KEY:

- D1 DGPS Datum Point
- F# Feature Number
- River Profile Location
- Cross-section Location
- River Walling
- Bridge Location [masonry]
- Weir Location [masonry]
- In-river Deposition Areas
- Rock Armour
- p# Selected Plate Locations
- Proposed Flood Defence Wall
- Proposed Flood Defence Embankment
- C08_B01 Interference Reference Number

N

Glennamought Bridge

F29 (Bridge)

C08_L01

C08_E01

P33 NW SE

p70

p69

Well

C08_G01

F27 (Weir)

Weir

F28 (River Walling)

p65

p64

F26 (River walling)

p55

p54

Culvert

Steps

C08_L02

p51

p50

p43

F25 (Bridge)

F24 (Masonry wall)

F23 (River walling)

p42

p44

C08_L03

P32 N S

Exposed Bedrock

p40

F21A-B (River walling)

p29

p30

p26

p25

F22 (Boundary Wall)

F20 (Tailrace & Culvert)

F18 (River Walling)

p22

p23

F19 (Possible Weir)

p21

F17 (Millpond)

P31 W E

P30 W E

C08_Glenamought

C08_G01

C08_T01

F01 (Bridge)

C08_R02

F02 (Dam)

F02A (see thumbnail)

Rock Armour

Gabions

Scale 1:2000

Scale 1:100

F02 (remains of Dam structure)

P34 N

F02A (remains of possible weir or sluice structure associated with Feature F02

E

P35 W

p27

S

NGR: 166524E, 75025N

ADCO

**Notes**

- Survey data superimposed on OS Background Mapping.
- Data gathered using DGPS and Total Station recording.

[Interference Reference details taken from project Dwg. RB_201 to RB_211]

A3

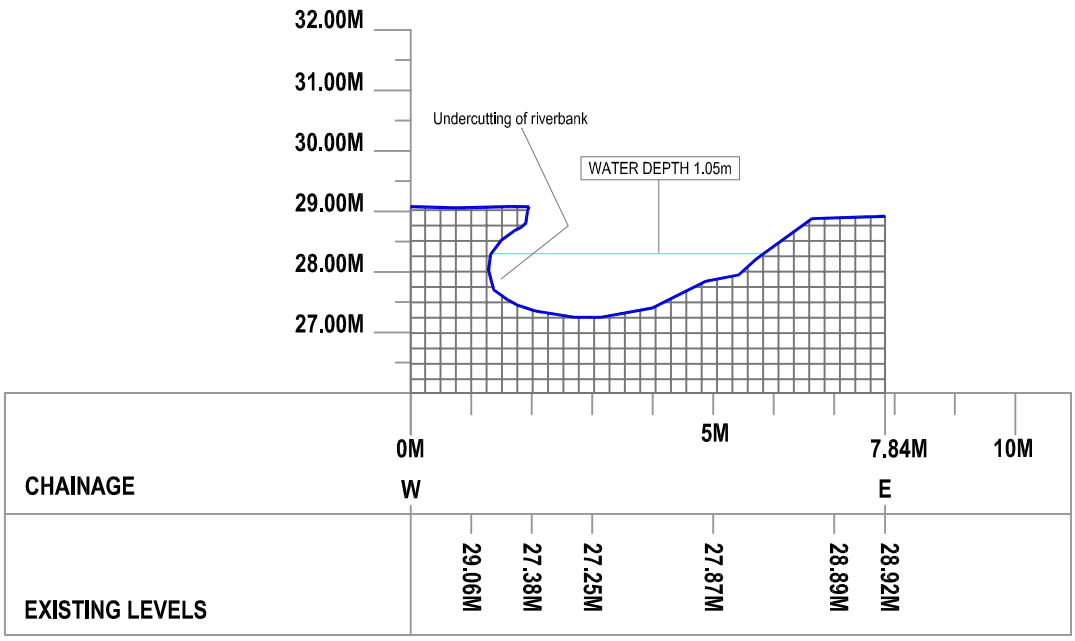
| Job/Exc No. | Compiled by | CAD reference | Client |
|---|---|---|---|
| 17D0067 | R.Bangerter | RiverBrideFRS | Ryan Hanley Consulting Engineers |
| **Date** | **Scale** | **Drawing No.** | **Project** |
| 29.09.17 | 1:2000/ 1:100 | Figure 5 | River Bride (Blackpool) Drainage Scheme |

**Title**

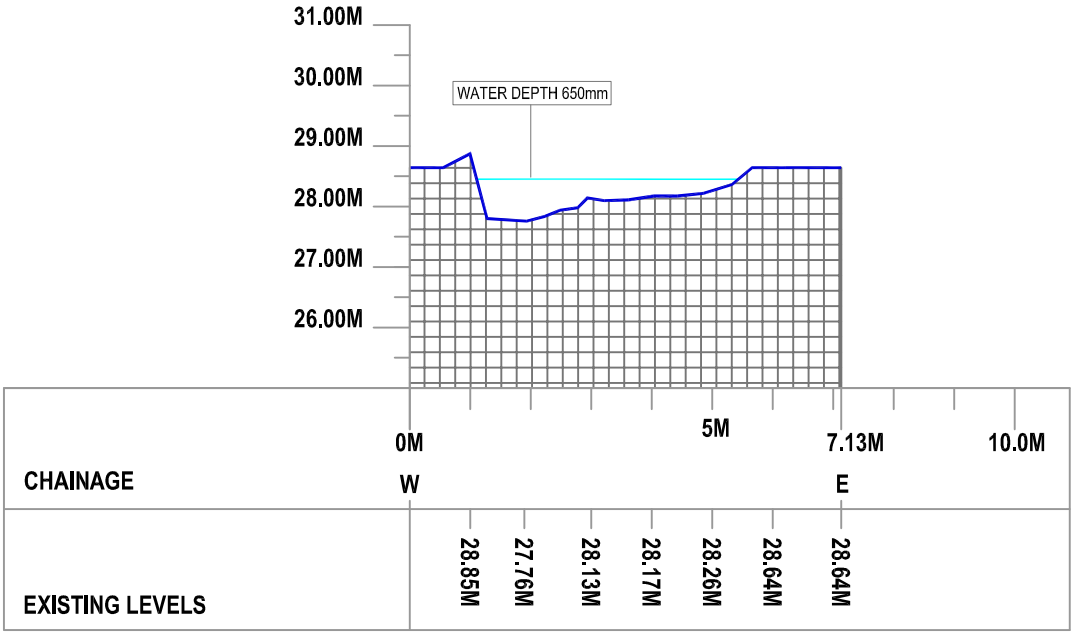
Figure 5- Drawing showing ADCO survey area, recorded features, river profiles, survey observations and selected plate locations.

[NGR: 166513E, 75025N to NGR:167290E, 75352N]

PROFILE 30




PROFILE 31




ADCO

Client
Ryan Hanley Consulting Engineers

Notes
Profiles gathered using DGPS & Total Station Recording

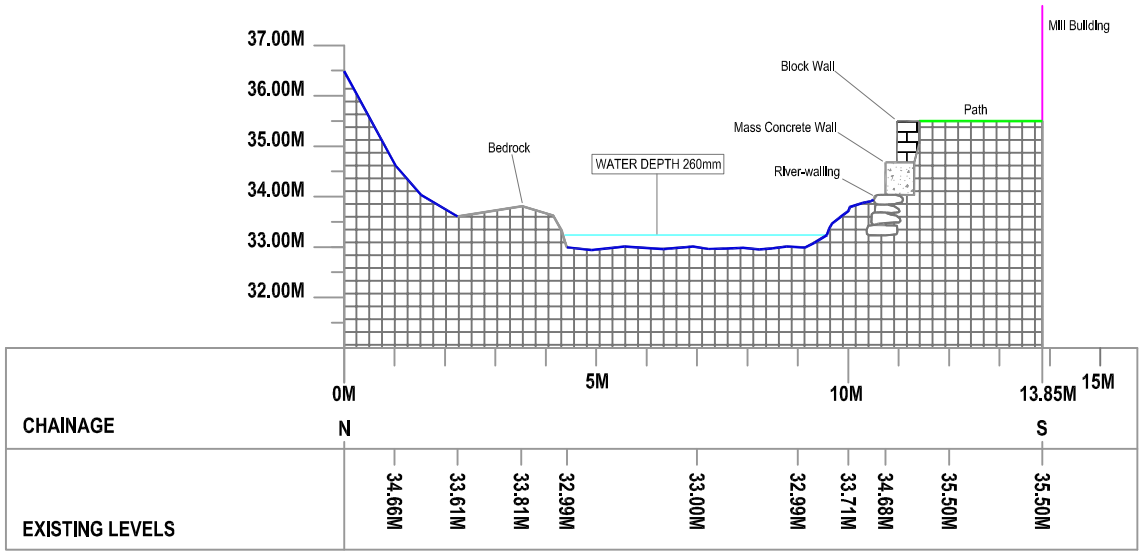
A4

Title
Figure 6- River Profiles P30 & P31 [Glennamought River].

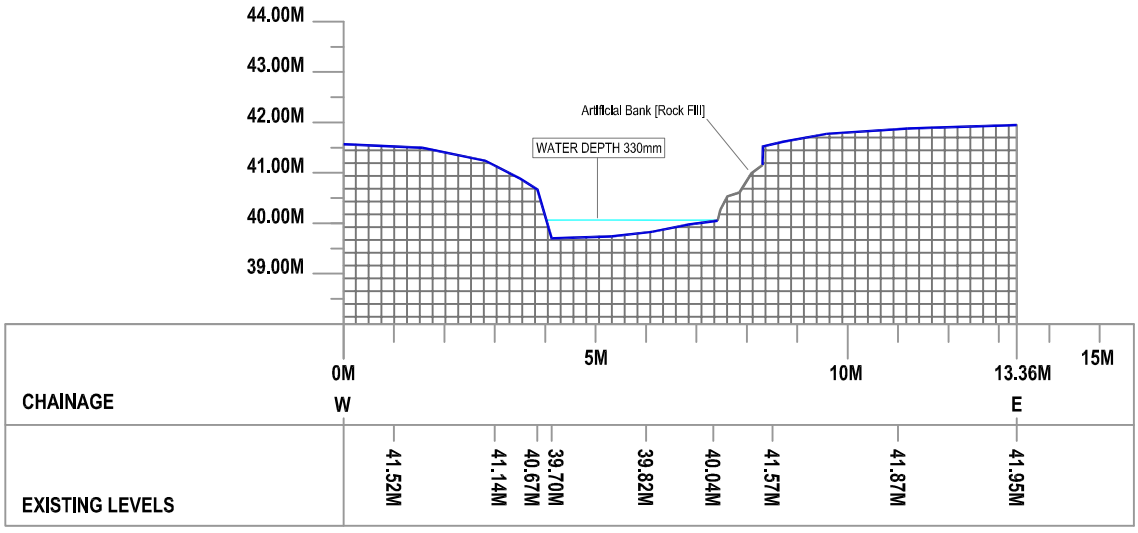
[see Figure 5 for profile locations].

