# Appendix B11
## Proposed Surface Water Drainage Works

# BUSCONNECTS DUBLIN
# CORE BUS CORRIDORS INFRASTRUCTURE WORKS

## BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME

## PROPOSED SURFACE WATER DRAINAGE WORKS

| DRAWING SERIES NUMBER(S) | DRAWING SERIES DESCRIPTION |
|---|---|
| BCIDC-ARP-DNG_IX-0005_XX_00-DR-CD-0001 | BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME. PROPOSED SURFACE WATER DRAINAGE WORKS. COVER SHEET |
| BCIDC-ARP-DNG_KP-0005_XX_00-DR-CD-0001 | BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME. PROPOSED SURFACE WATER DRAINAGE WORKS. KEY PLAN |
| BCID-ARP-DNG_RD-0005_XX_00-DR-CD-1001 to 1003 | BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME. OVERALL CATCHMENT AREAS |
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0001 to 0040 | BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME. PROPOSED SURFACE WATER DRAINAGE WORKS |


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|---|---|---|---|---|---|
| M01 | 04/04/2022 | TD | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: ARUP

| Date | Scale | Drawn | Checked | Approved |
|---|---|---|---|---|
| 04/04/2022 | N/A @ A1<br>N/A @ A3 | TD | MR | BD |

| Project Code | Originator Code | QMS Code |
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| BCIDC | ARP | 268401-00 |

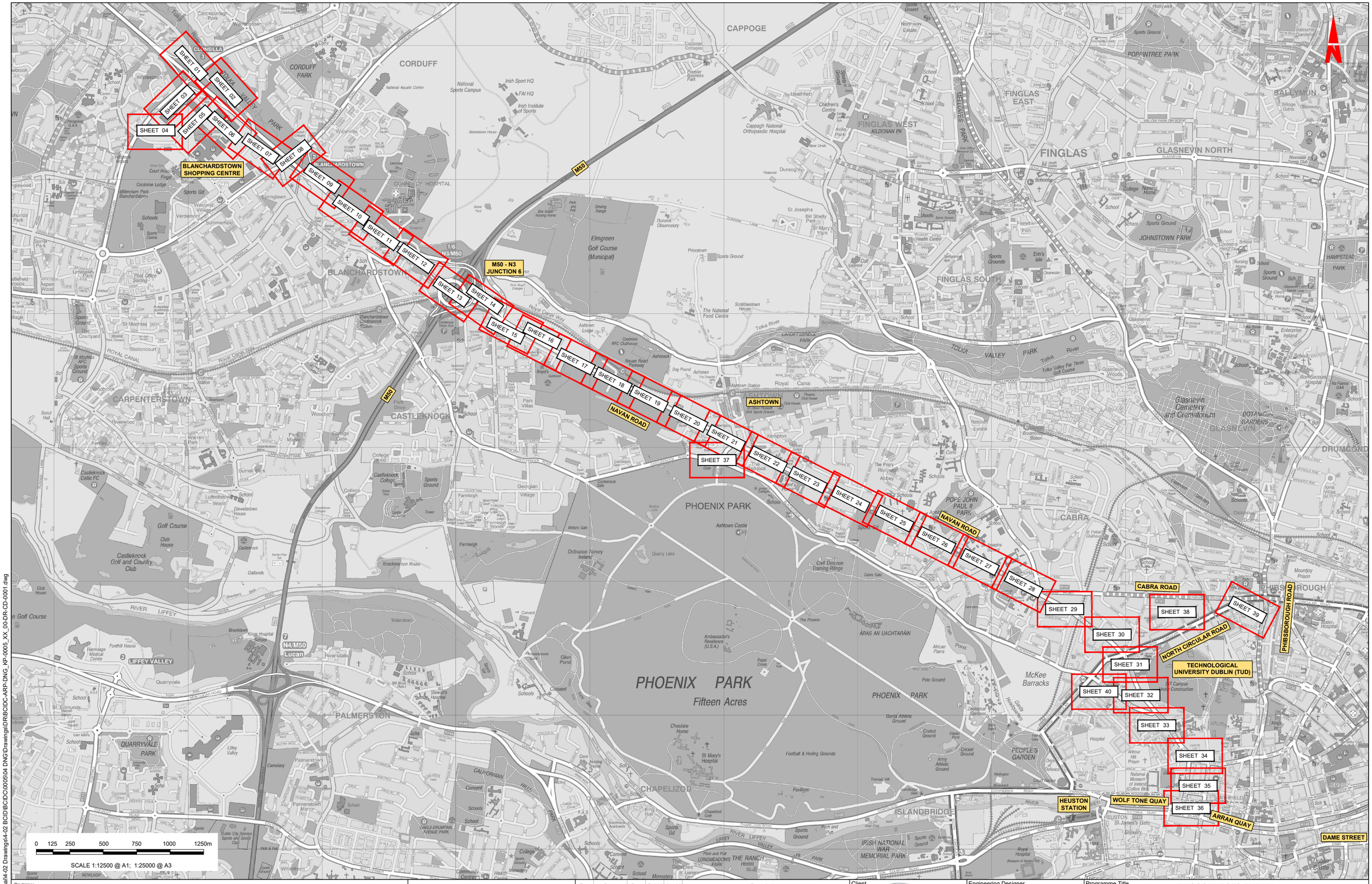
Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS COVER SHEET

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_IX-0005_XX_00-DR-CD-0001 | 01 of 01 | A | M01 |

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Client: NTA — Údarás Náisiúnta Iompair, National Transport Authority

Engineering Designer: ARUP

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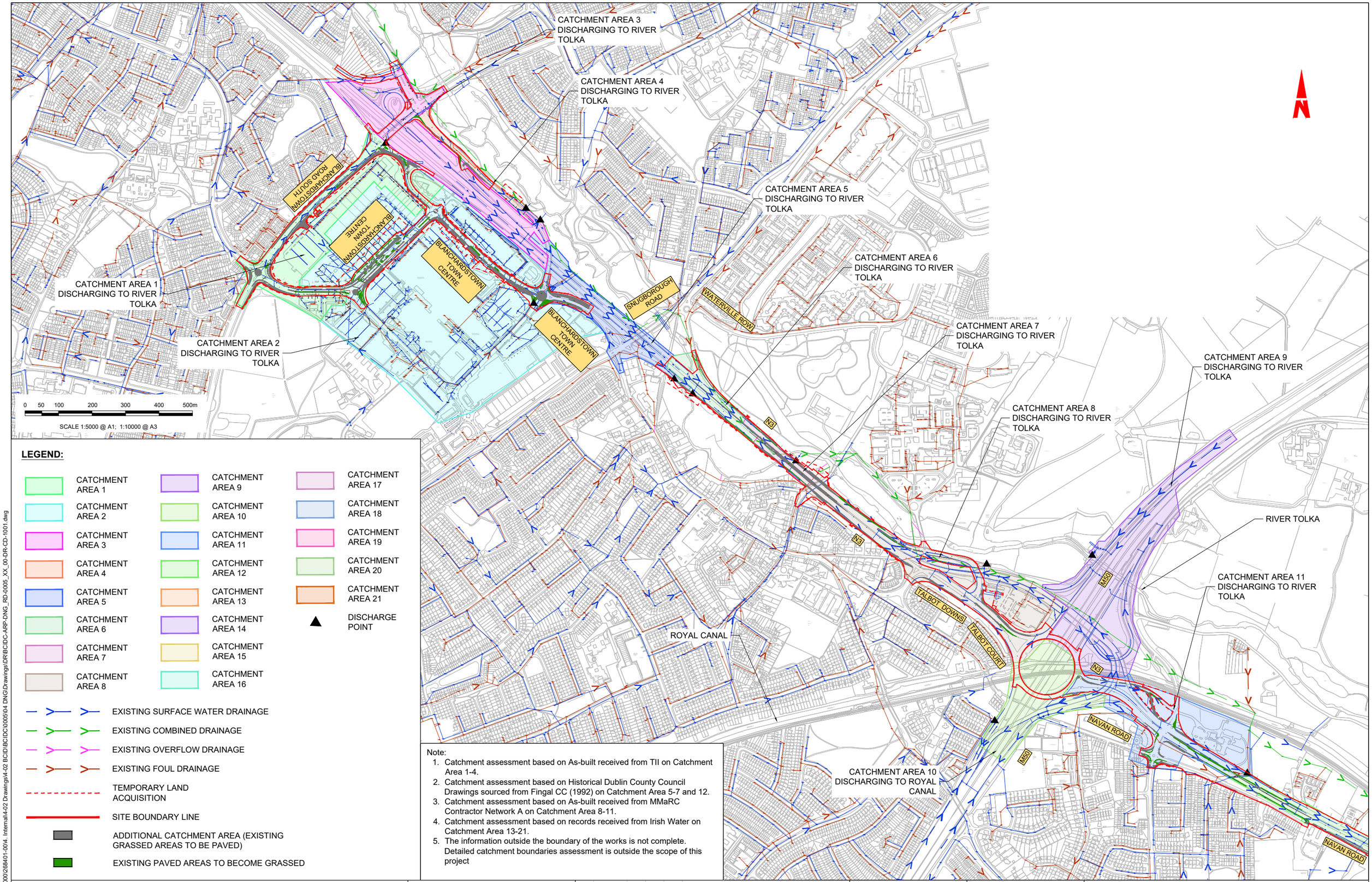
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Programme Title: **BUSCONNECTS DUBLIN**
**CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS
KEY PLAN

| Drawing File Name | Sheet Number | Status | Rev |
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| BCIDC-ARP-DNG_KP-0005_XX_00-DR-CD-0001 | 01 of 01 | A | M01 |

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**LEGEND:**

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- EXISTING COMBINED DRAINAGE
- EXISTING OVERFLOW DRAINAGE
- EXISTING FOUL DRAINAGE
- TEMPORARY LAND ACQUISITION
- SITE BOUNDARY LINE
- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREAS TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED

Note:
1. Catchment assessment based on As-built received from TII on Catchment Area 1-4.
2. Catchment assessment based on Historical Dublin County Council Drawings sourced from Fingal CC (1992) on Catchment Area 5-7 and 12.
3. Catchment assessment based on As-built received from MMaRC Contractor Network A on Catchment Area 8-11.
4. Catchment assessment based on records received from Irish Water on Catchment Area 13-21.
5. The information outside the boundary of the works is not complete. Detailed catchment boundaries assessment is outside the scope of this project

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Client: NTA — Údarás Náisiúnta Iompair, National Transport Authority
Engineering Designer: ARUP

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| BCIDC | ARP | 268401-00 |

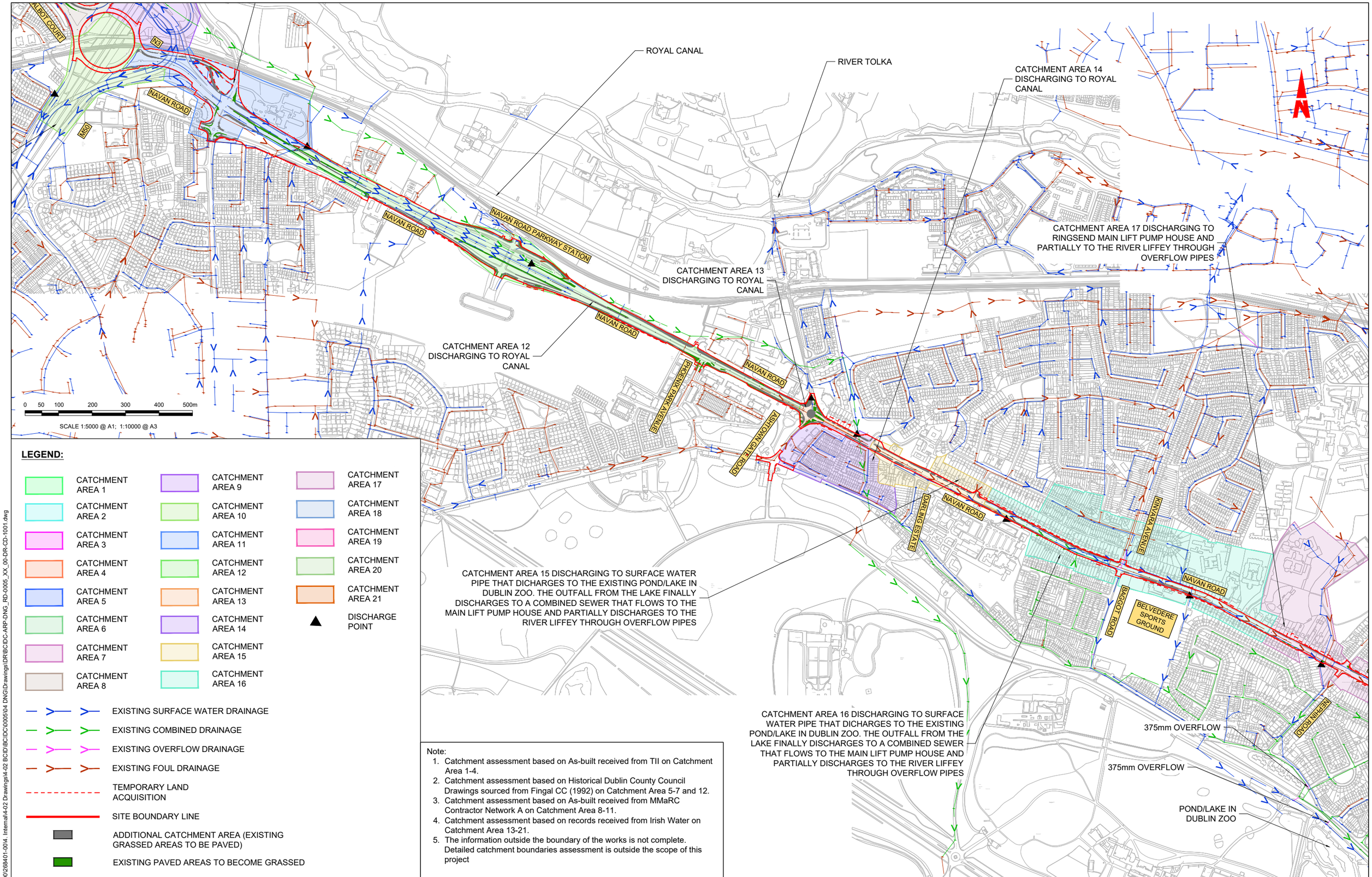
Programme Title: **BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME OVERALL CATCHMENT AREAS

| Drawing File Name | Sheet Number | Status | Rev |
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| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-1001 | 01 of 03 | A | M01 |

