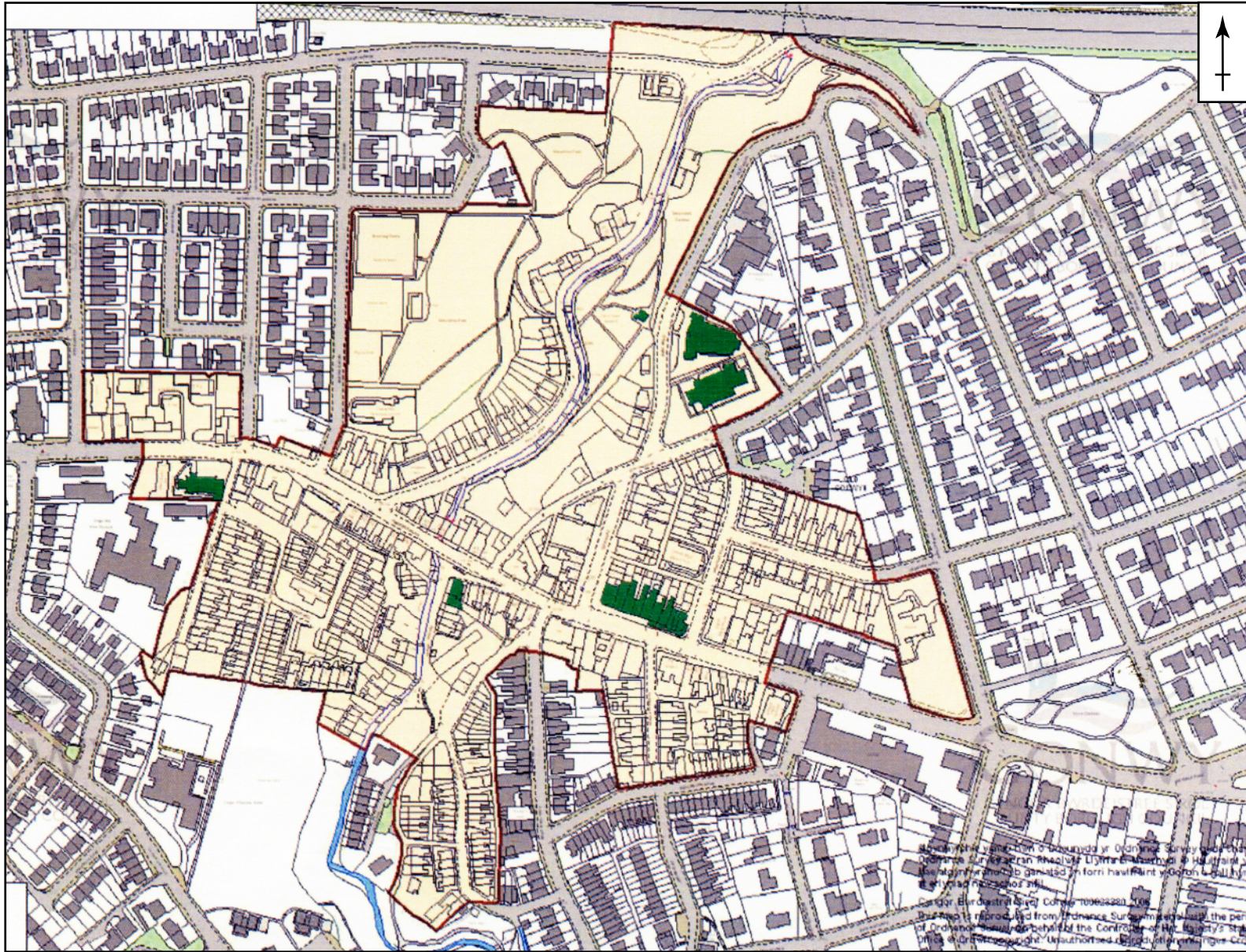












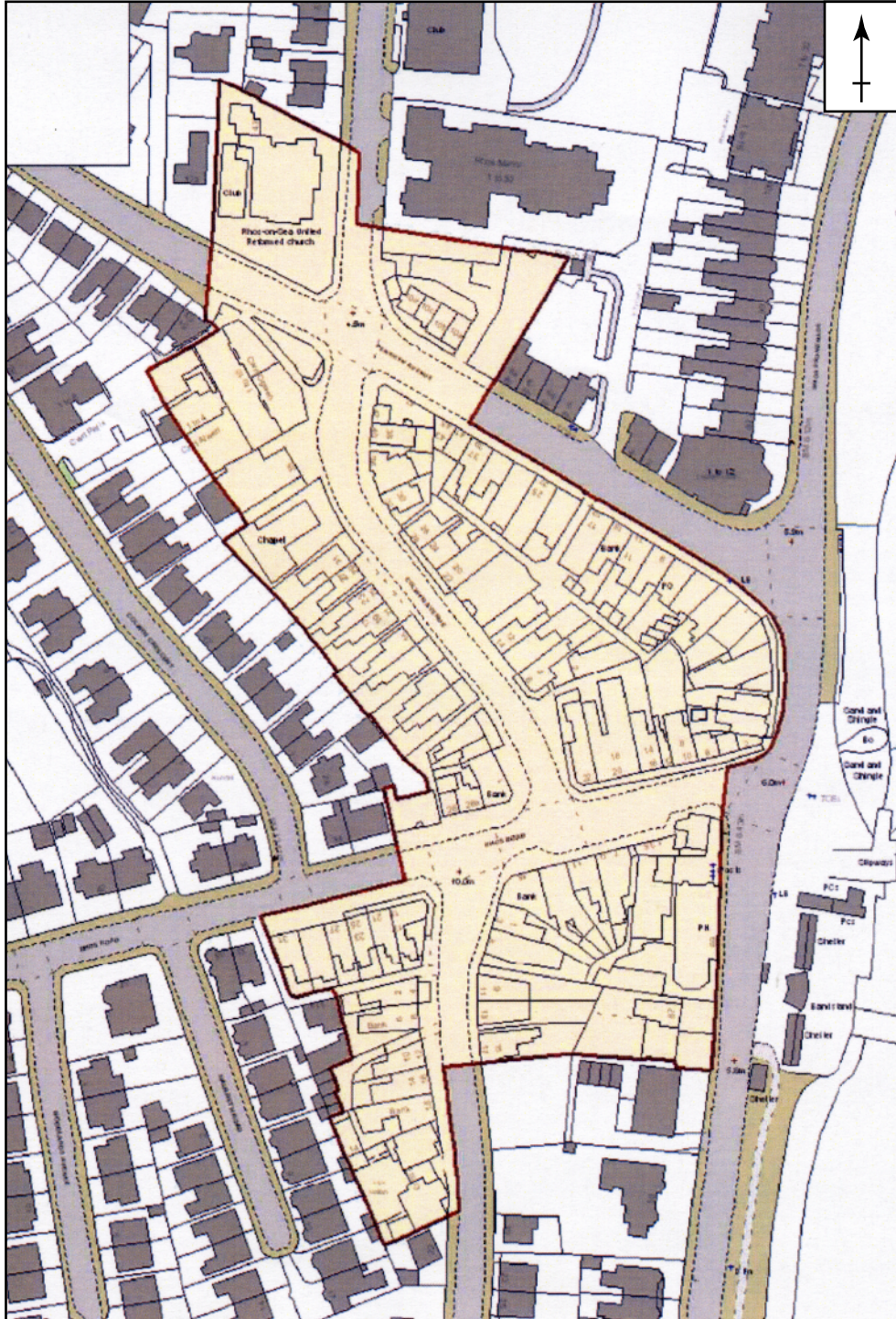




Plate 1



Plate 2



Plate 3



Plate 4



Plate 5

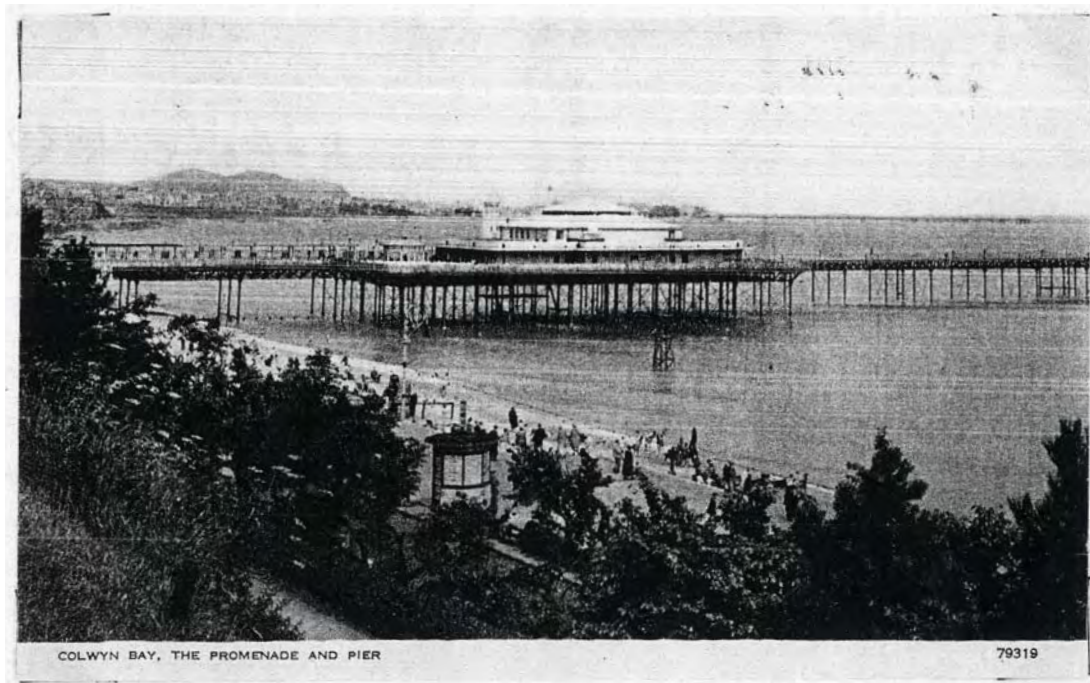


Plate 6



Plate 7



Plate 8



Plate 9



Plate 10



Plate 11



Plate 12



Plate 13

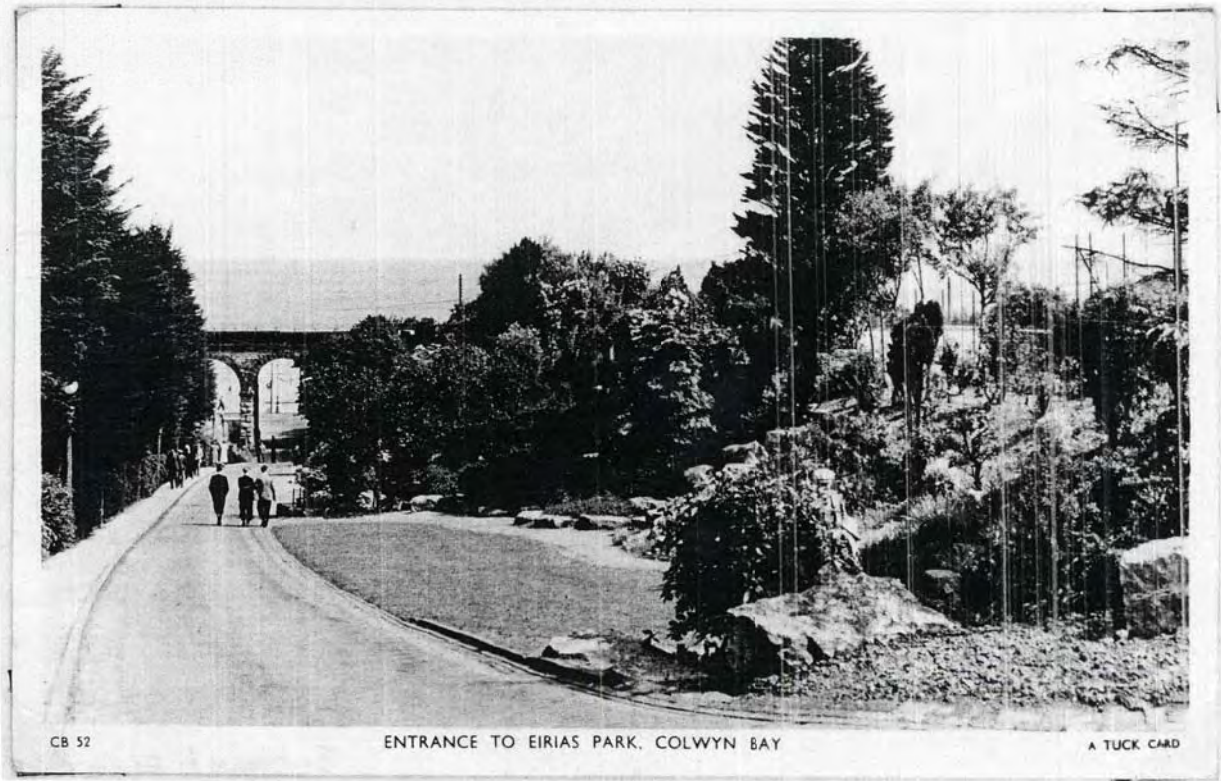


Plate 14



Plate 15



Plate 16



Plate 17





Plate 19



Plate 20



Plate 21



Plate 22



Plate 23



Plate 24

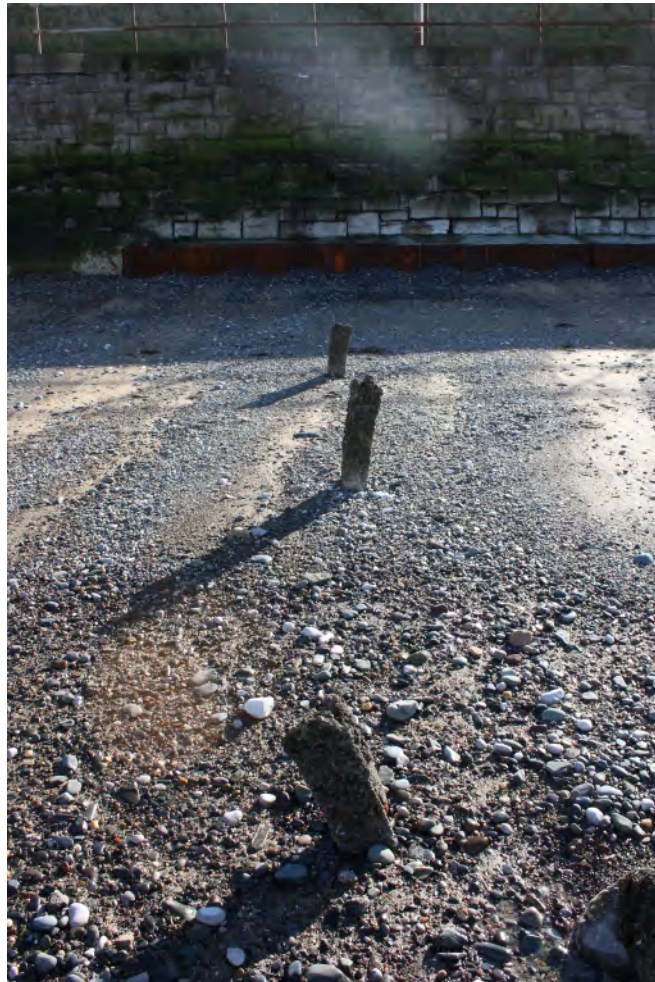


Plate 25

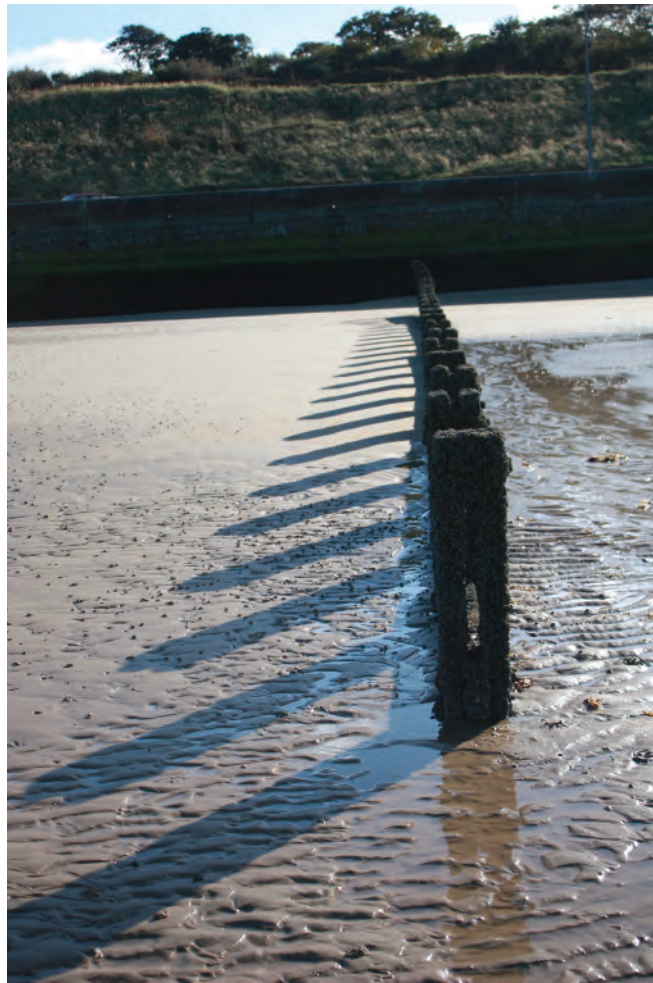


Plate 26



Plate 27



Plate 28



Plate 29



Plate 30



Plate 31



Plate 32



Plate 33



Plate 34



Plate 35



Plate 36



Plate 37



Plate 38

# **Appendix 15.3 – Outline Environmental Management Plan**



# **Old Colwyn Coastal Defence and Active Travel Scheme**

Outline Environmental Management Plan

July 2020

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# **Old Colwyn Coastal Defence and Active Travel Scheme**

## **Outline Environmental Management Plan**

July 2020

# Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
P01	July 2020	A. Jones	N. Spofforth	C. Williams	First Issue

**Document reference:** 417437-MMD-00-XX-RP-N-1728

## Information class: Standard

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# 1 Introduction and Background to the Scheme

## 1.1 Purpose of this Environmental Management Plan

This document is the first iteration of the Environmental Management Plan (EMP), known as the Outline EMP (OEMP) for the Old Colwyn Coastal Defence and Active Travel scheme (hereafter referred to as the “Scheme”). The purpose of the EMP is to manage the environmental effects of the Scheme as identified within the associated Environmental Statement (ES)<sup>1</sup> and to demonstrate compliance with environmental legislation, providing clear and concise information which states how the mitigation and management of environmental effects will be delivered and maintained.

This EMP is based on the current design for which planning permission and the Marine Licence is being applied. It has been prepared in accordance with the Design manual for Roads and Bridges (DMRB) Volume 11, Section 2, Sustainability and Environment Appraisal, LA 120 *Environmental Management Plans*.

In accordance with LA 104<sup>2</sup> ‘*Environmental Assessment and Monitoring*’, the results of monitoring shall be used to update the EMP during the construction and handover phase.

## 1.2 EMP Evolution

The EMP sets out the control of environmental effects through all lifecycle stages from the design stage in accordance with Table 1.1. This document is currently in the design stage.

**Table 1.1: Evolution of the EMP<sup>3</sup>**

Project Stage	EMP Iteration	Produced/ Refined
Design	First iteration of EMP (outline, OEMP) produced during the design stage for the preferred option.	Produced
Construction (refined for the consented project)	Second iteration of EMP for construction phase (CEMP) refined during the construction stage of the consented project, in advance of construction.	Refined
End of Construction	Third iteration of EMP for handover (HEMP) building on the CEMP refined at the end of the construction stage to support future management and operation.	Refined

Source: DMRB LA104

The EMP is a live document and shall be refined and updated when additional information comes to light to capture any necessary alterations to the proposed mitigation and management of environmental effects. Such additional information or alterations can include:

1. New or updated survey data;

<sup>1</sup> Old Colwyn Coastal Defence and Active Travel Scheme, Environmental Statement Volume 1: Main Text, 415437-MMD-00-XX-RP-N-1719, August 2020

<sup>2</sup> Highways England, 2019. LA 104, ‘Environmental assessment and monitoring [Online] Available at: <https://standardsforhighways.co.uk/dmrB/search/78a69059-3177-43dc-94bd-465992cfd82> [Accessed: July 2020]

<sup>3</sup> Highways England, 2020. Design Manual for Roads and Bridges Volume 11 Section 2 LA 120, Environmental Management Plans [online] Available at: <https://www.standardsforhighways.co.uk/dmrB/search/a3a99422-41d4-4ca1-bd9e-eb89063c7134> [Accessed: July 2020]

2. Changes in the physical characteristics of the project;
3. Changes in the design and mitigation assumptions;
4. Changes in the level of understanding of the current state of the environment and the potential effects of the development (e.g. due to greater data availability);
5. Changes in legislation, policy and guidance/advice relating to any environmental topic; and
6. Changes response to stakeholder consultation.

## 1.3 EMP Scope and Objectives

### 1.3.1 Scope

In accordance with LA120, this EMP:

- Provides a clear audit trail outlining the modifications made from any previous iteration;
- Identifies roles and responsibilities;
- Identifies risks, their associated control measures (including a date of completion), compliance and corrective actions; and
- Establishes procedures for communication, monitoring, audit mechanisms and reporting of control measures.

This document also includes details of induction, training and briefing along with:

- A description of the main difficulties encountered in delivery of measures to mitigate and manage the environmental effects; and
- The main uncertainties involved in the forecasting of measures to mitigate and manage the environmental effects.

This EMP takes due consideration of the documents submitted to Conwy County Borough Council (CCBC) and Natural resources Wales (NRW) as part of the planning and Marine Licence applications. It identifies mitigation and environmental issues from commencement to completion and included the following phases of construction:

- Demolition and site clearance;
- Prior to construction (for example advanced works);
- During construction (works); and
- Post construction until completion (when the HEMP will replace it).

### 1.3.2 Objectives

The overall objectives of this EMP are as follows:

- To document all environmental actions and commitments that are required to manage and minimise environmental effects reported within the ES;
- To minimise the risk of any type of pollution incident or other form of unauthorised discharge;
- To minimise any nuisance to the nearby receptors;
- To maintain communication between the Client (Employer), the Project Manager and relevant third parties, with assignment of any specific and / or statutory reporting duties to third parties, where these are to remain their statutory duty;
- To be compliant with statutory legislation and contract specifications; and
- To provide a framework for the implementation and review of the EMP and other relevant documents.

These objectives are in accordance with and align with the requirements in Landscape Design (LD 117)<sup>4</sup>.

## 1.4 EMP Preparation and Structure

### 1.4.1 Competent Expert Declaration

**Checker:** The competent expert holds a masters level degree in Earth Sciences and also in Water Resources Technology and Management, is a Chartered Water and Environment Manager, Chartered Scientist and Chartered Environmentalist. The competent expert has over 13 years' experience as an environmental consultant.

**Approver:** The competent expert is a Chartered Geologist with 28 years of consultancy experience. They are registered as a specialist in land condition, a suitably qualified and experienced person under the National Quality Mark Scheme and CL:AIRE Definition of Waste Development Industry Code of Practice qualified person.

### 1.4.2 EMP Structure

The structure of this document is as follows:

1. Introduction and Background to the Scheme (including purpose of EMP)
2. Purpose of this Environmental Management Plan
3. Project Team Roles and Responsibilities (including site roles, project management organisation and environmental responsibilities);
4. Record of Environmental Actions and Commitments;
5. Consents and Permissions (details and recording);
6. Details of Maintenance and EMP Monitoring Activities;
7. Induction, Training and Briefing Procedures for Staff; and
8. Glossary.

Appendices comprise:

- Appendix A Relevant Management Plans;
- Appendix B Environmental Method Statements;
- Appendix C Emergency Procedures and Record of Environmental Incidents;
- Appendix D Monitoring Reports; and
- Appendix E Supporting Drawings.

This EMP contains several outline management plans to be developed into full management plans (Appendix A) during the second iteration of the EMP, and also indicates plans that will need to be developed by the Principal Contractor or CCBC prior to construction.

Outline plans developed to date comprise:

- A.1 Outline Site Waste Management Plan;
- A.7 Landscape and Ecological Management Plan;
- A.9 Outline Carbon Management Plan; and
- A.10 Marine Bio-security Risk Assessment.

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<sup>4</sup> Highways England, 2020. LD 117, 'Landscape Design'.

Plans to be developed by the principal Contractor:

- A.2 Materials Management Plan;
- A.3 Arboricultural Method Statement;
- A.4 Traffic Management Plan;
- A.5 Communications Relations Strategy;
- A.7 Construction Flood Risk Management Plan;
- A.8 Transshipment Management Plan;
- A.11 Marine Pollution Contingency Plan; and
- A.12 Surface Water Management Plan.

Plans to be developed by CCBC:

- A.13 Operational Flood Management Plan.

## 1.5 Overview of the Scheme (the project)

### 1.5.1 Colwyn Bay

Colwyn Bay is a seaside town in Conwy County Borough on the north Wales coastline. Principal settlements comprise Rhos-on-Sea to the west, the town of Colwyn Bay in the centre and Old Colwyn to the east. The A55 Expressway passes through the town, running parallel to and south of, the London to Holyhead mainline railway (referred throughout this document as the North Wales Coast (NWC) Railway Line), both of which separate Old Colwyn and Colwyn Bay town from the waterfront.