| Project | Job/Exc No. | Compiled by | CAD reference | Date | Scale | Drawing No. |
|---|---|---|---|---|---|---|
| River Bride (Blackpool) Drainage Scheme | 17D0067 | R.Bangerter/ D.Copeland | RiverBrideFRS | 04.010.17 | 1:125 | Figure 6 |

PROFILE 32




PROFILE 33




ADCO

**Client**
Ryan Hanley Consulting Engineers

**Notes**
Profiles gathered using DGPS & Total Station Recording

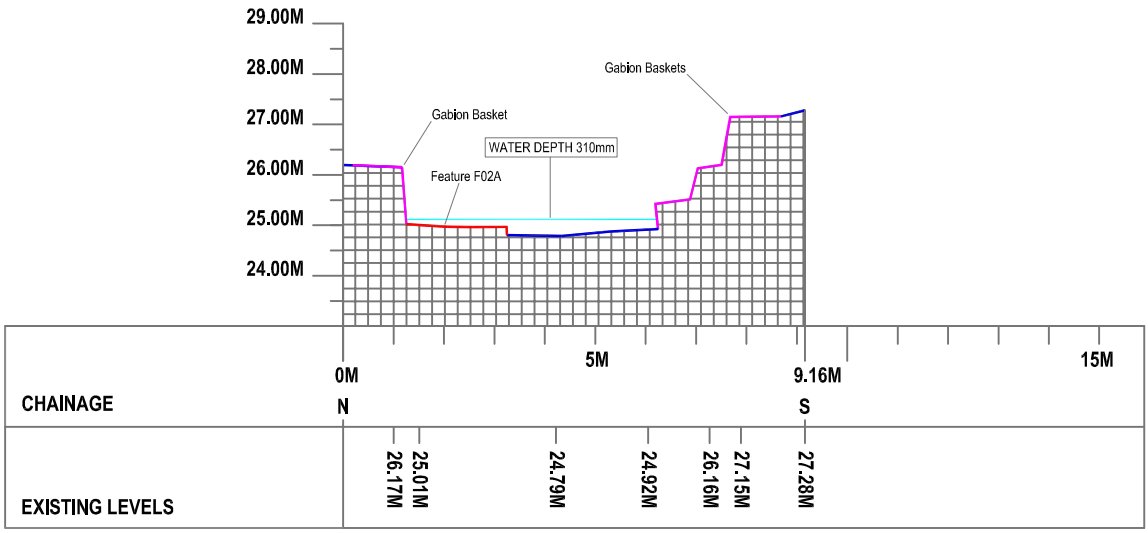
A4

**Title**
Figure 7- River Profiles P32 & P33 [Glennamought River].

[see Figure 5 for profile locations].

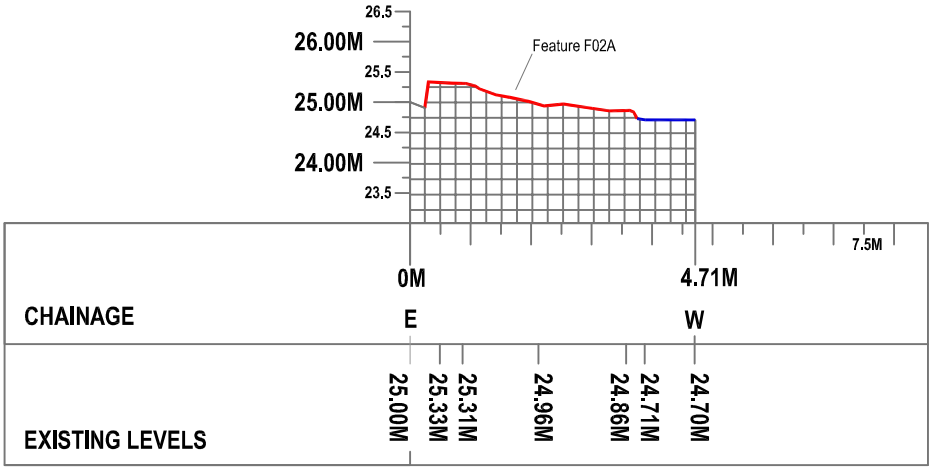
| Project | Job/Exc No. | Compiled by | CAD reference | Date | Scale | Drawing No. |
|---|---|---|---|---|---|---|
| River Bride (Blackpool) Drainage Scheme | 17D0067 | R.Bangerter/ D.Copeland | RiverBrideFRS | 04.010.17 | 1:150 | Figure 7 |

PROFILE 34




Scale 1:150

PROFILE 35




Scale 1:125

ADCO

Client
Ryan Hanley Consulting Engineers

Notes
Profiles gathered using DGPS & Total Station Recording

A4

Title
Figure 8- River Profile P34 [Glennamought River] and Profile P35, running E-W along Feature F02A.

[see Figure 5 thumbnail for profile locations].

| Project | Job/Exc No. | Compiled by | CAD reference | Date | Scale | Drawing No. |
|---|---|---|---|---|---|---|
| River Bride (Blackpool) Drainage Scheme | 17D0067 | R.Bangerter/ D.Copeland | RiverBrideFRS | 04.010.17 | 1:125/1:150 | Figure 8 |

**Plate 1:** Aerial view of the Glennamought River, looking upstream (east) from Kilnap Bridge.

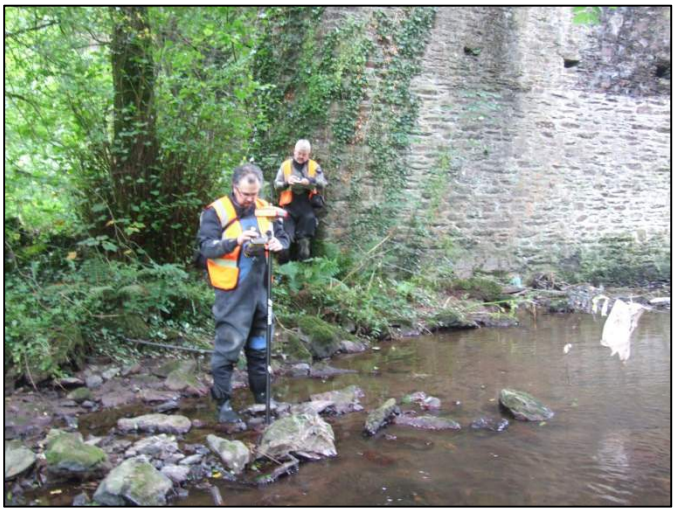


**Plate 2:** Working shot of DGPS being used to record survey observations.

**Plate 3:** Working shot of metal-detection survey in progress.


**Plate 4:** Aerial view of Glennamought River valley, looking downstream (west) from Glennamought Bridge. [1]- Kilnap Bridge, [2]- Glenn Distillery Business Park, [3]- Glennamought Bridge.

**Plate 5:** Aerial view of the Glennamought River as it flows between Kilnap Bridge and Kilnap Viaduct with location of Feature F02A indicated [red circle].

**Plate 6:** Early twentieth-century photograph showing millpond/ lake created by the presence of a dam structure (Feature F02) located upstream of Kilnap Viaduct [Photo courtesy of owners of Kilnap Glen House].

**Plate 7:** Northeast-facing view of Feature F02A, remains of weir/sluice structure, located within riverbed upstream of Kilnap Viaduct (1m scale).

**Plate 8:** Southwest-view of the river channel, immediately upstream of Kilnap Bridge.

**Plate 9:** Shot showing riverbed composition upstream of Kilnap Bridge (150mm scale).

**Plate 10:** North-facing view of north bank on upstream side of Kilnap Bridge (1m scale).

**Plate 11:** Southeast-facing view of area of deposition on south side of the river channel, upstream of Kilnap Bridge (1m scale).

**Plate 12:** South-facing view of displaced section of river-wall located on the south side of the river channel, upstream of Kilnap Bridge (1m scales).

**Plate 13:** East-facing view of river channel *c.* 40m upstream of Kilnap Bridge.

**Plate 14:** Northeast-facing view of bedrock and associated boulders forming localised areas of rapids along the river channel (1m scale).

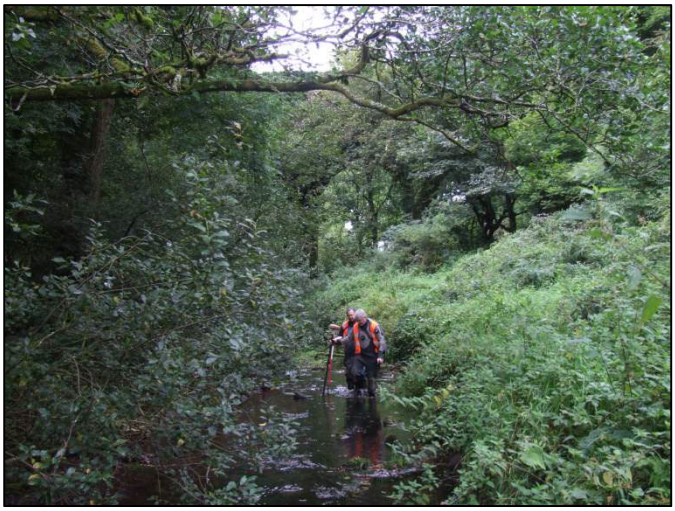


**Plate 15:** West-facing view of the river channel *c.*60m upstream of Kilnap Bridge, showing overgrown nature of riverside area.

**Plate 16:** East-facing view of flat, grass-covered, area on the north side of the channel where, located at the western extent of an in-filled millpond (1m scale).

**Plate 17:** North-facing view of the river from a point immediately downstream of a meander in the river at NGR: 166671E, 75112N (1m scale).

**Plate 18:** North-facing view of apex in river meander where the riverbed and west bank is subject to erosion (1m scale).

**Plate 19:** Example shot showing exposed area of clay riverbed substratum (150mm)

**Plate 20:** East-facing view of are of deposition upstream of a meander in the river channel (1m scale).

**Plate 21:** Southwest-facing view of Feature F16; remains of millpond that once serviced the downstream corn mill at Kilnap (1m scale).

**Plate 22:** South-facing view of the remains of a section of river walling, Feature F17, that runs along the south side of the river channel (1m scale).