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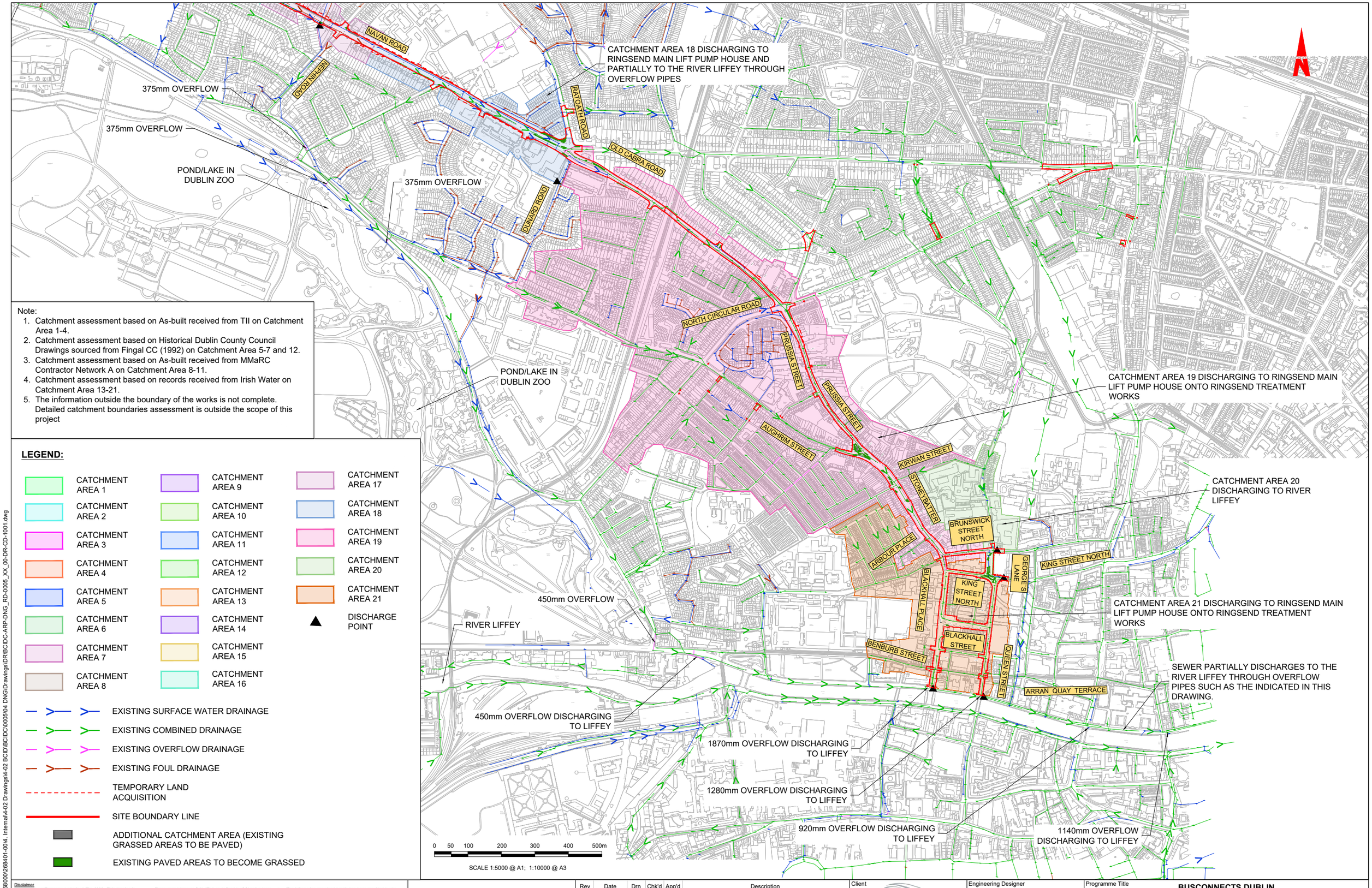
Programme Title: **BUSCONNECTS DUBLIN**
**CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
OVERALL CATCHMENT AREAS

| Drawing File Name | Sheet Number | Status | Rev |
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Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME OVERALL CATCHMENT AREAS

| Drawing File Name | Sheet Number | Status | Rev |
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2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS AND REPORTS.
3. STORMWATER DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH THE GREATER DUBLIN REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS AND/OR THE DRAINAGE DESIGN BASIS REPORT FOR CBC BUSCONNECTS.
4. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
5. EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE

$Vol_{att}$: VOLUME OF ATTENUATION

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

Ch C0450 to C0480 (right hand side)
- No increase in impermeable catchments
- Existing gullies connected to the 225mm surface water network (cover depth approx. 0.8m)
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network
- Proposed segregated cycle track to allow for drainage to flow from road into narrow profile gullies relocated at pedestrian kerb line

Ch C0325 to C0450m (right hand side)
- No increase in impermeable catchments
- Existing gullies connected to the 225mm surface water network (cover depth approx. 1.8m)
- Additional narrow profile gullies and connections will be required and connect to the existing surface water network

Ch B0850 to B0895 (both sides):
- No increase in impermeable catchments
- Existing road is super-elevated and is draining to gullies on right side only
- Existing gullies connected to the 225mm surface water network (cover depth approx 0.7m)
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network

Bio-retention area

Ch C0225 to C0300 (right hand side):
- No increase in impermeable catchments
- Existing gullies connected to the 225mm surface water network (cover depth approx 0.7m)
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network

Ch C0325 to C0465 (left hand side)
- No increase in impermeable catchments
- Existing gullies connected to the 300mm surface water network (cover depth approx. 1.4m)
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network

Ch C0465 to C0480 (left hand side)
- No increase in impermeable catchments
- Existing gullies connected to the 225mm surface water network (cover depth approx. 0.7m)
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network

Ch B0740 to B0810 (left hand side):
- Additional impermeable catchment area = 6m²
- Existing gullies connected to the 225mm surface water network (cover depth approx. 2.7m)
- Proposed footpath (additional catchment) to be graded to slope towards the existing grass area to mitigate flows
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network

Slip Road
- Existing road collected through existing filter drain
- Drainage system to be maintained
- No change to existing arrangement
- No increase in impermeable catchments

Ch C0225 to C0300 (left hand side):
- Additional impermeable catchment area = 15m²
- Additional grassed (permeable area) = 108m²
- Net grassed (permeable) area = 93m²
- Existing gullies connected to the 225mm surface water network (cover depth 1.35m)
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network
- Bio-retention areas to provide additional treatment

Ch B0740 to B0810 (right hand side):
- No increase in impermeable catchments
- Existing gullies connected to the 225mm surface water network (cover depth approx 1.5m)
- If additional narrow profile gullies and connections are required they should connect to the existing surface water network

Ch B0670 to B0740 (both sides):
- Existing bridge
- No increase in impermeable catchments
- Existing drainage to remain
- Proposed segregated cycle track to utilise 'armadillo' style separation to allow flow from road into existing drainage

TIE IN TO EXISTING PROPOSED SCHEME

B 894.773

BLANCHARDSTOWN ROAD NORTH

OLD NAVAN ROAD

C 480.875

L 196.745

C 450

C 400

C 350

C 300

C 250

L 150

L 100

L 50

L 0

B 800

B 750

B 700

B 650

D 168.359

D 000

SHEET 01

SHEET 02

SHEET 03

N3

0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

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| Rev | Date | Drn | Chk'd | App'd | Description |
|---|---|---|---|---|---|
| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA — Údarás Náisiúnta Iompair, National Transport Authority

Engineering Designer: ARUP

| Date | Scale | Drawn | Checked | Approved |
|---|---|---|---|---|
| 04/04/2022 | 1:500 @ A1, 1:1000 @ A3 | AF | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN — CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME — PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0001 | 01 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

Existing drainage information within this drawing is not from Irish water records. For information on existing drainage data sources, please see overall catchment assessment drawing.

Tolka Valley Park

Tolka River - An Tulcha

Tolka River - An Tulcha

Ch C0000 - C0225 (right hand side):
- Additional impermeable catchment area = 26m² (compensated Ch0120 - Ch0225 left hand side)
- No attenuation required.
- Existing gullies connected to the Ø225mm surface water network (cover depth varies between approx. 0.7m and 1.1m).
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

SHEET 01

SHEET 02

SHEET 01

SHEET 02

DN1050

DN1050

DN1050

DN1050

DN450

DN300

DN300

DN225

PROPOSED SCHEME

TIE IN TO EXISTING

OLD NAVAN RD

N3 SLIP ROAD

AVAN ROAD

C 250

C 200

C 150

C 100

C 50

C 0

Proposed flow control structure

Proposed flow control structure

Outlet to tie into existing network
- Ø225mm
- Ch C0015
- CL:53.195m
- IL: 51.845m

Ch C0120 - C0225 (left hand side):
- Additional impermeable catchment area: 16m² + 26m² (from right hand side of road) = 42m²
- Additional grassed (permeable area) = 94m²
- Net grassed (permeable) area = 52m²
- No attenuation required.
- Existing gullies connected to the Ø225mm or Ø300mm surface water network. (cover depth varies between approx. 1.35m and 1.70m)
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

Ch C0000 - C0120 (left hand side):
- Increase of additional catchment area: 332m²
- Existing gullies connected to the Ø300mm surface water network (cover depth varies between approx. 1.20m and 1.65m)
- New narrow profile gullies and connections will be required and will collect surface water from the carriageway and cycle track before discharging to a filter drain for attenuation purposes.
- Location of filter drain subject to 2m increase in width of red line boundary.
- ADR: 8.9 l/s
- $Vol_{att}$: DN300 FD, 68m long

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE
$Vol_{att}$: VOLUME OF ATTENUATION


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| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: ARUP

| Date | Scale | Drawn | Checked | Approved |
|---|---|---|---|---|
| 04/04/2022 | 1:500 @ A1 1:1000 @ A3 | AF | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0002 | 02 of 40 | A | M01 |

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5. EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE
$Vol_{att}$: VOLUME OF ATTENUATION

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

TIE IN TO EXISTING PROPOSED SCHEME

SHEET 05
SHEET 03

Ch A0050 to A0150 (both sides)
- Increase of additional catchment area: 168m²
- Existing road is super-elevated and is draining to left side only
- Possible for existing drainage to discharge to land drain (cover depth approx 1.67m)
- Proposed footpath to be graded to slope towards the existing grass area to mitigate flows
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network

Proposed flow control structure

Bio-retention area

Ch A0000 to A0050 (left hand side)
- Increase of additional catchment area: 454m²
- Existing gullies connected to the 225mm surface water network (cover depth approx 1.77m)
- Proposed footpath to be graded to slope towards the proposed rain garden with open graded crushed rock to attenuate flows
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network
- ADR: 5.7 l/s
- $Vol_{att}$: 11m³

Proposed flow control structure

Outlets to tie into existing network
- Ø225mm
- Ch A0015
- CL: 57.185m
- IL: 55.185m

Bio-retention area

Ch D0000 to D0100 (left hand side)
- Increase of additional catchment area = 957m²
- Additional grassed (permeable area) =141m²
- Net impermeable area = 816m²
- Existing gullies connected to the 225mm surface water network (cover depth approx 1.6m)
- New narrow profile gullies and connections will be required and will collect surface water from the carriageway, cycle track and footpath before discharging to the tree pit system via filter drain and new surface water network.
- The proposed filter drain and new network will collect, convey and attenuate flows before overflowing/discharging to the existing Ø225 surface water network to replicate the existing situation
- ADR: 28.9 l/s
- $Vol_{att}$: DN225 SW, 15m long
  DN300 FD, 27m long
  DN300 OSP, 28m long
  DN375 OSP, 19m long
  DN450 OSP, 18m long

Ch D0+000 to D0+100 (right hand side)
- No increase in impermeable catchments
- Existing gullies connected to the 225mm surface water network (cover depth approx 1.77m) thus additional gullies where necessary connected to the same network

Proposed flow control structure

Proposed flow control structure

Outlets to tie into existing network
- Ø600mm
- Ch B0600
- CL: 59.015m
- IL: 57.890m
- Depth: 1.125m

Ch B0450 to B0610 (both sides)
- Increase of additional catchment area = 1014m²
- Additional grassed (permeable area) = 35m²
- Net impermeable area = 979m²
- Existing road is super-elevated and is draining to gullies on right side only
- Existing gullies connected to the 600mm surface water network (cover depth unknown)
- New narrow profile gullies and connections will be required and will collect surface water from the carriageway, cycle track and footpath before discharging to a system of tree pits interconnected through filter drains
- The proposed filter drain will collect, convey and attenuate flows before overflowing/discharging to the proposed oversized pipe
- ADR: 39.1 l/s
- $Vol_{att}$: DN225 FD, 95m long; DN300 FD, 42m long; DN375 OSP, 65m long; DN450 OSP, 41m long

Bio-retention area

Proposed flow control structure

Proposed flow control structure

Dense wooded area

Proposed flow control structure

Bio-retention area

Existing drainage information within this drawing is not from Irish water records. For information on existing drainage data sources, please see overall catchment assessment drawing.

Proposed structure omitted from additional area calculations to drain over the edge to surrounding green space

Proposed flow control structure

Proposed flow control structure

Proposed flow control structure

SHEET 01
SHEET 03

SHEET 03
SHEET 04

BLANCHARDSTOWN ROAD SOUTH

WHITESTOWN GROVE

B 650
B 600
B 550
B 500
B 450
B 350
B 300

Outlets to tie into existing network
- Ø600mm
- Ch B0440
- CL: TBCm
- IL: TBCm

Ch B0280 to B0450 (both sides)
- Increase of additional catchment area = 1594m²
- Additional grassed (permeable area) = 25m²
- Net impermeable area to be attenuated = 1569m²
- Existing road is super-elevated and is draining to gullies on right side only
- Existing gullies connected to the 600mm surface water network (cover depth unknown)
- New narrow profile gullies and connections will be required (on right hand side) and will collect surface water from the carriageway, cycle track and footpath before discharging to the proposed oversized pipe
- The proposed oversized pipe will collect, convey and attenuate flows before overflowing/discharging to the existing Ø600 surface water network to replicate the existing situation
- ADR: 47.9 l/s
- $Vol_{att}$: 146m of DN600mmØ OSP

Ch B0575 to B0650 (left hand side give way junction)
- Increase of additional catchment area: 89m²
- Existing gullies connected to the 225mm surface water network (cover depth approx 1.45m)
- Proposed footpath ( additional catchment) to be graded to slope towards the existing grass area to mitigate flows
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network

D 168.359

PROPOSED SCHEME
TIE IN TO EXISTING

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Client: NTA Údarás Náisiúnta Iompair / National Transport Authority
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| 04/04/2022 | 1:500 @ A1<br>1:1000 @ A3 | AF | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0003 | 03 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

Existing drainage information within this drawing is not from Irish water records. For information on existing drainage data sources, please see overall catchment assessment drawing.