### 1.5.2 Old Colwyn – Existing Structures

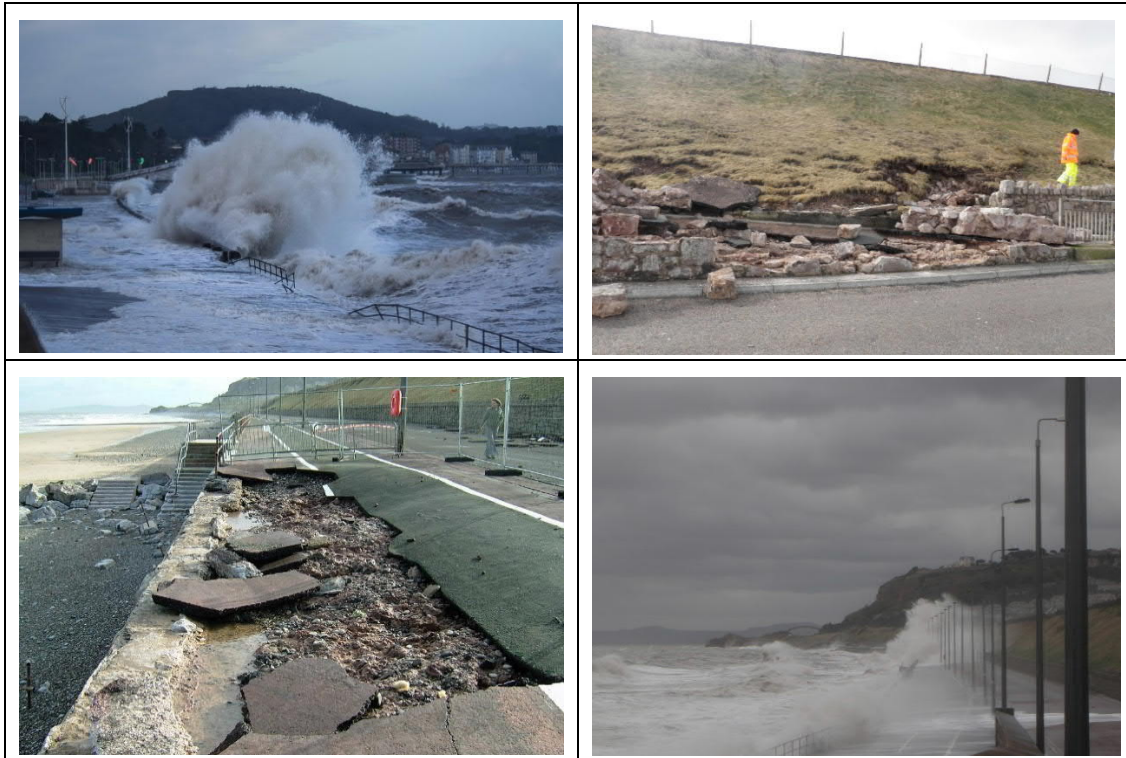
Defences were constructed for the majority of the coastline in the late nineteenth century comprising vertical sea walls in general composed of either masonry or concrete. Due to the construction of these defences, during the 20th century, a gradual lowering of beach levels was experienced adjacent to the defences which resulted in continual maintenance and repairs to the toe of the defences to ensure their integrity and stability. In response to beach lowering, timber groynes were constructed in the 1950s to help retain the sand, however these generally failed or became redundant.

### 1.5.3 Need for Scheme

The Promenade which runs along the waterfront at Old Colwyn is currently under threat from storm damage and tidal flooding (overtopping). Regular overtopping of the existing coastal defences is causing damage to the Promenade and defences themselves, sections of which are at imminent risk of failure (see Figure 1.1 for representative photographs). Important infrastructure assets which run parallel to the waterfront, such as the North Wales Coast Railway Line, A55 Expressway and buried Welsh Water sewerage services are at risk from overtopping and associated coastal erosion, as are the active travel (walking and cycling) routes along the Promenade.

The Promenade highway is often closed when spring high tides occur at the same time as onshore winds, during storm events and while subsequent damage is repaired. As a result of the poor standard of coastal protection, there has been a lack of investment in the Old Colwyn Promenade area in comparison to the Colwyn Bay Waterfront Project Phase 1 area to the immediate west with the construction of Porth Eirias and the recharged beach.

**Figure 1.1: Examples of Coastal Overtopping and Damage at Old Colwyn**



#### 1.5.4 Scheme Location

The Scheme is located along the easternmost section of the promenade at Old Colwyn, from the eastern side of Porth Eirias in the west to Splashpoint in the east. The Scheme footprint is divided into two principal areas:

- Area 1 – From the picnic area to the east of Porth Eirias car park (approximate National Grid Reference (NGR) 285822, 378870) to the east of Rotary Way (approximate NGR 286347, 378756) where the road currently reduces in height from the junction back down to promenade level; and
- Area 2 – From the eastern edge of Area 1 (approximate NGR 286347, 378756) to Splashpoint in the far east (approximate NGR 287029, 378701).

The red line boundary has been extended beyond the footprint to as shown in Figure 1.2 to allow for access during construction.

**Figure 1.2: Location of the Scheme**



Source: Environmental Statement. Red Line Boundary Plan Drawing 410895-MMD-00-XX-DR-N-1707

### 1.5.5 Scheme Proposals

The proposed scope of work for the Scheme comprises a combination of coastal defence, promenade and active travel improvements.

- The construction of a rock revetment along the entire length of the Scheme;
- Temporary traffic management on the promenade in order to safely construct the works including temporary restrictions such as road closures, reduced lane widths and speed limits, along with traffic signal controls and public rights of way (PROW) diversions;
- The elevation of the pedestrian promenade for the entire length of the Scheme. The highway between Rotary Way and Splash Point would also be raised to match the new promenade. Earthworks would be required to construct the embankment required for the designed highway alignment, as well as drainage, structures and landscaping works;
- Drainage systems would be constructed to accommodate highway drainage and run off from adjacent land. This drainage would, where practicable, be used to manage temporary flows during construction;
- A number of new structures would be constructed, including outfall extensions, ramps, steps, fishing platforms and retaining walls. These works would require a combination of local earthworks and drainage, foundation construction, including piling and structural concrete and steelwork; and
- As revetment, earthworks, drainage and structures elements are completed, construction of the new and improved sections of highway would be carried out. This would include the carriageway construction, traffic signs, road markings and street lighting.

Scheme location and general arrangement drawings are included within Appendix E.

Additionally, the current picnic area will be improved, and an outdoor education area will be added. There will also be various promenade landscape improvements, parking improvements

and a new concession building. Ecological and educational enhancement measures have also been incorporated into the Scheme.

## 1.6 Environmental Context

Environmental Constraints Drawings are included in Appendix E.

The Scheme itself is not located within a European Site of Conservation Importance, however the Liverpool Bay Special Protection Area (SPA) is located approximately 150m northwards from the sea wall at its closest point (to the north-east of Splashpoint) designated for the red-throated diver and common scoter as well as other overwintering birds. The majority of the Scheme footprint including the construction works buffer area would be located within 50-60m of the sea wall, with the exception of any rock deliveries by barge (if this method of delivery is selected), temporary storage and movement of the rock revetment across the intertidal area following delivery and minor ecological habitat enhancement works to the existing rock groynes.

The Scheme construction footprint extends into the North Wales Important Bird Area, the boundary of which is located approximately 40m northwards of the sea wall at its closest point.

A blue mussel (*Mytilus Edulis*) bed is located within the Scheme red line boundary to the east of the site, with Honeycomb Worm (*Saballaria aveolata*) reef along the groynes and in small, isolated patches. However, the blue mussel habitat is small and in poor condition and the Honeycomb Worm habitat is patchy and not considered to be a high-quality example of this priority habitat.

The Scheme is within a bathing water quality monitoring point, located at Porth Eirias and three surface watercourses are culverted and discharge onto the beach:

- Nant-y-Groes (Main River);
- The Llwd (Main River); and
- The Nant-y-Fynnon (Ordinary Watercourse)

Areas of Flood Zone 3 are present along the length of the northern pedestrian promenade and across the Promenade highway and pedestrian promenade along the alignment of the Nant-y-Groes and Nant-y-Fynnon. High surface water flood risk is present along the same alignment of the Nant-y-Groes and where Rotary Way joins the Promenade highway. Frequent overtopping occurs along the pedestrian promenade and Promenade highway when high tides are associated with onshore winds.

There are not considered to be any sensitive properties within the Scheme area given its waterfront location, segregated from residential areas by the NWC Railway Line and A55 Expressway. The closest residential properties are located on Min-y-Don Avenue approximately 70m to the south of the Promenade highway. Other sensitive land uses are all separated from the Scheme by the NWC Railway Line and A55 Expressway. The NWC Railway Line is partially within the Scheme and the A55 Expressway is located approximately 30m south.

The area is not considered to have any specific features of cultural heritage significance – the site of the former Cadw Grade II listed Victoria Pier (location of a proposed new truncated pier) is around 600m to the west of the western Scheme extent (at its closest point). The Old Colwyn conservation area is segregated from the Scheme by the A55 Expressway and the NWC Railway Line. National Cycle Route 5 runs along the promenade within the Scheme area.

The local business Porth Eirias is immediately adjacent to the west of the Scheme and the North Wales Coast Path, National Cycle Route 5, Old Colwyn beach, pedestrian Promenade, Promenade Highway and Public rights of way are all within the Scheme boundary.

## 2 Project Team Roles and Responsibilities

### 2.1 Site Roles and Responsibilities

The site-based roles and the organisation of responsibilities in relation to environmental management are summarised below. The Principal Contractor will be required to delegate responsibilities to onsite personnel within key areas of the site and compounds. The delegation of responsibility will be clearly identified within relevant documents and site files.

### 2.2 Project Management Organisation

Overseeing management of the scheme will be directed by CCBC and any appointed Employer's Agent for the scheme. CCBC will delegate some site supervision roles such as the Engineering Clerk of Works and procure specialist consultants to supervise, monitor or check the Principal Contractor's Method Statements and sensitive activities where required. The key scheme roles for CCBC and the Principal Contractor are listed in Table 2.1. Individual names and contact details will need to be confirmed and inserted where applicable by CCBC and the Principal Contractor once appointed and confirmed.

**Table 2.1: General Site Contacts and Responsibilities**

Role	Contact and Organisation	Telephone	Email
Project Manager	[TBC]	[TBC]	[TBC]
Principal Contractor Environmental Manager	[TBC]	[TBC]	[TBC]
Principal Contractor Environmental Clerk of Works	[TBC]	[TBC]	[TBC]
Principal Contractor Environmental Specialist(s)	[TBC]	[TBC]	[TBC]
Community Liaison Officer	[TBC]	[TBC]	[TBC]

[Note: Individual names and contact details will need to be inserted into Table 2.1 by CCBC/Principal Contractor].

### 2.3 Environmental Management Responsibilities

The Principal Contractor will have a contractual responsibility for producing the second iteration of EMP (CEMP) once the design and construction plans have been finalised.

CCBC and delegated consultants acting on their behalf, Principal Contractor and subcontractors are all responsible for complying with the scheme's environmental policies, relevant environmental legislation and regulations. It is a requirement that all persons on site will be made aware of their duty of care to the environment and will be provided with sufficient training, supervision or instruction through Site Inductions, toolbox talks (TBTs) and specific Method Statements as necessary.

Responsibilities for the site environmental management will be delegated to key personnel by the Principal Contractor who will manage all reporting and monitoring of environmental mitigation during the contract period. Where required, environmental specialists will be

consulted to provide advice on specific issues or site activities, in consultation with the Principal Contractor. The main environmental roles and responsibilities are shown in Table 2.2.

**Table 2.2: Environmental Roles and Responsibilities**

Role	Responsibility
CCBC	<ul style="list-style-type: none"> <li>● Oversee implementation of whole project and the individuals undertaking specific roles and duties. To be reported to as per Contract requirements and internal organisation EMS.</li> </ul>
Principal Contractor Environmental Clerk of Works	<ul style="list-style-type: none"> <li>● Provide site induction on environmental practises, toolbox talks, organise specialist surveys, and oversee monitoring and testing of materials as required;</li> <li>● Monitoring PC site environmental compliance;</li> <li>● Undertake day to day monitoring and compliance checks;</li> <li>● Monitor control of dust, noise and vibration;</li> <li>● Maintain and update site specific Method Statements;</li> <li>● Hours of working to meet accepted noise and vibration limits set in consultation with Environmental Health Officer (EHO);</li> <li>● Develop with PC Site Health &amp; Safety Officer an Emergency Spillage Response Plan and associated protocols for incidents; and</li> <li>● Ensure local NRW requirements are implemented for consents and permits.</li> </ul>
Principal Contractor Environmental Specialist(s)	<ul style="list-style-type: none"> <li>● Contamination and remediation specialist.</li> <li>● Project Waste Management controller - may be member of PC dedicated Quality and Safety Team.</li> <li>● Ecologist: Supervision if protected species presence confirmed or risk identified during works.</li> <li>● Landscape Manager to supervise planting and aftercare.</li> <li>● Other as required.</li> </ul>
Community Liaison Officer	<ul style="list-style-type: none"> <li>● Key liaison with all above and Highways England Public Liaison Officer:</li> <li>● Maintain and develop Community Relations Strategy.</li> <li>● Maintain comment and enquiries log and disseminate identified comment for response and implementation of action.</li> </ul>

### **3 Record of Environmental Actions and Commitments**

The Record of Environmental Actions and Commitments (REAC) contained in Table 3.1: REAC Table identifies the environmental commitments included within the ES<sup>1</sup> to address the potential environmental effects of the Scheme. This REAC is an integral part of this OEMP and will continue to be integral to the iterations of the CEMP and HEMP throughout the progression of the Scheme.

This is the main vehicle for passing essential environmental information to the Client and crucially to the body responsible for the future maintenance and operation of the asset.