**Plate 23:** Southeast-facing view of the possible remains of a small weir, Feature F18, located upstream of Feature F016 (1m scale).

**Plate 24:** East-facing view of river upstream of Feature F18 (1m scale).

**Plate 25:** Southwest-facing view of masonry culvert accommodating flow the head-race to the tailrace, Feature F19, at Glen Mills/ Glen Distillery complex (1m scale).

**Plate 26:** View of wall forming the north side of a tailrace, Feature F19, structure at the Glen Mills/ Glen Distillery complex (1m scale).

**Plate 27:** Detail shot showing lighter construction used for the upper part of the tailrace wall (150mm scale).

**Plate 28:** Example shot of riverbed composition upstream of tailrace Feature F19 (150mm scale).

**Plate 29:** Southeast facing view of section of river-walling, Feature F20, located upstream of the tailrace for the Glen Mills/ Glen Distillery site (1m scale).

**Plate 30:** South-facing view of masonry boundary, Feature F21, wall located at the southern end of the Glen Mills/ Glen Distillery site (1m scale).

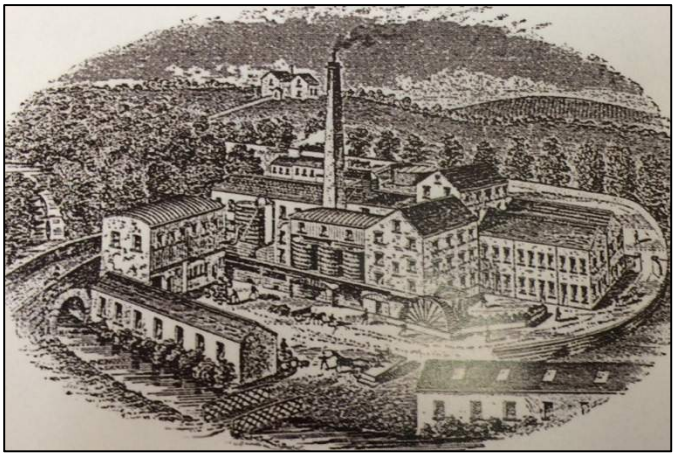


**Plate 31:** Illustration of the Glen Distillery complex, *c.*1890, from the Stratton Guide; sourced from an undated local history pamphlet by Teresa O'Brian (image forwarded to ADCO by John Cronin & Associates).

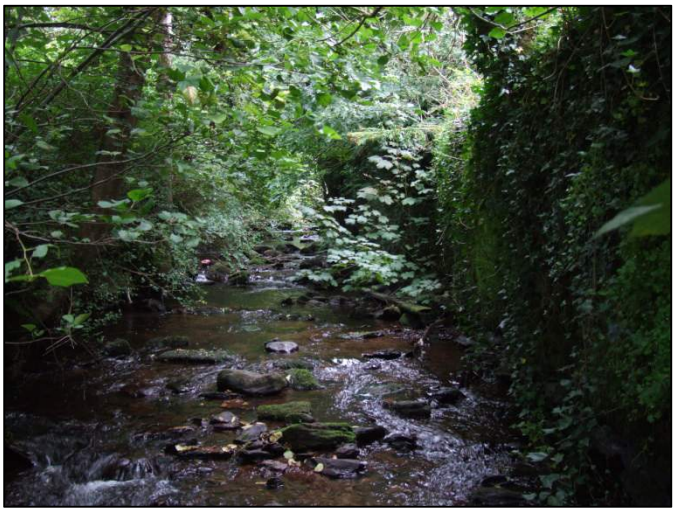


**Plate 32:** West-facing view of the straightened channel of the river as it flows past the Glen Mills/ Glen Distillery site.

**Plate 33:** Example shot of riverbed composition adjacent to the Glen Mills/ Glen Distillery site (150mm scale).

**Plate 34:** Example of bedrock boulder lying within the river channel (1m scale).

**Plate 35:** Example of shelving bedrock visible along the base of the north bank (1m scale).

**Plate 36:** East-facing view across the northern façade of a mill building located adjacent to the river channel at the Glen Mills/ Glen Distillery site (1m scale).

**Plate 37:** Detail shot of the northern façade of a mill building located adjacent to the river channel at the Glen Mills/ Glen Distillery site (1m scale).

**Plate 38:** East-facing view of made-ground forming the south side of the river channel as it passes the Glen Mills/ Glen Distillery site (1m scale).

**Plate 39:** Southeast-facing view of modern block-work overlying the foundations of nineteenth-century river-walling on south side of the channel (1m scale).

**Plate 40:** The downstream remains of nineteenth-century river-walling, Feature F22, running along the south side of the channel at the Glen Mills/ Glen Distillery site (1m scale).

**Plate 41:** East-facing view of river channel where river-walling, Feature F22, survives to its original height (1m scale).

**Plate 42:** South-facing view of river channel where river-walling, Feature F22, survives to its original height (1m scale).

**Plate 43:** South-facing view of stone-lined drain located at base of Feature F22; NGR: 166974E, 75148N (1m scale).

**Plate 44:** Set of river-access steps built into Feature F22, located at NGR: 166973E, 75148N (1m scale).

**Plate 45:** Southeast-facing view of Feature F22, note modern block-work used to replace any collapsed sections of the river wall (1m scale).

**Plate 46:** East-facing view of river channel showing collapsed masonry within the watercourse.

**Plate 47:** North-facing view of the foundations of river walling on the north side of the channel (1m scale).

**Plate 48:** East-facing view of the river downstream of an unnamed bridge, Feature F24, crossing the river immediately upstream of the Glen Mill/ Glen Distillery site (1m scale).

**Plate 49:** Southwest-facing view of section of rubble-stone wall, Feature F23, on downstream side of Feature F24 (1m scale).

**Plate 50:** South-facing view of the Feature F23 (1m scale).

**Plate 51:** South-facing view of the downstream side of Feature F24 (unnamed bridge) with Feature F23 (rubble-stone wall) obscuring the southernmost part of the bridge's arch-ring (1m scale).

**Plate 52:** West-facing view of the upstream side of bridge Feature F24 (1m scale).

**Plate 53:** View across arch-wall on north side of Feature F24 (1m scale).

**Plate 54:** West-facing view of upstream side of Feature F24; note buttress structures to east and west of the bridge's archway (1m scale).

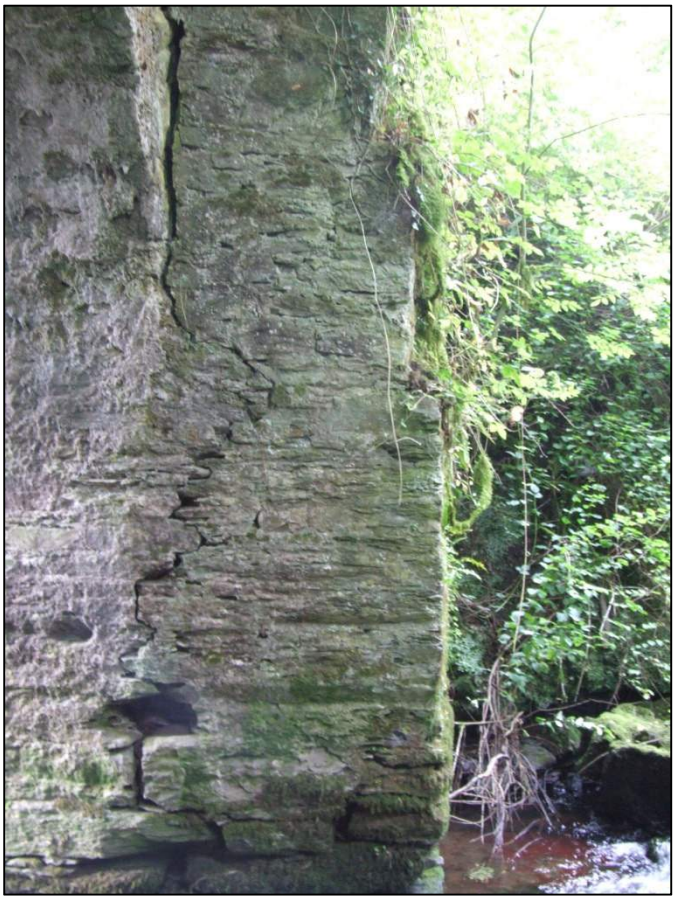


**Plate 55:** North-facing view of reinforcing buttress built into the upstream side of Feature F24; located on the north side of the archway.

**Plate 56:** West-facing view of stone-lined apron covering the riverbed beneath bridge Feature F24 (1m scale).

.

**Plate 57:** West-facing view of the bridge's apron as it extends across the river channel on the downstream side of Feature F24.

**Plate 58:** East-facing view of the stone-lined apron extending across the riverbed on the downstream side of the bridge, Feature F24.

**Plate 59:** Example of riverbed composition immediately downstream of the bridge's apron, *c.* 11 downstream of Feature F24.

**Plate 60:** North-facing view of river walling, Feature F25, as it abuts the downstream side of the bridge (1m scale).

**Plate 61:** North-facing view of Feature F25, shot taken at a point where the wall is best preserved (1m scale).

**Plate 62:** Example shot of riverbed composition upstream of Feature F24.

**Plate 63:** East-facing view of river channel at a point *c.* 50m upstream of Feature F24 (1m scale).

**Plate 64:** Northeast-facing view of the collapsed remains of a section of weir, Feature F26, located on the north side of the channel at NGR: 167061E, 75210N (1m scale).

**Plate 65:** South-facing view along a section of river-walling, Feature F27, located along the south side of the channel, upstream of Feature F26 (1m scale).

**Plate 66:** Northeast-facing view of the river channel *c.* 60m upstream of Feature F027; note eroded nodules of clay from the attended bank structure (1m scale)

**Plate 67:** Example of shelving bedrock forming the riverbed across section of the Glennamought River, *c.* 80m downstream of Glennamought Bridge (1m scale).

**Plate 68:** Example of shelving bedrock forming the riverbed across section of the Glennamought River, *c.* 70m downstream of Glennamought Bridge (1m scale).

**Plate 69:** East-facing view of the downstream side of Glennamought Bridge, Feature F28 (1m scale).

**Plate 70:** South-facing view of upstream side of Glennamought Bridge, Feature F28 (1m scale).

**Plate 71:** West-facing view of river as it flows beneath Glennamought Bridge, Feature F28.

**Plate 72:** Southeast-facing view of southern bank, *c.* 30m upstream of Glennamought Bridge; note rubble stone placed to consolidate the bank structure.