Ch E0000 to E0080 (left hand side)
- Increase of additional catchment area: 79m² (¼ of the roundabout). This is compensated with additional grassed/permeable area (80m²).
- No increase in impermeable catchments
- Existing gully connected to the 300mm surface water network
- Proposed area for SuDS location i.e. pond, rain garden: 30m².
- New gullies and connections will discharge to the SuDS area

Outlets to tie into existing network
- Ø450mm
- Ch B0245
- CL: TBCm
- IL: TBCm

Ch B0115 to B0280 (both sides)
- Increase of additional catchment area = 308m²
- Additional grassed (permeable area) = 48m²
- Net impermeable area to be attenuated = 260m²
- Existing road is super-elevated and is to remain the same
- Existing gullies connected to the 450mm surface water network.
- New gullies will discharge to a system of tree pits interconnected through filter drains.
- A bio-retention area is proposed in the island to provide additional treatment to flows from the other side of the road.
- The proposed filter drain will collect, convey and attenuate flows before discharging to the existing Ø450 surface water network to replicate the existing situation.
- ADR: 54.7 l/s
- $Vol_{att}$: 24m of 375mm Ø SD & 74m of 375mm Ø FD

Proposed flow control structure

Proposed bio-retention area

Bio-retention area

TIE IN TO EXISTING PROPOSED SCHEME

Outlets to tie into existing network
- 225mm
- Ch E0080
- CL TBC

Ch E0080 to E0230 (left hand side)
- Increase of additional catchment area: 336m² (includes 79m² (¼) of the roundabout)
- Existing gullies connected to the 300mm surface water network (cover depth unknown)
- New gullies will discharge to a system of tree pits interconnected through filter drains
- The proposed filter drain will collect, convey and attenuate flows before overflowing/discharging to the existing Ø300 surface water network to replicate the existing situation
- ADR: 21 l/s
- $Vol_{att}$: 45m of 225mmØ FD & 47m of 300mmØ FD

Ch E0230 to E0360 (left hand side)
- Increase of additional catchment area: 272m²
- Existing gullies connected to the to the 375mm surface water network (cover depth unknown)
- New gullies will discharge to a system of tree pits interconnected through filter drains
- The proposed filter drain will collect, convey and attenuate flows before discharging to the existing surface water network to replicate the existing situation
- ADR: 23.8 l/s
- $Vol_{att}$: 45m of 225mmØ FD, 48m of 225mmØ SD & 23m of 300mmØ FD

Ch F0000 to F0334 (both sides)
- Increase of additional paved area (impermeable area): 3483m² (including roundabout).
- Additional grassed (permeable area) = 981m².
- Net impermeable area to be attenuated = 2502m².
- Existing gullies connected to the existing 450-525-600mm surface water network (cover depth unknown).
- New narrow profile gullies and connections will collect surface water from the carriageway, cycle track and footpath before discharging to a system of tree pits interconnected through filter drains.
- Inspection chambers will be provided to collect down pipes from canopy and will be connected to oversized pipes.
- Green roofs to be provided on the top of the canopy will delay storm peak.
- The proposed filter drain and oversized pipe will collect, convey and attenuate flows before overflowing/discharging to the existing surface water network in order to replicate the existing situation.
- ADR: 143.5 l/s
- $Vol_{att}$: 230m of 225mm Ø FD & 26m of 225mm Ø SW 89m of 300mm Ø FD & 120m of 300mm Ø OSP 121m of 375mm Ø FD & 430m of 375mm Ø OSP

Ch E0030 to E0080 (right hand side)
- Additional catchment area: 349m² - Additional permeable area (79m²) = 270m²
- Existing gully connected to the 225mm surface water network
- Proposed area for SuDS location i.e. rain garden: 30m².
- New gullies and connections will discharge to the SuDS area
- ADR: 2 l/s
- $Vol_{att}$: 4.3m³ bio-retention area+open graded crushed rock under

Proposed flow control structure

Proposed flow control structure

Outlets to tie into existing network
- 300mm
- Ch E0220
- CL: TBCm
- IL: TBCm

Proposed flow control structure

Proposed flow control structure

Outlet to tie into existing network
- Ø TBC
- Ch E0092
- CL TBC
- IL TBC

Ch E0080 to E0230 (right hand side)
- Additional catchment area: 751m² (includes 79m² (¼) of the roundabout) - 26m² of additional permeable area = 725m²
- Existing gullies connected to the 300mm surface water network
- Permeable paving to be used to allow infiltration of surface water from the footpath.
- New gullies & connections will discharge to a system of tree pits interconnected through filter drains which will convey and attenuate flows before discharging to the existing Ø300 surface water network to replicate the existing situation
- ADR: 17.9 l/s
- $Vol_{att}$: 107m of 300mm FD

Proposed flow control structure

Ch B0000 to B0115 (both sides)
- Increase of additional catchment area: 416m²
- Existing road is super-elevated and is to remain the same. Existing gullies connected to a surface water network
- Permeable paving to be used to allow infiltration of surface water from the footpath.
- New gullies and connections will discharge to a system of tree pits interconnected through filter drains which will collect, convey and attenuate flows before discharging to the existing surface water network to replicate the existing situation
- ADR: 27.5 l/s
- $Vol_{att}$: 78m of 375mm Ø FD

Outlet to tie into existing network
- 300mm
- Ch E0225
- CL TBC
- IL TBC

Ch E0230 to E0380 (right hand side)
- No increase in impermeable catchments.
- Existing gullies connected to the 225mm surface water network (cover depth unknown).
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

BLANCHARDSTOWN TOWN CENTRE

TIE IN TO EXISTING PROPOSED SCHEME

Bio-retention area

SHEET 03

SHEET 04

SHEET 05

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE

$Vol_{att}$: VOLUME OF ATTENUATION


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| Rev | Date | Drn | Chk'd | App'd | Description |
|---|---|---|---|---|---|
| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: ARUP

| Date | Scale | Drawn | Checked | Approved |
|---|---|---|---|---|
| 04/04/2022 | 1:500 @ A1 1:1000 @ A3 | AF | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0004 | 04 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

Ch F0000 to F0334 (both sides)
- Increase of additional paved area (impermeable area): 3483m² (including roundabout).
- Additional grassed (permeable area) = 981m².
- Net impermeable area to be attenuated = 2502m².
- Existing gullies connected to the existing 450-525-600mm surface water network (cover depth unknown).
- New narrow profile gullies and connections will collect surface water from the carriageway, cycle track and footpath before discharging to a system of tree pits interconnected through filter drains.
- Inspection chambers will be provided to collect down pipes from canopy and will be connected to oversized pipes.
- Green roofs to be provided on the top of the canopy will delay storm peak.
- The proposed filter drain and oversized pipe will collect, convey and attenuate flows before overflowing/discharging to the existing surface water network in order to replicate the existing situation.
- ADR: 143.5 l/s
- $Vol_{att}$: 230m of 225mm Ø FD & 26m of 225mm Ø SW
  89m of 300mm Ø FD & 120m of 300mm Ø OSP
  121m of 375mm Ø FD & 430m of 375mm Ø OSP

Ch A0150 to A0170 (both sides)
- Increase of additional catchment area: 59m² + 3m² (additional area from the left hand side) = 62m²
- Existing gullies connected to the 225mm surface water network (cover depth approx 1.2m)
- Proposed footpath to be graded to slope towards the existing grass area between A100 - A140 to mitigate flows
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network

Outlet to tie into existing network
- 750mm
- Ch F0320
- CL TBC
- IL Unknown

Ch F0334 to F0380 (left hand side)
- Increase of additional catchment area: 67m² (includes ½ of roundabout)
- Existing gullies connected to the 225mm surface water network (cover depth approx unknown)
- Additional area to be compensated in Area A200 - A390
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

Ch A0200 - A0390 (both sides)
- Increase of additional catchment area: 1473 + 54 (½ of roundabout) + 67m² (from Ch F0334 to F0380) = 1594m²
- Additional grassed (permeable area) = 115m²
- Net impermeable area to be attenuated = 1479m²
- Existing gullies connected to the 750mm surface water network (cover depth unknown) .
- New narrow profile gullies and connections will be required and will collect surface water from the carriageway, cycle track and footpath before discharging to a system of tree pits interconnected through filter drains.
- The proposed filter drain will collect, convey and attenuate flows before overflowing/discharging to the oversized pipe.
- The proposed oversized pipe will collect, convey and attenuate flows before overflowing/discharging to the existing Ø750 surface water network to replicate the existing situation.
- ADR: 26.6 l/s
- $Vol_{att}$: SW DN225, 31m long and FD DN225 201m long
  OSP DN300, 58m long
  OSP DN375, 92m long

Proposed flow control structure

Green Roof Canopies

Proposed flow control structure

SHEET 03

SHEET 05

SHEET 04

SHEET 05

SHEET 06

TIE IN TO EXISTING PROPOSED SCHEME

BLANCHARDSTOWN TOWN CENTRE

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6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
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9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE
$Vol_{att}$: VOLUME OF ATTENUATION

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
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Client: NTA Údarás Náisiúnta Iompair / National Transport Authority

Engineering Designer: ARUP

| Date | Scale | Drawn | Checked | Approved |
|---|---|---|---|---|
| 04/04/2022 | 1:500 @ A1, 1:1000 @ A3 | AF | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0005 | 05 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

Existing drainage information within this drawing is not from Irish water records. For information on existing drainage data sources, please see overall catchment assessment drawing.

N

SHEET 05

SHEET 06

SHEET 07

A 200

A 250

A 300

A 350

A 400

A 450

A 500

A 550

A 600

Car Park

ACO DRAIN

ACO CHANNEL

DN225

DN300

DN375

DN450

Proposed flow control structure

Outlet to tie into existing network
- 750mmØ
- Ch A0390
- CL TBC
- IL TBC

Outlet to tie into existing network
- 900mmØ
- Ch A0495
- CL TBC
- IL TBC

Ch A0200 - A0390 (both sides)
- Increase of additional catchment area: 1473 + 54 (½ of roundabout) + 67m² (from Ch F0334 to F0380) = 1594m²
- Additional grassed (permeable area) = 115m²
- Net impermeable area to be attenuated = 1479m²
- Existing gullies connected to the 750mm surface water network (cover depth unknown) .
- New narrow profile gullies and connections will be required and will collect surface water from the carriageway, cycle track and footpath before discharging to a system of tree pits interconnected through filter drains.
- The proposed filter drain will collect, convey and attenuate flows before overflowing/discharging to the oversized pipe.
- The proposed oversized pipe will collect, convey and attenuate flows before overflowing/discharging to the existing Ø750 surface water network to replicate the existing situation.
- ADR: 26.6 l/s
- $Vol_{att}$: SW DN225, 31m long and FD DN225 201m long
  OSP DN300, 58m long
  OSP DN375, 92m long

Ch A0390 to A0490 (both sides):
- Additional impermeable catchment area: 547m² + (135m² from left hand side of road) = 664m²
- Additional grassed (permeable area) = 57m²
- Net impermeable area to be attenuated = 607m²
- Existing gullies connected to either the 600mm or 900mm surface water network (cover unknown) thus new drainage system connected to the same.
- Additional gullies where required to be connected to a system of tree pits interconnected through filter drains or to the surface water pipe on the left hand side.
- Treepits to overflow to a proposed oversized pipe for attenuation purposes.
- ADR: 24.1 l/s
- $Vol_{att}$: FD DN225, 85m long
  SW DN225, 175m long

BLANCHARDSTOWN TOWN CENTRE

Blanchardstown Shopping Centre

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
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- EXISTING SURFACE WATER NETWORK
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- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
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## ABBREVIATIONS:

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$Vol_{att}$: VOLUME OF ATTENUATION


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PROPOSED SURFACE WATER DRAINAGE WORKS

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| BCIDC | ARP | 268401-00 |

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| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0006 | 06 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

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River Tolka

N3

PROPOSED SCHEME
Snugborough Junction
Upgrade Scheme

SHEET 06
SHEET 07
SHEET 08

A 500
A 550
A 600
A 650
A 700
A 750

Ch A0600 to A0620 (left hand side):
- Additional impermeable catchment area = 53m²
- Additional grassed (permeable area) = 24m²
- Net impermeable area = 29m²
- Existing gullies connected to the 1200mm surface water network (soffit level unknown) thus additional gullies where necessary connected to the same network.
- Proposed footpath (additional catchment area) is to be graded to slope towards the existing planted and grassed area to mitigate flows.

Ch A0490 to A0600 (both sides):
- Additional impermeable catchment area:843m²
- Additional grassed (permeable area) = 41m²
- Net impermeable area = 802m²
- Existing gullies connected to the 1200mm surface water network (soffit level unknown) thus additional gullies where necessary connected to the same network.
- The gully system will be connected to a system of tree pits interconnected through filter drains.
- Treepits to overflow to the proposed 300mm diameter pipe.
- ADR: 15.6 l/s
- $Vol_{att}$: OSP DN300, 47m long
  FD DN225, 124m long & SW DN225, 16m long

Outlet to tie into existing network
- 1200mmØ
- Ch A0590
- CL TBC
- IL TBC

Proposed flow control structure

Ch A0+620 to A0+747 (left hand side):
- Road superelevated, fall to right hand side.

Dense wooded area

Outlet to tie into existing network
- Ø TBC
- Ch A0650
- CL TBC
- IL TBC

Proposed flow control structure

Outlet to tie into existing network
- Ø TBC
- Ch A0735
- CL TBC
- IL TBC

Ch A0620 to A0747 (right hand side):
- Drainage assessment based on existing records & topographical survey. Snugborough Junction Upgrade Scheme not taken into account.
- Road superelevated, catchment areas based on both sides of road.
- Additional impermeable catchment area = 1266m²
- Additional grassed (permeable area) = 34m²
- Net impermeable area = 1232m²
- Existing gullies connected to the surface water network (diameter and depth to soffit unknown).
- New gullies to overflow to a proposed oversized pipe.
- ADR: 17.3 l/s
- $Vol_{att}$: DN450 OSP, 33m long
  DN600 OSP, 49m long

Proposed flow control structure

Ch A0600 to A0620 (right hand side):
- Additional impermeable catchment area (includes half of roundabout) = 368m²
- Additional grassed (permeable area) = 251m²
- Net impermeable area = 117m²
- Existing gullies connected to the surface water network (diameter and soffit level unknown).
- Gullies to be connected to the bio-retention area.
- Bio-retention area with underground storage (OGCR) provide attenuation and treatment.
- ADR: 10 l/s
- $Vol_{att}$: 4m³

Proposed flow control structure

Ch A0575 to A0600 (right hand side):
- Additional impermeable catchment area (includes half of roundabout) = 388m²
- Additional grassed (permeable area) = 102m²
- Net impermeable area = 286m²
- Existing gullies connected to the 1200mm surface water network (soffit level unknown).
- Gullies to drain to bio-retention area.
- Bio-retention area with underground storage (OGCR) to provide attenuation and treatment.
- ADR: 6 l/s
- $Vol_{att}$: 3.1m³

BLANCHARDSTOWN TOWN CENTRE

Car Park

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

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7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
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10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE
$Vol_{att}$: VOLUME OF ATTENUATION


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| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority
Engineering Designer: ARUP

| Date | Scale | Drawn | Checked | Approved |
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| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0007 | 07 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

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Surface water drainage works within the grey hatched area are outside of BusConnects scope and must be carried out as part of Snugborough Interchange and Bridge Works.