**Table 3.1: REAC Table**

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion record
<b>CONSTRUCTION</b>							
<b>ES Chapter 4 (Scheme Construction) and Chapter 5 (Consultation)</b>							
ES Ch4	Construction strategy to minimise disruption.	The Contractor would be required to register for the Considerate Constructors Scheme on this Project. Once registered, the contractor would follow the Site Code of Considerate Practice.	Successful registration onto the scheme	Contractual responsibilities between CCBC and the Principal Contractor	Principal Contractor	C	Signature:  Date:
ES Ch4	Waste minimisation and management.	The outline SWMP to be developed in full by the PC	Completed SWMP to be live document throughout construction	Contractual responsibilities between CCBC and the Principal Contractor	Principal Contractor	C	Signature:  Date:
ES Ch4	Minimisation of noise and vibration from construction activities.	The Environmental Health Officer (EHO) of CCBC would be consulted on the noise and vibration limits to be included within the CEMP. Where necessary, noise and vibration monitoring at key receptors would be advised by the EHO to ensure compliance with the limits set.	To be included in CEMP	Contractual responsibilities between CCBC and the Principal Contractor	Principal Contractor	C	Signature:  Date:
ES Ch4	Construction delivery routing to avoid residential areas.	Delivery of materials and plant would be via road delivery, exiting the A55 Expressway at the immediately adjacent Junction 22. This route does not pass any properties or other sensitive receptors and avoids the requirement for construction traffic through the streets of Colwyn Bay and Old Colwyn.	To be included in CEMP	Contractual responsibilities between CCBC and the Principal Contractor	Principal Contractor	C	Signature:  Date:
ES Ch4	Appropriate rock revetment delivery and stockpiling and minimising effects associated with transhipment (if necessary).	Storage of revetment stone would be either on the upper beach directly seaward of where it is needed (this would provide additional protection to the sea wall during the construction works) or on the Promenade (should tides not permit beach access on delivery) awaiting transfer to the beach (if being delivered by road).	Transhipment Plan	Contractual responsibilities between CCBC and the Principal Contractor	Principal Contractor	C	Signature:  Date:
		If barge delivery is deemed to be necessary and the rocks are to be transported on larger vessels (flat top barges or coasters) and then transferred onto smaller vessels with lower drafts in order to access the intertidal area, a Transhipment Plan would be produced by the contractor in agreement with CCBC, NRW, ecologists and other local stakeholder (e.g. local fishermen, water sports clubs etc). This would depend on the draft of the vessels being proposed by the contractor. The Transhipment Plan would need to include how the rocks are going to be safely transferred from one vessel to the other, tolerances for each vessel in terms of movement, how the rocks would be stopped from falling into the sea and how they would log a fallen overboard rock. The transfer of rocks from the vessels to the beach would need to be monitored appropriately in terms of noise and vibration and a Section 61 agreed.	Transhipment Plan	Contractual responsibilities between CCBC and the Principal Contractor	Principal Contractor	C	Signature:  Date:
ES CH4	Minimising effects associated with travel of construction workers.	Construction workers travelling from outside the area would be encouraged to access the Scheme from the A55 Expressway Junction 22. It is anticipated that there are likely to be between 20-30 site staff present within the Scheme area on a daily basis during construction.	Traffic Management Plan	Contractual responsibilities between CCBC and the Principal Contractor	Principal Contractor	C	Signature:  Date:
ES Ch4	Appropriate traffic management	Traffic management would be designed in consultation with the CCBC Highways Department to ensure it would: <ul style="list-style-type: none"> <li>Minimise disruption to road users during the works;</li> <li>Minimise disruption to local communities and businesses and emergency services during the works, providing access throughout;</li> <li>Provide a safe working area for the construction workforce;</li> <li>Provide safe and clearly signed traffic routes through the works; and</li> <li>Ensure non-motorised users are provided with suitable facilities.</li> </ul> Deliveries to be timed to miss peak times on morning and evening	Traffic Management Plan	Contractual responsibilities between CCBC and the Principal Contractor	Principal Contractor	C	Signature:  Date:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion record
ES Ch4	Maintaining public highway free of debris	Principal Contractor to install wheel wash facilities	Maintain a log of incidents including complaints about debris on roads	Contractual responsibilities between CCBC and the Principal Contractor	Principal Contractor	C	Signature:  Date:
ES Ch4	Maintain safe and effective temporary highway lighting	Ensure any temporary lighting is compliant with highways standards	Agreement with CCBC Highways for any lighting set ups	Contractual responsibilities between CCBC and the Principal Contractor	Principal Contractor	C	Signature:  Date:
ES Ch4	Management of site working hours to limit noise, vibration and other disturbance.	<p>The normal working hours within the Site would be Monday to Friday between 07:00 and 20:00 hours and Saturday between 08:00 and 12:00. There may be exceptions to these hours for oversize deliveries and tie-ins or for traffic management or tidal reasons.</p> <p>The normal working hours within the Site for piling activities would be Monday to Friday between 08:00 and 18:00 hours and Saturday between 10:00 and 16:00 hours.</p> <p>The Contractor would not carry out works on Sundays or Public Holidays nor during the week immediately following Christmas, Easter and Whitsun Bank Holiday, nor would deliveries of materials or plant be permitted after 12:00 hours on Saturdays.</p> <p>Due to tidal cycles, traffic management restrictions, safety and operational constraints, some limited operations would need to be carried out at night. CCBC would be liaised with where notable operations are to be carried out at night, such as depositing rock armour on the beach in readiness for placement (if delivery by barge is deemed necessary by the Contractor). Liaison would also be carried out with the local community, businesses and other key stakeholders.</p> <p>Where construction works could have a significant impact on neighbouring properties, businesses and residents, the affected parties would be advised of these works prior to their occurrence. Environmental Health Officers (EHOs) from the Local Authorities would be consulted with regard the nature and extent of any such works. In addition, the Applicant would liaise closely with members of the public, businesses and the EHOs to minimise the disruption and impacts resulting from the construction works.</p>	To be included in CEMP	Contractual responsibilities between CCBC and the Principal Contractor	Principal Contractor	C	Signature:  Date:
ES Ch4	Waste minimisation relating to site clearance.	Where items removed would have the potential for re-use elsewhere they would be taken to CCBC's Llanelian nursery for storage.	Not required	Principal Contractor to arrange with CCBC	Principal Contractor /CCBC	C	Signature:  Date:
ES Ch4	Restrictions on Plant Movements and Stockpiling in the Intertidal Area to minimise adverse effects in coastal processes and ecology.	<p>Plant and equipment movements on the beach are to be restricted to within 20m-30m of the revetment toe for the vast majority of the construction works. No stockpiling would be permitted on the area of sparse or dense blue mussel bed which would be demarcated by a marine ecologist and the Contractor prior to works commencing. No plant movements would be permitted across the area of dense blue mussel bed, although some limited movements would be permitted across the south-western corner of the sparse mussel bed if necessary given its very poor condition.</p> <p>Activity on the lower beach would be limited to revetment delivery by barge (if it is not to arrive by road) and ecological enhancement works to the three existing longer groynes, currently anticipated to involve the installation of two ecological rock armouring unit (or similar) per groyne.</p> <p>For any plant movements and stockpiling of rock armour in the lower intertidal area (beyond 20m-30m from the revetment toe), plant movements would be restricted given the presence of the blue mussel bed and intertidal patches of honeycomb worm with suitable buffer zones to be established by the marine biologist and Contractor at the walkover 6 weeks prior to works commencing.</p>	Compliance with method statements	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:
ES Ch4	Construction Flood Risk Management.	<p>During site clearance, existing rock armour is to be removed and re-used where appropriate in accordance with specification.</p> <p>The Contractor would produce a Construction Flood Risk Management Plan to set out the methodology to be followed during construction to ensure coastal protection of the site is maintained throughout the construction phase.</p>	Adherence to Construction Flood Risk Management Plan	Principal Contractor to prepare plan	Principal Contractor	C	Signature:  Date:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion record
		<p>This plan would also set out the emergency access and egress procedures and specific site precautions necessary to protect both human life and the environment in the case of storm overtopping events occurring during the construction period.</p> <p>The placement of stockpiled rock armour immediately seaward of where it is to be used within the revetment would help to dissipate wave energy and provide some limited additional protection during any storm events.</p>					
ES Ch5	Protection of cultural heritage assets.	Archaeological watching brief required for GI works. If assets of cultural heritage significance are encountered, additional mitigation may be required for the construction phase.	Any archaeological finds to be reported.	Principal Contractor to appoint Archaeologist	Principal Contractor in liaison with CCBC Heritage Team	P	Signature:  Date:
ES Ch5	Protection of beach sediments for maintenance of sediment budget.	NRW advise against any beach sediment being used as construction infill as this would deplete the local sediment budget and leave a negative legacy of sediment available for beach building in times of increased sea level rise. Locking the sediment within the proposal would create a deficit of marine sand to the environment and interrupt sediment downdrift to the east. NRW recommend that any marine sediment of the appropriate type, and which does not present contamination issues, should be retained within the marine environment for the sustainable management of natural resources.	No net loss of sand from beach	Method Statements and surveys	Principal Contractor	C	
ES Ch5	Flood risk management.	NRW advise that any works in, over, under or within 8m of either of the main rivers may be subject to a FRAP.	Not required	Principal Contractor to apply for FRAP as necessary	Principal Contractor	C	Signature:  Date:
<b>ES Chapter 7 (Air Quality)</b>							
ES Ch7	Air quality management	<p>Best practice mitigation measures for a site with a low risk of dust effects, as outlined in the IAQM guidance, are presented below:</p> <p>General</p> <ul style="list-style-type: none"> <li>• Display the name and contact details of person(s) accountable for air quality and dust issues on site boundary;</li> <li>• Display contractor's head or regional office contact information; and</li> <li>• Develop and implement a Dust Management Plan (DMP) as part of the CEMP, including regular site inspections.</li> </ul> <p>Site Management</p> <ul style="list-style-type: none"> <li>• Record all dust and air quality complaints, identify causes and take appropriate action and record measures to reduce emissions. Make a complaints log available to the local authority when requested; and</li> <li>• Record any exceptional incidents that cause dust and air quality pollutant emission either on or off the site and the action taken to resolve it.</li> </ul> <p>Monitoring</p> <ul style="list-style-type: none"> <li>• Undertake daily on-site and off-site inspection where receptors are nearby to monitor dust;</li> <li>• Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked; and</li> <li>• Increase the frequency of site inspections by the person accountable for air quality and dust issue on site when activities with a potential to produce dust are being carried out during dry or windy conditions.</li> </ul> <p>Preparing and Maintaining the Site</p> <ul style="list-style-type: none"> <li>• Plan site layout so that machinery and dust causing activities are away from receptors, as far as is possible;</li> <li>• Erect solid screens or barriers around dusty activities or the application site boundary that are at least as high as any stockpiles on site. Keep screens clean using wet methods;</li> <li>• Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period;</li> <li>• Avoid site run-off of water or mud. A record of any site run off should be kept and actions to prevent reoccurrence;</li> </ul>	To be included in CEMP	Contractual responsibilities between CCBC and the Principal Contractor	Principal Contractor	C	Signature:  Date:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion record
		<ul style="list-style-type: none"> <li>Keep site fencing, barrier and scaffolding clean using wet methods;</li> <li>Remove materials that have a potential to produce dust from site as soon as possible unless being re-used on site;</li> <li>Cover, seed or fence stockpiles to prevent wind whipping;</li> <li>Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques;</li> <li>Ensure an adequate water supply on the site for effective dust/ particulate matter suppression/ mitigation using non-potable water where possible and appropriate;</li> <li>Use enclosed chutes and conveyors and covered skips;</li> <li>Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling;</li> <li>Ensure equipment is readily available on site to clean any dry spillages; and</li> <li>No burning of waste.</li> </ul> <p>Operating Vehicle/Machinery and Sustainable Travel</p> <ul style="list-style-type: none"> <li>Ensure all vehicles switch off engines when stationary - no idling vehicles;</li> <li>Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable; and</li> <li>Impose and signpost a maximum speed limit (15mph on surfaced road, 10mph on un surfaced road).</li> </ul> <p>Construction</p> <ul style="list-style-type: none"> <li>Avoid surface treatments to concrete or stone (scabbling) if possible; and</li> <li>Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out. Unless this is required for a particular process, in which case ensure that appropriate additional controls are in place.</li> </ul> <p>Trackout</p> <ul style="list-style-type: none"> <li>Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use;</li> <li>Avoid dry sweeping of large areas;</li> <li>Ensure vehicles entering and leaving the site are covered to prevent escape of materials during transport;</li> <li>Record all inspections of haul routes and any subsequent action in a site logbook; and</li> <li>Implement a wheel washing system.</li> </ul>					
<b>ES Ch8 Biodiversity (Terrestrial and Marine)</b>							
ES Ch8	Timings of any vegetation clearance to protect ecological receptors	<ul style="list-style-type: none"> <li>Nesting Birds: Any woody vegetation clearance or building demolition to be undertaken outside of the nesting bird season (widely considered to be from March to August inclusive but can vary depending on the species/or seasonal constraints). Where this is not possible, pre-clearance checks must be undertaken by an experienced ecologist to identify if any birds are nesting within or close to the vegetation due to be removed. If a bird's nest is found, it must be left in-situ and protected from the works. No works can be undertaken in that area until the young birds have fledged from the nest site, which may take up to 6 weeks depending on the species;</li> <li>Reptiles: Vegetation clearance (railway embankments) to be undertaken between April and the end of October, if possible, whilst reptiles are active. Vegetation clearance would be undertaken in a phased manner under ecological supervision and preceded by a hand search for reptiles. Any reptiles encountered would be moved to outside of the working area; and</li> <li>Badgers (and other mammals): An update check would be undertaken 12 weeks prior to the commencement of works on the railway embankments to ascertain whether there is any evidence of badger or other mammals. Works should avoid any recorded or potential tunnels or burrows, where possible. In the unlikely event badgers are recorded, setts would be avoided during works. General best practice should be followed within the construction zone (including avoiding storage of large piles of earth near the woodland and no open excavations to be left overnight without a mammal ladder or ramp).</li> </ul>	Not required	Method Statements	Principal Contractor with ecological advice from ECoW	P and C	Signature:  Date:
ES Ch8	Protection of Marine Ecology ( <i>Sabellaria alveolata</i> and <i>Mytilus edulis</i> )	Delivery via barge and stockpiling would not be permitted in the area of the blue mussel bed to avoid any potential physical impact on as a result of offloading revetment rocks. Delivery via barge and stockpiling would not be permitted in the isolated areas of Honeycomb Worms located near the low tide mark to avoid any potential physical impact on as a result of offloading revetment rocks.	Transhipment Plan	Contractual responsibilities between CCBC and the Principal Contractor	Principal Contractor	C	Signature:  Date:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion record
ES Ch8	Protection of Marine Ecology	Site walkover to be undertaken by a marine ecologist 6-8 weeks prior to construction commencing. This would ensure any changes in the extent of marine habitats (notably <i>Mytilus edulis</i> and <i>Sabellaria alveolata</i> ) are fully accounted for and mapped within the environmental constraints plan as an accurate preconstruction baseline would have been obtained. A copy of this constraints plan should be shown to workers during toolbox talks to ensure minimal damage occurs to these areas (no tracking of plant or vehicles over these habitats) and a copy should be made available to workers on site (e.g. on the site noticeboard).	Updates to constraints plan as required	Walkover survey	Principal Contractor and ECoW	P	Signature:  Date:
ES Ch8	Protection of Marine and Terrestrial Ecology	Pollution prevention measures and contingency planning should be implemented to ensure all habitats and species are safeguarded during the works from pollution/oil spill events.					Signature:  Date:
ES Ch8	Protection of Marine Ecology	Rock revetment construction would be undertaken within an approximate working buffer of 20m-30m from the base of the proposed 30m deep revetment (approximate maximum of 50-60m from the sea wall). This would avoid unnecessary tracking across the intertidal area from machinery and plant associated with the construction, thus avoiding likelihood of physical damage to marine features.	Compliance with method statements	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:
ES Ch8	Protection of Marine and Terrestrial Ecology	Soil erosion prevention measures (to include restricting plant movement on vegetated and unvegetated ground (including intertidal sands), avoidance of repeated tracking and the buffer area of 20m for plant to track from the rock revetment (50m from seawall in total)).	Compliance with method statements	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:
ES Ch8	Protection of Terrestrial Ecology	Use of tree-protection fencing (in line with BS5837-2012) and other demarcation fencing to protect retained habitats from construction encroachment.	Compliance with arboricultural method statements	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:
ES Ch8	Protection of Marine Ecology	The unloading of rocks from the barge would be undertaken at high tide to allow the rocks to be pushed off the barge onto an area slightly covered by water, reducing the repeated underwater noise and vibration impacts through the water column on marine receptors.	Compliance with Transhipment Plan	Principal Contractor to prepare	Principal Contractor	C	Signature:  Date:
ES Ch8	Protection of Fish species	The unloading of rocks from the barge would be supervised by an ECoW who is able to temporarily halt works if any individual fish or shoals are observed nearby.	Compliance with method statements	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:
ES Ch8	Protection of Marine Ecology and Birds	Any piling undertaken on site would be via vibropiling with variable frequency control that would adhere to high frequencies. This would minimise noise and vibration impact on the mussel bed and on birds within close proximity to shore.	Compliance with method statements	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:
ES Ch8	Protection of Marine and Terrestrial Ecology	Toolbox talks would be undertaken with site staff prior to works commencing to highlight the importance of ecological habitats and species and to ensure avoidance of potential damage or disturbance during the works / what action to take if species are encountered during works.	Record of staff inductions including toolbox talks attended	Induction procedures and site briefings	Principal Contractor with ecological advice from ECoW	C	Signature:  Date:
ES Ch8	Protection of Marine and Terrestrial Ecology	Standard best practice measures are required to minimise effects on habitats, including: <ul style="list-style-type: none"> <li>• Best practice measures to reduce noise and vibration during construction;</li> <li>• Damping down of dust sources and other measures to minimise air quality effects to habitats; and</li> <li>• Best practice construction and hygiene measures (avoiding littering, fires, storage of foods, etc).</li> </ul>	Compliance with method statements	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:
ES Ch8	Protection of Marine and Terrestrial Ecology	If night-time working is required to make use of certain stages of the tide (e.g. unloading of rocks by barge), lighting of the water column, intertidal area and marine habitats would be avoided where possible, with a low frequency light used to minimise light pollution. If lighting cannot be avoided,	Compliance with method statements	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion record
		light spill would be minimised through positioning of lighting, use of directional lighting, hoods, shields and low-level lighting.					Date: Signature:
ES Ch8	Protection of Marine Ecology	A walkover should be undertaken on site 6-8 weeks prior to the commencement of works by a marine ecologist to identify any areas of INNS (Invasive and Non-Native Species).	Updates to constraints plan as required	Walkover survey	Principal Contractor and ECoW	P	Date: Signature:
ES Ch8	Protection of Marine Ecology	The biosecurity risk assessment should be included within the CEMP and closely followed to avoid any potential spread of INNS within, into, or out of the site.	Not required	Implement recommendations in biosecurity risk assessment	PC	C	Date: Signature:
ES Ch8	Protection of Terrestrial Ecology (Nesting Birds)	Any woody vegetation clearance or building demolition to be undertaken outside of the nesting bird season (widely considered to be from March to August inclusive but can vary depending on the species/or seasonal constraints). Where this is not possible, pre-clearance checks must be undertaken by an experienced ecologist to identify if any birds are nesting within or close to the vegetation due to be removed. If a bird's nest is found, it must be left in-situ and protected from the works. No works can be undertaken in that area until the young birds have fledged from the nest site, which may take up to 6 weeks depending on the species.	Compliance with method statements	Principal Contractor to prepare method statements	Principal Contractor	C	Date: Signature:
ES Ch8	Protection of Terrestrial Ecology (Reptiles)	Vegetation clearance (railway embankments) to be undertaken between April and the end of October, if possible, whilst reptiles are active. Vegetation clearance would be undertaken in a phased manner under ecological supervision and preceded by a hand search for reptiles. Any reptiles encountered would be moved to outside of the working area.	Compliance with method statements	Principal Contractor to prepare method statements	Principal Contractor in liaison with Network Rail	C	Date: Signature:
ES Ch8	Protection of Terrestrial Ecology (Badgers and other mammals)	An update check would be undertaken 12 weeks prior to the commencement of works on the railway embankments to ascertain whether there is any evidence of badger or other mammals. Works should avoid any recorded or potential burrows, where possible. In the unlikely event badgers are recorded, setts would be avoided during works. General best practice should be followed within the construction zone (including avoiding storage of large piles of earth near the woodland and no open excavations to be left overnight without a mammal ladder or ramp).	Compliance with method statements	Principal Contractor to prepare method statements	Principal Contractor	P	Date: Signature:
ES Ch8	Protection of sensitive habitats	Production of a guidance note for the council maintenance team on the optimal timing of maintenance activities for use in programme planning Provision of an information leaflet for council maintenance workers and inclusion of this in contractor briefing packs (this would identify known locations of sensitive habitats such as the presence of Sabellaria alveolata and blue mussel beds, along with newly enhanced areas that need to be left undisturbed to allow colonisation by marine species. This would ensure these areas can be avoided during future maintenance works	Production of guidance note and inclusion in maintenance schedules given to contractors	CCBC to arrange for production of guidance note	CCBC	A	Date: Signature:
ES Ch8	Protection of sensitive habitats	Erection of wildlife information boards and signage along the Promenade, close to vehicular access points to the beach, to highlight the importance and sensitivity of birds and marine species in the area, along with information outlining the importance of the new ecological enhancements on site and how the changes made would benefit local species	Production and erection of information signs	CCBC to arrange for production of signage	CCBC	O	Date: Signature:
<b>ES Ch9 Climate and Carbon Management Plan</b>							
ES Ch9	To reduce carbon emissions	In line with the Prosperity for All Plan and the UK Government's carbon reduction plan, the Scheme should continue through construction to seek to reduce GHG emissions as far as practicable to contribute to the national net reduction in carbon emissions and maximise the potential for reducing GHG emissions. Throughout the Scheme's construction, plant equipment and vehicles to be used would be selected based on their relative environmental performance taken from a technical specification. Construction works would be carried out in accordance with the best practicable means, as described in Section 79 (9) of the Environmental Protection Act (EPA) 1990, to reduce fumes or emissions. This would include all vehicle engines and plant motors to be switched off when not in use.	Compliance with traffic management Plan and Site Waste Management plan	Principal Contractor to prepare plans	Principal Contractor	C	Date: Signature:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion record
Carbon Management Plan	To reduce carbon emissions	To continue the reduction of carbon the following measures are required to be implemented wherever possible, confirmed or further explored. These ideas will be considered and justified if not possible to implement: <ul style="list-style-type: none"> <li>Recycled steel to be used for rebar where possible at a minimum of 85% recycled steel;</li> <li>Recycled material to be used as a cement replacement. 36-85% ground granulated blast furnace slag as a suggested material;</li> <li>Transport of rock revetment potentially to be by boat from Scotland or Norway. The further investigation should consider the distance required to move the rock from the quarry to the port also. For calculations see the following – by boat approx. 0.92 tCO<sub>2</sub>e per km versus by road approx. 55.36 tCO<sub>2</sub>e per km;</li> <li>During quarrying and armourstone extraction, use byproduct as underlayers, fill, aggregate or roadstone;</li> <li>Source slate waste as fill to use for raising levels;</li> <li>Reuse of fill from other sites for prom raising/behind revetment;</li> <li>Re-use of existing materials e.g. lighting, parking meters, ramp, benches.</li> </ul>	Resource efficiency targets to be set in SWMP	Principal Contractor to develop SWMP	Principal Contractor	C	Signature:  Date:
<b>ES Ch10 Coastal processes and Flood Risk</b>							
ES Ch10	Prevention of pollution of controlled waters	Throughout the construction and operational phases, best practice guidance in reference to pollution prevention would be followed; CIRIA (Construction Industry Research and Information Associated) (2015).	Adherence to Marine Pollution Contingency Plan and Surface Water Management Plan	Principal Contractor to develop plans	Principal Contractor	C	Signature:  Date:
ES Ch10	Prevention of adverse effects on coastal processes.	Deliveries would be made at high tide and deposited as close to the working area (as high up the beach) as possible. Following the appointment of a Contractor, and the selection of a delivery method for the revetment rock (barge or road), the CEMP would be updated to outline the routes where the construction vehicles can travel to minimise the area of beach affected. These routes would be finalised in agreement with CCBC and NRW, but as a minimum would exclude the blue mussel bed, and areas of Honeycomb Worm reef patch (see Drawing 410895-MMD-00-XX-DR-N-1711 along with the avoidance of disturbing the existing rock groyne areas where Honeycomb Worm has been identified (other than for ecological enhancement works – placement of ecological armouring units). A site walkover by a marine ecologist 6-8 weeks prior to works commencing would be completed to make any necessary changes to plant movement routes and proposed stockpiling areas. Where material is disturbed localised reinstatement of the beach would be undertaken.	Compliance with method statements	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:
ES Ch10	Prevention of adverse effects on coastal processes.	Stockpile locations would be agreed in advance with CCBC and NRW once a Contractor has been appointed (to be recorded in the CEMP) and the revetment rock delivery method has been selected. Where this is not possible, the size of the stockpile should be assessed to ensure that changes to the current flows are not creating areas of scour. Monitoring of the beaches around the stockpile should be undertaken and the beach levels reinstated should beach lowering be recorded. A Contractor-led beach inspection scheme would be required, to be agreed in advance with CCBC and NRW and detailed in the CEMP. Stockpiles would only be temporary and would not be permitted to remain beyond the end of the construction phase in question.	Compliance with CEMP	Principal Contractor to prepare CEMP	Principal Contractor	C	Signature:  Date:
ES Ch10	Prevention of adverse effects relating to transshipment of rock revetment.	If transshipment of revetment rock is considered necessary, the Contractor would produce a Transshipment Management Plan in consultation with CCBC, NRW and other local stakeholders prior to construction. It is proposed that this plan would include the identification of the transshipment locations offshore and a bathymetric survey of the area prior to works commencing. The plan could also include shipping corridors to the frontage, along with bathymetric surveys of these areas. The methodology for transferring rocks between barges would also be included to minimise the loss of rocks overboard. A plan for recovering any lost rocks off the seabed should also be included should this be required by NRW.	Compliance with Transshipment Plan	Principal Contractor to prepare	Principal Contractor	C	Signature:  Date:
ES Ch10	Management of flood risk during construction.	The contractor would be required to develop and implement a robust Construction Flood Risk Management Plan prior to commencement of the construction phase. To reduce the potential increase in flood risk and increased erosion during the temporary removal of defences, works should be scheduled as far as is practicable for lower tides and reduced storm periods (i.e. outside the winter period). Alternatively, enforced temporary closures of the Promenade may be required during the works. If damage to the Promenade and existing sea wall occurs temporary works to shore-up the structures should be undertaken to prevent failure.	Compliance with Construction Flood Risk Management Plan and Surface Water Management Plan	Principal Contractor to prepare	Principal Contractor	C	Signature:  Date:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion record
ES Ch10	Prevention of import of INNS	The Biosecurity Risk Assessment covers the measures required to safely manage the import of materials from other sites into the intertidal area.	Compliance with Biosecurity Risk Assessment	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:
ES Ch10	Pollution prevention	Sediment samples taken during the ground investigation would determine sediment quality and whether contaminants are likely to be released during construction (currently considered to be unlikely). Should contamination be identified, an appropriate risk assessment would be completed to ascertain any additional mitigation measures considered necessary.	Preparation of ground investigation report	Ground investigation procured	Designer/CCBC	P	Signature:  Date:
<b>ES Ch11 Landscape</b>							
ES Ch11	Mitigation of adverse landscape effects.	The following mitigation measures are proposed to mitigate any significant adverse construction effects: <ul style="list-style-type: none"> <li>Lighting during construction would be designed to minimise light pollution during the hours of darkness. Lighting would be directional to prevent light spill and designed to reduce skyglow;</li> <li>Site fencing around the construction sites would be well maintained throughout the construction period;</li> <li>Cycleways would be diverted to allow access where possible;</li> <li>Footpaths would be diverted to allow access where possible;</li> <li>During offloading of materials, the affected beach area would be off limits to recreational users of the beach and water. Users would be encouraged to use other stretches of the coastline.</li> <li>All areas of land within the Scheme red line boundary that have been temporarily occupied during the construction phase (areas not to be re-developed) would be re-instated to pre-construction condition.</li> </ul>	Adherence to landscape and ecological management plan	Principal Contractor to prepare method statements	Principal Contractor	C	Signature:  Date:
ES Ch11	Mitigation of adverse landscape effects.	The significant construction landscape and visual effects anticipated would require further mitigation and monitoring, summarised as follows: <ul style="list-style-type: none"> <li>The Contractor would adopt sensitive policies towards reducing visual impact as far as possible. Wherever possible viewing platforms would be provided so that members of the public can safely view the ongoing work;</li> <li>Areas where works are complete would be reopened to the public as soon as safely possible;</li> <li>Complaints from residents would be collated by the Contractor and wherever possible mitigation undertaken to reduce that impact; and</li> <li>Where planned activities are anticipated to cause a visual disturbance, the Council would be informed in advance to allow notification of the proposed works to be disseminated.</li> </ul>	Compliance with CEMP	Principal Contractor to prepare CEMP	Principal Contractor	C	Signature:  Date:
<b>ES Ch12 Materials</b>							
ES Ch12	Reduction in materials usage and waste generation.	A Materials Management Plan (MMP) would be compiled by the Contractor, if required, as part of the Construction Environmental Management Plan (CEMP), if required. It would identify ways to re-use site-won or excavated materials within the construction of the Scheme, provided they meet the requirements of the CL:AIRE Code of Practice (CoP).	A verification plan is required if an MMP is used	Principal Contractor to prepare MMP	Principal Contractor	C	Signature:  Date:
ES Ch12		A site waste management plan (SWMP) would also be developed by the Contractor as part of the CEMP. It would contain specific information on how material with the potential to become waste is reused or managed on- or off-site during the construction of the proposed Scheme. The SWMP is a key part of the CEMP and would be a live document based on construction operations as they occur	SWMP to be completed	Principal Contractor to prepare SWMP	Principal Contractor	C	Signature:  Date:
ES Ch12		Mitigation measures that would be implemented on-site to ensure efficient use of material resources, are as follows: <ul style="list-style-type: none"> <li>Materials would be delivered on an 'as required' basis to avoid damage or contamination and limit the generation of waste;</li> <li>Where site-won material is not available or suitable for re-use; secondary or recycled materials would be procured where available and practicable;</li> <li>All suitable excavated material would be re-used in the construction of the Scheme and in landscaping features to reduce the requirement to import materials for construction and reducing the need to remove surplus materials from site;</li> </ul>	SWMP to be completed	Principal Contractor to prepare SWMP	Principal Contractor	C	Signature:  Date:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion record
		<ul style="list-style-type: none"> <li>Excavating activities would be confined to the minimum areas required for the works to minimise the quantity of contaminated material removed;</li> <li>Temporary stockpiling of fill materials prior to incorporation in the Scheme would be avoided where possible, to ensure double handling and damage is minimised and therefore avoidance of waste. However, where required, materials would be stockpiled in accordance with best practice and managed appropriately to limit the likelihood of damage or contamination;</li> <li>Locally sourced materials and suppliers would be identified and used, where practicable, to reduce fuel requirements and cost of delivery, for example sand along the coast where permitted. This also reduces greenhouse gas emissions resulting from transportation;</li> <li>Pre-cast elements would be used, where practicable, to ensure efficient use of materials and avoid the generation of waste arising from off-cuts;</li> <li>Collaborating with nearby projects to provide and use surplus material, where suitable;</li> <li>The waste hierarchy would be implemented throughout the construction to minimise disposal and maximise re-use and recycling of site-won material. Opportunities for re-use and recycling include (but are not limited to): <ul style="list-style-type: none"> <li>Re-using excavated soils on-site in the landscaping features of the Scheme;</li> <li>Chipping green waste on-site for use in the landscaping for the Scheme;</li> <li>Composting of green waste;</li> <li>Recycling of inert material by crushing, blending and subsequent re-use, as an aggregate;</li> <li>Re-using waste on other nearby schemes, subject to permitting requirements and suitability of the material; and</li> <li>Re-using waste for uses with clear benefits to the environment, for example in the remodelling of agricultural land or in the restoration of nearby quarries or other excavation sites.</li> </ul> </li> <li>Facilities e.g. site compounds and skips would be provided on-site to separate out waste, for example for recycling.</li> </ul>					
ES Ch12		<p>Material and waste audits would be undertaken throughout the construction phase. This would ensure that re-use and recycling targets are met on-site and would ensure that there is no surplus of materials. By conducting audits regularly this would give an indication of where continual improvements to waste management and minimisation of material use can be made throughout the construction phase.</p> <p>The Contractor would report on the types and quantities of C&amp;D waste taken off-site, who removed it and where to. It would also require the Contractor to report on performance against re-use and recycling targets throughout the construction phase and justify any deviations from the forecasted waste quantities, to minimise material import requirements. The MMP, if required, would also require a verification report to confirm that only the material identified suitable for use in the MMP was used and placed in accordance with the MMP.</p>					Signature:  Date:
<b>ES Ch13 Noise and Vibration</b>							
ES Ch13	The effective management and reduction of construction noise.	Piling activities at the Perpendicular Step No.2 area (located in the middle of Area 2, Construction Phase 1) would be avoided during the weekend beyond 1300hr.	Not required	Principal Contractor to prepare CEMP	Principal Contractor	C	Signature:  Date:
ES Ch13		<p>Mitigation measures would help to further reduce the scale of the effects on the environment. BS5228-1:2009+A1:2014 recommends that, in some circumstances, a greater noise level may be tolerated if the overall duration of construction and therefore length of disruption is reduced. The following would be considered:</p> <ul style="list-style-type: none"> <li>Unnecessary revving of engines would be avoided, and equipment would be switched off when not in use;</li> <li>Internal haul routes would be kept well maintained;</li> <li>Rubber linings in, for example, chutes and dumpers would be used to reduce impact noise;</li> <li>Drop heights of materials would be minimised;</li> <li>Plant and vehicles would be sequentially started up rather than all together;</li> <li>Use of effective exhaust silencer systems or acoustic engine covers as appropriate;</li> <li>As far as reasonably practicable, sources of significant noise would be enclosed;</li> </ul>	Records of complaints and actions to be kept	Principal Contractor to prepare CEMP	Principal Contractor	C	Signature:  Date:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion record
		<ul style="list-style-type: none"> <li>Plant would always be used in accordance with manufacturers' instructions. Care would be taken to site equipment away from noise-sensitive areas. Where possible, loading and unloading would also be carried out away from such areas;</li> <li>Regular and effective maintenance by trained personnel would be undertaken to keep plant and equipment working to manufacturers specifications;</li> <li>Screening e.g. noise barriers and blinds would be used as appropriate;</li> <li>Consideration should be given to traffic routing, timing and access points to the Site so as to minimise noise impacts at existing receptors following contractor appointment, and as construction working methods are developed. However, increases in road traffic noise levels during works would be temporary, relatively short term, and although the effect would be dependent on the actual number of HGV deliveries, it is considered that significant effects can be managed and avoided;</li> <li>Contractors would issue a project route map and delivery schedule to control construction traffic. Traffic management would be employed to guide and control both public and construction traffic during deliveries;</li> <li>All work outside these hours would be subject to prior agreement of, and/or reasonable notice to CCBC. Night-time working would be restricted to exceptional circumstances, and minor work internally within buildings.</li> </ul>					
ES Ch13	The effective management and reduction of construction traffic noise (including diverted traffic)	To mitigate potential disturbance traffic calming measures and/or enforcement would potentially be effective if traffic is perceived as noisier due to increases in combination with speeding vehicles. To prevent complaints, good community consultation and communication would be vital along with effective complain management. It would be important to gather information on any received complaints and respond quickly.	Records of complaints and actions to be kept	Principal Contractor to prepare Traffic Management plan	Principal Contractor	C	Signature:  Date:
ES Ch13	The effective management and reduction of construction vibration.	<p>A risk assessment identifying the probability of vibration from any piling activities should also be carried out prior to commencement of construction activities, to determine the need for periodic or continuous vibration monitoring. It is recommended that the contractor uses techniques such as rotary piling methods that are least likely to cause vibration. Should the need arise, additional means of mitigating potential effects would be considered as the construction arrangements are developed further. It is likely that the magnitude of the potential vibration effects can be reduced, if not avoided altogether, as a result of these further considerations.</p> <p>For the general control of vibration, BS5228-2:2009+A1:2014 recommends:</p> <ul style="list-style-type: none"> <li>Selection of appropriate piling technique and energy input;</li> <li>Provision of cut off trenches (which are similar to noise screens in that they interrupt the direct path between source and receiver);</li> <li>Pre-boring which can reduce resistance to penetration;</li> <li>Site management and planning;</li> <li>Working methods such as hours of work;</li> <li>Control of vibration at source by replacing plant/methods of works at or near vibration sensitive premises, where reasonably practicable, with less intrusive plant and/or methods of working;</li> <li>Where reasonably practicable, vibrating equipment would be located as far from sensitive premises as possible, and, if on a structure, not on one which is continuous with that of the sensitive premises; and</li> <li>Identify any opportunities to reduce vibrations from piling activities through identifying any alternative methods available and removal of obstructions to reduce the exacerbation of transmission of vibration.</li> </ul> <p>BS5228-2:2009+A1:2014 includes guidance on measures to mitigate vibration arising due to construction activity. The level of vibration at the point of the receptor would normally be a function of many variables including:</p> <ul style="list-style-type: none"> <li>Energy per blow or cycle of the piling activity;</li> <li>Distance between source and receiver;</li> <li>The conditions of the intervening ground between the source and receiver e.g. soft or hard ground;</li> <li>Soil-structure interaction, i.e. the nature of the connection between soil and structure being monitored; and</li> </ul>	Records of complaints and actions to be kept	Principal Contractor to prepare CEMP	Principal Contractor	C	Signature:  Date:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion record
		<ul style="list-style-type: none"> <li>Type and nature of structure and location of point of reception, for example: on the soil surface; on a building foundation; or on an internal structural element.</li> </ul>					
ES Ch13		<p>Noise and vibration monitoring are generally used to control exposure where significant adverse effects are anticipated. The predictions show that with mitigation in place, no significant adverse effects would be anticipated, although some piling activities and construction traffic on Marine Road may come close to the proposed limits.</p> <p>It is therefore considered that monitoring would not be needed but should be kept as an option in the event that levels are exceeded in practice.</p>	Noise monitoring results reported	Principal Contractor to prepare noise monitoring plans if required	Principal Contractor	C	Signature:  Date:
<b>ES Ch14 Population and Human Health</b>							
ES Ch14	Minimisation of disruption for users of the waterfront area.	The Contractor would develop a CEMP to minimise disruption to businesses for customers, deliveries and staff and to minimise disruption to pedestrians, cyclists and users of the beach;	Records of complaints and actions to be kept	Principal Contractor to prepare CEMP	Principal Contractor	C	Signature:  Date:
ES Ch14		Temporary diversions and other management procedures would be advertised throughout the WIA	Records of advertisements	Principal Contractor to prepare CEMP	Principal Contractor	C	Signature:  Date:
ES Ch14		The Contractor would develop a Traffic Management Plan to minimise disruption to motorised users.	Records of complaints and actions to be kept	Principal Contractor to prepare Traffic Management Plan	Principal Contractor	C	Signature:  Date:
<b>OPERATION</b>							
<b>ES Ch3 Scheme Description</b>							
ES Ch3	To ensure longevity of structures and effectiveness of Scheme in the long term.	<ul style="list-style-type: none"> <li>Regular inspection, reactive maintenance and repair of revetment, structures, groynes access-build out, steps and fishing platform as identified following routine inspections (this is anticipated to be minimal in the short-medium term);</li> <li>Routine maintenance and repair of Promenade including pavement, drainage system, vegetation management of soft landscaped areas including the picnic area and outdoor classroom;</li> <li>Cleaning and maintenance of slipways and flood gates (hinges and seals) with a suitable inspection regime;</li> <li>Maintenance of landscape features such as benches, guards and handrails; and</li> <li>Monitoring of beach levels at the toe of the revetment and along the beach: The revetment design has allowed for a 0.5m fall in beach levels (beach levels have been relatively stable for the past 15 years. Should beach levels be noted to fall more than 0.5m following inspections, localised recycling of beach material would be required. Conversely should accretion be noted of more than 1m, this could be detrimental to accesses or ecological enhancements and some limited beach management may be required.</li> <li>During the occurrence of particular events (in general spring/highest tides coinciding with onshore winds or storm events) CCBC would monitor conditions as they do currently and potentially close the Promenade when overtopping levels may exceed safe limits for pedestrians/vehicles (the number of these occasions are anticipated to fall significantly following Scheme completion).</li> </ul>	Condition surveys	Maintenance plans	CCBC	O	Signature:  Date:
<b>ES Ch8 Biodiversity (Terrestrial and Marine)</b>							
ES Ch8	To manage biodiversity assets optimally.	<ul style="list-style-type: none"> <li>Habitats and Faunal Enhancements: Monitoring, maintenance and aftercare for newly created marine and terrestrial habitats, in order to ensure these establish and develop as required to be of biodiversity benefit. This would include annual checks to ensure that these are on track (in line with the management prescriptions), in good condition and, in the case of point features, are not missing or damaged</li> </ul>	Condition surveys	Maintenance plans	CCBC	O	Signature:  Date:
ES Ch8		<ul style="list-style-type: none"> <li>Sabellaria alveolata and Mytilus edulis (blue mussel bed): Pre-construction photographic condition surveys have been undertaken of the marine habitats on site. It is important to take ongoing images of the site immediately after construction is completed as this would enable records to be taken of the amount of existing habitat that was lost to incorporate the site</li> </ul>	Condition surveys	Maintenance plans	CCBC	O	Signature:

Reference	Objective	Action (including specific location and any monitoring required)	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented	Responsible person(s)	When P= Pre-construction C= Construction O= Operation A= All	Completion record
		enhancements (e.g. sections of groynes and associated Sabellaria alveolata that were removed to enable the installation of ecological armouring units). This would provide a suitable baseline against which to assess any improvement in colonisation of the enhanced areas of the site over the future years.					Date:
ES Ch8		<ul style="list-style-type: none"> <li>It is anticipated that the above monitoring as well as prescriptions for the creation and management of new terrestrial and intertidal habitats would be set out within a Landscape and Ecological Management Plan (LEMP), to be delivered by an appointed contractor under the guidance of, and with specialist input from, ecologists as needed. It is recommended that this LEMP takes into account management of the marine environmental enhancements over a ten year period to ensure enough time for establishment once construction and then colonisation by marine species.</li> </ul>	Condition surveys	Maintenance plans	CCBC	O	Signature:  Date:
<b>ES Ch10 Coastal processes and Flood Risk</b>							
ES Ch10	Monitoring to ensure structures and ecological enhancements operate optimally.	Regular beach monitoring would be undertaken along this section of the frontage and a beach monitoring regime would need to continue throughout the life of the coastal defence works to record how the beach is evolving in front of the new rock revetment, enabling any remedial action to be planned if required. Should the beach level drop below 0.5m CCBC would be required to undertake localised beach recycling and if it should rise by over 1m, localised beach management may be required to ensure ecological enhancement and outfalls remain operational.	Condition surveys	Maintenance plans	CCBC	O	Signature:  Date:
ES Ch10	Prolonging structure life.	Rock structures proposed would require minimal maintenance. Inspections would be carried out to recognise any movement or potential failure of the structures	Condition surveys	Maintenance plans	CCBC	O	Signature:  Date:
ES Ch10	Management of flood risk.	During the occurrence of particular events (in general spring/highest tides coinciding with onshore winds or storm events) CCBC would monitor conditions as they do currently and potentially close the Promenade when overtopping levels may exceed safe limits for pedestrians/vehicles (the number of these occasions are anticipated to fall significantly following Scheme completion). The process for closing the Promenade follows the methodology provided in current CCBC management arrangements.	Not required	Emergency plans	CCBC	O	Signature:  Date:
ES Ch10	Pollution prevention.	Chemicals used for cleaning of the beach access points (stairs and slipways) must be specified to be non-hazardous to ensure that there is no adverse impact on the sediment and water quality.	Not required	Maintenance plans	CCBC	O	Signature:  Date:
<b>Flood Consequence Assessment</b>							
FCA	Flood risk management	An Operational Flood Management Plan will need to be produced by CCBC	Not required	Emergency plans	CCBC	O	Signature:  Date:

## 4 Consents and Permissions

### 4.1 Consents and Permissions

To be updated as necessary by Principal Contractor.

The following will be required for the Scheme construction:

- Flood Risk Activity Permit;
- Work below mean high water spring will require a Marine Licence; and
- Crown Estate Permission.

### 4.2 Consents and Permission Record

To be updated by Principal Contractor.

## 5 Details of Maintenance and EMP Monitoring Activities

### This EMP:

- Will be updated with results of monitoring during construction and handover phases including:
  - The mitigation needed to manage environmental effects associated with a project and identify all necessary measures to avoid, reduce and offset a project's environmental impact and the methods for implementation;
  - The statutory monitoring commitments, including the need to evaluate the monitoring, identify remedial actions and report on environmental monitoring; and
  - Environmental management actions should include all monitoring requirements, success criteria, and specify a mechanism for reporting on progress against environmental requirements and commitments.

The EMP is an iterative document and continually updated to reflect progress on achieving the identified actions throughout the project lifecycle and respond to any assessment assumption and design changes identified by the change management process.

A summary of the tertiary mitigation/monitoring requirements identified within this ES<sup>1</sup> for the identified potentially Significant Adverse effects (and in addition where identified as being necessary elsewhere in the ES) is provided in Table 5.1.

**Table 5.1: Summary of Tertiary Mitigation/Monitoring Requirements**

Discipline	Potential Residual Significant Effect	Tertiary Mitigation/Monitoring Proposed
Biodiversity	N/A	<p>Overall only a slight adverse effect has been concluded from the construction phase in respect of Liverpool Bay SPA and a number of marine receptors. As such, there are no long-term requirements of monitoring. However, in line with best practice, monitoring of certain receptors is proposed in order to inform on-going maintenance and enhancements. This includes:</p> <ul style="list-style-type: none"> <li>● Habitats and Faunal Enhancements: Monitoring, maintenance and aftercare for newly created marine and terrestrial habitats, in order to ensure these establish and develop as required to be of biodiversity benefit. This would include annual checks to ensure that these are on track (in line with the management prescriptions), in good condition and, in the case of point features, are not missing or damaged; and</li> <li>● <i>Sabellaria alveolata</i> (Honeycomb Worm) and <i>Mytilus edulis</i> (Blue Mussel bed): Pre-construction photographic condition surveys have been undertaken of the marine habitats on site. It is important to take ongoing images of the site immediately after construction is completed as this would enable records to be taken of the amount of existing habitat that was lost to incorporate the site enhancements (e.g. sections of groynes and associated <i>Sabellaria alveolata</i> that were removed to enable the installation of ecological armouring units). This would provide a suitable baseline against which to assess any</li> </ul>

Discipline	Potential Residual Significant Effect	Tertiary Mitigation/Monitoring Proposed
		<p>improvement in colonisation of the enhanced areas of the site over the future years.</p> <p>It is anticipated that the above monitoring as well as prescriptions for the creation and management of new terrestrial and intertidal habitats would be set out within a Landscape and Ecological Management Plan (LEMP), to be delivered by an appointed Contractor as part of the CEMP under the guidance of, and with specialist input from, ecologists as needed. It is recommended that this LEMP takes into account management of the marine environmental enhancements over a ten year period to ensure enough time for establishment once construction and then colonisation by marine species.</p>
Coastal processes: Hydromorphology	N/A	<p>During the construction of the Scheme, monitoring of the beach levels and the impacts of localised scour would need to be undertaken by the Contractor, in addition, monitoring of the tides and any storm events would also be necessary. A management plan for a response to storms would be included in the Contractors Flood Risk Management Plan.</p> <p>Following the construction of the Scheme, ongoing monitoring of the beach levels would be undertaken and the results reviewed against historic and as-built information. This would allow any erosion or accumulation to be assessed to determine if action is required. This action could include beach recycling should the beach fall by 0.5m or localised beach management should levels rise by 1.0m.</p> <p>CCBC would be required to produce an Operational Flood Risk Management Plan.</p>
Landscape	<p>Temporary, partial loss or alteration to key elements/features/characteristics of the Colwyn Bay Waterfront LCA.</p> <p>Temporary Promenade/cycleway/beach closure or diversion.</p> <p>Temporary effects on views from Porth Eirias.</p>	<p>The significant construction landscape and visual effects anticipated in this report would require further mitigation and monitoring, summarised as follows:</p> <ul style="list-style-type: none"> <li>• The Contractor would adopt sensitive policies towards reducing visual impact as far as possible. Wherever possible viewing platforms would be provided so that members of the public can safely view the ongoing work;</li> <li>• Areas where works are complete would be reopened to the public as soon as safely possible;</li> <li>• Complaints from residents would be collated by the Contractor and wherever possible mitigation undertaken to reduce that impact; and</li> <li>• Where planned activities are anticipated to cause a visual disturbance the Council would be informed in advance to allow notification of the proposed works to be disseminated.</li> </ul>
Materials	<p>Impacts on the availability of secondary (recycled) material resources, and</p>	<p>Material and waste audits would be undertaken throughout the construction phase. This would ensure that re-use and recycling targets are met on-site and would ensure that there is no surplus of materials. By conducting audits regularly this would give an indication of where continual improvements to waste</p>

Discipline	Potential Residual Significant Effect	Tertiary Mitigation/Monitoring Proposed
	<p>subsequent impacts on the demand for key construction materials. Depletion of non-renewable resources (virgin materials).</p>	<p>management and minimisation of material use can be made throughout the construction phase.</p> <p>The SWMP and CEMP should include monitoring measures to prevent the significant effects from the use of material resources and the generation of waste, where possible. The Contractor would report on the types and quantities of construction and demolition waste taken off-site, who removed it and where to. It would also require the Contractor to report on performance against re-use and recycling targets throughout the construction phase and justify any deviations from the forecasted waste quantities, to minimise material import requirements. The MMP, if required, would also require a verification report to confirm that only the material identified suitable for use in the MMP was used and placed in accordance with the MMP.</p>
Noise and vibration	N/A	<p>Noise and vibration monitoring are generally used to control exposure where significant adverse effects are anticipated. The predictions show that with mitigation in place, no significant adverse effects would be anticipated, although some piling activities and construction traffic on Marine Road may come close to the proposed limits.</p> <p>It is therefore considered that monitoring would not be needed but should be kept as an option in the event that levels are exceeded in practice.</p>

Source: Mott MacDonald, 2020

## 6 Induction, Training and Briefing Procedures for Staff

### 6.1 Introduction

Table 6.1 identifies an indicative programme of training on environmental issues relevant to the scheme that have been identified for delivery prior to and during the construction stage. On commencement of site mobilisation, the Principal Contractor will be responsible for site inductions and training of all personnel on the site, whether visitors, full time staff or subcontractors

All individuals working on or visiting the site will be required to attend the Principal Contractor's site-specific induction. Those participating in or near to specific activities that have the potential for an environmental impact will be required to attend additional training or toolbox talks, led by the PC or specialists, on ecology, pollution control, waste management and emergency procedures for minor and major incidents.

The list below is not exhaustive and the Principal Contractor or Environmental Manager onsite must highlight requirements for additional training, as the project progresses, to improve and add value to the overall site environmental awareness and compliance. Additional training or induction issues would be identified from the regular site environmental check reports, or site feedback on any noted non-compliance. It is a requirement for the site to maintain the standard of environmental management and minimise risks that could negatively impact on the environment

Any additional induction and training requirements should be inserted within Table 6.1 below as they are identified throughout the lifetime of the scheme, by the Principal Contractor.

**Table 6.1: Inductions**

Topic	Personnel	Delivery	Delivery Format
Competent resources (staff)	All	By lead staff resource or employer id sub-contractor prior to commencement of activities.	Supply of specific certificates, for example Construction Skills Certification Scheme (CSCS) Project Cards, training confirmation.
Reporting of environmental observations and suggestions.	All	Site induction	Presentation and environmental reporting cards to be supplied. Posters with site reporting and environment contact numbers.
Communications to public.	All	Site induction	Follow Considerate Constructors Scheme principles (CCS) or a Communication Plan, if required.
Spill kit use.	All	Site induction	Toolbox talks and Deployment Training Session.
Refuelling / mechanical repairs and maintenance (off and on site)	All	Site induction	The Principal Contractor Site Induction Pack and PowerPoint Presentation (if applicable).
Tree root protection areas (RPAs)	All staff	Site induction	The Principal Contractor Site Induction Pack and PowerPoint Presentation (if applicable).
Waste from Welfare units and offices – Sewage	All staff	Site induction	The Principal Contractor Site Induction Pack and PowerPoint Presentation (if applicable).

Topic	Personnel	Delivery	Delivery Format
Chemical handling and storage	Stores manager and any persons with access or contact	Site induction	The Principal Contractor Site Induction Pack and PowerPoint Presentation (if applicable).
Ecological sensitivities	All	Site induction. Prior to works close to sensitive areas.	Toolbox talks where relevant and daily site briefings.
Preventing nuisance (noise, vibration, dust and odours)	Any specialist installations (for example breaking out concrete, existing pavement) machine drivers and banksmen.	Site induction.	Presenting nuisance (noise, vibration, dust and odours)

## 6.2 Environmental Competencies

The Principal Contractor shall ensure all personnel are suitably qualified or experienced for the roles and responsibilities that they are employed to undertake and suitably supervised.

The Principal Contractor will monitor and record that all staff have attended the relevant environmental induction or training as listed above (including updated or new training) prior to undertaking any activities on site.

## 6.3 Training and Site Induction

All site personnel and visitors are to receive Site Safety induction and Environmental Awareness training from the Principal Contractor before commencing activities on site. The list below is not exclusive but environmental training at Induction will at least include the following:

- Company/Project Environmental Policy;
- Site environment;
- Fuel containment;
- Earthworks and Excavations (Risks of exposing contamination);
- Pollution protocol and measures for example use of spill kits;
- Defined Materials Storage area (excavated and imported);
- Defined waste areas - Domestic and construction materials;
- Wheel wash – road sweeping;
- Dust and emissions control;
- Noise control;
- Vibration control;
- Site traffic protocols and routes in the form of a Traffic Management Plan - haul routes, staff travel to site plan;
- Warning signs;
- Site Inspection and monitoring forms;
- Material procurement;

- Toolbox talks where relevant to specific works;
- Communication Systems on site – dealing with the public, incident and near miss reporting inclusive of environment;
- Site organisation, key personnel responsibilities and contact details;
- Emergency Response Plan(s) for addressing Safety and Environmental issues.
- Contamination risk management;
- Update and maintain site specific toolbox talks or advisory sheets relevant to the project; and
- Working in publicly accessible places.

#### **6.4 Toolbox Talks and Induction Supporting Materials**

Toolbox talks will be posted within common use areas such as welfare units and office reception areas. Key environmental issues linked to the programme will be targeted on the daily notice board as an aide memoir to all staff on site for example areas of construction plant avoidance due to ecological constraints.

## 7 Glossary

Term and abbreviation if necessary	Definition
Environmental Management Plan (EMP)	The EMP includes the specific measures that will be taken to control and manage the environmental impacts whilst the project is under construction that may otherwise occur for each of the environmental topics, such as noise, air quality, water resources and ecology. In addition, a description of the planned works and the general site arrangements should be included in the EMP. The Principal Contractor will be responsible for ensuring the measures specified within the EMP are implemented.
Contaminated Land Risk Assessment	The management and remediation of contaminated land that, in its current state, is causing or has the potential to cause significant harm or significant pollution of the water environment, is regulated by legislation contained within the Environmental Protection Act (1990) known as Part IIA.
Dust	The word 'dust' usually refers to particulate matter in the size range 1-75 microns in diameter. Dust can be mechanically transported either by wind or re-suspension by vehicles. It can also arise from wind erosion on material stockpiles and earth moving activities.
EMP: Outline EMP (First iteration EMP)	A management plan produced during the design stage for the preferred option.
EMP: Construction EMP (Second iteration EMP)	A management plan that is refined during the construction stage for the consented project, in advance of construction.
EMP: Handover EMP (Third iteration EMP)	A management plan that contains essential environmental information needed by the body responsible for the future maintenance and operation of the asset.
Environmental Clerk of Works	An environmental or construction professional with direct responsibility for monitoring compliance with planning consents, environmental permits, legislation and mitigation
Flood Risk Assessment (FRA)	An assessment of the likelihood of flooding in a particular area so that development needs and mitigation measures can be carefully considered.
Ground Investigation	Geotechnical investigations are performed by geotechnical engineers or engineering geologists to obtain information on the physical properties of soil and rock around a site.
ISO 14001 Environmental Management Systems (EMS)	An ISO 14001 environmental management system (or commonly referred to as an EMS) is a structured system designed to help organisations manage their environmental impacts and improve environmental performance caused by their products, services and activities.
Listed Building	A building which is considered by the Secretary of State (for Culture, Media and Sport) to be of special architectural or historic interest in accordance with the regime set out in the Town and Country Planning (Listed Buildings and Conservation Areas) Act 1990.
Local Wildlife Site (LWS)	Non-statutory sites that are given protection under the planning process.
Materials Management Plan (MMP)	The Materials Management Plan (MMP) identifies materials to be generated and clarifies how they will be reused. The Materials Management Plan must be approved by an independent Qualified Person (registered with CL:AIRE).
Mitigation	Measures intended to avoid, reduce and, where possible, remedy significant adverse environmental effects.
Natural resources Wales (NRW)	NRW is responsible for environmental protection and regulation in Wales and plays a central role in implementing the government's environmental strategy. NRW is the main body responsible for managing the regulation of water quality and resources, coastal waters (including Marine Licensing), fisheries, inland river, estuary and harbour navigations, and conservation and ecology. They are also responsible for managing the risk of flooding from main rivers, reservoirs, estuaries and the sea.

Term and abbreviation if necessary	Definition
Operation	The functioning of a project on completion of construction.
Receptor	A defined individual environmental feature that has the potential to be affected by a project.
Special Area of Conservation	A Special Area of Conservation (SAC) is defined in the European Union's Habitats Directive (92/43/EEC), also known as the Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora.
Scheduled Monument	A scheduled monument is a historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Culture, Media and Sport under the regime set out in the Ancient Monuments and Archaeological Areas Act 1979.
Site of Special Scientific Interest (SSSI)	An SSSI is a conservation designation denoting a protected area in the United Kingdom, designated due to special interest in its flora, fauna, geological or physiographical features. They are protected by law to conserve their wildlife or geology.
Site Waste Management Plan (SWMP)	SWMPs encourage the effective management of materials and ensure waste is considered at all stages of a project - from design through to completion. Although no longer a regulatory requirement in England, SWMPs are still considered to be good practice.
Soils Management Plan (SMP)	A soil management plan is an important part of ensuring soil sustainability during construction projects.
Special Protection Area (SPA)	SPAs are classified in accordance with European Council Directive 2009/147/EC on the conservation of wild birds, known as the Birds Directive. SPAs protect rare and vulnerable birds (as listed on Annex I of the Birds Directive), and regularly occurring migratory species.
Written Scheme of Investigation (WSI)	A Written Scheme of Investigation outlines known and potential archaeological features and deposits or built heritage elements on a site and suggests a structure for exploring them using the latest, most appropriate and cost-effective archaeological techniques.

## **A. Relevant Management Plans**

## A.1 Outline Site Waste Management Plan

To be updated by Principal Contractor



# **Old Colwyn Coastal Defence and Active Travel Scheme**

Outline Site Waste Management Plan

July 2020

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# Old Colwyn Coastal Defence and Active Travel Scheme

## Outline Site Waste Management Plan

July 2020

# Issue and Revision Record

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A	July	S. Stone	A. Manns	A. Manns C. Williams	First Issue

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# 1 Administration and Planning

## 1.1 Introduction

This Outline Site Waste Management Plan (OSWMP) has been prepared on behalf of Conwy County Borough Council (CCBC) (hereafter referred to as the “Client”) by Mott MacDonald Ltd in support of planning consent and a Marine Licence for the Old Colwyn Coastal Defence and Active Travel Scheme (hereafter referred to as the “Scheme”). The Scheme is located in the Old Colwyn area of Colwyn Bay, North Wales. The SWMP covers coastal defence works in the form of a new rock revetment and promenade raising, in combination with promenade improvements to facilitate active travel, along the Old Colwyn waterfront area between Porth Eirias car park and Splashpoint. The proposed development is given in Section 1.4.

This OSWMP identifies the strategic approach for the management of construction waste and has been produced using the most current available information at the time of writing.

Whilst the development of a SWMP is no longer mandatory, it is still considered best practice and Defra<sup>1</sup> encourages businesses to use SWMP’s on a voluntary basis as ‘flexible resource efficiency tools’. A SWMP may still be a requirement of a Local Authority planning condition, BREEAM<sup>2</sup> or CEEQual<sup>3</sup> specification, or of the Client or main contractor.

The SWMP aims to ensure that all construction waste is managed, stored and disposed of in an appropriate manner by approved contractors in accordance with the Waste Hierarchy and all relevant legislation. This is a live document and requires updating regularly as the Scheme progresses. Where the Scheme scope is subject to change, the SWMP will be updated to reflect any changes as necessary.

Best practice suggests that the SWMP approach should be applied from the early design stages and carried forward and revised throughout the Scheme delivery process. This ensures cost savings are maximised by considering waste minimisation initiatives and identifying opportunities to reduce, reuse or recycle waste materials and improve resource efficiency during the earliest design stage.

## 1.2 Site Location

The Scheme is located in Colwyn Bay (Bae Colwyn), North Wales along the easternmost section of the promenade at Old Colwyn, from the eastern side of Porth Eirias in the west to Splashpoint in the east. The site location is given in Figure 1.1.

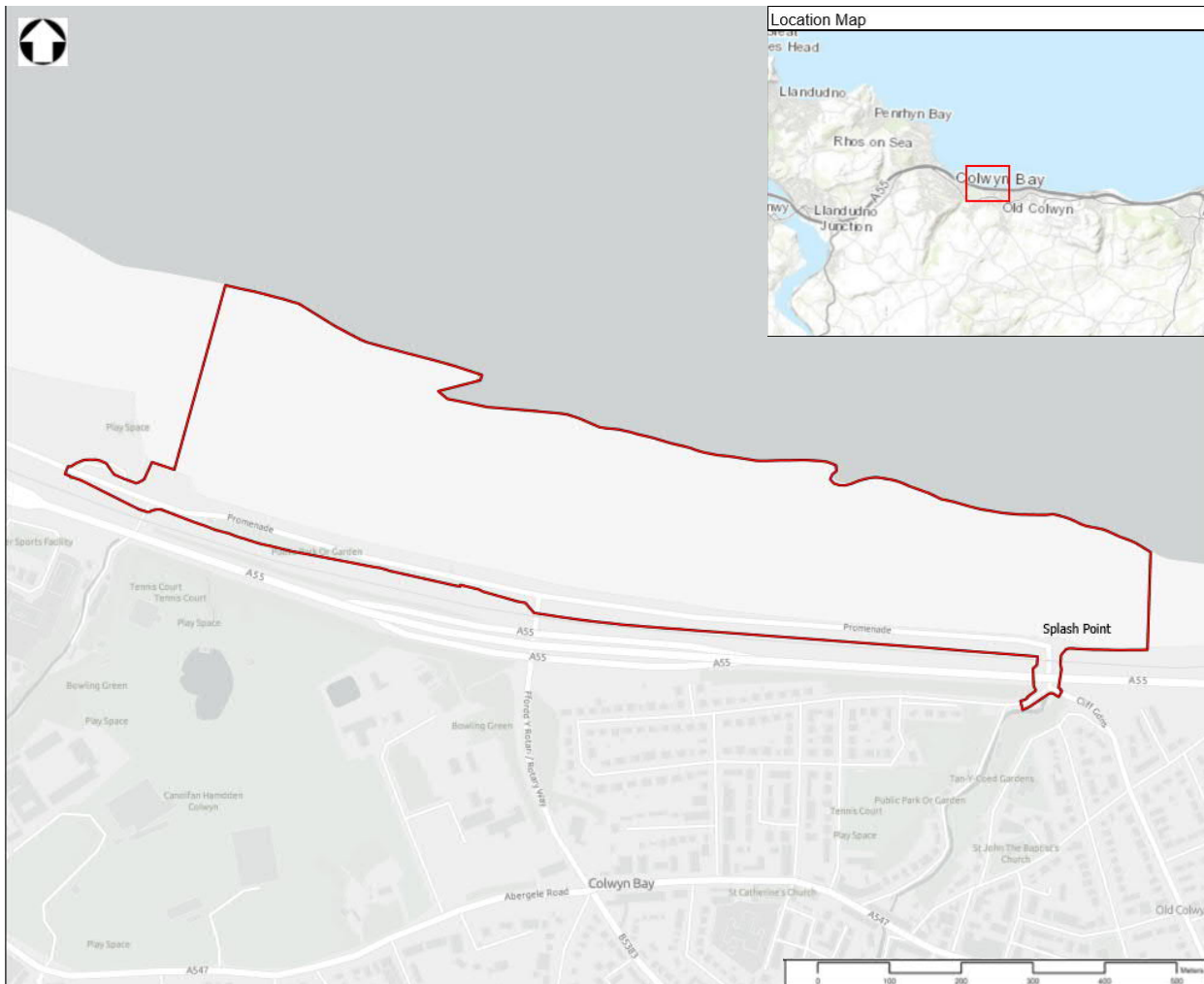
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<sup>1</sup> Department of the Environment, Food and Rural Affairs

<sup>2</sup> Building Research Establishment Environmental Assessment Method

<sup>3</sup> Civil Engineering Environmental Quality Assessment and Award Scheme

**Figure 1.1: Scheme Location**



Source: Red Line Boundary 415437-MMD-00-XX-DR-N-1707

### 1.3 Existing Site Use

The Promenade features active travel (walking and cycling) routes along the waterfront at Old Colwyn. It is currently under threat from storm damage and tidal flooding (overtopping). Regular overtopping of the existing coastal defences is causing damage to the promenade and defences themselves, sections of which are at imminent risk of failure. The defences were constructed for the majority of the coastline, in the late nineteenth century, comprising vertical seawalls, in general, composed of either masonry or concrete.