**Plate 73:** Northeast-facing view of southern bank at a point *c.* 45m upstream of Glennamought Bridge (1m scale).

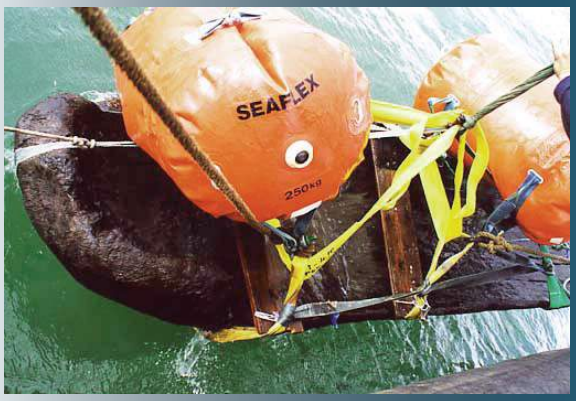
**Plate 74:** Example shot of riverbed composition upstream of Glennamought Bridge (150mm scale).

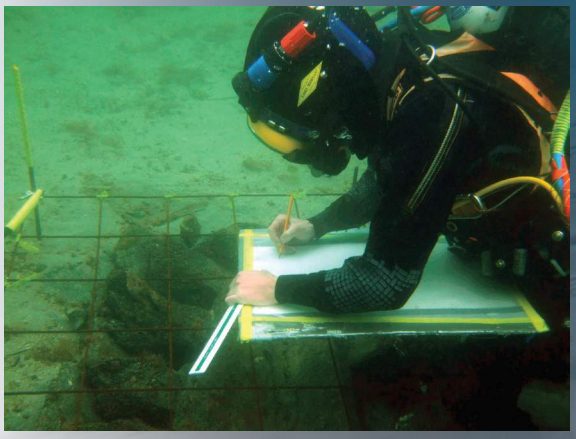
**Plate 75:** Northeast-facing view of the river channel at a point near the upstream limit of the assessment area (1m scale).

**Plate 76:** Southeast-facing view of the partial remains of a nineteenth-century mill building, one of three structures that once occupied land on the south side of the river, upstream of Glennamought Bridge (1m scale)

# ADCO

**Leading Maritime Archaeology**

Providing effective underwater and land-based archaeological solutions since 1999.

Conducting intelligent diving and underwater/marine inspections for the civils and scientific sectors.

Specialised in marine geophysical data interpretation.

ADCO works closely with clients from project inception, through EIS, to full construction stages, delivering the highest quality effectively.

**ADCO Ltd.**
**Church Terrace, Bray**
**Co. Wicklow, Ireland**

**www.adco-ie.com**
**info@adco-ie.com**
**+353 (0) 1 908 1541**

**Appendix 11B – Traffic Impact Assessment**

Office of Public Works

# River Bride (Blackpool) Certified Drainage Scheme

## EIAR Addendum Report 11B - Traffic Impact Assessment

EIAR - RFI Addendum

Final | 2 November 2020



Job number 264842-06

**Ove Arup & Partners Ireland Ltd**

**Arup**
One Albert Quay
Cork
T12 X8N6
Ireland
www.arup.com

ARUP

# Document Verification

ARUP

| | | | | |
|---|---|---|---|---|
| | | River Bride (Blackpool) Certified Drainage Scheme | | 264842-06 |
| **Document title** | | EIAR Addendum Report 11B - Traffic Impact Assessment | | **File reference** |
| **Document ref** | | EIAR - RFI Addendum | | |
| **Revision** | **Date** | **Filename** | 264842-00_20201102_Addendum Traffic_Final.docx | |
| Final | 2 Nov 2020 | **Description** | | |
| | | | Prepared by | Checked by | Approved by |
| | | Name | Clifford Killeen/ David Kilduff | Clifford Killeen | Emer Kennedy |
| | | Signature |  |  |  |
| | | **Filename** | | |
| | | **Description** | | |
| | | | Prepared by | Checked by | Approved by |
| | | Name | | | |
| | | Signature | | | |
| | | **Filename** | | |
| | | **Description** | | |
| | | | Prepared by | Checked by | Approved by |
| | | Name | | | |
| | | Signature | | | |
| | | **Filename** | | |
| | | **Description** | | |
| | | | Prepared by | Checked by | Approved by |
| | | Name | | | |
| | | Signature | | | |

**Issue Document Verification with Document** ✓

# Contents

Page

**1 Addendum No. 11B – EIAR Chapter 11 – Traffic Impact Assessment 1**

1.1 Introduction 1
1.2 Guidance for the Reader 1
1.3 RFI 9 - Impact Assessment 2
1.4 Evaluation of Traffic Impacts 2
1.5 Assessment of Worst-Case Scenario 26
1.6 Potential Impact of Traffic Management Measures 27
1.7 Evaluation of Traffic Impacts – Conclusion 43

# 1 Addendum No. 11B – EIAR Chapter 11 – Traffic Impact Assessment

## 1.1 Introduction

This report addresses the Traffic aspects of the Request for Further Information (RFI) Item no. **9**.

## 1.2 Guidance for the Reader

Further information is presented in this report to address the Roads and Traffic aspects relating to **RFI 9** and supersedes the information already presented in Section 11.2.2 – 11.2.4 of *Chapter 11 – Material Impacts Impact Assessment*.

Where practicable, any reference in this addendum to a chapter in the 2018 EIAR is in *italics* to distinguish it from the addendum, which is in normal text format.

This report is to be read in conjunction with **Chapter 11** of the EIAR addendum and *Chapter 11 – Material Impacts Impact Assessment* of the 2018 EIAR.

In particular the information provided in this report supersedes the following sections of the *Chapter 11 – Material Impacts Impact Assessment* of the 2018 EIAR:

- *Section 11.2.2 Existing Traffic;*
- *Section 11.2.3 Construction Traffic; and*
- *Section 11.2.4 Potential Impacts on Traffic and Transport Infrastructure.*

This report makes use of information from **Chapter 3** *Description of the Proposed Development,* and **Chapters 4 and 5** of the EIAR and EIAR Addendum in relation to the proposed scheme and construction activities and implementation of maintenance activities where relevant.

The following Requests for Information (RFI)s relevant to Roads and Traffic are addressed in various sections of this report.

## 1.3 RFI 9 - Impact Assessment

This report provides the details requested in **RFI No 9. RFI No 9** specifically requests the:

*"Review of assessment of impacts on traffic in s11 to include further detail of impacts of road closures and partial road closures on pedestrian and vehicular traffic insofar as required to ensure clear and robust assessment of the likely significant impacts of these closures."*

*Chapter 11 – Material Impacts Impact Assessment* of the original 2018 EIAR provided details on the traffic assessment and associated mitigation.

This section addresses the points made in **RFI 9**, which relate to the detail of the traffic assessment. A more granular assessment is provided, which takes account of the individual assessment of the traffic impact associated with the construction activities on each of the works areas, as well as the cumulative impact that likely concurrent construction activities may have on the local road network.

A quantitative impact assessment is provided, based upon the estimated traffic volumes and considering the proposed construction programme and overlap of activities. A qualitative impact assessment of the various traffic management interventions that are proposed as part of the construction programme is also provided in this addendum report.

## 1.4 Evaluation of Traffic Impacts

The River Bride (Blackpool) Certified Drainage Scheme as detailed in ***Chapter 3 Description of the Proposed Development*** of the submitted EIAR is mainly concerned with works to and in the vicinity of the River Bride North and the Glenamought River, and as the principal impacts are envisaged to be associated with the construction of the scheme, it is stated in the EIAR that there will not be any permanent impact on the road network post-completion.

### 1.4.1 Construction Impact – Scheme Works

The potential specific anticipated impacts associated with the proposed works on the road network are as follows (as stated in *Chapter 11 – Material Impacts Impact Assessment* of the 2018 EIAR):

- Temporary impact during construction due to the replacement of two existing bridges/culverts on the Glenamought River with new reinforced concrete bridges between Sweeney's Hill and the North Point Business park;
- Temporary impact during construction due to the replacement of two existing bridges/culverts on the River Bride with new reinforced concrete bridges between the North Point Business Park and Commons Road (N20);

- Temporary impact during construction due to the construction of 342m of new reinforced concrete culvert (approximate internal dimensions 5.5m x 2.1m) commencing downstream of the Blackpool bypass (N20 Commons Road) at Orchard Court and terminating under the Old Commons Road to the North of Blackpool Church;
- Temporary impact during construction due to the replacement and slight realignment of 7m of existing culvert (approximate internal dimensions 5.5m x 2.1m) on Old Commons Road upstream of Blackpool Church;
- Temporary impact during construction due to the rehabilitation of 17m of existing culvert on Old Commons Road upstream of Blackpool Church and 163m of existing culvert on Watercourse Road upstream of Madden's Buildings;
- Temporary impact during construction due to the replacement and slight realignment of 69m of existing culvert at Blackpool Church commencing on Old Commons Road and terminating on Watercourse Road. This will also involve culverting an open section of channel outside the Church; and
- Temporary impact during construction due to the replacement and slight realignment of 62m of existing culvert at Madden's Buildings commencing on Watercourse Road and terminating on the North City Link Road (N20). This will involve modifications to the existing weir structure within the 'Brewery' culvert, which runs under Watercourse Road.

### 1.4.2 Construction Phasing

The proposed scheme construction will be undertaken in a number of discrete zones, with an estimated commencement in 2021 and conclusion in 2023, with a total construction timeframe estimate of approximately 2.5 years.

The proposed individual zones of the overall works are as follows:

- Zone A – Collins/O'Shea's – comprising works areas 2H, 2J, and 2K;
- Zone B – Kilnap/Woodpark – comprising works areas 2E, 2F, and 2G;
- Zone C – Rose Cottage – comprising works areas 2A and 2B;
- Zone D – Northpoint – comprising works areas 2C and 2D;
- Zone E – Common's Inn – comprising works areas 3A, 3B, 3C, 3D, 3E, 3F and 3G;
- Zone F – Fitz' Boreen to Retail Park – comprising works areas 4A, 4B, 4C, 4D, 4E, 4F, 4G, 4H, 4J and 4K;
- Zone G – Blackpool Retail Park – comprising works areas 5A and 5B;
- Zone H – Orchard Court – comprising works areas 6A, 6B, 6C and 6D;
- Zone I – Blackpool Church – comprising works areas 7A, 7E and 7F;
- Zone J – Spring Lane – comprising works areas 8A, 8B and 8C;

- Zone K – Blackpool Church to Madden's Junction – comprising works areas 7B and 7C; and
- Zone L – Madden's Junction to end of scheme – comprising works area 7D.