SHEET 07

SHEET 08

SHEET 08

SHEET 09

SNUGBOROUGH ROAD

SNUGBOROUGH ROAD

SNUGBOROUGH ROAD

N3

N3

River Tolka

OLD CORDUFF ROAD

Car Park

Lissane Apts.

A 910

A 950

A 1000

Snugborough Junction Upgrade Scheme

PROPOSED SCHEME

TIE IN TO EXISTING PROPOSED SCHEME

## LEGEND:

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- EXISTING PAVED AREAS TO BECOME GRASSED
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- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
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- PROPOSED NEW TREE PIT
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Client: NTA — Údarás Náisiúnta Iompair, National Transport Authority

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| Project Code | Originator Code | QMS Code |
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| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
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| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0008 | 08 of 40 | A | M01 |

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## LEGEND:

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- PROPOSED OVERSIZED PIPE
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- PROPOSED PERMEABLE PAVING
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## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE

$Vol_{att}$: VOLUME OF ATTENUATION

Snugborough Junction Upgrade Scheme PROPOSED SCHEME

Ch A1100 to A1190 (left hand side):
- Carriageway superelevated, fall towards this side.
- Additional impermeable catchment area = 37m²
- Existing gullies connected to the 225mm or 300mm surface water network (cover depth unknown).
- New gully system will be connected to the 225mm or 300mm surface water network (cover depth unknown).
- Proposed additional catchment area is negligible and is to be graded to slope towards the existing grassed area to mitigate flows.

Dense wooded area

Proposed flow control structure

Ch A1080 to A1325 N3 branch (left hand side):
- Carriageway superelevated, fall towards the left hand side.
- Additional impermeable catchment area = 334m²
- Additional grassed (permeable area) = 85m²
- Net impermeable area to be attenuated = 249m²
- Existing gullies connected to the 225mm or 300mm surface water network (cover depth unknown).
- New gully system will be connected to bio retention area provided with filter drain below will provide treatment and attenuation.
- ADR: 40.4 l/s
- $Vol_{att}$: DN300 FD, 215m long

Ch A1325 to A1445 (left hand side):
- Carriageway superelevated, fall towards this side.
- Additional impermeable catchment area: 650m² + 453m² (from chainage A1445 to A1520) = 1103m²
- Additional grassed (permeable area) = 45m²
- Net impermeable area to be attenuated = 1058m²
- Existing gullies connected to the 225mm or 300mm surface water network (cover depth unknown)
- New gully system will be connected to bio retention area provided with filter drain below will provide treatment and attenuation
- ADR: 11.1 l/s
- $Vol_{att}$: bio retention area with OGCR below (area: 20m²): 8m³ DN300 FD, 103m long

Outlet to tie into existing network
- 225mmØ
- Ch A1880
- CL TBC
- IL TBC

Ch A1010 to A1040 (both sides):
- Surface water drainage to be constructed as part of Snugborough Junction Upgrade Scheme.

Outlet to tie into existing network
- 1650mmØ
- Ch A1090
- CL TBC
- IL TBC

Bridge structure:
- Subsurface drainage for bridge abutments to discharge to the Tolka River. Refer to structural drawings for further details.

Ch A1040 to A1100 (right hand side):
- Carriageway superelevated, fall towards this side.
- Additional impermeable catchment area = 228m²
- Existing gullies connected to the 225mm surface water network (cover depth unknown).
- Additional gullies where required to be connected to a system of filter drains which will provide attenuation and treatment, or to the existing drainage system.
- ADR: 5.6 l/s
- $Vol_{att}$: DN225 FD, 50m long

Ch A1160 to A1390 (right hand side):
- Carriageway superelevated, fall towards this side
- Additional impermeable catchment area (road) = 164m². This is compensated with additional grassed permeable area (165m²)
- Additional impermeable catchment area (footpath) = 111m² (this is not really an impermeable area as permeable paving has been proposed.
- Permeable paving to be used to allow infiltration of surface water from the footpath & lay-by.
- Existing gullies connected to the 225mm surface water network (cover depth unknown) therefore any additional or relocated gullies to be connected to the same.
- Gullies to be relocated beside the new kerb line where necessary.
- No attenuation required

SHEET 08 SHEET 09 SHEET 10

SCALE 1:500 @ A1; 1:1000 @ A3

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Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
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0 5.0 10.0 20.0 30.0 40.0 50.0m

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5. EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE

$Vol_{att}$: VOLUME OF ATTENUATION

Ch A1325 to A1445 (left hand side):
- Carriageway superelevated, fall towards this side.
- Additional impermeable catchment area: 650m² + 453m² (from chainage A1445 to A1520) = 1103m²
- Additional grassed (permeable area) = 45m²
- Net impermeable area to be attenuated = 1058m²
- Existing gullies connected to the 225mm or 300mm surface water network (cover depth unknown)
- New gully system will be connected to bio retention area provided with filter drain below will provide treatment and attenuation
- ADR: 11.1 l/s
- $Vol_{att}$: bio retention area with OGCR below (area: 20m²): 8m³ DN300 FD, 103m long

Ch A1445 to A1520 (left hand side):
- Carriageway superelevated, fall towards this side.
- The additional paved (453m²) area from the flow control structure to chainage 1520 will discharge to the existing surface water pipe.
- The additional area will be attenuated upstream in the filter drain and bio-retention area between chainages A1390 and A1445.

Ch A1520 to A1630 (left hand side):
- Carriageway superelevated, fall towards this side.
- Additional paved area = 725m² + 385m²(from central reservation) = 1110m²
- Existing gullies connected to the 225mm or 300mm surface water network (cover depth unknown) will be removed.
- New gully system will be connected to bio retention area provided with filter drain below will provide treatment and attenuation.
- ADR: 9.6 l/s
- $Vol_{att}$: DN375 FD, 44m long DN525 OSP, 26m long

Ch A1545 to A1600 (left hand side - access ramp):
- Area will drain over the edge to the existing green area.
- Wall penetrations to allow for flow to pass through are to be provided at the foot of the ramp walls.
- Retaining wall toe drainage to discharge to the existing surface water network at Mill Road.
- Permeable paving to be provided to allow water to infiltrate into the ground.

Ch A1630 to A1700 (left hand side):
- Carriageway superelevated, fall towards this side.
- Additional impermeable catchment area = 162m² + 79m² (from central reservation) = 241m
- Additional grassed (permeable area) = 79m²
- Net impermeable area= 162m²
- Additional paved area to be drained towards the existing grassed area at the edge of the pavement.
- Breaks in the kerb to be provided to allow water to pass through.

Ch A1390 to A1485 (right hand side):
- Carriageway superelevated, fall towards this side.
- Additional impermeable catchment area = 458m²
- Existing gullies connected to the 225mm or 300mm surface water network (cover depth unknown).
- New gully system will be connected to bio retention area provided with filter drain below will provide treatment and attenuation.
- Permeable paving to be used to allow infiltration of surface water from the footpath.
- ADR: 17.4 l/s
- $Vol_{att}$: DN300 FD, 67m long

Ch A1485 to A1600 (right hand side):
- Carriageway superelevated, fall towards this side.
- Additional impermeable catchment area = 551m²
- Additional grassed (permeable area) = 93m²
- Net impermeable area to be attenuated = 458m²
- Existing gullies connected to the 225mm or 300mm surface water network (cover depth unknown).
- New gully system will be connected to an oversized pipe for attenuation purposes.
- ADR: 18.3 l/s
- $Vol_{att}$: DN300 OSP, 94m long

Ch A1600 to A1720 (right hand side - N3):
- Carriageway superelevated, fall towards this side
- Additional impermeable catchment area = 577m² + 591m² (part of right hand side central reservation from Ch A1620 to A1740) + 207m² (right hand side verge Ch A1720 to A1820) = 1375m²
- Existing gullies connected to the 225mm surface water network (cover depth unknown)
- New gully system will be connected to an filter drain for attenuation purposes
- Permeable paving to be used to allow infiltration of surface water
- ADR: 21.6 l/s
- $Vol_{att}$: bio retention area with OGCR below (area: 50m²): 12m³ DN375 FD, 92m long

Ch A1+618 to A1+662 (right hand side - access ramp):
- Area will drain over the edge to the existing green area.
- Wall penetrations to allow for flow to pass through are to be provided at the foot of the ramp walls.
- Permeable paving to be provided to allow water to infiltrate into the ground.

Proposed flow control structure
Outlet to tie into existing network
- 225mmØ
- Ch A1445
- CL TBC
- IL TBC

Proposed flow control structure
Outlet to tie into existing network
- 225mmØ
- Ch A1455
- CL TBC
- IL TBC

Proposed flow control structure
Outlet to tie into existing network
- 225mmØ
- Ch A1564
- CL TBC
- IL TBC

Proposed flow control structure
Outlet to tie into existing network
- 300mmØ
- Ch A1615
- CL TBC
- IL TBC

Proposed flow control structure
Outlet to tie into existing network
- 225mmØ
- Ch A1720
- CL TBC
- IL TBC

Bridge structure:
- Subsurface drainage for Bridge abutment to discharge to Mill Road drainage system. Refer to structural drawings for further details.

Bridge structure:
- Subsurface drainage for Bridge abutment to discharge to Mill Road drainage system. Refer to structural drawings for further details.

Culvert structure

Culvert structure

Dense wooded area

Dense wooded area

Dense wooded area

Dense wooded area

HIGH POINT

HIGH POINT

SHEET 09

SHEET 10

SHEET 10

SHEET 11

A 1350

A 1400

A 1450

A 1500

A 1550

A 1600

A 1650

A 1700

N3

N3

MILL ROAD

HERBERT ROAD

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.


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| Rev | Date | Drn | Chk'd | App'd | Description |
|---|---|---|---|---|---|
| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: ARUP

| Date | Scale | Drawn | Checked | Approved |
|---|---|---|---|---|
| 04/04/2022 | 1:500 @ A1 1:1000 @ A3 | AF | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0010 | 10 of 40 | A | M01 |

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## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
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## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE

$Vol_{att}$: VOLUME OF ATTENUATION

0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

Existing drainage information this drawing is not fro Irish water records. For information on existing drainage data sources, please see overall catchment assessment drawing.

Ch A1630 to A1700 (left hand side):
- Carriageway superelevated, fall towards this side.
- Additional impermeable catchment area = 162m² + 79m² (from central reservation) = 241m
- Additional grassed (permeable area) = 79m²
- Net impermeable area= 162m²
- Additional paved area to be drained towards the existing grassed area at the edge of the pavement.
- Breaks in the kerb to be provided to allow water to pass through.

Dense wooded area

Ch A1700 to A1800 (left hand side):
- Carriageway superelevated, fall towards this side.
- Additional impermeable catchment area = 121m². This is compensated with additional grassed permeable area (164m²). No attenuation required.
- Permeable paving to be used to allow infiltration of surface water from the footpath & lay-by.
- Existing gullies connected to the 225mm or 300mm surface water network (cover depth unknown).
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network
- Gullies to be relocated beside the new kerb line where necessary.

Ch A1800 to A2000 (left hand side - N3 & slip road):
- Carriageway superelevated, fall towards left hand side barrier.
- Additional impermeable catchment area = 319m²
- Additional grassed (permeable area) = 77m²
- Net impermeable area to be attenuated = 242m²
- Existing gullies connected to the 300mm or 350mm surface water network (cover depth unknown).
- Gullies to be relocated beside the new kerb line where necessary.
- Gullies on the slip lane to be connected to the new surface water pipe for attenuation purposes
- ADR: 17.8 l/s
- $Vol_{att}$: DN225,131m long

Outlet to tie into existing network
- 350mmØ
- Ch A1990/M0000
- CL TBC
- IL TBC

Outlet to tie into existing network
- 300mmØ
- Ch A1914
- CL 49.300
- IL unknown

Proposed flow control structure

Ch A1600 to A1720 (right hand side - N3):
- Carriageway superelevated, fall towards this side
- Additional impermeable catchment area = 577m² + 591m² (part of right hand side central reservation from Ch A1620 to A1740) + 207m² (right hand side verge Ch A1720 to A1820) = 1375m²
- Existing gullies connected to the 225mm surface water network (cover depth unknown)
- New gully system will be connected to an filter drain for attenuation purposes
- Permeable paving to be used to allow infiltration of surface water
- ADR: 21.6 l/s
- $Vol_{att}$: bio retention area with OGCR below (area: 50m²): 12m³ DN375 FD, 92m long

Proposed flow control structure

Outlet to tie into existing network
- 225mmØ
- Ch A1720
- CL TBC
- IL TBC

Dense wooded area

Ch A1720 to A1840 (right hand side - N3):
- Carriageway superelevated, fall towards this side
- Additional impermeable catchment area = 207m² (to be compensated upstream from ChA1620 to ChA1720)
- Permeable paving to be used to allow infiltration of surface water from the footpath & lay-by.
- Existing gullies connected to the 225mm or 300mm surface water network (cover depth unknown)
- Gullies to be relocated beside the new kerb line where necessary

Ch A1840 to A1900 (right hand side - N3):
- Carriageway superelevated, fall towards this side
- Additional impermeable catchment area = 9m²
- Additional grassed (permeable area) = 50m²
- Net permeable (grassed) area = 41m²
- Increase in grassed area to be used to compensate additional upstream area from Ch A1910 to 2000
- Existing gullies connected to the 225mm or 300mm surface water network (cover depth unknown)
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network

Outlets to tie into existing network
- 300mmØ
- Ch A1940
- CL TBC
- IL TBC

Proposed flow control structure

Ch A1910 to A2000 (right hand side - N3):
- Carriageway superelevated, fall towards this side
- Additional impermeable catchment area = 234m²
- Additional grassed (permeable area) = 41m² from Ch 1840
- Net impermeable area to be attenuated = 193m²
- Existing gullies connected to the 225mm surface water network (cover depth unknown)
- Proposed footpath (additional catchment area) is to be graded to slope towards the existing grassed area to mitigate
- SuDS feature to be provided for attenuation and treatment purposes and to attenuate additional catchment from A1910 to A1930. It consists of a bio retention area with OGCR below (area: 100m²)
- ADR: 9.5 l/s
- $Vol_{att}$: 12.4m³

LOW POINT

LOW POINT

River Tolka

TIE IN TO EXISTING PROPOSED SCHEME

PROPOSED SCHEME TIE IN TO EXISTING

N3

MILLSTEAD

RIVER ROAD

Woods End

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| Rev | Date | Drn | Chk'd | App'd | Description |
|---|---|---|---|---|---|
| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: ARUP

Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

| Date | Scale | Drawn | Checked | Approved |
|---|---|---|---|---|
| 04/04/2022 | 1:500 @ A1<br>1:1000 @ A3 | AF | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0011 | 11 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

Existing drainage information within this drawing is not from Irish water records. For information on existing drainage data sources, please see overall catchment assessment drawing.