### 1.4 Scheme description

The Scheme comprises a combination of coastal defence, promenade and active travel improvements along the Old Colwyn waterfront area. The Scheme red line boundary and area of permanent construction are illustrated in Figure 1.2.

The Scheme includes the following key components:

- The construction of a rock revetment approximately 32m in cross-sectional width and 1.15km in length, with associated modifications to existing surface water outfalls on the beach to extend them through the new revetment;
- A new access build-out area to be constructed in the western half of the Scheme area which would have several functions, including providing a greater area for pedestrian access; Equality Act compliant ramp access and stepped access to the beach, along with landscaped seating steps at varying levels, to the beach access;
- New pedestrian accesses through the proposed revetment to comprise three sets of beach access steps perpendicular to the linear rock revetment;
- A dedicated fishing platform in the Splashpoint Area
- The raising of the promenade to the west of Rotary Way and the raising of the promenade and highway to the east of rotary way;
- Pedestrian and cycle path improvements, pedestrian crossings and improved promenade access;
- Improved picnic area in a landscaped garden setting and an adjacent outdoor classroom area;
- Improvements in parking provision, street furniture and lighting and provision of space for a new concession building; and
- Marine enhancements including:
  - the creation of rock pools located within the revetment;
  - “vertipools” to retain water on vertical surfaces at lower tidal states; and
  - enhanced sea wall areas and biological armouring units (bioblocks) placed within the existing groynes.
- Terrestrial ecological enhancements include:
  - the use of planting and seeding mixes within the picnic and outdoor area; and
  - planting of wildflowers along the railway embankment (currently in considered).

**Figure 1.2: Plan showing the Red Line Boundary and Area of Permanent Construction**



Source: Area of Permanent Construction 415437-MMD-00-XX-DR-N-1708

## 1.5 Scheme information

**Table 1.1: Scheme information**

<b>Client</b>	Conwy County Borough Council	
<b>Person in charge of the Scheme</b>	TBC	
<b>Author of SWMP</b>	<b>Design Stage</b>	Shannon Stone
	<b>Construction Stage</b>	TBC
	<b>Operational Stage</b>	TBC
<b>Scheme title/reference</b>	Old Colwyn Coastal Defence and Active Travel Scheme	
<b>Scheme location</b>	Old Colwyn, North Wales	
<b>Scheme cost (estimated)</b>	£35million	
<b>Scheme footprint</b>	TBC	
<b>Start date</b>	TBC	
<b>Completion date</b>	TBC	

<b>Description of Scheme scope</b>	See Scheme description in section 1.4. Works will involve improvements to the coastal defence, promenade and active travel routes
<b>Person responsible for waste management</b>	Principal contractor (TBC)
<b>Document controller</b>	TBC
<b>Version date and number</b>	Draft issue Xx/xx/xxxx [To be updated during revision of plan in the construction and operational stages and in the event of significant design changes].
<b>Location of SWMP</b>	Hard copy to be kept on site

## 1.6 Responsibilities

### 1.6.1 Client and Principal Contractor

Ideally a SWMP should be produced before any work in relation to enabling works, excavation and construction for this Scheme commences on site. It is the responsibility of the Client to produce a SWMP, but usually this is undertaken in partnership with the Scheme designers and Principal Contractor.

Copies of the SWMP will be made available, to all relevant site staff and the Client. Any updates to the SWMP shall be identified to the relevant people through toolbox talks. This process will be undertaken every time the plan is updated.

## 2 Proposals for Minimisation, Reuse and Recycling of Waste

### 2.1 General Measures

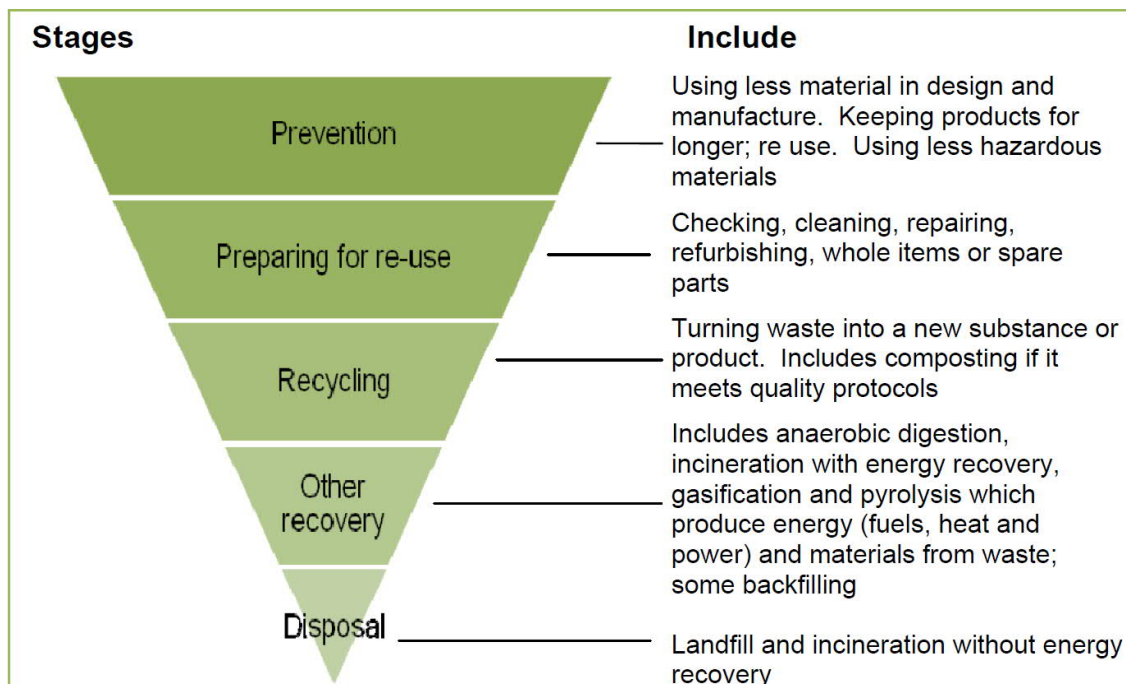
The SWMP should be used to record any early decisions, design changes, construction methods or material specifications which have helped to minimise waste arising on site.

The waste management hierarchy illustrates the waste management options according to what is best for the environment.

It gives top priority to preventing waste in the first place. When waste is created, it gives priority to preparing it for re-use, then recycling, then recovery, and last of all disposal (e.g. landfill). The higher up the waste hierarchy waste is managed, the greater the cost and resource savings will be.

The waste management hierarchy is illustrated in Figure 2.1.

**Figure 2.1: The Waste Hierarchy**



Source: Guidance on applying the Waste Hierarchy, DEFRA, June 2011  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/69403/pb13530-waste-hierarchy-guidance.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69403/pb13530-waste-hierarchy-guidance.pdf), accessed 20 July 2020

Eliminating waste at source is the best way to make dramatic savings in waste handling and processing costs and reduce the overall impact on the environment. This can be achieved through:

- Careful procurement of materials;
- Better utilisation of materials already available on site;

- Reducing the amount of waste generated where it cannot be eliminated completely; and
- Re-use and then recycle as much as possible, once it is not possible to reduce the waste any further.

Disposal of waste to landfill or incineration (without energy recovery) should be a last resort after all the above options have been considered.

Waste prevention is at the top of the waste hierarchy and this should continue to be a priority throughout the Scheme, including during construction.

The purpose of this SWMP is to facilitate the implementation of the waste management hierarchy principles as set in order of preference; the highest options will be adopted where reasonably practicable, but usually a combination of options will be appropriate.

Waste will arise mainly from removal of vegetation, site clearance, enabling works, demolition, excavation, construction and landscaping activities. The proposed scheme will require specific construction materials (such as revetment rock, concrete, asphalt and cabling etc.) to be imported to the site. A Bill of Quantities (BoQ) or similar document has been used to identify, at high-level, the potential types and quantities of waste materials produced from this Scheme.

The Principal Contractor will be required to identify appropriately permitted facilities that can accept and treat the waste materials produced, in order to divert them from landfill. Actions to be taken to facilitate resource efficiency throughout the Scheme, and therefore, minimise waste produced, are detailed in the subsequent section below.

Potentially contaminated material should be kept separate from clean materials and sent for either recycling or recovery at appropriately permitted facilities.

Unsuitable waste materials will be separated, where possible and collected in receptacles for subsequent further separation and treatment at off-site facilities.

In order to ensure the appropriate reuse of the materials the earthworks should be carried out, where necessary, under a Materials Management Plan (MMP) in accordance with industry adopted guidance "The Definition of Waste: Development Industry Code of Practice Version 2" published by Contaminated Land Applications In Real Environments (CL:AIRE) in March 2011.

## 2.2 Construction Waste

Common waste streams generated by construction sites and likely to be generated by these works include:

- Surplus construction materials as a result of over-ordering;
- Materials damaged on site or in transit;
- Hazardous materials;
- Packaging materials;
- Surplus demolition and excavation materials, from site clearance and enabling works; and
- Site compound waste from canteen, accommodation and welfare areas.

### 2.2.1 Demolition Materials

Material arising from the demolition shall be carefully stored in segregated piles for reuse on site if possible. If any material deemed acceptable is produced from the enabling works e.g. good quality topsoil, this should be stored and re-laid within the Scheme, or if this is not possible

should be sent for reuse elsewhere or alternatively for further treatment or processing at an appropriately permitted facility off-site.

### 2.2.2 Excavated Soils

Any excavated materials will be carefully stored in segregated piles for subsequent reuse on the site, wherever possible. These excavated materials could be reused as deposition material for infilling or landscaping.

Any surplus materials should be removed from site for either direct beneficial use elsewhere (such as land remediation projects) or recovery at an off-site facility. Surplus excavated materials including soils, gravels, clay and man-made fill can potentially generate significant implications on disposal costs, if it cannot be reused on site.

Excavated pavement material can be stripped, stored and later re-laid, or sent for recovery off-site.

### 2.2.3 Vegetation

Any vegetation removed should be chipped and used for landscaping or sent for composting if reuse is not possible.

### 2.2.4 Packaging

Any packaging waste should be source segregated for recycling or returned to suppliers. If feasible, pre-fabricated material should be used and imported to site. In certain circumstances this will reduce the amount of packaging required and waste produced.

### 2.2.5 Hazardous Waste

Hazardous wastes, including any contaminated soil arisings classed as hazardous, will be identified, kept separate from inert or non-hazardous construction waste materials, tested and disposed of in accordance with the Hazardous Waste Regulations 2005, as amended. Should hazardous waste and other contaminants be encountered, it will be managed and handled appropriately, kept separate and removed off site in accordance with legislation and disposed of or treated at an appropriately permitted site by a licensed contractor in accordance with all appropriate regulation.

### 2.2.6 Unacceptable Materials

Other unusable construction waste materials will be collected in receptacles with mixed construction waste materials, for subsequent separation and recycling at an off-site facility.

### 2.2.7 Imported Materials

Surplus or waste materials arise from either the materials imported to the site or those generated on site. Imported materials are those which are brought on to the Scheme for inclusion into the permanent works. Where possible consideration should be made for the reuse of materials back into the Scheme, however, the proposed scheme will require specific materials to be imported to the site.

Any waste produced through the importation of materials needs to be monitored and included in the SWMP under construction works. Where possible consider the use of materials with a higher recycled content such as concrete e.g. for the base of any areas requiring concreting.

Materials should be ordered so that the timing of the delivery, the quantity delivered, and the storage is not conducive to the creation of unnecessary waste. Additional waste from imported material is likely to come from packaging materials and spillages, but these are difficult to quantify at this time.

## 2.3 Resource Efficiency

Table 2.1 highlights some of the various resource efficiency measures that can be used to minimise waste during the site works, for a typical project of this type. The table shows the responsibilities apportioned to designated personnel to ensure the measures are undertaken. It demonstrates the decisions and actions involved in facilitating a reduction in the amount of waste and surplus materials being produced. This is intended to assist in minimising the amount of material which would traditionally be sent to landfill and to help provide a cradle-to-cradle approach.

**Table 2.1: Resource Efficiency Measures for the Scheme**

Planning Waste Minimisation during Construction	Waste Minimisation Decisions Taken	Resource Saving	Responsibility <sup>4</sup>	Date Action Commenced
Design	Enabling the purchase of materials in shape/dimension and form that minimises the creation of off-cuts/waste. Ensure design considerations take into account the five principles for Resource Efficient design: <ul style="list-style-type: none"> <li>• Design for Reuse and Recovery</li> <li>• Design for off-site Construction</li> <li>• Design for Materials Optimisation</li> <li>• Design for Resource Efficient Procurement</li> <li>• Design for Deconstruction and Flexibility (for the future)</li> </ul>	Minimal waste produced	Project manager	From the design outset
Construction methods	Sequencing the works such that re-use of materials can be undertaken.	Minimal waste produced	Project manager/principal contractor	During design and planning stages and implemented during the construction.
Materials	Assess the quantities of materials required on site.	Prevents lost time in re-ordering of damaged	Project manager/principal contractor	During construction planning and

<sup>4</sup> It is the responsibility of the client to appoint a principal contractor for the purposes of the SWMP Regulations if one or more contractors are working on this project. If the project does not use a contractor, responsibility for updating the plan remains with the client.

Planning Waste Minimisation during Construction	Waste Minimisation Decisions Taken	Resource Saving	Responsibility <sup>4</sup>	Date Action Commenced
	Just in time delivery (as needed basis) to prevent over supply.	equipment, reduces need for storage if over ordering occurs.	Project manager	throughout the project construction.
	Secure storage to minimise the generation of damaged materials/theft.			During design and throughout the procurement/ construction stages of the project.
	Keeping deliveries packaged until they are ready to be used.			
	Inspection of deliveries on arrival.			
	Increase the use of recycled content; this could include traditional use of recovered material such as crushed concrete demolition waste and by procuring mainstream manufactured products with higher recycled content than their peers. Quick win areas of the Scheme in which to implement this for could be concrete frames, flooring and brick/block work.	An increase in the demand for such products would reduce the quantity of waste going to landfill. Use of recycled material results in a reduction in demand for extraction of virgin materials and subsequently the carbon and environmental footprint.		

It is anticipated that the contractor(s) will endeavour to reuse or recycle materials on the Scheme where possible.

A Design for Resource Efficiency (D4RE) workshop was held in 4 March 2020 with the design team. The aim of the workshop was to identify opportunities to improve resource efficiency during the design of the Scheme. This would ensure cost savings are maximised by identifying opportunities to reduce, reuse or recycle waste materials, identify material optimisation, improve resource efficiency and ensure the Scheme is designed for deconstruction and flexibility.

Actions to be taken to facilitate resource efficiency throughout the Scheme, and therefore minimise waste produced, are detailed in Table 2.2 which identifies recommended minimisation measures for this Scheme. The measures shown with an asterisk (\*) are opportunities identified for the Scheme through the D4RE workshop and recorded in the Opportunities Matrix<sup>5</sup>.

**Table 2.2: Summary of Recommended Minimisation Measures**

Summary of Recommended Minimisation Measures	
Use of prefabricated or pre-cast elements	It is recommended that as much of the construction as possible will be carried out off site, with pre-fabricated units being delivered to site when required. Some elements of the design can be pre-fabricated off-site to minimise on-site waste arisings and associated vehicle movements.

<sup>5</sup> The Design for Resource Efficiency Record (document reference 417437-MMD-00-XX-RP-N-1723) provides the details of identified opportunities from the D4RE workshop within an Opportunities Matrix..

### Summary of Recommended Minimisation Measures

	<p>These pre-fabricated units will generate less on-site waste through off-cuts and storage damage. Units should be sourced from a supplier that recycles off-cuts and materials at the pre-fabrication site otherwise this measure simply shifts the waste problem from one location to another.</p>
Excavation	<p>Surplus excavated materials including beach material, soils, gravels and man-made fill can potentially generate the largest quantities of all the construction waste streams with significant potential implications on disposal costs if these cannot be reused on site.</p> <p>*Excavating activities confined to the minimum areas required for the works to minimise the quantity of contaminated material removed It is recommended that excavated material (other than beach material), if possible, will be stored for reuse as landscaping material or reinstatement.</p>
Stockpiling	<p>*Temporary stockpiling of fill materials prior to incorporation in the Scheme would be avoided where possible, to ensure double handling and damage is minimised and therefore avoidance of waste.</p>
Material reuse	<p><b>Concrete:</b> Concrete will be taken up and should be source segregated, for recycling either as fill/capping on site and/or removed to an off-site facility.</p> <p>*Ensure the revetment slopes are as steep as feasible to minimise the volume of material required.</p> <p><b>Tarmac:</b> Tarmac will be taken up and, if possible, should be reused on site for either tarmac hardstanding, capping or for sub-base.</p> <p>*Target remediation of voids rather than the whole extent of the highway to limit material use.</p> <p><b>Landscaping features:</b> If any landscaping features such as trees and shrubs are to be removed to facilitate either the demolition or construction of the works, these features should be appropriately removed and stored for the duration of the works and then replanted. If this is not possible, then they should be chipped for reuse onsite in landscaping or removed off-site for further management.</p>
Minimisation of contaminated land arisings	<p>Where possible contaminated material should be clearly identified and delineated prior to the works commencing to reduce the likelihood of non-contaminated material being excavated. This material could be remediated and reused on site, or, if found to pose no risk to receptors (e.g. groundwater and human health) should be left undisturbed. The latter can minimise potential transport and disposal costs. This approach should be standard practice among designers and contractors.</p>
Contractor targets	<p>The Principal Contractor should consider setting off-cut/surplus targets for sub-contractors with a positive incentive scheme for on-site waste champions.</p> <p>Good practice suggests that a maximum 3% wastage rate, based on the total amount of construction material handled on site is achievable.</p>
Avoiding over-purchasing and accurate delivery times	<p>Over-purchasing can lead to significant wastage and should be avoided in the first place. Ensuring materials are ordered for delivery shortly before they are used on the Scheme would also avoid possible damage and therefore wastage.</p>
Use of take back schemes	<p>Some suppliers offer a take back scheme, which should be utilised where practicable, particularly for packaging and pallets.</p> <p>*Collaborating with nearby projects to provide and use surplus material, where suitable.</p>
Monitoring and review	<p>The Principal Contractor should use the waste data provided from the waste removed from the Scheme and the periodic review process (required as part of the SWMP) to their advantage to assess whether the waste objectives are being met, and if not to review procedures to steer the Scheme towards achieving them. This will require clear responsibilities to be identified, supported with authority and incentives to act on any deviations from the SWMP.</p>
Education and awareness	<p>Waste minimisation must be underpinned by education and awareness throughout all levels of the project team, from the design team to site contractors who handle the construction materials. This could be via site inductions and frequent toolbox talks (included as part of Health and Safety updates, etc.) which all contractors and site workers will be expected to attend.</p>

### Summary of Recommended Minimisation Measures

Consideration of End of Life materials	Consideration should be given to what will happen to the materials specified when they reach the end of their useful life. Where possible, elements should be designed for repair, modular repair, recycling at the end of life or safe disposal. The use of hazardous materials during construction, in particular, should be minimised.
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\* Identified opportunities from the D4RE workshop for minimisation of waste materials for the Scheme

Table 2.3 below identifies some additional measures that should be considered and implemented, where appropriate, to ensure that the Scheme is as resource efficient and cost effective as possible. The measures shown with an asterisk (\*) are opportunities identified for the Scheme through the D4RE workshop and recorded in the Opportunities Matrix. Table 2.3 is not an exhaustive list and does not suggest that all measures should be implemented but aims to provide a list of possible opportunities undertaken on similar projects.

**Table 2.3: Additional Considerations for Reuse and Recycling of Waste Materials for a Project of this Type**

Opportunity	Description
Landscaping	Use site excavated material within landscaping design as: <ul style="list-style-type: none"> <li>● drainage base; and</li> <li>● mound features</li> </ul>
	Reuse or recycle tarmac and asphalt (provided there is onsite storage) for paths, construction storage space and hard standing for plant etc.
	Retain top soil, treat on site with compost (or other remediation) and use for green roofs, soft landscaping etc.
	Manufacture top soil using surplus excavated soil blended with compost
	Reuse bricks, concrete paving blocks and excavated rocks for landscaping finishes features etc.
	Chipping green waste on-site for use in the landscaping for the Scheme
	Use existing soft landscape that cannot be retained (trees, shrubs) as: <ul style="list-style-type: none"> <li>● Compost;</li> <li>● Soft landscape top mulch;</li> <li>● External furniture; and</li> <li>● Large features e.g. trees stumps for benches</li> </ul>
Concrete	Reuse existing landscape items by repairing rather than throwing away (e.g. existing fencing, benches etc.)
	Recycle aggregates (either on site or offsite) in concrete mix as fill etc.
	Use post tensioned floor slabs instead of reinforced slab
Packaging	Use reusable/modular shuttering for slab cores etc; e.g. PER system with integral handrails
	Reuse packaging by returning to supplier/manufacturer or using it for other purposes e.g. timber packaging pallets can be chipped and used for landscaping top mulch
Foundations	Reuse existing foundations
Existing structures	*Reuse of structural features at the site where appropriate (but not limited to): <ul style="list-style-type: none"> <li>● Lighting</li> <li>● Parking meters</li> <li>● Ramp</li> <li>● Benches</li> <li>● Wave return wall</li> </ul>
Volumetric	Use pre-fabricated solutions for, where appropriate (but not limited to): <ul style="list-style-type: none"> <li>● Benches</li> </ul>

Opportunity	Description
	<ul style="list-style-type: none"> <li>● Litter bins</li> <li>● Picnic tables</li> <li>● Fishing platform</li> </ul>
Precast concrete	<p>Use precast concrete solutions for (but not limited to):</p> <ul style="list-style-type: none"> <li>● Stairs;</li> <li>● Retaining walls and other armour materials</li> <li>● Ramps</li> </ul>
Steel construction	<p>Use steel frame design</p> <p>Use prefabricated steel stairs</p> <p>Use bi-steel for lift cores and core units</p> <p>Use H -pile foundation to enable future reuse</p> <p>*Use recycled steel for rebar</p>
Services	<p>Rigorously plan M&amp;E plant and distribution routes to reduce access requirements and facilitate future maintenance</p> <p>Rigorously plan M&amp;E layout and distribution routes to reduce building works by consolidating risers, ducts etc.</p> <p>Enable consolidation of trades to reduce M&amp;E penetrations in already finished surfaces</p> <p>Design service ducts to be shared for all services, with convenient access points</p> <p>Avoid or reduce the extent of surface water attenuation systems and pipework by reducing run-off collection areas and consider other methods:</p> <ul style="list-style-type: none"> <li>● Reduce surface areas for vehicles by use of cellular grass paving;</li> <li>● Greater use of soakaways</li> </ul>
Detail Design	<p>Review the necessity for all finishes (e.g. assess if fair faced structure and other elements suffice)</p> <p>Optimise RC promenade slabs layout any size to reduce cutting and offcuts</p>
Avoidance of excavation	<p>Use driven pile foundations rather than replacement piles</p> <p>Optimise structure position and levels to minimise excavation required (e.g. *keep existing asphalt in place when raising up the road and promenade levels)</p> <p>Construct new reinforced concrete (RC) seawalls on top of the existing</p>
Standardisation and dimensional co-ordination	<p>Use 3D modelling to avoid clashes/conflicts of services/structure etc. and thus reduce construction errors and consequent rework</p> <p>Co-ordinate structure and services so that service ducts are incorporated without the need to chase out, minimising waste production. Order services based on BIM / structure model to deliver just enough cable / ducting length and minimise generation of off-cuts.</p>
Supply chain	<p>Employ waste specialist consultant/contractor with expert knowledge in waste minimisation</p> <p>Discuss methods of waste minimisation with supplier/manufacturers of wall lining systems</p> <p>Discuss methods of waste minimisation with design team, potential subcontractors and suppliers at an early stage</p> <p>Discuss options for packaging reduction with subcontractors and suppliers</p>
Specification	<p>Specify responsibly sourced materials that reduce waste or materials with high recycled content</p> <p>Specify adequate protection to fragile materials to minimise damage on site</p>
Contract/contractor	<p>Involve the contractor from early design and decision stages to identify methods of waste minimisation in relation to procurement routes</p>

Opportunity	Description
	Consider financial incentives and penalties to reduce waste
	Required the contractor to produce an SWMP at an early stage that includes a site storage and logistics plan
	Require all tendering contractors to provide information on how they plan to reduce waste through the supply chain and site activities
	Require Just-in-Time (JiT) deliveries
	Use consolidation centre to facilitate JiT delivery
	Select procurement route that minimises packaging
	Use ordering procedures that avoid waste (e.g. no over ordering take back schemes for both material surplus and offcuts)
	Plan the work sequence to reduce on site waste
	Include within the tender documents, the requirement to sign off 'the waste per work package' – waste must not exceed a contractual agreed limit
Materials	Use lime mortar or other mortars so that bricks and blocks can easily be dismantled
	*Reuse existing armour stone in the coastal defence where satisfying the specification
	Reuse suitable excavated material
	Recycle existing blacktop for use within the Scheme (cold recycling if coal tar is present)
	*Use recycled cement replacement
	Use mechanical fixings that facilitate deconstruction
	Avoid gluing and composite materials
	Specify materials that can be reused rather than recycled
	Use landscaping materials that can be easily taken up and reused (e.g. cellular grass paving)
	Use structural elements that can easily disassembled (e.g. *bolted and clamped handrails for ease of replacement in the future)
	*Use by-product of quarry/armour stone extraction as underlayers, fill, aggregate or roadstone
Logistics	Design deconstruction at an early stage
	Consider compaction of certain wastes to reduce haulage requirements

\* Identified opportunities from the D4RE workshop for reuse and recycling of waste materials for the Scheme

Note: The table can be updated with actual design considerations in terms of minimising resource use and waste produced.