### 1.4.3 Construction Impact – Increased Traffic

Additionally, the other impact referenced in the 2018 EIAR is the impact associated with the temporary increase in traffic flows on the road network due to the following:

a) The additional volumes of traffic generated by the construction activities during each zone; and

b) The necessary traffic management measures that will be put in place, which may include full or partial road closures.

The assessment of these impacts is presented in this section.

#### 1.4.3.1 Background Traffic Volumes

The study area road network comprises the N20 National Primary road and a series of regional and local roads. The N20 is the principal traffic route between Cork and Limerick and passes through Blackpool (acting as a bypass of Blackpool itself).

The traffic volumes on the local road network have been obtained from the National Transport Authority's South West Regional Model (SWRM), for the AM Peak, PM Peak and All-day scenarios.

These traffic flows were then factored by the relevant annual TII Growth factor of 1.0294 to bring the flow to typical 2020 background flows.

In addition, the SWRM has also provided the theoretical capacity of each of the relevant road links. The table below presents the relevant road links with the corresponding traffic volumes and capacities.

The selected road links are those with potential direct impact of the construction activities associated with this scheme.

**Table 1: Local Road Network – Flows and Capacities**

| Zone | Area | Road impacted on | AM Flows | PM Flows | Daily Flows | Link Capacity (per Hour) |
|---|---|---|---|---|---|---|
| A | O'Shea's/Collins | Old Whitechurch Road | 103 | 103 | 324 | 1,230 |
| B | Kilnap/Woodpark | Old Mallow Road (from the east) | 497 | 462 | 1,267 | 1,900 |
| | | Sweeney's Hill (from the west) | 470 | 363 | 1,345 | 1,479 |
| C | Rose Cottage | Commons Road (north of N20 underpass link road) | 495 | 535 | 1,505 | 1,100 |
| | | L2790 Commons Road, Lower Killeens Road | 482 | 519 | 1,461 | 649 |
| D | Northpoint | Commons Road | 495 | 535 | 1,505 | 1,100 |
| E | Common's Inn | N20 Commons Road | 1,825 | 2,202 | 6,332 | 2,540 |
| F | Fitz' Boreen to Blackpool Retail Park | N20 Commons Road | 1,825 | 2,202 | 6,332 | 2,540 |
| | | Old Mallow Road link to N20 Commons Road | 199 | 124 | 522 | 525 |
| G | Blackpool Retail Park/Shopping Centre | N20 Commons Road | 1,661 | 2,106 | 5,932 | 2,250 |
| | | Redforge Road | 477 | 713 | 1,734 | 1,900 |
| H | Orchard Court | Old Commons Road | 379 | 357 | 1,299 | 1,300 |
| I | Blackpool Church | Watercourse Road | 861 | 761 | 2,497 | 1,900 |
| | | N20 Blackpool Bypass | 1,661 | 2,106 | 5,932 | 2,250 |
| J | Spring Lane | Dublin Street | 1,518 | 1,482 | 4,436 | 1,900 |
| | | Spring Lane | 130 | 306 | 542 | 729 |
| K | Blackpool Church to Madden's Junction | N20 Blackpool Bypass | 1,661 | 2,106 | 5,932 | 2,250 |
| | | Watercourse Road | 861 | 761 | 2,497 | 1,900 |
| L | Madden's Junction to end of Scheme | Watercourse Road | 861 | 761 | 2,497 | 1,900 |
| | | N20 | 2,232 | 2,837 | 7,286 | 2,250 |

### 1.4.4 Construction Traffic Volumes

*Table 11.5 – Estimated Construction Traffic* of the 2018 EIAR presented a breakdown of the estimated construction traffic flows associated with the proposed development, as follows:

**Table 2: Estimated Construction Traffic (2018 EIAR)**

| Description of Trip | Total Round Trips | Round Trips Per Day* |
|---|---|---|
| Delivery of Materials | 1,440 | 4 |
| Removal of Excavated Materials | 1,080 | 3 |
| Workforce | 7,200 | 20 |
| **TOTAL** | | 27 |

***Trips per Day calculated based on total works programme of 360 working days**

As the scheme has advanced in terms of design since the preparation of the 2018 EIAR, the numbers presented above from *Table 11.5 – Estimated Construction Traffic* of the 2018 EIAR are therefore replaced with an updated estimate of the relevant construction traffic flows associated with each individual area of works.

This is a result of the scheme progressing in terms of the design detail, allowing for updated construction traffic estimates to be derived. In addition, a number of conservative assumptions have been applied to the scheme construction traffic estimates to further ensure robustness. This updated assessment also assumes multiple work crews working in parallel to ensure the most onerous condition is considered in the traffic impact assessment.

These updated volumes of traffic associated with the construction activities have been estimated on the basis of the requirements of each individual area of works.

**Table 3: Estimated Construction Traffic – Individual Zones**

| Works Zone | Total Trips (2-way)[1] | No. Active Weeks | Total Trips/ Week (2-way) | Total Trips/ Day (2-way)[2] | Total Trips/ Hour (2-way)[3] | Workers (Daily 2-way)[5] | Workers (Hourly 2-way)[4] | Total Daily Trips (2-way) | Total Hourly Trips (2-way) |
|---|---|---|---|---|---|---|---|---|---|
| **Collins/ O'Shea** | 243 | 9 | 27 | 11 | 2 | 20 | 5 | 31 | 7 |
| **Kilnap/ Woodpark** | 324 | 11 | 29 | 12 | 2 | 20 | 5 | 32 | 7 |
| **Rose Cottage** | 185 | 9 | 21 | 8 | 1 | 20 | 5 | 28 | 6 |
| **Northpoint** | 238 | 9 | 26 | 11 | 2 | 20 | 5 | 31 | 7 |
| **Common's Inn** | 593 | 28 | 21 | 8 | 1 | 20 | 5 | 28 | 6 |
| **Fitz' Boreen to Blackpool Retail Park** | 2514 | 55 | 46 | 18 | 3 | 32 | 8 | 50 | 11 |
| **Blackpool Retail Park** | 1207 | 19 | 64 | 25 | 4 | 32 | 8 | 57 | 12 |
| **Orchard Court** | 806 | 48 | 17 | 7 | 1 | 20 | 5 | 27 | 6 |
| **Blackpool Church** | 175 | 15 | 12 | 5 | 1 | 20 | 5 | 25 | 6 |
| **Spring Lane** | 22 | 14 | 2 | 1 | 1[6] | 20 | 5 | 21 | 5 |

| Works Zone | Total Trips (2-way)[1] | No. Active Weeks | Total Trips/ Week (2-way) | Total Trips/ Day (2-way)[2] | Total Trips/ Hour (2-way)[3] | Workers (Daily 2-way)[5] | Workers (Hourly 2-way)[4] | Total Daily Trips (2-way) | Total Hourly Trips (2-way) |
|---|---|---|---|---|---|---|---|---|---|
| **Church to Madden's Junction** | 22 | 16 | 1 | 1 | 1[6] | 20 | 5 | 21 | 5 |
| **Madden's Junction to end** | 10 | 6 | 2 | 1 | 1[6] | 20 | 5 | 21 | 5 |

**[1]Total number of HGV trips across the entire works duration**

**[2]Weekly number of trips, divided across 5 working days and doubled to account for a more intensive period of works**

**[3]Daily number of trips (increased by a factor of 2 as per above), divided across 8 working hours and increased by an additional 20% to account for a potential busier morning and evening period (note, work hours as per EIAR are 08:00 – 18:00; this has been reduced to 8 hours to account for the most onerous conditions and ensure a robust assessment**

**[4]It is assumed there will be crews of 5 workers at all sites, with the exception of Fitz' Boreen and Blackpool Retail Park, where it is assumed there will be 8 workers**

**[5]It is assumed that all workers arrive in the AM Peak, depart in the PM peak and all workers leave and return during lunch**

**[6]Less than one round trip on average – trips have been rounded up to 1**

The total trips presented above are the total HGV and workforce trips associated with each Zone of the works and are based on the total number of trips averaged across the works duration. The trips have been calculated for the entirety of the activity and, based upon the proposed works programme, the daily and hourly volumes were estimated. To estimate daily and hourly volumes, the following assumptions were made:

- A 5-day working week and 8 hour working day were assumed (to ensure a robust assessment);
- To account for a potential busier construction period, the daily average traffic flow was doubled;
- To ensure a robust assessment of the morning and evening peak periods, the hourly flows were further increased by an additional 20%;
- It has been assumed that crews for all Zones will have an average of 5 workers on site, with the exception of Fitz' Boreen and Blackpool Retail Park, where it is assumed that there will be 8 workers per crew;
- For robustness, all workers are assumed to arrive on site in the AM Peak period and depart during the PM Peak period (although it is likely that working hours may not commence or end at these times); and
- All workers are assumed to depart and return by car during the lunchtime period (for the purpose of calculating a robust daily two-way flow).

The daily and peak hour traffic flows and resultant impacts are shown below in Table 4. Note that the AM Peak hour was used for assessment of the peak hour as typically AM peak period traffic is slightly larger than PM peak period traffic.

**Table 4: Peak Hour Flows and Resultant Impacts**

| Zone | Area | Road Impacted | Daily Traffic and Impact | | | AM Peak Hour Traffic and Impact | | |
|---|---|---|---|---|---|---|---|---|
| | | | Background Traffic | Const. Trips | Impact | Background Traffic | Const. Trips | Impact |
| A | O'Shea's/ Collins | Old Whitechurch Road | 324 | 31 | 10% | 103 | 7 | 7% |
| B | Kilnap/ Woodpark | Old Mallow Road (from the east) | 1,267 | 32 | 3% | 497 | 7 | 1% |
| | | Sweeney's Hill (from the west) | 1,345 | 32 | 2% | 470 | 7 | 1% |
| C | Rose Cottage | Commons Road (north of N20 underpass link road) | 1,505 | 28 | 2% | 495 | 6 | 1% |
| | | N20 off-slip to Lower Killeens Road | 1,299 | 28 | 2% | 379 | 6 | 2% |
| D | Northpoint | Commons Road | 1,505 | 31 | 2% | 495 | 7 | 1% |
| E | Common's Inn | N20 Commons Road | 6,332 | 28 | 0% | 1,825 | 6 | 0% |
| F | Fitz' Boreen to Blackpool Retail Park | N20 Commons Road | 6,332 | 50 | 1% | 1,825 | 11 | 1% |
| | | Old Mallow Road link to N20 Commons Road | 522 | 50 | 10% | 199 | 11 | 6% |
| G | Blackpool Retail Park/Shopping Centre | N20 Commons Road | 5,932 | 57 | 1% | 1,661 | 12 | 1% |
| | | Redforge Road | 1,734 | 57 | 3% | 477 | 12 | 3% |
| H | Orchard Court | Old Commons Road | 1,299 | 27 | 2% | 379 | 6 | 2% |
| I | Blackpool Church | Watercourse Road | 2,497 | 25 | 1% | 861 | 6 | 1% |

| Zone | Area | Road Impacted | Daily Traffic and Impact | | | AM Peak Hour Traffic and Impact | | |
|---|---|---|---|---|---|---|---|---|
| | | | Background Traffic | Const. Trips | Impact | Background Traffic | Const. Trips | Impact |
| | | N20 Blackpool Bypass | 5,932 | 25 | 0% | 1,661 | 6 | 0% |
| J | Spring Lane | Dublin Street | 4,436 | 21 | 0% | 1,518 | 5 | 0% |
| | | Spring Lane | 542 | 21 | 4% | 130 | 5 | 4% |
| K | Blackpool Church to Madden's Junction | N20 Blackpool Bypass | 5,932 | 21 | 0% | 1,661 | 5 | 0% |
| | | Watercourse Road | 2,497 | 21 | 1% | 861 | 5 | 1% |
| L | Madden's Junction to end of Scheme | Watercourse Road | 2,497 | 21 | 1% | 861 | 5 | 1% |

### 1.4.5 Potential Impact of Construction-Related Traffic

The potential impact of construction traffic on the traffic conditions of the surrounding road network is outlined below, with reference to the background traffic and the estimated trips generated by the various construction activities. This information is presented for each individual Zone of the works.