Ch M0000 to M0150 (both sides):
- Additional impermeable catchment area = 98m²
- Road is superelevated draining towards N3 embankment.
- Existing gullies connected to the 225mm surface water network (soffit level unknown).
- Existing grassed area to drain to an oversized filter drain for attenuation purposes.
- ADR: 25.3 l/s
- $Vol_{att}$: DN300, 31m long
  DN375, 35m long

Ch M0150 to M0222 (both sides):
- Existing bridge structure.

Ch M0222 to M0250 (both sides):
- Increase in impermeable catchments = 9m²
- Existing gullies are connected to existing 225mm surface water network (cover depth unknown).
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network
- Proposed footpath (additional catchment area) is negligible and is to be graded to slope towards the existing grassed area to mitigate flows

Ch M0250 to M0295 (both sides):
- Increase in impermeable catchments = 126m²
- Existing gullies are connected to existing 225mm surface water network (cover depth unknown).
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.
- Proposed footpath (additional catchment area) is to be graded to slope towards the existing planted and grassed area to mitigate flows.

Ch A2220 to A2320 (left hand side):
- Additional impermeable catchment area = 390m²
- Existing gullies connected to the 225mm surface water network (cover depth unknown).
- Proposed footpath in additional catchment to be graded to slope towards the existing grass area to mitigate flows.
- Gullies to be connected to an oversized pipe for attenuation purposes.
- ADR: 9.8 l/s
- $Vol_{att}$: DN225 SW, 38m long;
  DN300 OSP, 42m long

Outlet to tie into existing network
- 350mmØ
- Ch A1990/M0000
- CL TBC
- IL TBC

Outlet to tie into existing network
- 225mmØ
- Ch A2220
- CL TBC
- IL TBC

Ch A2000 to A2200 (left hand side):
- No increase in impermeable areas
- Existing gullies connected to the 300mm surface water network (cover depth unknown)
- This side of road graded towards N3 embankment
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network

Outlet to tie into existing network
- 375mmØ
- Ch A2080
- CL TBC
- IL TBC

Outlets to tie into existing network
- 300mmØ
- Ch A1940
- CL TBC
- IL TBC

Outlets to tie into existing network
- Ø300mm
- Ch A2140
- CL: TBCm
- IL: TBCm

Ch A1910 to A2000 (right hand side - N3):
- Carriageway superelevated, fall towards this side
- Additional impermeable catchment area = 234m²
- Additional grassed (permeable area) = 41m² from Ch 1840
- Net impermeable area to be attenuated = 193m²
- Existing gullies connected to the 225mm surface water network (cover depth unknown)
- Proposed footpath (additional catchment area) is to be graded to slope towards the existing grassed area to mitigate
- SuDS feature to be provided for attenuation and treatment purposes and to attenuate additional catchment from A1910 to A1930. It consists of a bio retention area with OGCR below (area: 100m²)
- ADR: 9.5 l/s
- $Vol_{att}$: 12.4m³

Ch A2020 to A2100 (right hand side):
- Road superelevated, fall towards this side.
- Additional impermeable catchment area = 290m²
- Existing gullies connected to the 225mm or 300mm surface water network (cover depth unknown) .
- Gullies to be relocated beside the new kerb line where necessary and connect to filter drain for attenuation.
- Proposed footpath (additional catchment area) is to be graded to slope towards the existing grassed area to mitigate flows.
- SuDS feature to be provided for attenuation and treatment purposes.It consists of a bio retention area with OGCR below
- ADR: 32.7 l/s
- $Vol_{att}$: 25.6m³

Ch A2100 to A2300 (right hand side):
- Road superelevated, fall towards this side.
- Additional impermeable catchment area: 155m²+ 210m² (from traffic island) = 365m²
- Proposed footpath (additional catchment area Ch A2100 to A2180) is to be graded to slope towards the existing grassed area to mitigate flow.
- Existing gullies connected to the 225mm or 300mm surface water network (cover depth unknown).
- Gullies to be relocated beside the new kerb line where necessary and connected to oversized filter drain for attenuation purposes.
- ADR: 32.1 l/s
- $Vol_{att}$: DN225 FD, 58m long
  DN375 FD, 38m long
  DN450 FD, 41m long

Proposed flow control structure

River Tolka

TIE IN TO EXISTING PROPOSED SCHEME

PROPOSED SCHEME TIE IN TO EXISTING

TALBOT DOWNS

Woods End

Car Park

LOW POINT

SHEET 11 SHEET 12 SHEET 13

N3

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

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5. EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE
$Vol_{att}$: VOLUME OF ATTENUATION

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| Rev | Date | Drn | Chk'd | App'd | Description |
|---|---|---|---|---|---|
| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: ARUP

| Date | Scale | Drawn | Checked | Approved |
|---|---|---|---|---|
| 04/04/2022 | 1:500 @ A1 1:1000 @ A3 | AF | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0012 | 12 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

HEALTH CENTRE

Car Park

Ch A2320 to A2400 (left hand side):
- Additional impermeable catchment area = 199m²
- Additional grassed (permeable area) = 123m²
- Net impermeable area to be attenuated = 76m²
- Existing gullies connected to the 225mm surface water network (cover depth unknown)
- Gullies to be relocated beside the new kerb line where necessary and connected to the proposed surface water pipe for attenuation purposes
- ADR: 10.5 l/s
- $Vol_{att}$: DN225 SW, 51m long

Outlet to tie into existing network
- 225mmØ
- Ch A2330
- CL TBC
- IL TBC

Proposed flow control structure

Dense wooded area

TIE IN TO EXISTING PROPOSED SCHEME

TIE IN TO EXISTING PROPOSED SCHEME

Ch A2400 to A2580:
- Existing bridge structure
- No changes to existing drainage expected

Existing drainage information within this drawing is not from Irish water records. For information on existing drainage data sources, please see overall catchment assessment drawing.

Ch A2+590 to A2+670 (Navan 1 - both sides):
- Additional impermeable area = 322m².
- Road has a crossfall to the left hand side where surface water is collected by a slot drain & gully system that discharges to the existing Ø225mm surface water network (soffit level unknown).
- Breaks to be provided in the kerbline to discharge surface water from the carriageway into the proposed bio retention area
- The proposed bio retention area will collect, convey and attenuate flows before discharging to the existing Ø225 surface water network to replicate the existing situation
- The same bio retention area will also provide attenuation to compensate for the additional impermeable area (62m²) located on Navan 1 from Ch A2+670 to Ch A2+730 and 102m² located on Navan 5 from Ch 2+550 to 2+620
- Total impermeable area to be attenuated = 486m²
- ADR: 14.4 l/s
- $Vol_{att}$: DN225 filter drain, 52m long, bio retention area & open graded crushed rock under: 11 m³

Outlet to tie into existing network
- DN 225mm
- Ch A2+670
- CL: ~ 53.45m
- IL: unknown

Proposed flow control structure

SHEET 12

SHEET 13

SHEET 13

SHEET 14

A 2300

A 2330

A 2600

A 2650

A 2560

A 2404

A 2400

M50

JUNCTION 6

ROYAL CANAL

HIGH POINT

HIGH POINT

N3

N3

N3

NAVAN 1

NAVAN 5

Ch A2300 to A2400 (right hand side):
- No increase in impermeable areas
- Existing gullies connected to the 225mm surface water network (cover depth unknown).
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

Ch A2400 to A2580:
- Existing bridge structure.
- No changes to existing drainage expected.

Ch A2+550 to A2+620 (Navan 5 - both sides):
- Additional impermeable area = 102m².
- The dry swale located at ch A2+610 to A2+670 will provide attenuation to compensate for this additional impermeable area

Ch A2400 to A2580 (left hand side):
- Existing bridge structure
- No changes to existing drainage expected

PROPOSED SCHEME TIE IN TO EXISTING

CHERANGANI

## LEGEND:

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| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: ARUP

Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

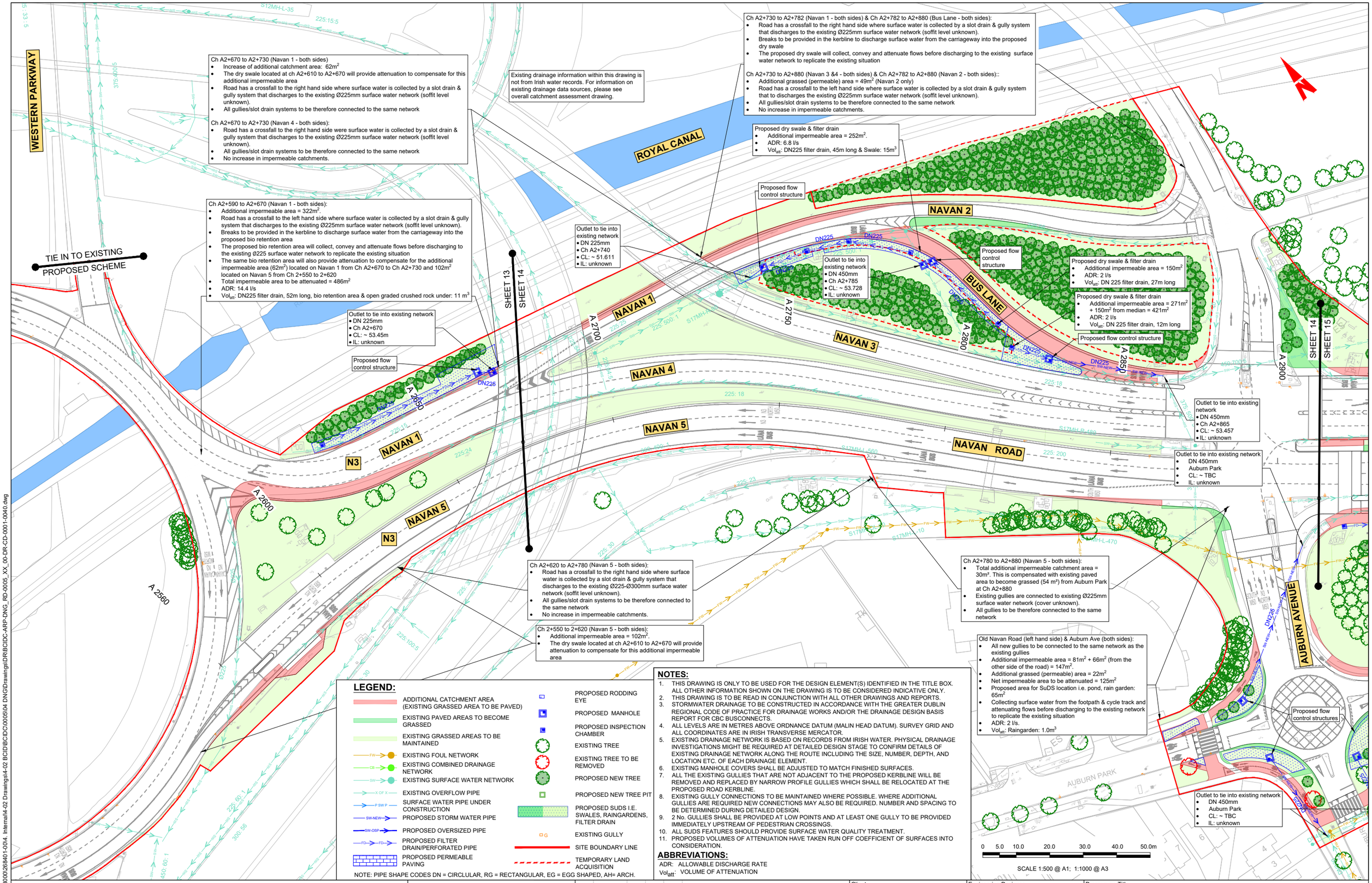
Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

| Date | Scale | Drawn | Checked | Approved |
|---|---|---|---|---|
| 04/04/2022 | 1:500 @ A1<br>1:1000 @ A3 | AF | MR | BD |

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|---|---|---|---|---|---|---|
| BCIDC | ARP | 268401-00 | BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0013 | 13 of 40 | A | M01 |

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Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0014 | 14 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

Existing drainage information within this drawing is not from Irish water records. For information on existing drainage data sources, please see overall catchment assessment drawing.

Ch A2+880 (both sides): New River Road
- No increase in impermeable catchments
- Existing gullies are connected to existing 225mm surface water network (cover depth unknown)
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network
- Further survey required to confirm existing road drainage system

Ch 2+880 to A3+172 (left hand side):
- Total additional impermeable catchment area = 245m². This is compensated with existing paved area to become grassed (281 m²)
- Existing gullies connected to the 300mm surface water network (cover depth unknown)
- Proposed footpath ( additional catchment) to be graded to slope towards the existing grass area to mitigate flows
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

Outlet to tie into existing network
- DN 450mm
- Auburn Park
- CL: ~ TBC
- IL: unknown

Outlet to tie into existing network
- DN 600mm
- Ch A3+050
- CL: ~ TBC
- IL: unknown

Proposed flow control structure

Ch A2+880 to A3+050 (right hand side):
- Increase of additional catchment area: 387m² - (added permeable area) 239m² = 148m²
- Existing gullies connected to the 225mm surface water network (cover depth unknown).
- New narrow profile gullies and connections will be required and will collect surface water from the carriageway , before discharging to the proposed filter drain.
- Proposed filter drain will collect and attenuate surface water from the carriageway before discharging to the existing surface water network.
- ADR: 30.3 l/s
- $Vol_{att}$: DN 300 filter drain, 124m long

Dense wooded area

Dense wooded area

Ch A3+050 to A3+172 (right hand side):
- No increase in impermeable catchments (added permeable area 123m²).
- Existing gullies are connected to existing 225mmØ surface water network (cover depth unknown).
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network..