## 2.4 Waste Minimisation Statement

The purpose of the SWMP is to facilitate the implementation of the waste hierarchy principles and to minimise the production of waste from the outset of the Scheme. Such measures are to be incorporated into the design and implemented in the construction stage of the Scheme. This is in addition to ensuring correct waste disposal procedures in accordance with the waste duty of care provisions as set out under section 34 of the Environmental Protection Act (1990). Where waste cannot be reused or recycled, it should be disposed of in accordance with the Landfill Directive (1999/31/EC) and waste acceptance requirements.

## 2.5 Initial Review of Anticipated Waste Arisings

Table 2.4 illustrates an initial qualitative assessment of the potential and expected waste arisings for a Scheme of this type. The aim of this assessment is to identify the waste streams

anticipated to be encountered during the Scheme and consider the possible management options for these materials (which would include identification of suitable local waste management or disposal sites that can accept the waste). This initial assessment considers the reuse and recycling potential of each waste stream anticipated and identifies some indicative benchmark recycling targets which could be used to steer the detailed SWMP as the Scheme develops.

**Table 2.4: Initial Review of Anticipated Waste Arisings**

Activity	Anticipated Waste Stream	Anticipated Volume	Recovery Potential	Overall Priority for Recovery	Indicative Recovery Target	Management Options
Site clearance	Vegetation	Low	High	Medium	100%	<p>Vegetation including trees, shrubs, and plants etc removed during site clearance works should be collected in skips or stockpiled on site to await removal. Where possible some vegetation could be chipped and reused back within the scheme as landscaping. If it cannot be reused in the Scheme it will need to be sent off-site for processing.</p> <p>A local merchant facility would be the most practicable treatment solution. All waste must be pre-treated before it is sent for final disposal, whether this is segregation on site or off-site at a transfer facility</p>
Demolition works	Concrete, brick and block, tiles, plastics, steel, asbestos, timber, asphalt, tar products, lampposts, street furniture, shelters, key clamp railings, storm gates etc	High	Medium	High	70%	<p>Concrete can be readily separated easily recycled with good quality assurance. Concrete can be segregated from other inert material and sent for screening and certification. Concrete may be crushed on site using mobile crusher.</p> <p>Metals will be segregated and sent for off site recycling.</p> <p>Demolition waste that cannot be reused on site will be removed by licensed contractors and recovered at appropriately permitted waste facilities.</p>
Earthworks	Topsoil	Low	High	High	90% - 100%	Topsoil has excellent potential for reuse opportunities in landscaping around the development. A Soil Management Plan should be developed in order to facilitate the re-use.
	Beach material	Medium	High	Low	Not applicable	Locking the sediment within the Scheme would create a deficit of marine sand to the environment and interrupt sediment downdrift to the east. Beach material will be relocated along the coastline and not reused in the Scheme.
	Excavated natural ground	Medium	High	High	100%	Opportunities for the reuse of material as infill or as a base for any access routes should be explored. If the

Activity	Anticipated Waste Stream	Anticipated Volume	Recovery Potential	Overall Priority for Recovery	Indicative Recovery Target	Management Options
						material is low grade subsoil, there is potential to reuse this as a landscaping or infill material prior to the laying of topsoil.
	Excavated man-made ground	Medium	High	High	70%	Due to the properties of man-made fill, opportunities to reuse the material compared to natural or topsoil are more limited. However, reuse where possible within the Scheme or send off site for recycling.
	Contaminated soil	Low/negligible	Low	Low	10%	All soil extracted (whether contaminated or not) will need to be stockpiled at the site and subject to laboratory analysis prior to reuse or removal to an off-site waste facility (following EU Waste Acceptance Criteria (WAC) testing if required) to identify whether the material can be reused as fill material or will require landfilling at an appropriately permitted site.  Contaminated soils may be considered for reuse if it is in accordance with the CL:AIRE <sup>6</sup> CoP v2 and a risk assessment has been undertaken to ensure there is no environmental risk if it is reused and its reuse fits with the justification in the CL:AIRE CoP v2.
Construction	Concrete, bricks and mortar, slates	Low	High	High	100%	This could potentially create waste through damage to bricks and blocks and spillages of cement and mortar. Any arisings should be contained in an appropriate skip to be sent for off-site reprocessing.
	Cables	Low	Low	Low	80%	Cables are likely to be used in the wiring of the electrical components, such as lampposts and parking meters. Off-cuts of cable will therefore be required to be disposed of. Avenues of recycling of cable are limited, even though the copper can be recovered. Any arisings should be contained in an appropriate skip to be sent for off-site reprocessing or disposal.
	Bitumen road surface	Low	High	High	80%	Through careful ordering of material, it is likely that there will be very little (if any) waste generated from road surfacing activities. Any excess road-surfacing material

<sup>6</sup> CL:AIRE Contaminated Land: Applications in Real Environments

Activity	Anticipated Waste Stream	Anticipated Volume	Recovery Potential	Overall Priority for Recovery	Indicative Recovery Target	Management Options
						can be reworked into a reusable form to enable use on future highway construction projects.
	Concrete drainage pipes, kerbs and walls	Low	High	High	100%	Small quantities may arise, although pre-casting of the components prior to arrival on the site would reduce wastage in the first place. Any arisings should be placed in the skips and sent to a local recycling facility for crushing down and subsequent reuse on other projects.
	Liquid waste	Low	Low	Low	0%	Disposal of liquids from temporary welfare facilities should be undertaken by a licensed contractor. Disposal of liquid wastes down surface water drains may cause water pollution, which if it occurs is a strict liability offence and can lead to expensive clean-up costs and enforcement action being undertaken. Only clean, uncontaminated surface water is discharged to surface water drains. Permission to discharge to foul sewer, if required, should be obtained from the relevant sewerage undertaker. All contaminated liquids should be stored in appropriately designed containers, with secondary containment systems in place and sent for disposal or treatment.
	Hazardous waste (paints, resins, oils etc.)	Low	Medium	Medium	50%	These waste streams should be segregated from other (non-hazardous) waste streams and stored in appropriately designed and secure bunded storage areas/cupboards for subsequent identification and removal for treatment offsite at a hazardous waste facility.
General site waste	Packaging waste (plastics, wood, film, metal and cardboard)	Low	Low	Medium	50%	This waste will predominantly consist of plastic sheeting, shrink-wrap, wooden pallets, metal strips (binding). Each waste stream should be segregated into colour-coded skips and removed off-site to an appropriate waste facility for recycling. Opportunities should be explored for supplier packaging take back schemes.

Activity	Anticipated Waste Stream	Anticipated Volume	Recovery Potential	Overall Priority for Recovery	Indicative Recovery Target	Management Options
	Canteen waste (comprising of food waste but also mixed waste)	Low	Medium	Medium	50-75%	<p>This waste stream would likely comprise food waste and non-recyclable materials. Consideration should be given for providing separate bins for the collection of food waste, recyclables and non-recyclable (residual) materials.</p> <p>Food waste can be sent to an in-vessel composting (IVC) facility or an Anaerobic Digestion (AD) facility, whilst non-recyclable (residual) waste can be sent to an Energy-from-Waste (EfW) facility or a landfill.</p>
	Welfare facilities waste (sewage sludge)	Medium	Low	Low	0%	<p>Limited options to recover waste arising from on-site welfare facilities. Sewage sludge from the toilet facilities will be pumped out and sent to an appropriately permitted treatment plant. Other wastes such as paper towels etc. would be sent to an EfW facility or a landfill.</p>
	Site office waste (paper, cardboard, plastics and non-recyclable)	Low	Medium	Medium	75%	<p>Likely to comprise paper, cardboard, metal cans, plastic bottles and some non-recyclable material such as tissues. All recyclable materials should be sent to recycling facilities; all non-recyclable materials should be sent to an EfW facility or a landfill. Offices should be equipped with bins to segregate each waste stream for collection and future recycling off-site.</p>

## 3 Waste Management

### 3.1 Segregation

A specific area shall be laid out and labelled to facilitate the separation of materials for potential reuse, recycling, and offtake/return. Recycling and waste bins are to be kept clean and clearly marked to avoid contamination of materials. Skips for segregation of waste currently identified are:

- Inert (e.g. concrete and rubble);
- Hazardous (e.g. contaminated land, Japanese Knotweed if identified);
- Mixed non-hazardous (non-biodegradable waste);
- Mixed non-hazardous (biodegradable waste);
- Metal (e.g. copper and iron, mixed ferrous and non-ferrous);
- Wood (e.g. fencing/hoarding, worktops, doors, frames etc);
- Waste Electronic and Electrical Equipment (WEEE) - to be handled in conjunction with measures outlined within the Waste Electronic and Electrical Equipment Regulations 2006 (as amended);
- Canteen/office/welfare waste; and
- Recyclables.

The Scheme will accord with the Waste (England and Wales) Regulations 2011, as amended which make the following provisions which came into force on 1 January 2015:

- Businesses to present metal, plastic, glass, paper and card for separate collection;
- Waste contractors to provide collection and treatment services which deliver high quality recycling; and
- A ban on any metal, plastic, glass, paper, card and food collected separately for recycling from going to incineration or landfill.

It is essential that the excavation and construction work is carried out closely with the waste management contractors, in order to determine the best techniques for managing waste and ensure a high level of recovery of materials for reuse or recycling.

Successful recycling and reuse rely upon early planning, identification of clear responsibility and provision of space within a compound for segregation and storage.

Discussions are required between the Client and Principal Contractor to identify space requirements within the compounds to accommodate skips and storage of reusable materials.

Waste management options will be supported by the identification of appropriately permitted waste treatment and recycling facilities in close proximity to the sites.

#### 3.1.1 Colour Coding

The use of different coloured skips (or sufficiently clear labelling) to ensure that construction workers can understand where to put each type of waste will aid to reduce the level of contamination in the skips. This also increases the likelihood that a load will not be rejected once the waste stream has been sent off-site for reprocessing. In cases where the load is rejected, the likely destination will be landfill (which will increase the costs to the Scheme).

### 3.2 Reuse of Construction Materials

Excavation and site clearance activities generate a significant quantity of potential waste arisings. The classification of waste material from the site would be undertaken in accordance with Annex II of the EU Directive on the landfill of waste (1999/31/EC) (the Landfill Directive). Uncontaminated material, where identified, will be reused where possible within the proposed works for site levelling and fill.

If applicable, surplus inert excavated materials with some engineering strength (e.g. stone, bricks, clay, rubble, rock) could be suitable for beneficial use in land reclamation projects, if these were proceeding locally at the same time as the proposed scheme. This may require compliance with the criteria and thresholds of certain exemptions (e.g. U1 or U11 may be applicable) or permits under the Environmental Permitting Regulations 2016. The CL:AIRE Development Industry Definition of Waste Code of Practice (DoWCoP) may also be applicable for the reuse of this material. Any chosen option would need to meet current legislative requirements. The material could be reused in other schemes in the surrounding area, if one were proceeding at the same time, to avoid disposal at landfill and its associated impacts and costs but will need to meet current legislative requirements.

### 3.3 Waste Disposal Characterisation

Under Article 4 of the Landfill Directive, waste is classified as either inert, non-hazardous, or hazardous. Hazardous waste cannot be re-used on site under an exemption and may require additional treatment prior to disposal. The exception is contaminated soil re-used in accordance with an approved Materials Management Plan produced under the CL:AIRE DoWCoP.

Furthermore, there is a statutory requirement under the Article 6 (a) of the Landfill Directive (1999/31/EC as amended) to pre-treat any waste (including hazardous waste) prior to disposal off-site. Pre-treatment may reduce the cost of disposal by rendering the waste non-hazardous. Responsibility for the basic classification of waste rests with the Producer and Landfill Operator.

### 3.4 Estimating and Planning for the Reduction and Reuse of Waste

The following section details expected waste arisings from the proposed development. Table 3.1 and Table 3.2 detail those types of waste expected to arise from enabling, demolition and construction works and segregate the approximate amounts of waste into different waste streams. The overall aim is to prevent cross-contamination of waste types and to maximise reuse and recycling opportunities.

Material quantities, where provided, are intended to provide an approximate guide for efficient waste management best practice; the contractor should independently verify the quantities of waste materials likely to be produced during the works. Waste quantities specified within the SWMP are also subject to programme and design change.

It should be noted that at this stage, limited information is held regarding the Scheme and the likely construction activities. The quantities of waste material from demolition, excavation and construction activities will be determined at a later date by the demolition and/or main contractor. The information in this SWMP is based on information from other documents, publicly available data and professional judgement relating to predicted construction and operational effects.

**Table 3.1: Estimation of Waste, Enabling and Demolition Works (including excavation)**

Type	Materials	Forecast Estimated Quantities (m <sup>3</sup> )	On-site Reuse/recycling (%)	Recovery (%)	Disposal (%)
Inert	Concrete	TBC	TBC	TBC	TBC
	Timber	TBC	TBC	TBC	TBC
	Rubble	TBC	TBC	TBC	TBC
	Topsoil/Subsoils	TBC	TBC	TBC	TBC
	Sand and gravel (made ground)	TBC	TBC	TBC	TBC
	Boulder clay	TBC	TBC	TBC	TBC
Non-hazardous	Soils (moderate contamination-suitable for reuse onsite)	TBC	TBC	TBC	TBC
	Bricks and blocks	TBC	TBC	TBC	TBC
	Mixed waste	TBC	TBC	TBC	TBC
	Metal	TBC	TBC	TBC	TBC
	Timber	TBC	TBC	TBC	TBC
	Packaging	TBC	TBC	TBC	TBC
	Cable & wiring	TBC	TBC	TBC	TBC
	Glass	TBC	TBC	TBC	TBC
	Green waste/vegetation	TBC	TBC	TBC	TBC
	Other	TBC	TBC	TBC	TBC
Hazardous	Asbestos	TBC	TBC	TBC	TBC
	Contaminated soils- unsuitable for reuse	TBC	TBC	TBC	TBC
	Other	TBC	TBC	TBC	TBC

Note: Table to be completed following detailed design stage and prior to construction commencement. This table should be duplicated for updating during construction and upon completion to record and compare the actuals vs forecasted quantities.

**Table 3.2: Estimation of Waste, Construction Works**

Type	Materials	Forecast Estimated Quantities (tonnes/m <sup>3</sup> )	On-site Reuse/recycling (%)	Recovery (%)	Disposal (%)
Inert	Concrete	TBC	TBC	TBC	TBC
	Timber	TBC	TBC	TBC	TBC
	Rubble	TBC	TBC	TBC	TBC
	Topsoil/Subsoils	TBC	TBC	TBC	TBC
Non-hazardous	Soils (moderate contamination-suitable for reuse onsite)	TBC	TBC	TBC	TBC
	Bricks and blocks	TBC	TBC	TBC	TBC
	Mixed waste	TBC	TBC	TBC	TBC
	Metal	TBC	TBC	TBC	TBC
	Timber	TBC	TBC	TBC	TBC
	Packaging	TBC	TBC	TBC	TBC
	Cable & wiring	TBC	TBC	TBC	TBC
	Glass	TBC	TBC	TBC	TBC
	Green waste/vegetation	TBC	TBC	TBC	TBC
	Other	TBC	TBC	TBC	TBC
Hazardous	Toxic chemicals e.g. paint tins, line markers, mastic	TBC	TBC	TBC	TBC
	Contaminated soils- unsuitable for reuse	TBC	TBC	TBC	TBC
	Other	TBC	TBC	TBC	TBC

Note: Table to be completed following detailed design stage and prior to construction commencement. This table should be duplicated for updating during construction and upon completion to record and compare the actuals vs forecasted quantities

### 3.5 Treatment and Disposal Options

The appointed waste contractor for the site should contact the relevant treatment/transfer facilities or Environment Agency directly to determine the most appropriate waste management facility to handle the waste material being produced. Waste could either be collected from the site or transferred to a treatment or transfer facility by a registered waste carrier. Some waste would be sent for final disposal at an appropriate landfill site.

Article 4 of Landfill Directive 1999/31/EC on the landfill of waste, requires landfills to be classified into one of three categories dependent on the chemical composition of the material; these are hazardous, non-hazardous and inert. EU Waste Acceptance Criteria (WAC) are in place to control the nature of hazardous waste that can be sent to landfill. For hazardous wastes there are numerical limit values covering substances in granular wastes, monolithic wastes, and stable non-reactive hazardous wastes (SNRHW). The limit values are set out in Annex II of the Council Decision of 19th December 2002 establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II to Directive 1999/31/EC.

Certain waste streams must be analysed prior to disposal to confirm whether they are inert, hazardous or non-hazardous. Then the material may require Waste Acceptance Criteria (WAC) testing prior to disposal. WAC testing is not required for all types of waste and therefore an appropriately qualified person should develop a testing regime as required prior to waste disposal, to prevent abortive work.

For excavated materials that are confirmed to be suitable for re-use within the proposed development without causing harm to human health or the environment, there are a number of reuse and recycling opportunities such as infill, bunding and landscaping or for construction or maintenance of roads, pavements, footings for gates, fences and poles.

If reuse or recycling on site is not possible due to high levels of contamination, soil treatment facilities are available around England that could be used to treat the soil. Due to the limited volume of contamination anticipated this information has not been included in this SWMP, but is available upon request should it be necessary.

Table 3.3 highlights a number of waste transfer stations, treatment facilities and other sites within 10 km of the Scheme (postcode LL29 8AR).

**Table 3.3: Waste Sites – Waste Transfer Stations and Other sites**

Site name	Operator	Post Code	Category*	Distance (km)**
Llanddulas Quarry Waste Treatment Centre	Hogan Waste Limited	LL22 8HP	A11: Household, Commercial & Industrial Waste Transfer Stn	3.2
Bron Y Nant Road Waste Transfer and Materials Reclamation Facility	Conwy County Borough Council	LL28 4YL	A11: Household, Commercial & Industrial Waste Transfer Stn	4.0
Worldcare Recycling	Worldcare Recycling Limited	LL31 9PN	A16: Physical Treatment Facility	8.0

Source: Natural Resources Wales, Public Registers<sup>7</sup>, Google Maps<sup>8</sup>

<sup>7</sup> Natural Resources Wales (2020) *Find details of permitted waste sites* [online] Available at <https://naturalresourceswales.gov.uk/evidence-and-data/maps/find-details-of-permitted-waste-sites/?lang=en> Accessed July 2020

<sup>8</sup> Google (2020) *Google Maps* [online] Available at <https://www.google.co.uk/maps> Accessed July 2020,

Note: \* These categories are based upon Natural Resource Wales definitions.

\*\* Distance for waste facilities and landfills is a road distance measured from postcode LL29 8AR to the postcode given for the identified facility.

Table 3.4 includes operational disposal facilities within Conwy region.

**Table 3.4: Waste Disposal Sites**

Site name	Operator	Post Code	Category*	Distance (km)**
Llanddulas Landfill	FCC Environment	LL22 8HP	Non-hazardous landfill	5.1
Ty Mawr Farm Landfill	Wyn Griffiths and Sons	LL22 8AA	Inert Landfill	11.6

Source: Natural Resources Wales, Public Registers<sup>9</sup>, and Google Maps<sup>10</sup>

Note: \* These categories are based upon Environment Agency definitions.

\*\* Distance for waste facilities and landfills is a road distance measured from postcode LL29 8AR to the postcode given for the identified facility.

## 3.6 Waste Controls and Handling

### 3.6.1 Duty of Care Compliance

Section 34 of the Environmental Protection Act 1990 (as amended) lays out a number of duties with respect to the management of waste. Waste must be managed correctly by storing it properly, only transferring it to the appropriate persons and ensuring that when it is transferred it is adequately and appropriately described to enable its safe recovery or disposal without harming the environment.

The Waste (England and Wales) Regulations 2011, as amended, explains the duties which apply to anyone who produces, keeps, imports or manages controlled waste in England and Wales.

One purpose of a SWMP is to incorporate an auditable system that identifies:

- The person responsible for removing the waste from site, and
- Keeping copies of all duty of care documentation (waste transfer notes and hazardous waste consignment notes).

This will be in accordance with the relevant Duty of Care legislation in place and other regulatory requirements.

Table 4.1 and Table 4.3 assist with the information required to meet the duty of care requirements.

Reputable waste contractors should have systems in place to ensure that all the duty of care requirements are met prior to the waste being collected. This should be checked by the site contractor prior to the appointment of waste management organisations.

<sup>9</sup> Natural Resources Wales (2020) *Find details of permitted waste sites* [online] Available at <https://naturalresourceswales.gov.uk/evidence-and-data/maps/find-details-of-permitted-waste-sites/?lang=en> Accessed July 2020

<sup>10</sup> Google (2020) *Google Maps* [online] Available at <https://www.google.co.uk/maps> Accessed July 2020,

Various information sources are available to enable the Principal Contractor to identify local waste management facilities for both recycling, recovery and disposal and check permit and waste carrier licence information to reinforce the duty of care requirements.

### 3.6.2 Declaration

The client and Principal Contractor will take all reasonable steps to ensure that:

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**All waste from the site is dealt with in accordance with the waste Duty of Care in Section 34 of the Environmental Protection Act 1990 and The Waste (England and Wales) Regulations 2011, as amended; and Materials will be handled efficiently, and waste managed appropriately.**

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Signatures:

Date:

Client:

Principal Contractor:

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### 3.6.3 Responsibility for Waste Management

Table 3.5 identifies the primary waste streams that will arise from the activities at the site and whose responsibility it is to control and monitor the amounts of waste produced.

**Table 3.5: Assigned responsibility for waste management (To be completed)**

Site Activity/ Sub-contractor Work Package	Primary Waste Stream	Who is Responsible for Waste Management
Excavation and site clearance	TBC	TBC
Groundworks	TBC	TBC
Foundations, Piling	TBC	TBC
Structure	TBC	TBC
Brick & Blockwork	TBC	TBC
Mechanical Electrical	TBC	TBC
Trades- (Joinery, Painting etc)	TBC	TBC
Removal of Site Offices, Temporary Works & Final Clear Away	TBC	TBC

### 3.7 Waste Storage and Transportation Logistics

An area for onsite storage for excavated waste, construction materials and newly procured materials needs to be identified and appropriately secured. If waste is not to be kept on site, removal may be required on a shift by shift basis.

### 3.8 Site Security

Both client and Principal Contractor will take reasonable steps to ensure site security measures are in place to prevent illegal disposal of waste at the site.

## 4 Implementation of the SWMP

### 4.1 Register of Waste Carrier Licences and Permits

Table 4.1 sets out information regarding the waste management contractors, including their environmental permit, waste carriers' licences and/ or relevant exemptions that will need to be checked and verified for use on this Scheme. This table should be completed by the Principal Contractor once the details are available.

The Council Decision 2014/955/EU amending Decision 2000/532/EC on establishing a list of waste which requires that waste is described by European Waste Catalogue (EWC) codes on Transfer Notes (and Consignment Notes if waste is hazardous under the Hazardous Waste Regulations 2005, as amended) as required by the Waste Regulations 2011, as amended. The EWC categorises wastes into 20 main groups and approximately 900 codes. The EWC also identifies hazardous wastes, and these wastes are dealt with by the Hazardous Waste Regulations 2005 (as amended). These wastes should be appropriately described on Hazardous Waste Consignment Notes.

**Table 4.1: Waste Description Records (to be completed by the Principal Contractor)**

EWC Waste Description	EWC <sup>11</sup>	Origin	Waste Carrier			Permit	
			Name	Licence number	Expiry date	Name	Licence number
Concrete	17 01 01	From excavation of Made Ground known to be uncontaminated					
Bricks	17 01 02	From construction of structures					
Tiles and ceramics	17 01 03	From construction of structures					
Mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing dangerous substances	17 01 06*(M) <sup>12</sup>	From construction of structures					
Mixtures of concrete, bricks, tiles and ceramics other than those in 17 01 06*	17 01 07	From construction of structures					
Wood	17 02 01	From construction of structures					
Glass	17 02 02	From construction of structures					
Plastic	17 02 03	From construction of structures					
Glass, plastic and wood containing or contaminated with dangerous substances	17 02 04*(M)	From construction of structures					

<sup>11</sup> EWC code categorised from the Lists of Wastes pursuant to Article 1(a) of Directive 75/442/EEC on waste and Article 1 (4) of Directive 91/689/EEC on hazardous wastes. Note: EWC codes may vary depending on the actual waste types identified and removed from site.

<sup>12</sup> \*(M) after the EWC denotes that the waste is potentially hazardous the (M) means that it is a mirror entry and the waste is only hazardous if the dangerous substance present is above threshold concentrations.

EWC Waste Description	EWC <sup>11</sup>	Origin	Waste Carrier	Permit
Bituminous mixtures containing coal tar	17 03 01* (M)	Excavation of Made Ground and potential historical contamination		
Bituminous mixtures other than those mentioned in 17 03 01*	17 03 02	From excavation of Made Ground known to be uncontaminated		
Coal tar and tar products	17 03 03*	From construction of highways		
Iron and steel	17 04 05	From construction of buildings		
Mixed metals	17 04 07	From construction of buildings		
Cables containing oil, coal tar and other dangerous substances	17 04 10* (M)	Installation of replacement cables, including off cuts		
Cables other than those mentioned in 17 04 10	17 04 11	Installation of replacement cables, including off cuts		
Soil and stones containing dangerous substances	17 05 03* (M)	From excavation of Made Ground known to be contaminated		
Soils and stones other than those mentioned in 17 05 03	17 05 04	From excavation of Made Ground known to be uncontaminated		
Other construction and demolition wastes (including mixed wastes) containing dangerous substances	17 09 03* (M)	From excavation of Made Ground known to be contaminated		
Mixed construction and demolition waste other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	17 09 04	Site excavation of Made Ground known to be uncontaminated and construction waste.		