The impacts are presented in accordance with the Environmental Protection Agency classification terminology (EPA, 2017).

#### 1.4.5.1 Mitigation Measures Developed for Construction Program

The following sections of this report outline the potential impacts of construction-related traffic on a zone-by zone basis. However, it must also be noted that a number of mitigation measures have been factored into the construction program. These include the following:

- Works in particular zones/areas are to be scheduled to avoid overlap with adjacent areas where the impacts of these in parallel would be significant;
- Works at Maddens junction to be undertaken in June/July/August and to avoid the Cork City Marathon;
- Fitz's Boreen bridge replacement to be undertaken between September and November (inclusive);
- Works at Blackpool Shopping Centre are not to be undertaken during November or December;
- Night works to be undertaken for specific activities (such as lifting of pre-cast bridge beams, etc.);

- Works in the area of the Dulux factory to be undertaken in the off-peak production period (timing to be coordinated with owners); and
- Further liaisons will take place with Cork City Council, An Garda Síochána and impacted landowners for all works areas in order to minimise the impact on traffic flows at critical junctions and locations.

## Zone A – Collins/O'Shea

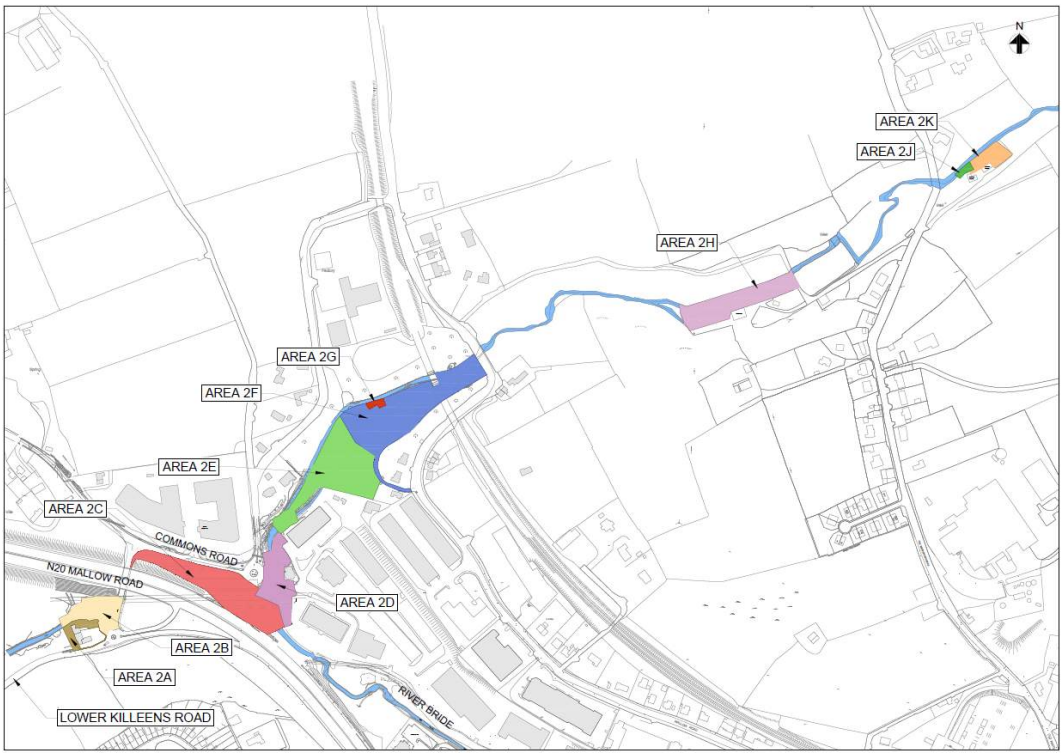



**Figure 1: Works Areas within Zone A**

The works in this zone cover Areas 2H, 2J and 2K.

The works in Area 2H (O'Shea's) comprise the construction of a reinforced concrete flood defence wall and associated works, in lands off the Old Mallow Road.

For Collins, the works in Area 2J comprise the construction of a reinforced concrete flood defence wall and associated works, and in Area 2K the works comprise the construction of a flood defence embankment and associated works, in lands off the Old Mallow Road.

The construction activities in this zone are expected to generate a total of 243 two-way HGV trips and 900 two-way personnel trips over a period of 9 weeks. The average daily construction volumes therefore correspond to a maximum of 31 two-way trips, which in turn, equates to a peak hourly volume of 7 two-way trips (note that the construction workers will only arrive, and not depart in the AM Peak hour and will only depart, and not arrive during the PM Peak hour).

The construction access will likely be located on the Old Whitechurch Road, and this is where the impact will be mainly notable.

Based on the flows from the SWRM, the impact of construction trips generated by works in Zone A will equate to 9.6% daily and 6.7% during the hourly peak. The proportional impact is due to the prevailing traffic flows being low on the road network at this location.

| Time | Background | Construction Trips | Impact |
|---|---|---|---|
| Daily | 324 | 31 | +9.6% |
| Peak Hour | 103 | 7 | +6.7% |

The impact on the local road network of construction traffic associated with the construction activities in this area is considered **temporary slight**.

## Zone B – Kilnap/Woodpark

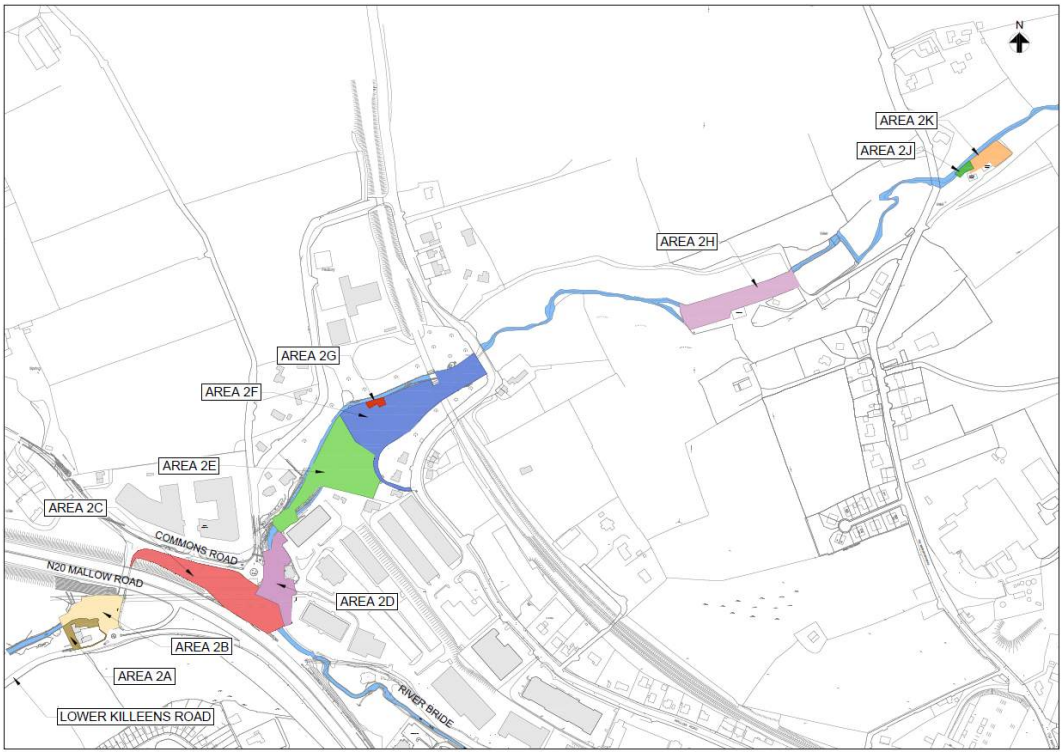



**Figure 2: Works Areas within Zone B**

The works in this zone cover Areas 2E, 2F and 2G.

Area 2E comprises works on the River Bride and River Glenamought to the north of Area 2D and will include the construction of a replacement concrete bridge.

Area 2F comprises the construction of a flood defence embankment and associated works. These works will not be undertaken in parallel with Area 2E.

The works in Area 2G comprise the construction of a reinforced concrete flood defence wall and associated other works.

The construction activities in this zone are expected to generate a total of 324 two-way HGV trips and 1,100 two-way personnel trips over a period of 11 weeks.

The average daily construction volumes therefore correspond to a maximum of 32 two-way trips, which in turn, equates to a peak hourly volume of 7 two-way trips (note that the construction workers will only arrive, and not depart in the AM Peak hour and will only depart, and not arrive during the PM Peak hour).

The construction accesses will likely be located on either the Old Mallow Road (to the east), or Sweeney's Hill (to the west). For robustness, each potential access has been evaluated as if it were the sole access and carried the full amount of construction traffic.

Based on the flows from the SWRM, the impact of construction trips generated by works in Zone B will equate to up to 2.5% daily and 1.4% during the hourly peak.

| Time | Background | Construction Trips | Impact |
|---|---|---|---|
| **Via Old Mallow Road** | | | |
| Daily | 1,267 | 32 | +2.5% |
| Peak Hour | 497 | 7 | +1.4% |
| **Via Sweeney's Hill** | | | |
| Daily | 1,345 | 32 | +2.3% |
| Peak Hour | 469 | 7 | +1.4% |

The impact on the local road network of construction traffic associated with the construction activities in this area is considered **temporary imperceptible**.