Proposed flow control structures

Outlet to tie into existing network
- DN 450mm
- Auburn Park
- CL: ~ TBC
- IL: unknown

Old Navan Road (right hand side)
- All new gullies to be connected to the same network as the existing gullies
- Additional impermeable area = 157m².
- Additional grassed (permeable) area = 43m²
- Net impermeable area to be attenuated = 114m²
- Proposed area for SuDS location i.e. pond, rain garden: 95m²
- Collecting surface water from the footpath & cycle track and attenuating flows before discharging to the existing network to replicate the existing situation
- ADR: 2 l/s.
- $Vol_{att}$: Raingarden: 2.0m³

Castleknock Manor - cycle track & footpaths (both sides)
- Additional impermeable area = 254m².
- Additional grassed (permeable) area = 58m²
- Net impermeable area to be attenuated = 196m²
- The proposed permeable paving will treat surface water from the footpath & cycle track and promote infiltration into the ground
- Proposed area for SuDS location i.e. pond, rain garden: 130m²
- Collecting surface water from the footpath & cycle track and attenuating flows before discharging to the existing network to replicate the existing situation
- ADR: 2 l/s.
- $Vol_{att}$: SuDS feature: Raingarden: 4.0m³

Castleknock Manor (both sides):
- All new gullies to be connected to the same network as the existing gullies
- No increase in impermeable catchments.

NAVAN 2
BUS LANE
NAVAN ROAD
AUBURN AVENUE
AUBURN PARK
AUBURN DRIVE
CASTLEKNOCK MANOR
PARKMORE PECKS LANE
Auburn Park
Hotel
SHEET 14
SHEET 15
SHEET 16

## LEGEND:

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5. EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
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9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE
$Vol_{att}$: VOLUME OF ATTENUATION

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| Rev | Date | Drn | Chk'd | App'd | Description |
|---|---|---|---|---|---|
| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair / National Transport Authority
Engineering Designer: ARUP

| Date | Scale | Drawn | Checked | Approved |
|---|---|---|---|---|
| 04/04/2022 | 1:500 @ A1 1:1000 @ A3 | AG | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0015 | 15 of 40 | A | M01 |

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6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE

$Vol_{att}$: VOLUME OF ATTENUATION

Existing drainage information within this drawing is not from Irish water records. For information on existing drainage data sources, please see overall catchment assessment drawing.

Ch A3+172 to A3+438 (left hand side):
- No increase in impermeable catchments
- Existing gullies are connected to existing 300mmØ surface water network (cover depth unknown).
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

Ch A3+172 to A3+400 (Castleknock Manor):
- No increase in impermeable catchments.
- Existing gullies are connected to existing surface water network (cover depth unknown), If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

Ch A3+172 to A3+470 (right hand side):
- Total additional impermeable catchment area = 351m². This is compensated with existing paved area to become grassed (400 m²)
- No increase in impermeable catchments.
- Existing gullies are connected to existing 225mmØ surface water network (cover depth unknown).
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.,

Dense wooded area

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

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SCALE 1:500 @ A1; 1:1000 @ A3


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| Rev | Date | Drn | Chk'd | App'd | Description |
|---|---|---|---|---|---|
| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: ARUP

| Date | Scale | Drawn | Checked | Approved |
|---|---|---|---|---|
| 04/04/2022 | 1:500 @ A1 1:1000 @ A3 | AG | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0016 | 16 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

Existing drainage information in this drawing is not from Irish Water records. For information on existing drainage data sources, please see overall catchment assessment drawing.

Ch A3+438 to A3+600 (left hand side):
- No increase in impermeable catchments.
- Existing gullies are connected to existing 300mmØ surface water network (cover depth unknown), thus new drainage system to be connected to the same.
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network..

Ch A3+600 to A3+855 (Slip road - left hand side):
- Additional impermeable catchment area = 371m$^2$
- Additional permeable catchment area = 168m$^2$
- Net impermeable area = 203m$^2$
- Existing gullies connected to the Ø225 - Ø1050 existing surface water network which has approx. 1m cover
- Right-hand side is a steep embankment falling towards highway with existing trees likely to be unfeasible for SuDS
- The new narrow profile gullies will collect surface water from the carriageway, footpath & cycle track before discharging to the existing surface water network
- Attenuation will be provided by the existing oversized pipe located at ch A3+600 to A3+692

Ch A3+600 to A3+855 (Navan Road - left hand side):
- No increase in impermeable catchment
- Existing gullies are connected to existing 600mmØ surface water network (cover depth unknown)
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

Ch A3+470 to A3+675 (right hand side):
- Increase of additional catchment area: 585m².
- Existing gullies are connected to existing 225mmØ surface water network (cover unknown).
- New narrow profile gullies and connections will be required and will collect surface water from the carriageway, cycle track and footpath before discharging to the treepit/filter drain/surface water network.
- The proposed filter drain/surface water network will collect, convey and attenuate flows before discharging to the existing Ø225 surface water network to replicate the existing situation.
- ADR: 48.3 l/s.
- $Vol_{att}$: DN225 filter drain, 65m long; DN300 filter drain, 60m long & DN300 oversized pipe, 73m long

Ch A3+675 to A3+855 (Slip road - right hand side):
- Additional impermeable catchment area = 448m$^2$
- Additional permeable catchment area = 84m$^2$
- Net impermeable area to be attenuated = 364m$^2$
- Existing gullies connected to the existing Ø225 surface water network which has approx. 1.3m cover
- Left-hand side is a steep embankment falling towards highway with existing trees likely to be unfeasible for SuDS
- The new narrow profile gullies will collect surface water from the carriageway, footpath & cycle track before discharging to the proposed oversized filter drain/ existing surface water network
- The proposed oversized filter drain will collect, convey and attenuate flows before discharging to the existing surface water network to replicate the existing situation
- ADR: 13.3 l/s
- $Vol_{att}$: DN 450 filter drain, 72m long

Ch A3+650 to A3+855 (Navan Road - right hand side):
- No increase in impermeable catchment
- Total additional permeable area = 329m$^2$
- Existing gullies are connected to existing 225-300mmØ surface water network (cover depth unknown)
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

Outlet to tie into existing network
- DN 1050mm
- Ch A3+675
- CL: ~ TBC
- IL: unknown

Proposed flow control structure

Proposed flow control structure

LOW POINT

LOW POINT

LOW POINT

OVERSIZE FOR ATTENUATION

NAVAN ROAD

ST BRIGIDS GAA CLUB

MORGAN'S PLACE

SHEET 16

SHEET 17

SHEET 17

SHEET 18

A 3350 A 3400 A 3450 A 3500 A 3550 A 3600 A 3650 A 3700 A 3750

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
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- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
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| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0017 | 17 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

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Existing drainage information in this drawing is not from Irish Water records. For information on existing drainage data sources, please see overall catchment assessment drawing.

Ch A3+600 to A3+855 (Slip road - left hand side):
- Additional impermeable catchment area = 371m²
- Additional permeable catchment area = 168m²
- Net impermeable area = 203m²
- Existing gullies connected to the Ø225 - Ø1050 existing surface water network which has approx. 1m cover
- Right-hand side is a steep embankment falling towards highway with existing trees likely to be unfeasible for SuDS
- The new narrow profile gullies will collect surface water from the carriageway, footpath & cycle track before discharging to the existing surface water network
- Attenuation will be provided by the existing oversized pipe located at ch A3+600 to A3+692

Ch A3+600 to A3+855 (Navan Road - left hand side):
- No increase in impermeable catchment
- Existing gullies are connected to existing 600mmØ surface water network (cover depth unknown)
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

Ch A3+855 to A4+070 (Slip road - left hand side):
- Additional impermeable catchment area = 495m²
- Additional permeable catchment area = 252m²
- Net impermeable area to be attenuated = 243m²
- Existing gullies connected to the Ø225 - Ø300 existing surface water network which varies in cover from 1m to 0.6m
- Right-hand side is a steep embankment falling towards highway with existing trees likely to be unfeasible for SuDS
- The new narrow profile gullies will collect surface water from the carriageway & footpath before discharging to the proposed oversized filter drain
- The proposed oversized filter drain will collect, convey and attenuate flows before discharging to the existing surface water network to replicate the existing situation
- ADR: 26.1 l/s
- $Vol_{att}$: DN 225 filter drain, 100m long; DN 450 filter drain, 27m long & DN 525 filter drain, 42m long

Ch A3+855 to A4+070 (Navan Road - left hand side):
- No increase in impermeable catchment
- Additional permeable catchment area = 351m²
- Existing gullies are connected to existing 300mmØ surface water network (cover depth unknown)
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

Outlet to tie into existing network
- DN 300mm
- Ch A4+042
- CL: 48.105
- IL: 47.232

Proposed flow control structures

Proposed flow control structure

Outlet to tie into existing network
- DN 1050mm
- Ch A3+675
- CL: ~ TBC
- IL: unknown

Proposed flow control structure

Outlet to tie into existing network
- DN 225mm
- Ch A3+769
- CL: 52.747
- IL: 51.230

Proposed flow control structures

Outlet to tie into existing network
- DN 225mm
- Ch A3+982
- CL: 51.114
- IL: 49.660

Proposed flow control structure

Proposed flow control structures

Ch A3+675 to A3+855 (Slip road - right hand side):
- Additional impermeable catchment area = 448m²
- Additional permeable catchment area = 84m²
- Net impermeable area to be attenuated = 364m²
- Existing gullies connected to the existing Ø225 surface water network which has approx. 1.3m cover
- Left-hand side is a steep embankment falling towards highway with existing trees likely to be unfeasible for SuDS
- The new narrow profile gullies will collect surface water from the carriageway, footpath & cycle track before discharging to the proposed oversized filter drain/ existing surface water network
- The proposed oversized filter drain will collect, convey and attenuate flows before discharging to the existing surface water network to replicate the existing situation
- ADR: 13.3 l/s
- $Vol_{att}$: DN 450 filter drain, 72m long

Ch A3+650 to A3+855 (Navan Road - right hand side):
- No increase in impermeable catchment
- Total additional permeable area = 329m²
- Existing gullies are connected to existing 225-300mmØ surface water network (cover depth unknown)
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

Ch A3+855 to A4+100 (Slip road - right hand side):
- Additional impermeable catchment area = 837m²
- Additional permeable catchment area = 83m²
- Net impermeable area to be attenuated = 754m²
- Existing gullies connected to the Ø225 existing surface water network which varies in cover from 1.9m to 1.2m
- Left-hand side is a steep embankment falling towards highway with existing trees likely to be unfeasible for SuDS
- The new narrow profile gullies will collect surface water from the carriageway & footpath before discharging to the proposed oversized pipe
- The proposed oversized pipe will collect, convey and attenuate flows before discharging to the existing surface water network to replicate the existing situation
- ADR: 18.1 l/s
- $Vol_{att}$: DN450 OSP, 75m long & DN525 OSP, 32m long

Ch A3+855 to A4+100 (Navan Road - right hand side):
- No increase in impermeable catchment
- Total additional permeable area = 375m²
- Existing gullies are connected to existing 600mmØ surface water network (cover depth unknown)
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

CH A3+850 (Existing Bridge):
- No increase in impermeable catchments
- Existing bridge with existing drainage
- Existing situation to remain

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4. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
5. EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE

$Vol_{att}$: VOLUME OF ATTENUATION

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| Rev | Date | Drn | Chk'd | App'd | Description |
|---|---|---|---|---|---|
| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: ARUP

Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

| Date | Scale | Drawn | Checked | Approved |
|---|---|---|---|---|
| 04/04/2022 | 1:500 @ A1, 1:1000 @ A3 | AG | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Drawing File Name: BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0018

Sheet Number: 18 of 40

Status: A

Rev: M01

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Existing drainage information in this drawing is not from Irish Water records. For information on existing drainage data sources, please see overall catchment assessment drawing.

Ch A3+855 to A4+070 (Slip road - left hand side):
- Additional impermeable catchment area = 495m$^2$
- Additional permeable catchment area = 252m$^2$
- Net impermeable area to be attenuated = 243m$^2$
- Existing gullies connected to the Ø225 - Ø300 existing surface water network which varies in cover from 1m to 0.6m
- Right-hand side is a steep embankment falling towards highway with existing trees likely to be unfeasible for SuDS
- The new narrow profile gullies will collect surface water from the carriageway & footpath before discharging to the proposed oversized filter drain
- The proposed oversized filter drain will collect, convey and attenuate flows before discharging to the existing surface water network to replicate the existing situation
- ADR: 26.1 l/s
- $Vol_{att}$: DN 225 filter drain, 100m long; DN 450 filter drain, 27m long & DN 525 filter drain, 42m long

Ch A3+855 to A4+070 (Navan Road - left hand side):
- No increase in impermeable catchment
- Additional permeable catchment area = 351m$^2$
- Existing gullies are connected to existing 300mmØ surface water network (cover depth unknown)
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

Ch A4+070 to A4+140 (left hand side):
- No increase in impermeable areas.
- Existing gullies connected to the surface water network ( size and cover depth unknown).
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.
- Design based on assumption of surface water drainage continuing in central and kerbside locations in. dual-carriageway section of Navan Rd up to Ch A4+070.
- Further survey required to confirm existing gullies' discharge location and existing road drainage system.