EWC Waste Description	EWC <sup>13</sup>	Origin	Waste Carrier	Permit
Paper and card	20 01 01	Packaging materials, site office waste		
Mixed municipal waste	20 03 01	General site waste		
Waste of liquid fuels, fuel oil and diesel	13 07 01*(A) <sup>13</sup>	General leaks from vehicle movements, construction equipment		
Petrol	13 07 02*(A)	General leaks from vehicle movements		
Other fuels including mixtures	13 07 03*(A)	General leaks from vehicle movements		
Waste paint and varnish containing organic solvents or other dangerous substances	08 01 11*(M)	Paint wastage from road marking		
Waste paint and varnish other than those mentioned in 08 01 11	08 01 12	Paint wastage from road marking		
Waste paint or varnish remover	08 01 21*(A)	Paint wastage from road marking		
Septic Tank Waste	20 03 04	Portable toilets and welfare facilities		
Bio-degradable kitchen and canteen waste	20 01 08	Mess room wastes		
Other, as applicable				

<sup>13</sup> \*(A) after the EWC denotes that the waste is hazardous the (A) means that it is an absolute entry and the waste is hazardous regardless of any threshold concentrations.

## 4.2 Training and Communication

To develop a culture of promoting best practice and increase knowledge and awareness of waste management issues at the site. The SWMP, as well as the procedures to be followed, should be given to all contractors and subcontractors at site induction and key measures reinforced in 'tool box' talks. 'Tool box' talks should be carried out every month on waste issues and all subcontractors should be expected to attend. Attendance will be recorded in the relevant training logs. It is hoped that these values can be transferred from this site to the next, promoting adoption of sustainable waste management practices on a wider scale.

## 4.3 Monitoring and Waste Records

The Principal Contractor should receive a waste transfer note from the waste disposal company showing the exact amount of waste materials removed from site. This sheet should also identify how much material went to landfill and how much went for recycling (Table 4.2).

All skips need to be monitored to ensure that cross-contamination of segregated skips does not occur. The 'tool box' talks should focus on how the waste management system is working and identify the extra costs associated with contamination.

The Principal Contractor should continually review the type of surplus materials being produced and change the site set up to maximise on site reuse or recycling; landfill will be the last option.

This SWMP should be included as an agenda item at the weekly construction meetings. In addition, the SWMP should be communicated to the whole team (including the client) at the monthly meetings. This should include any updates from the last version.



## 4.4 SWMP Implementation Checklist

Table 4.3 is a checklist which should be filled out by the Principal Contractor to ensure the SWMP is fully implemented from the outset of the Scheme. Further actions required to accompany the checklist should be identified in Table 4.4.

**Table 4.3: Implementation Checklist (to be completed)**

Checks (please tick)	Y	N
Have terms and commercial rates been agreed with the waste management contractor(s)?		
Have data reporting procedures been agreed with waste management contractor(s)?		
For offsite waste management or disposal- Are all the waste destination details correct?		
Has a waste segregation/ collection area been prepared?		
Has the waste management area been adequately sign posted?		
Has the SWMP planning meeting been set?		
Has the waste management document control/ filing system been set up?		
Have all necessary staff and contractors read and signed the SWMP?		
Have all the SWMP training/briefing requirements for staff been met?		
Have all the SWMP training/briefing requirements for contractor(s) been met?		
Have all the waste management targets been set?		
Has the SWMP been approved by the Project Manager?		

**Table 4.4: Further Actions (to be updated as applicable)**

Comments/ Further Actions:
1. Excavated material to be tested for contamination prior to re-use and/or disposal
2. Waste Contractor to be assigned
3. Storage areas for excavated material to be decided upon
4. Frequency of waste removal from the site to external storage areas or waste transfer station to be decided upon
5.
6.
7.

## 4.5 Updating the SWMP

It is recommended that the SWMP is updated as often as necessary, to record accurate information on progress and whenever changes occur on site or relating to materials, or at least every six months if there is little change during the Scheme.

Updates to the SWMP should give a current picture of how work is progressing against the waste estimates contained in the plan. Therefore, for waste that is reused or recycled on site, the SWMP should be updated to describe how much of the estimated volume or tonnage has been processed. For waste that is removed from the site, the SWMP must be updated to record the identity of the person removing the waste, the type (and quantity) of waste and the site to which it has been taken.

Whenever waste is removed from the site the Principal Contractor should record the actions in Table 4.2. Revisions to the SWMP should be recorded in Table 4.5.

**Table 4.5: SWMP Revisions Record (to be updated)**

Nature of revision	Date of revision	Author of revision

## 5 Review and Audit of SWMP

### 5.1 Post-Construction Review

It is important that a post construction review of the SWMP takes place, designed to identify that the SWMP has been monitored throughout the lifetime of the Scheme and then signed off at its closure (see Table 5.1).

At the end of the Scheme, it is recommended that both the Client and Principal Contractor review, revise and refine the SWMP as necessary within three months of completion to ensure compliance with relevant legislation and to identify if lessons could be learned for the next time a similar project is undertaken. This review should identify and may conclude the following:

- An explanation of any deviation from the original plan;
- A comparison of the estimated quantities of each waste type against the actual quantities generated;
- An action plan to address the lessons that have been learnt from the Scheme that could be implemented for the next Scheme; and
- An estimation of the cost savings (if any) that have been achieved through the measures undertaken to minimise, reuse, recycle or recover waste arisings rather than just sending it to landfill.

**Table 5.1: Post Construction Confirmation (to be completed)**

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**This plan has been monitored on a regular basis to ensure that work is progressing according to the plan and has been updated to record details of the actual waste management actions and waste transfers that have taken place.**

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Signatures:

Date:

Client:

Principal Contractor:

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### 5.2 Audit of Plan

A waste audit should be undertaken at all stages of the Scheme. This will identify the amount, nature and composition of the waste generated on site. The waste audit will examine the manner in which the waste is produced and will provide opportunity for a commentary to highlight how the management and practices inherently contribute to the production of construction and demolition waste. The measured waste quantities will be used to quantify the costs of waste management and disposal.

The audit plan should be updated as the Scheme progresses, as this will help to identify which waste streams are not achieving their anticipated recycling potential so that alternative methods to handle that waste stream can be explored for the remainder of the Scheme.

### 5.3 Audit of Plan – Estimated Versus Actual Quantities

Table 5.2 and Table 5.3 detail the actual enabling and construction waste streams and quantities resulting from the proposed development and how they were treated i.e. on-site/off-site recycling/reuse, final disposal etc.

Table 5.4 records the deviation between those waste quantities estimated and actual. An estimate of cost savings is also made here.

**Table 5.2: Enabling/Demolition Waste (actuals) (to be completed)**

Type	Materials	Actual quantities (tonnes/m <sup>3</sup> )	On-site reuse/recycling (%)	Recovery (%)	Disposal (%)
Inert	Concrete	TBC	TBC	TBC	TBC
	Timber	TBC	TBC	TBC	TBC
	Rubble	TBC	TBC	TBC	TBC
	Topsoil/Subsoils	TBC	TBC	TBC	TBC
	Sand and gravel	TBC	TBC	TBC	TBC
	Boulder clay	TBC	TBC	TBC	TBC
Non-hazardous	Soils (moderate contamination-suitable for reuse onsite)	TBC	TBC	TBC	TBC
	Bricks and blocks	TBC	TBC	TBC	TBC
	Mixed waste	TBC	TBC	TBC	TBC
	Metal	TBC	TBC	TBC	TBC
	Timber	TBC	TBC	TBC	TBC
	Packaging	TBC	TBC	TBC	TBC
	Cable & wiring	TBC	TBC	TBC	TBC
	Glass	TBC	TBC	TBC	TBC
	Green waste/vegetation	TBC	TBC	TBC	TBC
	Other	TBC	TBC	TBC	TBC
Hazardous	Asbestos	TBC	TBC	TBC	TBC
	Contaminated soils- unsuitable for reuse	TBC	TBC	TBC	TBC
	Other	TBC	TBC	TBC	TBC

**Table 5.3: Construction Waste (actuals) (to be completed)**

Type	Materials	Actual quantities (m <sup>3</sup> )	On-site reuse/recycling (%)	Recovery (%)	Disposal (%)
Inert	Concrete	TBC	TBC	TBC	TBC
	Timber	TBC	TBC	TBC	TBC
	Rubble	TBC	TBC	TBC	TBC
	Topsoil/Subsoils	TBC	TBC	TBC	TBC
Non-hazardous	Soils (moderate contamination- suitable for reuse onsite)	TBC	TBC	TBC	TBC
	Bricks and blocks	TBC	TBC	TBC	TBC
	Screed	TBC	TBC	TBC	TBC
	Mixed waste	TBC	TBC	TBC	TBC
	Metal	TBC	TBC	TBC	TBC
	Timber	TBC	TBC	TBC	TBC
	Packaging	TBC	TBC	TBC	TBC
	Cable & wiring	TBC	TBC	TBC	TBC
	Glass	TBC	TBC	TBC	TBC
	Green waste/vegetation	TBC	TBC	TBC	TBC
Hazardous	her (List, identified by type, name, EWC)	TBC	TBC	TBC	TBC
	Toxic chemicals e.g. paint tins, line markers, mastic	TBC	TBC	TBC	TBC
	Contaminated soils- unsuitable for reuse	TBC	TBC	TBC	TBC
	Other (List, identified by type, name, EWC)	TBC	TBC	TBC	TBC

Table 5.4 records the deviation between those waste quantities estimated and actual. An estimate of cost savings is also made here.

**Table 5.4: Deviations**

Issue	Details
[Waste forecasts- exceeded]	TBC – reasons
[Waste forecasts- not met]	TBC – reasons

## 5.4 Estimate of Cost Savings

[Enter]

## 5.5 Relevant Signatures

**Principal Contractor:** [Enter]

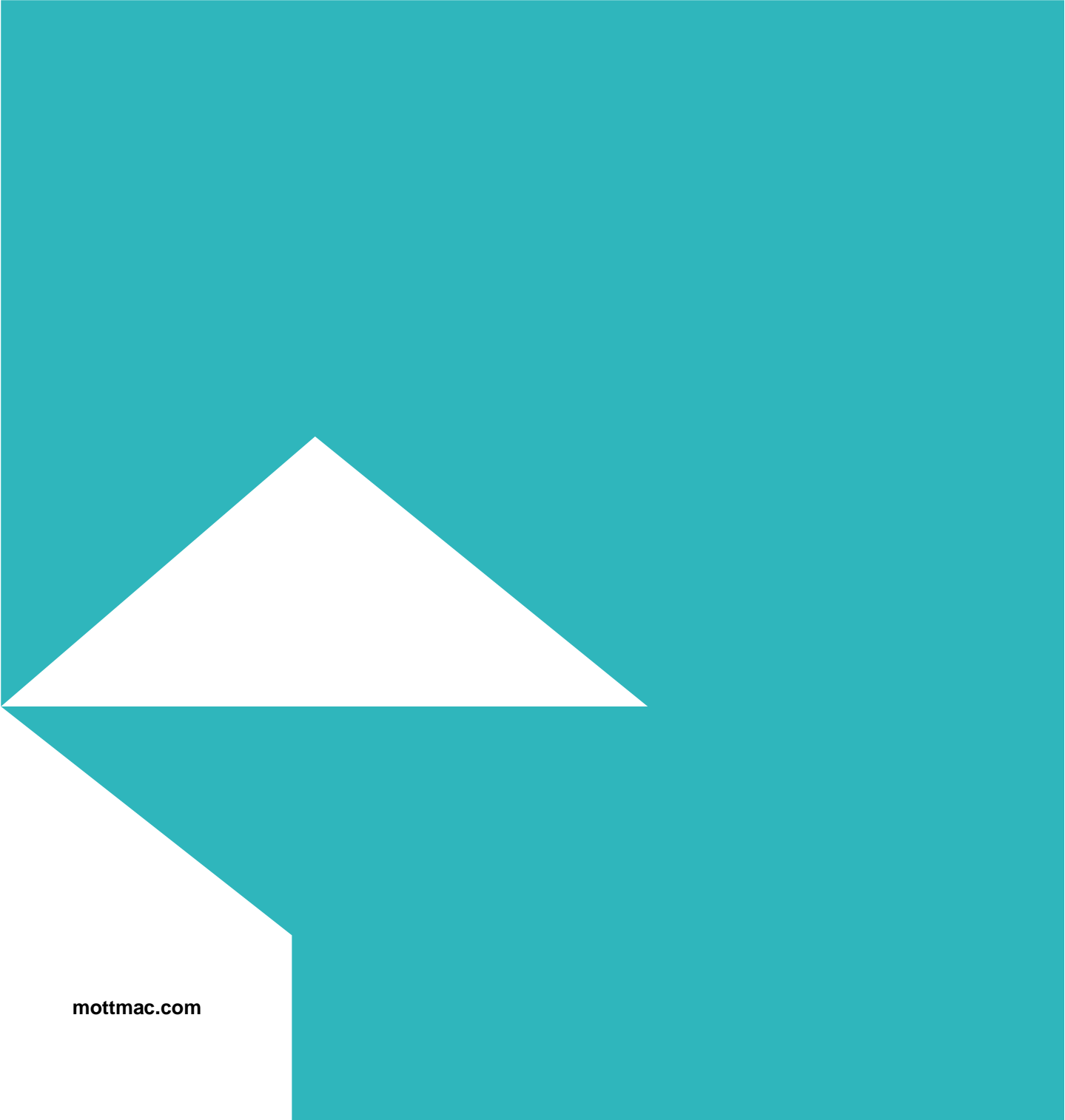
**Date:** [Enter]

**Client:** Conwy County Borough Council

**Date:** [Enter]

**SWMP Author:** Shannon Stone

**Date:** 24/07/2020



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## A.2 Materials Management Plan

To be completed by Principal Contractor

### A.3 Arboricultural Method Statement

To be completed by Principal Contractor

## A.4 Construction Traffic Management Plan

To be completed by Principal Contractor

## A.5 Communications Relations Strategy

To be completed by Principal Contractor

## A.6 Landscape and Ecological Management Plan

Currently under preparation.

## A.7 Construction Flood Risk Management Plan

To be completed by Principal Contractor

## A.8 Transhipment Management Plan

To be completed by Principal Contractor (if required)

## A.9 Outline Carbon Management Plan

To be updated by Principal Contractor



# **Old Colwyn Coastal Defence and Active Travel Scheme**

Carbon Management Plan

July 2020

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# **Old Colwyn Coastal Defence and Active Travel Scheme**

## **Carbon Management Plan**

July 2020

# Issue and Revision Record

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P01	July 2020	B Skinner	A Greenwood N. Spofforth	C. Williams	First Issue

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## Executive summary

This Carbon Management Plan has been produced to set out the framework for managing and reducing greenhouse gas emissions for the Old Colwyn Coastal Defence and Active Travel Scheme through design and into construction. A target for the Scheme has been set to aim for a reduction of 30% from the baseline of Conceptual Design to Tender Design.

The approach to integrating low-carbon thinking during design is outlined which includes using the carbon hierarchy, challenge important aspects of the design, the implementation of topic specific workshops and how the Scheme is being assessed for the sustainability of the Scheme.

Through different stages of design, the carbon footprint of the Scheme has been estimated to allow focus on the hotspots of carbon and to track the progress of the Scheme. Footprints have been developed for the Conceptual Design and Tender Design with estimates of additional savings through Detailed Design highlighted. Following the low carbon approach through design numerous ideas have been incorporated into the design to show a reduction in carbon emissions. These ideas have resulted in a 32% saving between Conceptual Design and Tender Design meeting the reduction target set for the Scheme. Further reductions have occurred through Detailed Design along with a number of ideas to be implemented or further investigated for construction have been identified which are outlined in the plan to further reduce carbon emissions associated with the Scheme.

# 1 Introduction

## 1.1 Purpose of the Carbon Management Plan

1.1.1 This Carbon Management Plan (CMP) sets out the framework for managing and reducing project-related greenhouse gas (GHG) emissions for the Old Colwyn Coastal Defence and Active Travel Scheme (hereafter referred to as the “Scheme”).

1.1.2 It also documents the key carbon reduction measures implemented within the project.

## 1.2 Scope of the Carbon Management Plan

1.2.1 The CMP covers the strategy that has been followed through design and will continue to be used as the design progresses. The CMP defines:

- The relevant carbon objective and targets to which the Scheme is working towards;
- Roles and responsibilities;
- Approach to integrating low-carbon thinking during design;
- Assessment approach;
- Reductions to date; and
- Further required reductions.

1.2.2 The CMP is focused upon the design stage of the Scheme, however the approach should be followed through later stages including construction. In addition, a number of ideas for implementation have been outlined within the CMP that need to be implemented or further investigated for construction.

## 2 Key Components of the Carbon Management Plan Approach

2.1.1 The carbon management approach has several key components which will support the delivery of low carbon solutions.

2.1.2 These are summarised in Table 2.1.

**Table 2.1: Key CMP Components**

Component	Theme	Section of the CMP
Strategy	Setting a strong direction for the projects in pursuit of low-carbon solutions	Section 3
People	The CMP identifies key members of the project team that can support the delivery of low-carbon solutions. This includes design, construction procurement and management teams as well as topic specialists and supply chain where relevant.	Section 4
Processes	The process of design and delivery will include carbon in multi-criteria analysis as well as targeted workshops and support throughout.	Section 5
Assessment	The carbon emissions associated with the Scheme at different stages of design will be estimated. The progress through the design and identified reductions will be recorded where possible.	Section 6 - 8

Source: Mott MacDonald 2020

2.1.3 As well as these components, there is further additional information on the assumptions and identified low carbon solutions which are captured in the Appendices of this CMP.

2.1.4 Each of the sections of this report will be updated as design progresses, and as other activities become increasingly important. Any sections no longer relevant will be moved to the Appendices.

## 3 Strategy

### 3.1 Mott MacDonald Policy

3.1.1 Mott MacDonald are committed to reducing carbon on projects by certifying its carbon management processes used on projects globally with PAS 2080: Carbon Management in Infrastructure.

### 3.2 Conwy County Borough Council Policy

3.2.1 The Conwy Local Development Plan was adopted in 2013<sup>1</sup>. Within the plan Policy DP/1 – Sustainable Development Principles references making efficient and effective use of resources, take account and address the potential impact of climate change, reduce waste production. The Natural Environment Strategic Statement states that developments must seek to limit the impact on the environment ‘by minimising resource use, increasing energy efficiency and reducing carbon emissions.

### 3.3 Targets

3.3.1 The Scheme has set out to reduce carbon throughout the design process. To focus the reduction of carbon, a target has been set to show a reduction from Conceptual Design to the end of Tender Design.

3.3.2 The target has been set at 30% reduction from the baseline of Conceptual Design.

3.3.3 Following Tender Design the scheme has continued to reduce carbon through detailed design. Furthermore, the Scheme will continue to reduce carbon through construction however currently there are no plans to measure against a target at construction or operation stages.

---

<sup>1</sup> Conwy County Borough Council (2013). Conwy Local Development Plan 2007-2022 [online] available at: <https://www.conwy.gov.uk/en/Resident/Planning-Building-Control-and-Conservation/Strategic-Planning-Policy/Adopted-Local-Development-Plan-LDP/Assets-written-proposals-maps/Conwy-Local-Development-Plan-2007-2022.pdf> (last accessed June 2020)

## 4 Roles and Responsibilities

### 4.1 Key Roles

4.1.1 All members of the project teams have the potential to influence low-carbon outcomes. However, some roles have key responsibilities in leading the efforts to implement low-carbon solutions during design and delivery.

4.1.2 These are:

- Project leads – ultimate responsibility for compliance with legislation and client project commitments;
- Design managers – overall responsibility for guiding design to minimise carbon emissions as far as possible. Providing a level of challenge to make sure that focus is given to low carbon options;
- Design team – practical role in developing designs that minimise emissions and capturing and recording low-carbon options;
- Environment managers – supporting the design team to identify low-carbon solutions and providing links to other environmental disciplines to highlight co-benefits or risks;
- QS team – supporting the production of information relevant to the carbon assessment, challenging cost and productivity within their models and identifying associated low carbon opportunities;
- Procurement team – challenging suppliers to provide innovative, low carbon products and solutions;
- Pre-Construction team – minimising carbon through challenging design buildability, planning and integration of activities, optimising / challenging logistics and procurement;
- Carbon Specialists – setting the framework for considering carbon and undertaking the required quantifications. Training and informing the design managers and teams; and
- Client – setting the direction and commitments for the reduction of carbon.

### 4.2 Communication and Training

4.2.1 The successful implementation of this CMP depends upon there being adequate co-ordination, communication and liaison between the various parties. Any specific construction requirements for carbon reduction will be recorded within the Construction Environmental Management Plan (CEMP). In addition, the CMP will be provided as an Appendix to the CEMP

4.2.2 The appropriate project team members of the list outlined in the Section 4.1 have been provided with the following training or guidance where necessary:

- Carbon baseline and opportunities for reduction through the carbon and Design for Resource Efficiency (D4RE) workshops;
- Mott MacDonald Carbon Portal e-learning module; and
- Reference document: PAS 2080 – Carbon management in infrastructure.

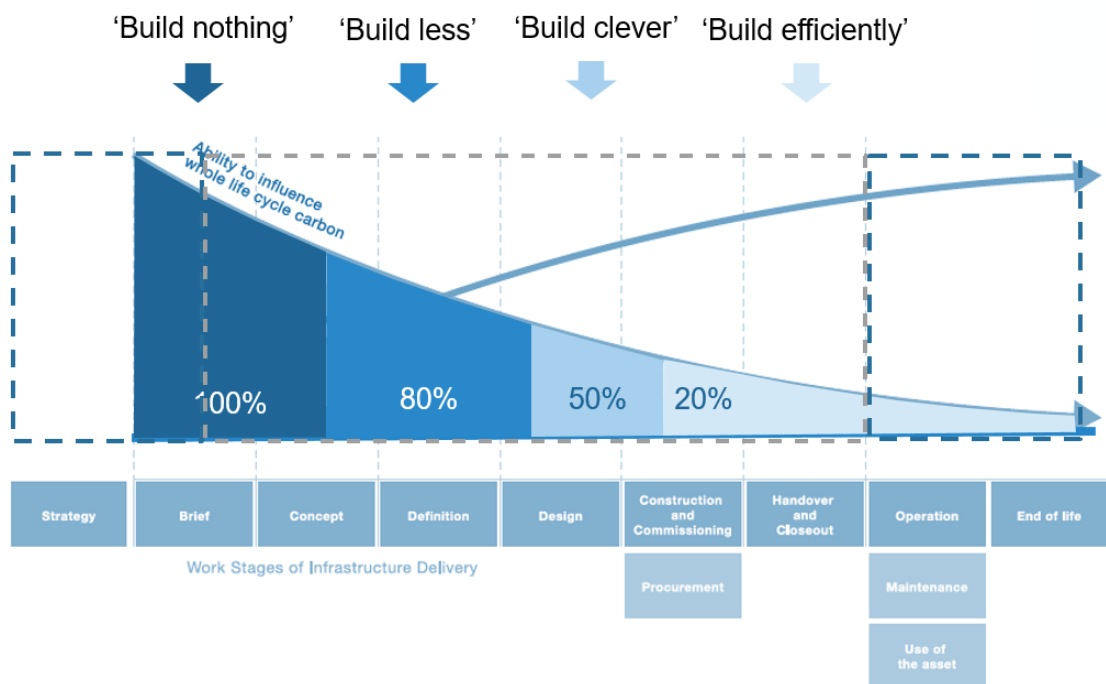
# 5 Approach to Integrating Low-Carbon Thinking During Design

## 5.1 Overall Approach

5.1.1 During the design stage, carbon has been evaluated contributing to the value engineering process with design managers being supported by the core carbon team in this process. The different design aspects have been assessed for the impact on low carbon either qualitatively or where possible quantitatively.

5.1.2 Evaluation followed the carbon hierarchy, shown in Figure 5.1, approach of identifying assets which can be designed out (build nothing), opportunities to build less, build clever and build smart.

**Figure 5.1: Carbon Hierarchy Approach**



5.1.3 The carbon reduction challenge focused on both reducing the amounts of primary materials required and then selecting the best materials available. In simple terms this means first trying to reduce, for example, the amount of concrete and (where compatible with other specifications) selecting the best (low-carbon) concrete available on the market.

## 5.2 Challenge Points

5.2.1 Key questions that prompt the discussion included the following (depending on the assets to be considered). Answers to some of these questions may not be known at any given point during the design or delivery stage:

### Design focus:

- Have you considered all build nothing options? This could include ancillary items such as avoiding the need for diversions (utility / road)?
- Have you optimised material use in scheme and detailed design?
- Have you considered lowest carbon materials? In particular, any impacts from low-carbon concrete?
- Can any existing assets/infrastructure be utilised?
- Has topography and need for excavation works been considered?
- Have low-carbon soil stabilisation materials and methods been considered?
- Has optimal longevity of assets been achieved to minimise replacement vs initial capital carbon?
- Has standardisation / modularisation been considered in design to minimise cut offs and waste?
- Have you considered potential effects for re-use and/or recycling of on-site aggregates and spoil?
- Have maintenance requirements been minimised?
- Has design considered deconstruction where required to optimise recycling and reuse of components?

### Construction focus:

- Have you used methods to optimise resource productivity and resource allocation to reduce construction duration and cost?
- Have you considered new construction techniques that minimise construction time, result in less temporary works, use of temporary works as permanent or reduce fuel consumption?
- Has near site assembly/manufacture been considered to minimise transport requirements?
- Have you considered alternative low carbon fuels for construction plant?
- Have you considered energy efficient site cabins and equipment?
- Have you considered optimal material logistics to reduce unnecessary transport during construction?
- Has offsite manufacture been considered to minimise waste?

## 5.3 Topic Specific Workshops

5.3.1 A carbon reduction or Design for Resource Efficiency (D4RE) workshop has been held with the design team. This workshop was run by the carbon management team within Mott MacDonald. This workshop served to check and challenge the design as it progresses. Members from the specific disciplines as well as other key design and delivery staff were included as part of the workshop.

5.3.2 The focus for the workshop was as follows:

- Reminder of the key drivers for carbon reduction and resource efficiency;
- Focus on the key hotspots per asset/ material type and structural solution;
- Review of any baseline reports available;
- Step through the carbon hierarchy (build nothing, build less, build clever); and

- Note specific actions and ideas to develop further.

5.3.3 Outputs from this workshop were captured within the Old Colwyn Coastal Defence and Active Travel ES Volume 2, Appendix 9.2. These have been shared with the relevant teams throughout the scheme development to monitor the opportunity implementation and impact on carbon.