## Zone C – Rose Cottage

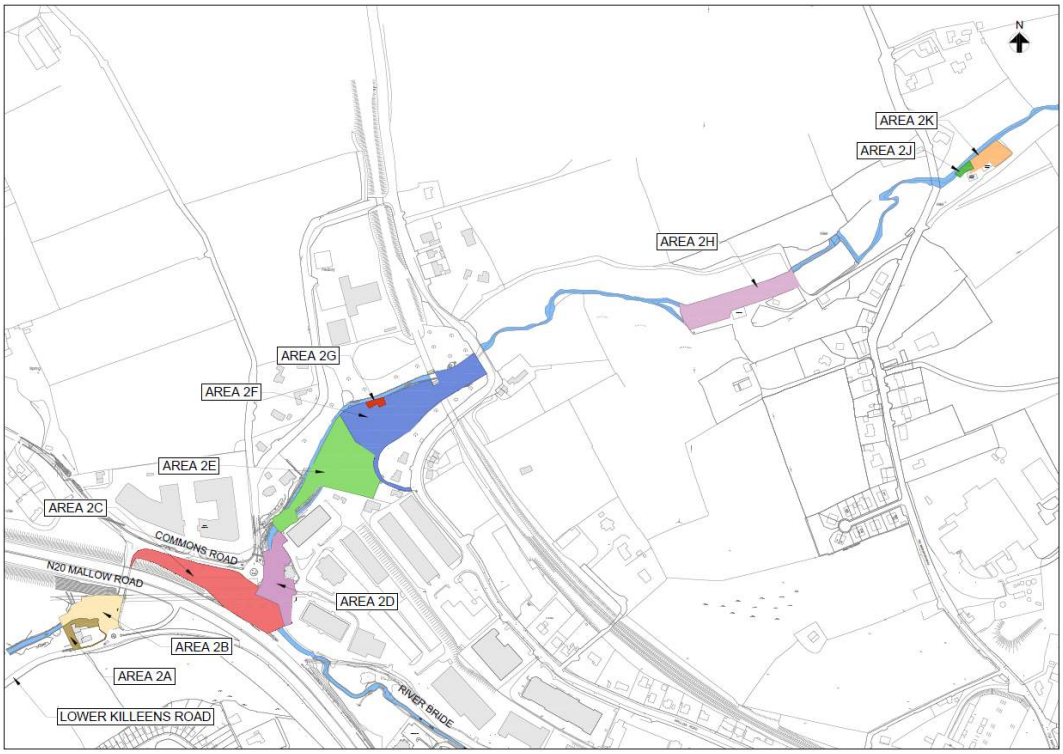



**Figure 3: Works Areas within Zone C**

The works in this zone cover Areas 2A and 2B.

Areas 2A and 2B comprise works in the vicinity of Rose Cottage, which is situated just south of the N20, on the L2797 Lower Killeens Road in the vicinity of the N20 underpass connection to the Commons Road.

The construction activities in this zone are expected to generate a total of 185 two-way HGV trips and 900 two-way personnel trips over a period of 9 weeks.

The average daily construction volumes therefore correspond to a maximum of 28 two-way trips, which in turn, equates to a peak hourly volume of 6 two-way trips (note that the construction workers will only arrive, and not depart in the AM Peak hour and will only depart, and not arrive during the PM Peak hour).

The construction access will be located on the Lower Killeens Road (L2797) and the N20 underpass, and this is where the impact will be mainly notable. Based on the flows from the SWRM, the impact of construction trips generated by works in Areas 2A and 2B will equate to 1.9% daily and 1.2% during the hourly peak.

| Time | Background | Construction Trips | Impact |
|---|---|---|---|
| Daily | 1,461 | 28 | +1.9% |
| Peak Hour | 482 | 6 | +1.2% |

The impact on the local road network of construction traffic associated with the construction activities in this area is considered **temporary imperceptible**.

## Zone D – Northpoint

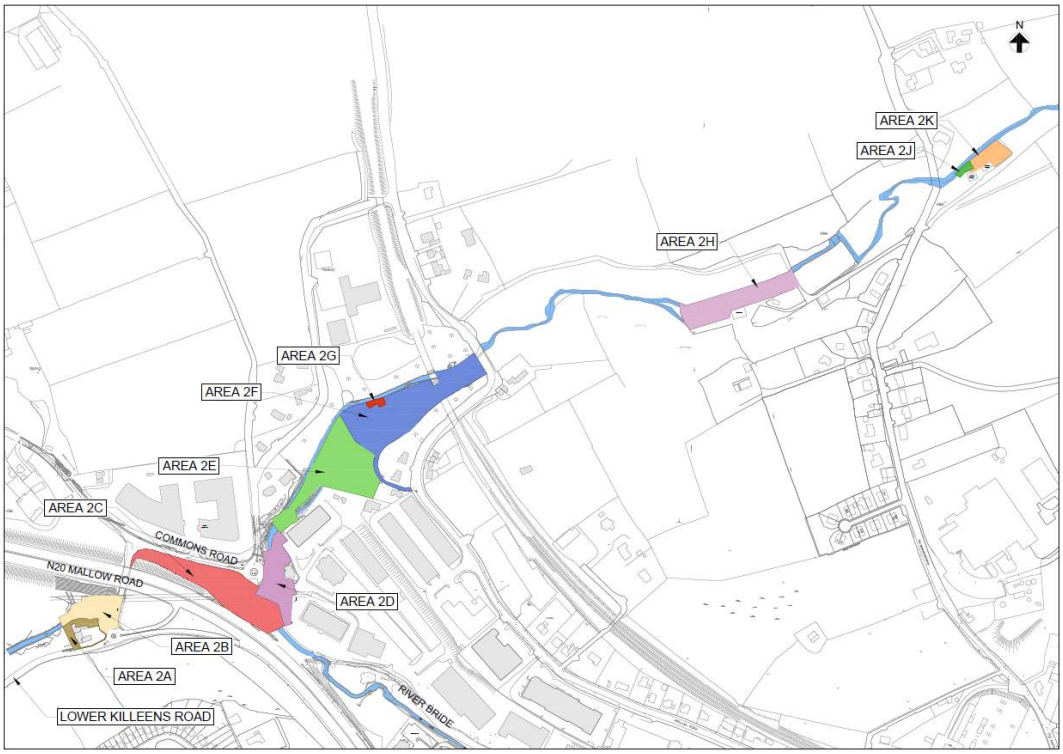



**Figure 4: Works Areas within Zone D**

The works in this zone cover Areas 2C and 2D.

Area 2C comprises works on the Commons Road and a culvert beneath the N20 slip lane from the Old Mallow Road to the north of the N20 (i.e. the exit/entry slip from the N20 into the North Point Business Park). These works will be scheduled so as not to occur concurrently with the works in Area 2D.

Area 2D comprises works at the entrance to North Point Business Park, to the east of the N20 slip roundabout which itself lies to the north of the N20. The works will include the construction of a replacement concrete bridge at the entrance to the business park.

The construction activities in this zone are expected to generate a total of 238 two-way HGV trips and 900 two-way personnel trips over a period of 9 weeks. The average daily construction volumes therefore correspond to a maximum of 31 two-way trips, which in turn, equates to a peak hourly volume of 7 two-way trips (note that the construction workers will only arrive, and not depart in the AM Peak hour and will only depart, and not arrive during the PM Peak hour).

The construction access will be located on the Commons Road, and this is where the impact will be mainly notable. Based on the flows from the SWRM, the impact of construction trips generated by works in this zone will equate to 2% daily and 1.4% during the hourly peak.

| Time | Background | Construction Trips | Impact |
|---|---|---|---|
| Daily | 1,505 | 31 | +2.0% |
| Peak Hour | 495 | 7 | +1.4% |

The impact on the local road network of construction traffic associated with the construction activities in this area is considered **temporary imperceptible**.

## Zone E – Common's Inn

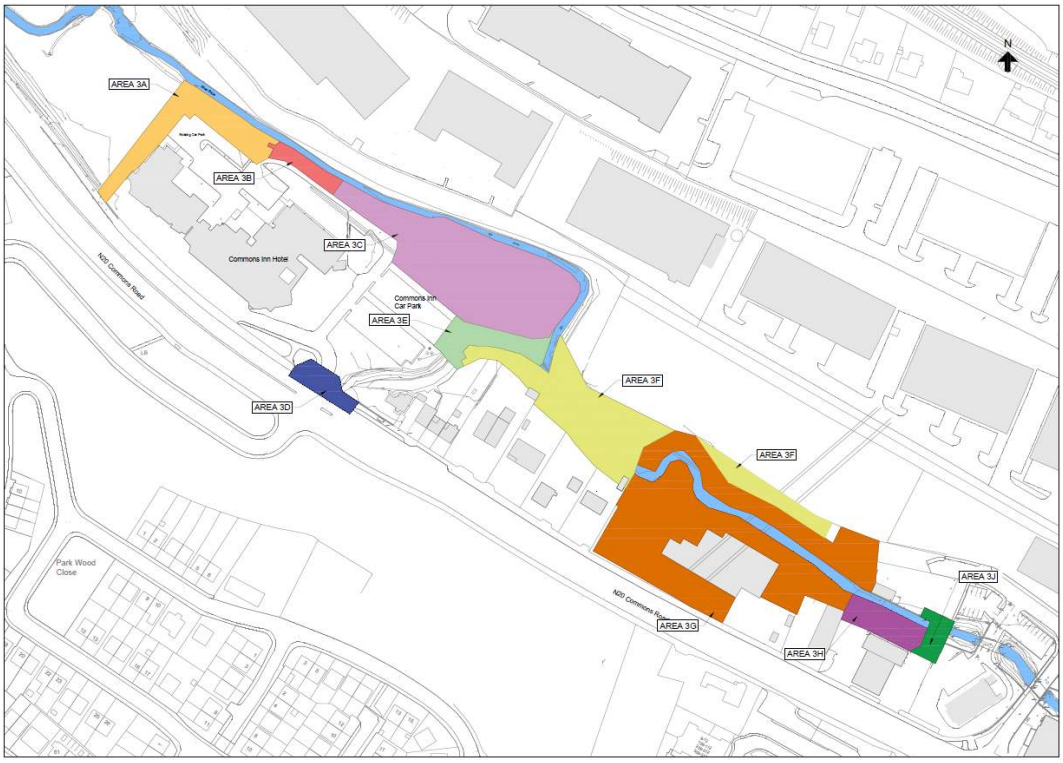



**Figure 5: Works Areas within Zone E**

The works in this zone cover Areas 3A, 3B, 3C, 3D, 3E, 3F, and 3G.