Ch A4+140 to A4+470 (left hand side):
- Additional impermeable catchment area = 1176m$^2$
- Additional grassed (permeable area) = 18m$^2$
- Net impermeable area to be attenuated =1158m$^2$
- Existing gullies are assumed to be connected to a surface water network (location, size and cover depth unknown).
- The new narrow profile gullies will collect surface water from the carriageway & footpath before discharging to the proposed tree pits/ surface water pipe/oversized pipe
- The proposed systems will collect, convey and attenuate flows before discharging to the assumed existing surface water network to replicate the existing situation
- ADR: 29.4 l/s
- $Vol_{att}$: DN225 surface water pipe, 32m long; DN 300 oversized pipe, 200m long

Ch A3+855 to A4+100 (Slip road - right hand side):
- Additional impermeable catchment area = 837m$^2$
- Additional permeable catchment area = 83m$^2$
- Net impermeable area to be attenuated = 754m$^2$
- Existing gullies connected to the Ø225 existing surface water network which varies in cover from 1.9m to 1.2m
- Left-hand side is a steep embankment falling towards highway with existing trees likely to be unfeasible for SuDS
- The new narrow profile gullies will collect surface water from the carriageway & footpath before discharging to the proposed oversized pipe
- The proposed oversized pipe will collect, convey and attenuate flows before discharging to the existing surface water network to replicate the existing situation
- ADR: 18.1 l/s
- $Vol_{att}$: DN450 OSP, 75m long & DN525 OSP, 32m long

Ch A3+855 to A4+100 (Navan Road - right hand side):
- No increase in impermeable catchment
- Total additional permeable area = 375m$^2$
- Existing gullies are connected to existing 600mmØ surface water network (cover depth unknown)
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

Ch A4+100 to A4+210 (right hand side):
- Additional impermeable catchment area = 399m$^2$
- Additional grassed (permeable area) = 40m$^2$
- Net impermeable area to be attenuated =359m$^2$
- Existing gullies connected to the surface water network (location, size and cover depth unknown).
- The gullies will collect surface water from the carriageway, footpath and cycle track before discharging to the proposed surface water network
- This network will collect, convey & attenuate flows before discharging to the existing surface water network to replicate the existing situation
- ADR: 27.3 l/s
- $Vol_{att}$: DN225 surface water pipe, 71m long & DN300 oversized pipe, 39m long

Ch A4+210 to A4+505 (right hand side):
- Additional impermeable catchment area = 444m$^2$
- Additional grassed (permeable area) = 308m$^2$
- Net impermeable area to be attenuated =136m$^2$
- Existing gullies are assumed to be connected to a surface water network (location, size and cover depth unknown).
- The gullies will collect surface water from the carriageway, footpath and cycle track before discharging to the proposed surface water network
- This network will collect, convey & attenuate flows before discharging to the assumed existing surface water network to replicate the existing situation
- ADR: 47.6 l/s
- $Vol_{att}$: DN225 surface water pipe, 128m long & DN300 oversized pipe, 86m long

Proposed flow control structures

Outlet to tie into existing network
- DN 300mm
- Ch A4+042
- CL: 48.105
- IL: 47.232

Proposed flow control structure

Outlet to tie into existing network
- DN 225mm
- Ch A3+982
- CL: 51.114
- IL: 49.660

Proposed flow control structures

Outlet to tie into existing network
- DNunknown
- Ch A4+230
- CL: ~ TBC
- IL: unknown

Proposed flow control structure

Proposed flow control structure

Outlet to tie into existing network
- DN375
- Ch A4+100
- CL: ~ TBC
- IL: unknown

Outlet to tie into existing network
- DNunknown
- Ch A4+210
- CL: ~ TBC
- IL: unknown

NAVAN ROAD

NAVAN ROAD

SHEET 18

SHEET 19

SHEET 19

SHEET 20

A 4000

A 4050

A 4100

A 4150

A 4200

A 4250

A 4300

A 4350

LOW POINT

OUTFALL TO EXISTING POND

DN450

DN525

DN225

DN1350

DN600

DN300

DN375

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

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## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE
$Vol_{att}$: VOLUME OF ATTENUATION

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| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority
Engineering Designer: ARUP

| Date | Scale | Drawn | Checked | Approved |
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| 04/04/2022 | 1:500 @ A1 1:1000 @ A3 | AG | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0019 | 19 of 40 | A | M01 |

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SCALE 1:500 @ A1; 1:1000 @ A3

0 5.0 10.0 20.0 30.0 40.0 50.0m

Ch A4+140 to A4+470 (left hand side):
- Additional impermeable catchment area = 1176m²
- Additional grassed (permeable area) = 18m²
- Net impermeable area to be attenuated =1158m²
- Existing gullies are assumed to be connected to a surface water network (location, size and cover depth unknown).
- The new narrow profile gullies will collect surface water from the carriageway & footpath before discharging to the proposed tree pits/ surface water pipe/oversized pipe
- The proposed systems will collect, convey and attenuate flows before discharging to the assumed existing surface water network to replicate the existing situation
- ADR: 29.4 l/s
- $Vol_{att}$: DN225 surface water pipe, 32m long; DN 300 oversized pipe, 200m long

Ch A4+470 to A4+660 (left hand side):
- Additional impermeable catchment area = 681m²
- Additional grassed (permeable area) = 203m²
- Net impermeable area to be attenuated = 478m²
- Existing gullies are assumed to be connected to a surface water network (location, size and cover depth unknown)
- Proposed footpath (additional catchment area) is to be graded to slope towards the proposed grassed area to mitigate flows
- New narrow profile gullies will collect surface water from the carriageway and footpath before discharging to a system of tree pits interconnected through filter drains
- The proposed filter drains will convey and attenuate flows before discharging to the assumed existing surface water network to replicate the existing situation
- ADR: 12.4 l/s
- $Vol_{att}$: DN225 filter drain, 69m long & DN300 filter drain, 63m long

Outlet to tie into existing network
- DNunknown
- Ch A4+650
- CL: TBC
- IL: unknown

Proposed flow control structure

Outlet to tie into existing network
- DNunknown
- Ch A4+210
- CL: ~ TBC
- IL: unknown

Ch A4+210 to A4+505 (right hand side):
- Additional impermeable catchment area = 444m²
- Additional grassed (permeable area) = 308m²
- Net impermeable area to be attenuated =136m²
- Existing gullies are assumed to be connected to a surface water network (location, size and cover depth unknown).
- The gullies will collect surface water from the carriageway, footpath and cycle track before discharging to the proposed surface water network
- This network will collect, convey & attenuate flows before discharging to the assumed existing surface water network to replicate the existing situation
- ADR: 47.6 l/s
- $Vol_{att}$: DN225 surface water pipe, 128m long & DN300 oversized pipe, 86m long

Outlet to tie into existing network
- DNunknown
- Ch A4+522
- CL: ~ TBC
- IL: unknown

Ch A4+505 to A4+590 (right hand side):
- Total additional impermeable catchment area = 40m². This is compensated with existing paved area to become grassed (313 m²)
- Existing gullies connected to the surface water network (location, size and cover depth unknown).
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

Ch A4+590 to A4+660 (right hand side):
- No increase in impermeable areas.
- Existing gullies connected to the surface water network ( size and cover depth unknown).
- Design based on assumption of existing surface water locations from manholes and gullies located by topographical survey.
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.
- Gullies to be relocated beside the new kerb line where necessary.

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
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- EXISTING SURFACE WATER NETWORK
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- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
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- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
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Client: NTA — Údarás Náisiúnta Iompair, National Transport Authority

Engineering Designer: ARUP

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| BCIDC | ARP | 268401-00 |

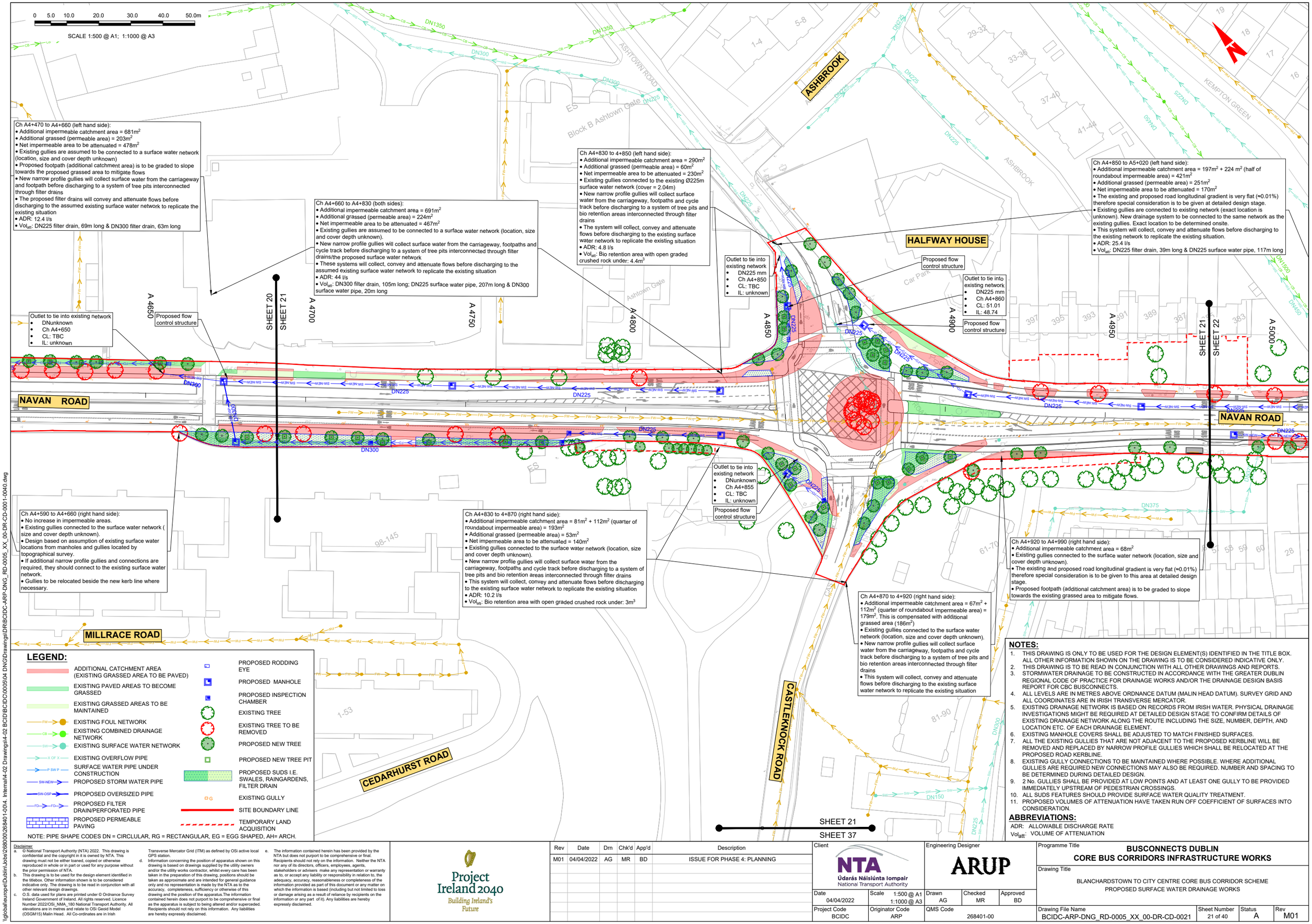
Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0020 | 20 of 40 | A | M01 |

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6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE
Vol$_{att}$: VOLUME OF ATTENUATION

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| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority
Engineering Designer: ARUP

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| 04/04/2022 | 1:500 @ A1 1:1000 @ A3 | AG | MR | BD |

| Project Code | Originator Code | QMS Code |
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| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS
Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0021 | 21 of 40 | A | M01 |

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Ch A4+850 to A5+020 (left hand side):
• Additional impermeable catchment area = 197m² + 224 m² (half of roundabout impermeable area) = 421m²
• Additional grassed (permeable area) = 251m²
• Net impermeable area to be attenuated = 170m²
• The existing and proposed road longitudinal gradient is very flat (≈0.01%) therefore special consideration is to be given at detailed design stage.
• Existing gullies are connected to existing network (exact location is unknown). New drainage system to be connected to the same network as the existing gullies. Exact location to be determined onsite.
• This system will collect, convey and attenuate flows before discharging to the existing network to replicate the existing situation.
• ADR: 25.4 l/s
• $Vol_{att}$: DN225 filter drain, 39m long & DN225 surface water pipe, 117m long

Ch A5+020 to A5+070 (left hand side):
- Increase of additional catchment area: 84m².
- The existing and proposed road longitudinal gradient is very flat (≈0.19%) therefore special consideration is to be given at detailed design stage.
- Existing gullies are connected to existing 450mmØ surface water network (cover 3.44m), Flat area - special consideration to be given to this area at detailed design stage.
- Proposed filter drain will collect surface water from the footpath with bio retention area to attenuate flows before discharging to the Ø450 surface water network to replicate the existing situation.
- ADR: 5.2l/s
- $Vol_{att}$: Bio retention area 1m³

Ch A5+070 to A5+450 (left hand side):
• Increase of additional catchment area: 538 + 38m² (from right hand side of road) = 576m².
• Proposed surface water pipe to be used to compensate for additional area added in adjacent side 37.6m2 CH A5+420 to 5440 (right hand side).
• Existing gullies are possibly connected to existing 225mmØ surface water network (cover unknown), thus new drainage system to be connected to the same.
• New narrow profile gullies and connections will be required and will collect surface water from the carriageway, cycle track and footpath before discharging to the proposed storm pipe.
• The proposed storm pipe will collect, convey and attenuate flows before discharging to the existing Ø225 surface water network to replicate the existing situation.
• ADR: 55/s.
• $Vol_{att}$: DN225 filter drain, 20m long; DN225 surface water pipe, 21m long; DN300 oversized pipe, 90m long & DN450 oversized pipe, 240m long

Ch A4+990 to A5+020 (right hand side):
• Increase of additional catchment area: 75m².
• The existing and proposed road longitudinal gradient is very flat (≈0.08%) therefore special consideration is to be given at detailed design stage.
• Existing gullies are connected to existing surface 375mmØ water network (cover 3.44m), thus new drainage system to be connected to the same.
• The proposed storm pipe will collect, convey and attenuate flows before overflowing/discharging to the existing Ø450 surface water network to replicate the existing situation.
• ADR: 5.1 l/s
• $Vol_{att}$: DN225 surface water pipe, 33m long

Ch A5+020 to A5+070 (right hand side):
• Increase of additional catchment area: 73m².
• Existing gullies are connected to existing 450mmØ surface water network (cover 1.77m), thus new drainage system to be connected to the same.
• New narrow profile gullies and connections will be required and will collect surface water from the carriageway, cycle track and footpath before discharging to the proposed storm pipe.
• The proposed storm pipe will collect, convey and attenuate flows before discharging to the existing Ø450 surface water network to replicate the existing situation.
• ADR: 7.2l/s
• $Vol_{att}$: DN225 surface water pipe, 46m long

Ch A5+070 to A5+230 (right hand side):
• Increase of additional catchment area: 272m².
• Existing gullies are possibly connected to existing 225mØ surface water network (cover unknown), thus new drainage system to be connected to the same.
• New narrow profile gullies and connections will be required and will collect surface water from the carriageway, cycle track and footpath before discharging to the proposed storm pipe.
• The proposed storm pipe will collect, convey and attenuate flows before discharging to the existing Ø225 surface water network to replicate the existing situation.
• ADR: 20.1 l/s
• $Vol_{att}$: DN225 surface water pipe, 139m long

Ch A5+225 to A5+450 (right hand side):
• Increase of additional catchment area: 38m² (compensated Ch A5+070 to Ch A5+450 left hand side)
• The surface water pipe on the other side of the road will provide attenuation to compensate for this additional impermeable area
• Existing gullies are connected to existing 225mmØ. surface water network (cover 0.7m), thus new drainage system to be connected to the same.
• If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

Outlet to tie into existing network
- DN450 mm
- Ch A5+015
- CL: 51.44
- IL: 48.07

Outlet to tie into existing network
- DN450 mm
- Ch A5+020
- CL: 51.80
- IL: 47.80

Outlet to tie into existing network
- DN450 mm
- Ch A5+040
- CL: 51.67
- IL: 48.29