## 5.4 CEEQUAL

5.4.1 The Scheme is being assessed under the Civil Engineering Environmental Quality Assessment and Award Scheme (CEEQUAL). A number of the questions being assessed revolve around carbon reduction including producing a carbon management approach, identifying and measuring reduction targets. This further encourages the low carbon thinking throughout design.

## 5.5 Reporting Progress Against the Target

5.5.1 Progress against the carbon reduction target has been tracked and reported in this CMP. The CMP is intended as a live document to be updated with the project, following carbon reduction from Conceptual Design to the end of Detailed Design. The target will be measured between Conceptual Design and the Tender Design due to the availability of the appropriate information, any further identified reduction measures through Detailed Design have been recorded in this CMP.

5.5.2 During construction, the further carbon reduction measures identified in Section 7.3 should be monitored. Progress against these measures should be tracked, with justification provided where the measures have not been implemented.

## 6 Assessment Approach

### 6.1 Activity scope

#### Life Cycle Stages

6.1.1 All carbon assessments have been broken down by life cycle stages (modules) in Table 6.1 consistent with the principles set out in PAS 2080. The scope of assessment included lifecycle stages A1-3, A4, A5, B2 and B6. The activities incorporated may change depending on the level of detail available in the data as the project progresses.

**Table 6.1: Life Cycle Stage Activities**

Life Cycle Stage	Activities Incorporated
Product stage (modules A1-A3)	The extraction, processing and manufacturing of all materials required for the permanent assets. This includes all energy and carbon emissions from manufacturing plants, primary and secondary manufacturing stages as well as any transport emission between these stages.
Construction process stage - transport to site (module A4)	The transportation of all materials required for the permanent assets and construction equipment to site from the point of production (or point of storage in the case of plant and machinery).
Construction process stage - construction and installation (module A5)	Construction site works activities including: <ul style="list-style-type: none"> <li>• temporary work, ground works and landscaping;</li> <li>• materials storage and any energy or otherwise need to maintain necessary environmental conditions;</li> <li>• transport of materials and equipment on site;</li> <li>• installation of materials and products into the infrastructure asset;</li> <li>• emissions associated with site water demand;</li> <li>• waste management activities (transport, processing, final disposal) associated with waste arising from the construction site; and</li> <li>• production, transportation, and waste management of materials/products lost during works.</li> </ul>
Boundary of use stage – (module B2)	The works activities and new materials for the maintenance, repair, replacement and refurbishment of the infrastructure during the use stage/operation of infrastructure.
Boundary of use stage – operational energy (module B6)	Represents the carbon emissions resulting from the energy used by infrastructure-integrated technical systems to enable it to deliver its service during operation. This might be to provide heating and cooling, ventilation, lighting, auxiliary energy for pumps, control and automation.

Source: PAS 2080, 2016<sup>2</sup>

<sup>2</sup> BSI (2016) PAS 2080: Carbon management in infrastructure

## 6.2 Temporal scope

6.2.1 The reference study period is during design, construction and operation of the project. The operational emissions are considered to be minimal and are scoped out for this project.

## 6.3 Activity Data

6.3.1 Activity data has been sourced from QS data used to produce bills of materials that have been available at certain points in the design process. This has been used to make sure all activities have been captured in the same way for carbon as in cost.

6.3.2 In selecting activity data, the project aimed to use that data which was the most complete, up-to-date and referenceable. During the design process, it was necessary to use interim data in order to support decision making. As far as possible this followed the same criteria however there were be cases where assumptions are required.

## 6.4 Emission factor data

### Data quality

6.4.1 Emission factor data has been selected based on its overall applicability to the project. A number of criteria has been applied:

- Age: the most recently published data has been preferred;
- Geography: data which applies to the location of actual suppliers and/or activities has been preferred;
- Technology: data which represent the actual product/activity in question has been preferred;
- Methodology: data which follow a published methodology or product category rules has been preferred; and
- Competency: data which are produced from proficient entities has been preferred.

6.4.2 Ultimately, there are trade-offs between these criteria. The choices made by the carbon consultant have been documented in accompanying reports.

## 6.5 Calculations

6.5.1 The Moata Carbon Portal has been used to quantify the emissions associated with the Scheme by inputting the quantities of materials as provided. The Moata Carbon Portal contains a library of materials and activities with the associated emission factor. Items selected within the Moata Carbon Portal wherever possible contain the embodied carbon emissions and plant activities.

6.5.2 The Moata Carbon Portal does not contain information of transport of materials to site. To include this lifecycle stage, calculations have been completed in line with the Royal Institute of Chartered Surveyor (RICS) methodology assumptions on travel distances where scheme specific information is not available<sup>3</sup>. This can be refined as procurement progresses.

## 6.6 Baseline

6.6.1 Due to the availability of design information and in the interest of efficiency it has not been possible to produce a complete footprint from Conceptual Design to be used as the baseline.

---

<sup>3</sup> Royal Institute of Chartered Surveyors (2017). Whole life carbon assessment for the built environment.

6.6.2 It has been deemed appropriate for the assessment, and to measure the progress of carbon reduction, to back-calculate the approximate baseline. The D4RE workshop listed the largest reductions which occurred between conceptual design and the Tender Design and a number of these were possible to quantify. These reductions mostly involved removal of design elements and so it was deemed important to capture this 'build nothing' decision as part of the carbon management process. The calculations involved adding the quantified carbon reductions on to the Tender footprint.

6.6.3 This methodology for calculating the baseline has limitations and a number of assumptions, listed below:

- Potential omissions of increases between Conceptual Design and Tender Design that have not been recorded;
- A number of the reductions to-date have not been quantified in the latest footprint or in the baseline; this means the calculated baseline is potentially lower than the true value;
- The quantities for headlands and fishing platforms have been multiplied up by 3 to approximate the change in number and size of platforms;
- The quantities for the reductions are based upon the Tender Design footprint quantities; and
- There is potential for aspects in the Tender Design not to have been considered at Conceptual Design.

# 7 Carbon Assessment

## 7.1 Pre-tender Design Footprint

### Construction

7.1.1 For the purpose of the Climate assessment within the Environmental Statement for the Scheme, the footprint was based upon the Tender Design due to the availability of information. The Tender Design was quantified by a QS to provide a bill of quantities for all the available aspects of the design.

7.1.2 The carbon assessment from has indicated that the Scheme would result in emissions of approximately 44,586tCO<sub>2</sub>e for construction lifecycle stages A1-3, A4 and A5. The breakdown of which is shown in Table 7.1 below.

**Table 7.1 Emissions Split by Lifecycle Stage**

Life Cycle Stage	Estimated emissions (tCO <sub>2</sub> e)
Product stage (modules A1-A3)	37,820
Construction process stage - transport to site (module A4)	5,221
Construction process stage - construction and installation (module A5)	1,546

Source: Mott MacDonald 2020

7.1.3 The three greatest contributors, as split by category and by individual item are shown in Table 7.2.

**Table 7.2 Construction Carbon Hotspots**

CATEGORY	
Revetments	86%
Roads and Paving	9%
Retaining Walls	2%
INDIVIDUAL ITEM	
Supply and deliver primary armour for revetments	52%
Supply and deliver underlayer for revetments	24%
Imported regulating course to make up levels	6%

Source: Mott MacDonald 2020

### Operation

7.1.4 There will be 1.2km of street lighting in the Scheme, this has been estimated at 246tCO<sub>2</sub>e over the 50 year lifetime of the scheme (specification for the Scheme is unknown and emissions have been based on a typical installation specification and operating hours). In the absence of data to calculate the carbon emissions associated with the operation of the kiosk, considering the emissions from street lighting it is anticipated that the operational energy and carbon emissions from operation are likely to be relatively low.

7.1.5 As noted in ES Volume 1 Materials Chapter, the maintenance requirement would not include a total replacement of the Scheme. There would be a requirement to conduct visual inspections multiple times per year, these inspections would not be expected to generate significant emissions. The scheme is being designed with a 50 year lifetime and, unless significant replacement was identified through the routine inspections, the maintenance footprint is considered to be minimal.

## 7.2 Carbon reductions

7.2.1 Through following the approach detailed in Section 5, the design has resulted in large carbon savings from Conceptual Design to the Tender Design with further reductions identified through Detailed Design and for construction.

7.2.2 The majority of the savings that have been recorded were identified within the D4RE workshop 4th March 2020 and have been quantified where possible, shown in the Old Colwyn Coastal Defence and Active Travel Scheme ES Volume 1 Technical Appendix 9.2. The quantified reductions have either been taken into account prior to the pre-tender footprint whereas others are to be fully implemented and accounted for by the end of detailed design, as shown in Table 7.3. The quantified savings accounted for in the Tender Design footprint results in a reduction of approximately 32%.

**Table 7.3 Quantified Carbon Savings from Implemented Measures**

Description	D4RE Reference	Status	Carbon Saving (tCO <sub>2</sub> e)
<b>Implemented and accounted for in current footprint</b>			
Reuse of existing rock armour	5	Audit of materials require	7,046
In Area 1 raise only the promenade not the road also	22	Fully implemented and accounted for in calculations	1,113
Reuse existing wave return wall within scheme design	24	Fully implemented and accounted for in calculations	100
Recycle existing asphalt as fill within scheme	34	Fully implemented and accounted for in calculations	14
Remove existing concrete promenade to be reused as fill.	N/A	Fully implemented and accounted for in calculations	179
Reduce the number of headland structures from 3 to 1	1	Fully implemented and accounted for in calculations	3,359
Use of rock armour rather than precast concrete armour	14	Fully implemented and accounted for in calculations	9,355
Reduction of fishing platforms from 3 to 1	17	Fully implemented and accounted for in calculations	53
<b>Total</b>			<b>21,220</b>
<b>Implemented but not accounted for in current footprint</b>			
Use of recycled cement replacement	10	Included within specification	238
Steepen revetments to minimise material requirements	18	Optimisation on-going, current estimate at 5% saving	1,167
<b>Total</b>			<b>1,405</b>

Source: Mott MacDonald 2020

## 7.3 Further Required Actions

7.3.1 During the design period a number of additional measures were identified to be implemented at a later stage as the Scheme progresses (with the D4RE workshop being the key stage for the identification of these measures. The quantifiable ideas are outlined in Table 7.4.

**Table 7.4 Quantified Carbon Savings for Further Actions**

Description	D4RE Reference	Status	Potential Carbon Saving (tCO <sub>2</sub> e)
Reuse of fill from other site for promenade raising and revetment fill	28	Contractor responsibility	359
Use of precast concrete rather than in-situ concrete where possible	16	Contractor responsibility	1,506
Source slate waste as fill to use for raising levels	20	Contractor responsibility	98
Transport rock revetment material from Scotland or Norway by barge	4	Contractor responsibility	919-1,749
<b>Total</b>			<b>2,882-3,712</b>

Source: Mott MacDonald 2020

7.3.2 To continue the reduction of carbon the following measures are required to be implemented wherever possible, confirmed or further explored. The details of the ideas, the further work required and the responsible party are shown in Table 7.5. These ideas will be considered and justified if not possible to implement.

**Table 7.5 Further Actions to be Implemented**

Description	Further Action Required	Responsible Party	Timeframe
Recycled steel to be used for rebar where possible at a minimum of 85% recycled steel.	Contractor to implement as detailed in specification	Contractor	Through procurement
Recycled material to be used as a cement replacement. 36-85% ground granulated blast furnace slag as a suggested material.	Contractor to implement as detailed in specification	Contractor	Through procurement
Transport of rock revetment potentially to be by boat from Scotland or Norway. The further investigation should consider the distance required to move the rock from the quarry to the port also. For calculations see the following – by boat approx. 0.92 tCO <sub>2</sub> e per km versus by road approx. 55.36 tCO <sub>2</sub> e per km.	Further calculations required once quarry availability known.	Contractor	Through procurement

Description	Further Action Required	Responsible Party	Timeframe
During quarrying and armourstone extraction, use byproduct as underlayers, fill, aggregate or roadstone.	Contractor to implement where feasible	Contractor	Through construction
Source slate waste as fill to use for raising levels	Contractor to implement where feasible	Contractor	Through procurement
Reuse of fill from other sites for prom raising/behind revetment.	Contractor to implement where feasible once construction dates are known and other developments programme known	Contractor	Through procurement
Re-use of existing materials e.g. lighting, parking meters, ramp, benches.	CCBC to determine what is able to be reused and organise collection and storage	CCBC	Through construction

Source: Mott MacDonald 2020

## 7.4 Conceptual Design Baseline

- 7.4.1 The Conceptual Design baseline has been calculated from the Tender Design footprint with the addition of the quantified carbon reductions.
- 7.4.2 The carbon footprint for the Conceptual Design baseline is estimated to be 65,806tCO<sub>2</sub>e for construction lifecycle stages A1-3, A4 and A5. The breakdown of which is shown in Table 7.6 below.

**Table 7.6 Baseline Carbon Footprint**

Life Cycle Stage	Estimated Emissions (tCO <sub>2</sub> e)
Product stage (modules A1-A3)	57,678
Construction process stage - transport to site (module A4)	5,734
Construction process stage - construction and installation (module A5)	2,395

Source: Mott MacDonald 2020

## 7.5 Progress Through Design

- 7.5.1 The target was set out to reduce 30% reduction from the Conceptual Design to the Tender Design. There were a number of actions quantified for the reductions between Conceptual Design and Tender Design, as shown in Table 7.7 below. These reductions and the further quantified reductions for Detailed Design and construction, if all implemented, would result in up to a 41% saving.

**Table 7.7 Carbon Footprint Through Design**

<b>Scheme Stage</b>	<b>Footprint (tCO<sub>2</sub>e)</b>	<b>Reduction from Baseline</b>
Conceptual Design	65,806	N/A
Pre-tender Design	44,586	32%
Detailed Design	43,400*	34%
Construction	38,688-40,518*	39-40%

Source: Mott MacDonald 2020

Note: \* footprint estimated from the Tender Design footprint with the additional identified savings subtracted.



## A.10 Marine Bio-security Risk Assessment



# **Old Colwyn Coastal Defence and Active Travel Scheme**

Bio-Security Risk Assessment

July 2020

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# **Old Colwyn Coastal Defence and Active Travel Scheme**

## **Bio-Security Risk Assessment**

July 2020

# Issue and Revision Record

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# 1 Introduction

## 1.1 Overview

This Bio Security Risk Assessment (BSRA) document has been produced in support of the Old Colwyn Coastal Defence and Active Travel Scheme (hereafter referred to as “the Scheme”).

This BSRA outlines the potential hazards relating to the introduction and spread of invasive and non-native species (INNS) on site for the Scheme. The Scheme will involve working on land, within the intertidal zone and it also may require the delivery of revetment rock by ship and barge. As a result, INNS relating to the terrestrial and marine environments have been considered.

Prior to implementing this risk assessment on site, a site briefing and a toolbox talk should be provided to all site workers regarding the importance of bio security. The required inspection, preventative and management techniques for personnel should be outlined and pest/containment identification should also be explained to ensure rapid and appropriate responses to any INNS present, (if INNS are found on site, the Ecological Clerk of Works (ECoW) should be notified and guidance should be sought with statutory agencies). An ecological walkover survey should be undertaken on site approximately 6-8 weeks prior to the construction phase commencing. This will provide an opportunity to confirm any new occurrences of INNS on site and for these to be managed suitably prior to works starting.

Formal standardised reporting to Natural Resources Wales (NRW) should be implemented on site throughout the duration of the works regarding the presence of INNS should any be discovered.

## 1.2 Terrestrial INNS

A Preliminary Ecological Appraisal Report has been produced for the Scheme<sup>1</sup>, along with other subsequent assessments (both terrestrial and intertidal) for which a number of field surveys were undertaken from December 2019 to June 2020. During these surveys no invasive plant species were discovered on site. However, it is noted that INNS can be introduced into the site through poor bio-security protocols and construction practice, so a precautionary approach for the management of terrestrial INNS on site is outlined in Section 2.

## 1.3 Marine INNS

It should be noted that to date no site visit has been undertaken by a marine ecologist (visits were planned but these had to be cancelled due to the Covid-19 pandemic). Instead comprehensive high definition (HD) photographic evidence taken by an experienced local environmental consultant has been reviewed by a qualified marine ecologist to establish marine species present on site. It was not possible to confirm the presence/absence of marine INNS from these photographs. However, due to the potential delivery of revetment rock to the site via barge, precautionary measures to manage potential INNS within the marine environment need to be outlined.

The Marine Strategy Framework Directive (MSFD) (2008) outlines a monitoring list for INNS. These INNS listed by the MSFD are further outlined within the “Priority Monitoring and Surveillance List of Marine INNS for Wales”<sup>2</sup> and have been categorised into “High Risk” and “Medium Risk”

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<sup>1</sup> Colwyn Bay Preliminary Ecological Appraisal Report (Ref: 410895-MMD-N-R-00-XX-1701), Mott MacDonald Ltd, 2020.

<sup>2</sup> Gov.Wales (2017). *Marine Invasive Non-Native Species Priority Monitoring and Surveillance List for Wales*. [Online] Available at: <https://gov.wales/sites/default/files/publications/2018-02/invasive-aquatic-species-priority-marine-species.pdf>

INNS. A “Low Risk” category also exists, but there are not INNS considered to require monitoring by the MSFD.

The “High” and “Medium” risk INNS listed by the MSFD have been reviewed and INNS from these categories that are believed to have the potential to interact with the site as a result of the delivery of revetment rock via barge have been considered for this BSRA. These species considered for this risk assessment are outlined below:

### 1.3.1 High Risk INNS

- Compass sea squirt (*Asterocarpa humilis*) – potential for introduction through fouling;
- Carpet sea squirt (*Didemnum vexillum*) – potential for introduction through fouling;
- Chinese mitten crab (*Eriocheir sinensis*) – potential for introduction through ballast water; and
- Red ribbon bryozoan (*Watersipora subatra*) – potential for introduction through fouling.

### 1.3.2 Medium Risk INNS

- Bonnemaison’s hook weed (*Bonnemaisonia hamifera*) – potential for introduction through fouling and ballast water;
- Japanese skeleton shrimp (*Caprella mutica*) – potential for introduction through fouling;
- Orange striped anemone (*Diadumene lineata*) – potential for introduction through fouling;
- Japanese wireweed (*Sargassum japonica*) – potential for introduction through fouling;
- Leathery sea squirt (*Styela clava*) – potential for introduction through fouling; and
- Wakame, Asian kelp (*Undaria pinnatifida*) – potential for introduction through fouling.

## 2 Bio Security Risk Assessment

The BSRA scoring methodology is presented in Appendix A

The risk assessment in **Error! Reference source not found.** outlines the potential hazards of the Scheme associated with the introduction, transfer and spread of INNS. This risk assessment should be included within the Construction Environmental Management Plan (CEMP). As outlined above, this risk assessment is precautionary as it relies upon records of INNS within and near to the site.

**Table 2.1: BSRA for the Scheme (risk is the transfer and introduction of INNS)**

Hazard	Who or What Might be Affected?	Initial Assessment			Risk Control Measures	Residual Risk		
		Severity	Likelihood	Assessed Risk		Severity	Likelihood	Assessed Risk
<b>Land Based Plant</b>								
Machinery access	Where access points are varied and/or used on a number of occasions, the risk of pathogen transfer/introduction will increase.	4	H	UA	The number of vehicles used on site and the frequency at which they enter the intertidal area should be limited (vehicles should only enter the intertidal area on an ebb tide when there is a suitable dry area available for working). Tracking of vehicles across the intertidal zone will remain within a strict working buffer of 20m from the rock revetment (which is 30m wide, so in total a buffer of 50m from the seawall will be adhered to).	2	L	A
Use of land-based plant on the foreshore	Heavy lifting plant will be used in the intertidal zone to collect revetment rock delivered by the barges once the tide has receded. This provides the opportunity for the spread of INNS across the intertidal area.	4	M	AR	Sections of the plant that would come into direct contact with the intertidal area (track/wheels) should be thoroughly cleaned before and after use to avoid the spread of any INNS. This will also prevent potential spread from the Scheme's site area into other sites that may be used after the Scheme's construction is completed.	3	L	A

Hazard	Who or What Might be Affected?	Initial Assessment			Risk Control Measures	Residual Risk		
		Severity	Likelihood	Assessed Risk		Severity	Likelihood	Assessed Risk
Machinery origins/ previous works	Machinery travelling or having previously worked on different sites has the potential to introduce non-native or non-localised species to site.	4	H	JA	A stringent system of vehicle maintenance and cleanliness should be implemented during construction works, including frequent vehicle washing between road and beach access. A CEMP should be adhered to and available on site and NRW Pollution Prevention Guidelines should be followed.	3	M	AR
Promenade works	Material used to raise and widen the promenade may introduce alien species or spread existing species and/or pathogens on site.	3	H	AR	Existing material will be reclaimed as far as possible, therefore the risk of introduction of invasive species is considered low.	2	L	A
PPE – contractor staff, operatives and sub-contractors	PPE can collect contaminants including mud, seeds, pathogens etc. which can easily be transferred to and between sites.	4	VH	JA	All PPE especially footwear, Velcro closures, gloves, etc. should be thoroughly inspected and cleaned and inspected before arrival on site. Boot washing as well as equipment cleaning facilities (with a biocide such as Virkon) should be provided and carried out when entering and exiting site. Ideally equipment should then be allowed to dry for 48 hours before it is used elsewhere (a different site). Transfer between work areas on site should be avoided and minimised where possible.	3	M	AR
<b>Marine Vessels / Marine Plant</b>								
Ballast water	It is currently anticipated that the rocks required for the construction of the revetment on site may be transported by ship from Norway. There may be a requirement for these ships to take on board ballast waters from seas of different nations and to then dispose of these in	4	H	JA	All vessels and associated staff must ensure adherence to the Ballast Water Management Convention, 2017 for each vessel required for the works. This legislation outlines the requirements for each vessel to have a ballast water management plan, a ballast water record book and an international ballast water management certificate. Vessels should have a on-board ballast water treatment system, if this is not possible then ballast water should be	3	L	A

Hazard	Who or What Might be Affected?	Initial Assessment			Risk Control Measures	Residual Risk		
		Severity	Likelihood	Assessed Risk		Severity	Likelihood	Assessed Risk
	UK waters (and vice versa). This could result in the spread of INNS in the form of marine microbes, plants and animals (such as Carpet sea squirt ( <i>Didemnum vexillum</i> ) larvae).				exchanged mid-ocean and not near the shoreline of the site.			
Anchorage	Anchors used for the mooring of vessels pose the opportunity for bio-fouling and introduction of INNS to the site when lowered to the seabed.	3	L	A	Only the larger ships that contain the delivery of the revetment rock will be allowed to drop anchor. These ships will be moored off-site, outside of the site boundary. Barges will be held in place by tugs which are self-propelled and so these will not require anchorage within the intertidal zone. Anchors for vessels used on site should be cleaned when the opportunity arises (e.g. at port or when refuelling) to minimise cross contamination between sites. It should be noted that the anchor will provide a relatively small opportunity for cross site contamination in comparison to other hazards listed in this risk assessment.	2	L	A
Bio-fouling of revetment rock	If revetment rocks delivered on site have been reused from other projects or have spent prolonged periods of time in the marine environment, they may already be colonised to marine INNS which would then be introduced to the site.	4	M	AR	Revetment rock delivered to site should preferably be virgin material and not consist of rocks used for previous coastal defence schemes that may have spent prolonged periods of time in coastal waters. Rocks should also be clean prior to introduction into the intertidal zone on site.	2	L	A
Bio-fouling (ships, barges and tugs used)	It is possible for the hulls of ships, barges and tugs used on site to be fouled by INNS such as algae,	4	M	AR	All vessels used on site should ensure they have a copy of their Bio-fouling Management Plan on board with clear information outlining efforts to reduce bio-fouling of the vessel, e.g.	4	L	AR

Hazard	Who or What Might be Affected?	Initial Assessment			Risk Control Measures	Residual Risk		
		Severity	Likelihood	Assessed Risk		Severity	Likelihood	Assessed Risk
for revetment deliveries).	barnacles, sea squirts. This presents an opportunity to introduce INNS to site and to other waters (e.g. from UK waters at Colwyn Bay to Norwegian waters where revetment rock is obtained).				through anti-fouling treatments or use of biocides.			
Bio-fouling of groynes	It should be noted that in order to install the ecological armouring units (ecological enhancements for the Scheme), sections of the existing groyne structures will be required to be removed to fit these in place. It is possible that if these sections of removed groyne are re-used on other projects, there could be a cross contamination of INNS from the Scheme area to other locations as the groyne structures could be fouled.	3	M	AR	Once removed, the sections of groyne should be disposed of suitably on land and should not be disposed of or reused within the marine environment.	3	VL	A

# A. Bio-Security Risk Assessment Scoring Matrix

Table A.1: Bio-Security Risk Assessment Scoring Matrix

<b>Biosecurity Severity or Consequence</b>					
1 = Slight – no measurable consequence					
2 = Minor – slight impact, small scale, easily contained					
3 = Moderate – damage recoverable, moderate impact					
4 = Permanent – considerable damage, long term impacts on native flora and/or fauna					
5 = catastrophic – major damage, threat to species					
<b>Likelihood</b>					
VL = Improbable – unlikely to occur					
L = Remote – unlikely but possible					
M = Occasional – possible at some time					
H = Probable – likely to occur several times					
VH = Frequent – likely to occur many times					
<b>Acceptability of assessed risks</b>					
UA = Unacceptable (action essential)					
AR = Action required (if reasonably practical)					
A = Acceptable (manage risk)					
N = Negligible					
<b>Assessed risk</b>					
	<b>Severity</b>				
<b>Likelihood</b>	1	2	3	4	5
VL	N	N	A	A	A
L	N	A	A	AR	AR
M	A	A	AR	AR	UA
H	A	AR	AR	UA	UA
VH	A	AR	UA	UA	UA

Source: Mott MacDonald, 2015



## A.11 Marine Pollution Contingency Plan

To be completed by Contractor

## A.12 Surface Water Management Plan

To be completed by Contractor

## A.13 Operational Flood Management Plan

To be completed by CCBC

## B. Environmental Method Statements

To be completed by Principal Contractor

## **C. Emergency Procedures and Record of Environmental Incidents**

To be completed by Principal Contractor

## D. Monitoring Reports

To be completed by Principal Contractor

## **E. Supporting Drawings**