Areas 3A, 3B, 3C and 3D comprise works to be undertaken in the vicinity of the Commons Inn. Area 3B is envisaged to be undertaken prior to Area 3A. The works include a concrete flood defence wall, a flood defence embankment, construction of a channel and road regrading and associated works.

The works in Area 3E and 3F comprise works to the rear of a number of residential properties along the Commons Road and include a reinforced concrete headwall structure and a steel sheet pile flood defence wall, and associated works.

The works in Area 3G comprise a steel sheet pile flood defence wall in the lands to the north of the Commons Road industrial units.

The construction activities in this zone are expected to generate a total of 593 two-way HGV trips and 2,800 two-way personnel trips over a period of 28 weeks. The average daily construction volumes therefore correspond to a maximum of 28 two-way trips, which in turn, equates to a peak hourly volume of 6 two-way trips (note that the construction workers will only arrive, and not depart in the AM Peak hour and will only depart, and not arrive during the PM Peak hour).

The construction access will be located on the N20 Commons Road, and this is where the impact will be mainly notable. Based on the flows from the SWRM, the impact of construction trips generated by works in this zone will equate to less than 1% daily and less than 1% during the hourly peak.

| Time | Background | Construction Trips | Impact |
|---|---|---|---|
| Daily | 6,332 | 28 | +0.4% |
| Peak Hour | 1,825 | 6 | +0.3% |

The impact on the local road network of construction traffic associated with the construction activities in this area is considered **temporary imperceptible**.

## Zone F – Fitz' Boreen to Blackpool Retail Park

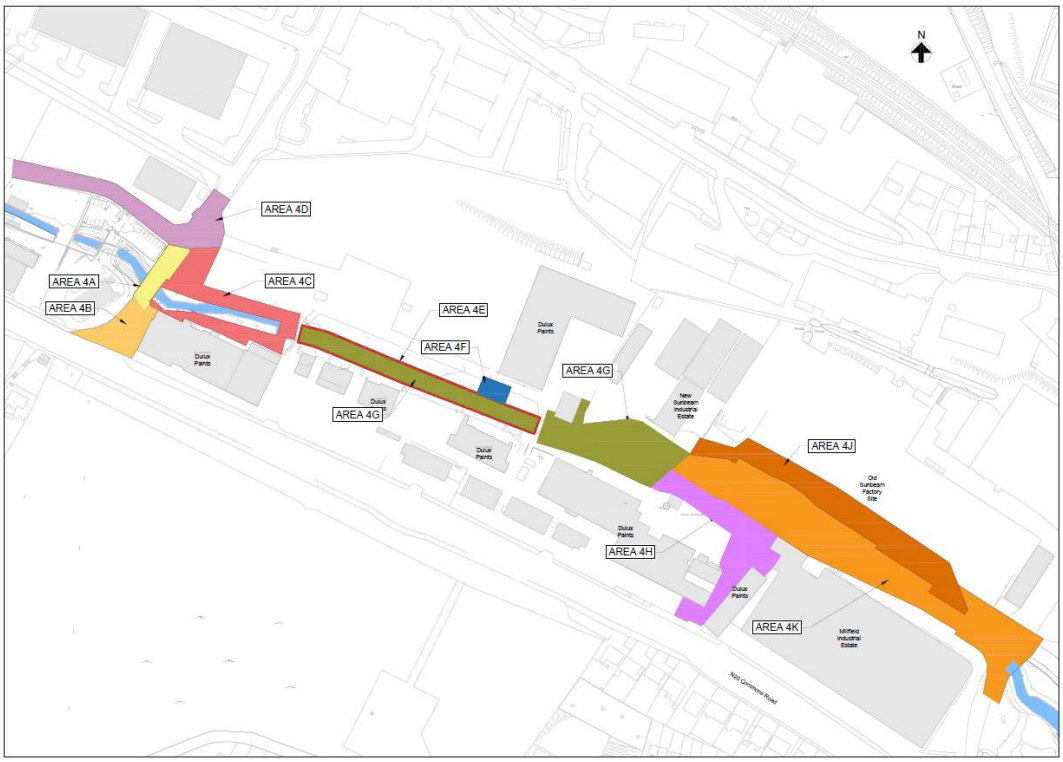



**Figure 6: Works Areas within Zone F**

The works in this zone cover Areas 4A, 4B, 4C, 4D, 4E, 4F, 4G, 4H, 4J and 4K.

The works in Areas 4A are extensive in nature, comprising the replacement of the existing Fitz' Boreen bridge with a new reinforced concrete bridge. This will require a closure of Fitz' Boreen for a number of months.

For Areas 4B, 4C, 4D, 4E, 4F, 4G and 4H, the scheme will entail a number of specific works areas within the Dulux site to the north of the Commons Road. These include two pumping stations, reinforced concrete flood defence walls, installation of precast bridge beams and in channel works, and associated works. These works are envisaged to take place following Area 4A to coincide with the off-peak seasonal period at the Dulux site.

The works in Area 4J include reinforced concrete flood defence walls within the Former Sunbeam Factory site to the north of the N20 Commons Road.

The works in Area 4K include reinforced concrete flood defence walls within the Millfield Industrial Estate and replacement of the Sunbeam Bridge with a new reinforced concrete bridge.

These works are envisaged to take place after Area 4J.

The construction activities in this zone are expected to generate a total of 2,514 two-way HGV trips and 8,800 two-way personnel trips over a period of 55 weeks. The average daily construction volumes therefore correspond to a maximum of 50 two-way trips, which in turn, equates to a peak hourly volume of 11 two-way trips (note that the construction workers will only arrive, and not depart in the AM Peak hour and will only depart, and not arrive during the PM Peak hour).

The construction access will be located on the N20 Commons Road, or alternatively from the north via the Old Mallow Road, and this is where the impact will be mainly notable. Based on the flows from the SWRM, the impact of construction trips generated by works in this zone will equate to less than 1% daily and less than 1% during the hourly peak via the N20 Commons Road, and will equate to 9.5% daily and 5.5% during the hourly peak for the Old Mallow Road link road. In reality the N20 is likely to be the principal access.

| Time | Background | Construction Trips | Impact |
|---|---|---|---|
| **Via N20 Commons Road** | | | |
| Daily | 6,332 | 50 | +0.7% |
| Peak Hour | 1,825 | 11 | +0.6% |
| **Via Old Mallow Road Link Road** | | | |
| Daily | 522 | 50 | +9.5% |
| Peak Hour | 199 | 11 | +5.5% |

In recognition of the duration of the works in this zone (estimated at 55 weeks), the impact on the local road network of construction traffic associated with the construction activities in this area is considered **short-term imperceptible** to **short-term slight**.

## Zone G – Blackpool Retail Park/Shopping Centre

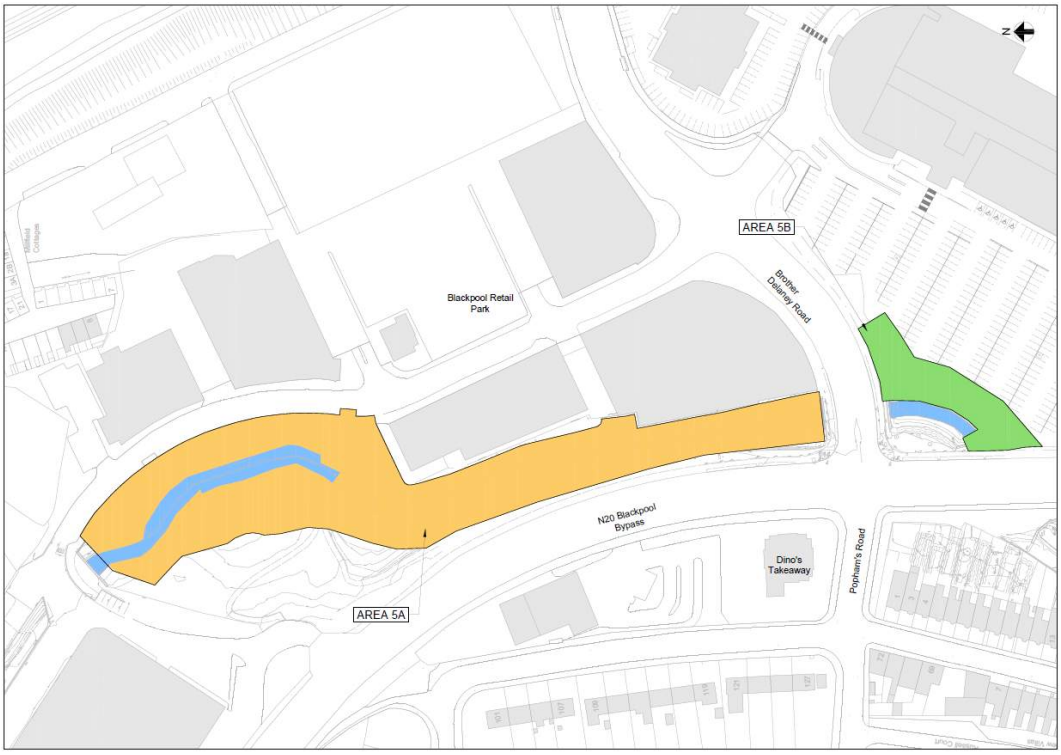



**Figure 7: Works Areas within Zone G**

The works in this zone cover Areas 5A and 5B.

The works in Area 5A comprise construction of a trash screen, flood defence embankment, removal of two existing pedestrian access bridges, reinforced concrete flood defence wall and associated works.

The works in Area 5B comprise a reinforced concrete flood defence wall within the Blackpool Shopping Centre. It is envisaged that these works will be undertaken after Area 5A.

The construction activities in this zone are expected to generate a total of 1,207 two-way HGV trips and 3,040 two-way personnel trips over a period of 19 weeks. The average daily construction volumes therefore correspond to a maximum of 57 two-way trips, which in turn, equates to a peak hourly volume of 12 two-way trips (note that the construction workers will only arrive, and not depart in the AM Peak hour and will only depart, and not arrive during the PM Peak hour).

The construction access will be located on the N20 Commons Road or via Redforge Road and this is where the impact will be mainly notable. Based on the flows from the SWRM, the impact of construction trips generated by works in this zone will equate to less than 1% daily and less than 1% during the hourly peak via the N20 Commons Road, and will equate to 3.2% daily and 2.5% during the hourly peak for the Old Mallow Road link road.

In reality the N20 is likely to be the principal access.