Proposed flow control structure
Bio-retention area
Proposed Flow Control structure
HIGH POINT
SHEET 21
SHEET 22
SHEET 23
NAVAN ROAD
DARLING ESTATE
THE PADDOCK
KEMPTON
KEMPTON AVENUE
KEMPTON GREEN
ASHTOWN
Nursing Home
The Navan Road Community Unit
Car Park
Ashgrove House
Darling Estate
The Paddock
Saint Vincent's

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

0 5.0 10.0 20.0 30.0 40.0 50.0m
SCALE 1:500 @ A1; 1:1000 @ A3

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## ABBREVIATIONS:

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$Vol_{att}$: VOLUME OF ATTENUATION

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| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS
Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0022 | 22 of 40 | A | M01 |

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SCALE 1:500 @ A1; 1:1000 @ A3

0 5.0 10.0 20.0 30.0 40.0 50.0m

Ch A5+070 to A5+450 (left hand side):
- Increase of additional catchment area: 538 + 38m² (from right hand side of road) = 576m².
- Proposed surface water pipe to be used to compensate for additional area added in adjacent side 37.6m2 CH A5+420 to 5440 (right hand side).
- Existing gullies are possibly connected to existing 225mmØ surface water network (cover unknown), thus new drainage system to be connected to the same.
- New narrow profile gullies and connections will be required and will collect surface water from the carriageway, cycle track and footpath before discharging to the proposed storm pipe.
- The proposed storm pipe will collect, convey and attenuate flows before discharging to the existing Ø225 surface water network to replicate the existing situation.
- ADR: 55/s.
- $Vol_{att}$: DN225 filter drain, 20m long; DN225 surface water pipe, 21m long; DN300 oversized pipe, 90m long & DN450 oversized pipe, 240m long

Ch A5+450 to A5+620 (left hand side):
- Increase of additional catchment area: 193m².
- Existing gullies are connected to existing 225mmØ surface water network (cover 1.1m), thus new drainage system to be connected to the same.
- New narrow profile gullies and connections will be required and will collect surface water from the carriageway, cycle track and footpath before discharging to the proposed storm pipe.
- The proposed storm pipe will collect, convey and attenuate flows before discharging to the existing Ø225 surface water network to replicate the existing situation.
- ADR: 20.9/s.
- $Vol_{att}$: DN225 surface water pipe, 154m long

Ch A5+620 to A5+760 (left hand side):
- Increase of additional catchment area: 313m².
- Existing gullies are connected to existing 300mmØ surface water network (cover 1.05m), thus new drainage system to be connected to the same.
- New narrow profile gullies will collect surface water from the carriageway, cycle track and footpath before discharging to a system of tree pits interconnected through filter drains.
- The proposed filter drain will be connected to the proposed surface water pipe
- This system will collect, convey and attenuate flows before discharging to the existing Ø300 surface water network to replicate the existing situation.
- ADR: 27.2 l/s
- $Vol_{att}$: DN300 filter drain, 112m long

Ch A5+225 to A5+450 (right hand side):
- Increase of additional catchment area: 38m² (compensated Ch A5+070 to Ch A5+450 left hand side)
- The surface water pipe on the other side of the road will provide attenuation to compensate for this additional impermeable area
- Existing gullies are connected to existing 225mmØ. surface water network (cover 0.7m), thus new drainage system to be connected to the same.
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

Outlet to tie into existing network
- DN225 mm
- Ch A5+460
- CL: 48.8
- IL: 47.36

Outlet to tie into existing network
- DN300 mm
- Ch A5+540
- CL: 47.99
- IL: 46.52

Ch A5+450 to A5+550 (right hand side):
- Increase of additional catchment area: 126m².
- Existing gullies are connected to existing 300mmØ surface water network (cover 1.17m), thus new drainage system to be connected to the same.
- New narrow profile gullies and connections will be required and will collect surface water from the carriageway, cycle track and footpath before discharging to the proposed storm pipe.
- The proposed storm pipe will collect, convey and attenuate flows before discharging to the existing Ø300 surface water network to replicate the existing situation.
- ADR: 11.2 l/s
- $Vol_{att}$: DN225 surface water pipe, 78m long

Ch A5+550 to A5+700 (right hand side):
- Increase of additional catchment area: 185m².
- Existing gullies are connected to existing 300mmØ combined network (cover 1.1m), thus new drainage system to be connected to the same.
- New narrow profile gullies and connections will be required and will collect surface water from the carriageway, cycle track and footpath before discharging to the proposed storm pipe.
- The proposed storm pipe will collect, convey and attenuate flows before discharging to the existing Ø225 storm network to replicate the existing situation.
- ADR: 19.3 l/s
- $Vol_{att}$: DN225 surface water pipe, 141m long

Outlet to tie into existing network
- DN300 mm
- Ch 5+615
- CL: 47.29
- IL: 45.91

Proposed flow control structure

Proposed flow control structure

Proposed flow control structure

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

Ch A5+620 to A5+760 (left hand side):
- Increase of additional catchment area: 313m².
- Existing gullies are connected to existing 300mmØ surface water network (cover 1.05m), thus new drainage system to be connected to the same.
- New narrow profile gullies will collect surface water from the carriageway, cycle track and footpath before discharging to a system of tree pits interconnected through filter drains.
- The proposed filter drain will be connected to the proposed surface water pipe
- This system will collect, convey and attenuate flows before discharging to the existing Ø300 surface water network to replicate the existing situation.
- ADR: 27.2 l/s
- $Vol_{att}$: DN300 filter drain, 112m long

Ch A5+760 to A5+890 (left hand side):
- Increase of additional catchment area: 359m²
- Existing gullies are connected to existing 300mmØ surface water network (cover 1.14m), thus new drainage system to be connected to the same.
- New narrow profile gullies will collect surface water from the carriageway, cycle track and footpath before discharging to a system of tree pits interconnected through filter drains.
- The proposed filter drain will be connected to the proposed surface water pipe
- This system will collect, convey and attenuate flows before discharging to the existing Ø300 surface water network to replicate the existing situation.
- ADR: 21.5l/s
- $Vol_{att}$: DN300 filter drain, 96m long

Ch A5+890 to A6+038 (left hand side):
- No increase in impermeable catchments.
- Existing gullies are connected to existing 300mmØ surface water network (cover 1.35m), thus new drainage system to be connected to the same.
- New narrow profile gullies and connections may be required and to be connected to the existing 300mm storm network.

Ch A5+920 to A6+135 (right hand side):
- Increase of additional catchment area: 534m².
- Existing gullies are connected to existing 375mmØ surface water network (cover 1.152m), thus new drainage system to be connected to the same.
- New narrow profile gullies will collect surface water from the carriageway, cycle track and footpath before discharging to a system of tree pits interconnected through filter drains.
- The proposed filter drain will be connected to the proposed surface water pipe.
- This system will collect, convey and attenuate flows before discharging to the existing Ø375 surface water network to replicate the existing situation.
- ADR: 40.3 l/s
- $Vol_{att}$: DN225 filter drain, 62m long; DN300 filter drain, 127m long

Ch A5+550 to A5+700 (right hand side):
- Increase of additional catchment area: 185m².
- Existing gullies are connected to existing 300mmØ combined network (cover 1.1m), thus new drainage system to be connected to the same.
- New narrow profile gullies and connections will be required and will collect surface water from the carriageway, cycle track and footpath before discharging to the proposed storm pipe.
- The proposed storm pipe will collect, convey and attenuate flows before discharging to the existing Ø225 storm network to replicate the existing situation.
- ADR: 19.3 l/s
- $Vol_{att}$: DN225 surface water pipe, 141m long

Ch A5+700 to A5+920 (right hand side):
- No increase in impermeable catchments.
- The existing and design road surface in this area has a crossfall to the left hand side
- All stormwater runoff to be therefore collected by the left hand side drainage system

Proposed flow control structure

Proposed flow control structure

Proposed flow control structure

Outlet to tie into existing network
- DN300 mm
- Ch A5+700
- CL: 46.54
- IL: 44.68

Outlet to tie into existing network
- DN300 mm
- Ch A5+760
- CL: ~46.00
- IL: ~44.50

Outlet to tie into existing network
- DN300 mm
- Ch A5+860
- CL: 45.33
- IL: 43.84

KINVARA PARK

KINVARA AVENUE

NAVAN ROAD

BAGGOT ROAD

RATRA ROAD

RATRA PARK

SHEET 23

SHEET 24

SHEET 25

A 5650

A 5700

A 5750

A 5800

A 5850

A 5900

A 5950

A 6000

A 6050

## NOTES:

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4. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
5. EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE

$Vol_{att}$: VOLUME OF ATTENUATION


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d. Information concerning the position of apparatus shown on this drawing is based on drawings supplied by the utility owners and/or the utility works contractor, whilst every care has been taken in the preparation of this drawing, positions should be taken as approximate and are intended for general guidance only and no representation is made by the NTA as to the accuracy, completeness, sufficiency or otherwise of this drawing and the position of the apparatus.The information contained herein does not purport to be comprehensive or final as the apparatus is subject to being altered and/or superceded. Recipients should not rely on this information. Any liabilities are hereby expressly disclaimed.

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| Rev | Date | Drn | Chk'd | App'd | Description |
|---|---|---|---|---|---|
| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: ARUP

| Date | Scale | Drawn | Checked | Approved |
|---|---|---|---|---|
| 04/04/2022 | 1:500 @ A1 1:1000 @ A3 | AG | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: **BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0024 | 24 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

OUR LADY HELP OF CHRISTIANS PARISH CHURCH

NAVAN ROAD

VILLA PARK GARDENS

SHEET 24

SHEET 25

SHEET 26

LOW POINT

HIGH POINT

Ch A6+038 to A6+070 (left hand side):
- No increase in impermeable catchments.
- Existing gullies connected to the 300mm surface water network thus additional gullies where necessary connected to the same network.
- Depth to soffit of existing surface water network 1.4m.
- Additional narrow profile gullies and connections will be required.

Ch A6+070 to A6+260 (left hand side):
- No increase in impermeable catchments.
- The existing and design road surface in this area has a crossfall to the right hand side
- All stormwater runoff to be therefore collected by the right hand side drainage system

Ch A6+260 to A6+396 (left hand side):
- No increase in impermeable catchments
- Existing gullies connected to the 225mm surface water network
- Depth to soffit of existing surface water network 1.4m
- Additional narrow profile gullies and connections will be required
- New gullies to connect into proposed surface water pipe to avoid multiple connections to the surface water pipe across the road

Proposed flow control structure

Proposed flow control structure

Proposed flow control structure

Outlet to tie into existing network
- DN375 mm
- Ch A6+135
- CL: 45.41
- IL: 42.61

Outlets to tie into existing network
- DN225 mm
- Ch A6+260
- CL: 43.8
- IL: 42.73

Ch A5+920 to A6+135 (right hand side):
- Increase of additional catchment area: 534m².
- Existing gullies are connected to existing 375mmØ surface water network (cover 1.152m), thus new drainage system to be connected to the same.
- New narrow profile gullies will collect surface water from the carriageway, cycle track and footpath before discharging to a system of tree pits interconnected through filter drains.
- The proposed filter drain will be connected to the proposed surface water pipe
- This system will collect, convey and attenuate flows before discharging to the existing Ø375 surface water network to replicate the existing situation
- ADR: 40.3 l/s
- $Vol_{att}$: DN225 filter drain, 62m long; DN300 filter drain, 127m long

Ch A6+135 to A6+260 (right hand side):
- Increase of additional catchment area: 69m²
- The existing and proposed road longitudinal gradient is very flat (≈0.11%) therefore special consideration is to be given at detailed design stage.
- The surface water network located at Ch A6+260 to A6+374 will provide attenuation to compensate for this additional impermeable area.
- Existing gullies connected to the 375mm surface water network.
- Depth to soffit of existing surface water network 1.4m.

Ch A6+260 to A6+374 (right hand side):
- Increase of additional catchment area: 52m²
- Existing gullies connected to the 225mm surface water network. Cover = 1.4m.
- New gullies will collect surface water from the carriageway, cycle track & footpath before discharging to the proposed surface water pipe
- The surface water pipe will collect, convey and attenuate flows before discharging to the existing surface water network to replicate the existing situation
- The same pipe will also provide attenuation to compensate for the additional impermeable area (69m²) located from Ch A6+135 to A6+260
- Total impermeable area to be attenuated = 121m²
- ADR: 28.9 l/s
- $Vol_{att}$: DN300 surface water pipe, 88m long

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE

$Vol_{att}$: VOLUME OF ATTENUATION

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| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: ARUP

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|---|---|---|---|---|
| 04/04/2022 | 1:500 @ A1 1:1000 @ A3 | AG | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0025 | 25 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

Ch A6+396 to A6+465 (left hand side):
- Increase of additional catchment area: 38m²
- The proposed surface water pipe on the other side of the road will provide attenuation to compensate for the additional impermeable area.
- Existing gullies connected to the 225mm surface water network.
- Depth to soffit of existing surface water network 1.60m.
- All gullies to be connected to the existing surface water network

Ch A6+465 to A6+642 (left hand side):
- Additional impermeable catchment area = 274m²
- Additional grassed (permeable area) = 14m² (from the other side of the road)
- Net impermeable area to be attenuated = 260m²
- Existing gullies connected to the Ø300mm surface water network (cover =1.60m)
- New narrow profile gullies will collect surface water from the carriageway, footpaths and cycle track before discharging to a system of tree pits interconnected through filter drains
- Filter drains will be connected to surface water pipes
- This system will collect, convey and attenuate flows before discharging to the existing surface water network to replicate the existing situation
- ADR: 18.5 l/s
- $Vol_{att}$: DN225 filter drain, 128 m long & DN300 surface water pipe, 5m long

Ch A6+642 to A6+745 (left hand side):
- Increase of additional catchment area: 108m²
- Existing gullies connected to the 150mm surface water network.
- Depth to soffit of existing surface water network varies from 1.48m to 0.50m.
- New narrow profile gullies will collect surface water from the carriageway, footpaths and cycle track before discharging to the proposed surface water pipe.
- This system will collect, convey and attenuate flows before discharging to the existing surface water network to replicate the existing situation.
- ADR: 27.4 l/s
- $Vol_{att}$: DN225 surface water pipe, 50 m long

Ch A6+374 to A6+488 (right hand side) :
- Increase of additional catchment area: 39m² + 38m² (from the other side of the road) = 77m²
- Additional grassed (permeable area) = 14m²
- Net impermeable area to be attenuated = 63m²
- Existing gullies connected to the 225mm surface water network.
- Depth to soffit of existing surface water network 1.60m.
- New gullies will collect surface water from the carriageway, cycle track & footpath before discharging to the proposed surface water pipe
- The surface water pipe will collect, convey and attenuate flows before discharging to the existing surface water network to replicate the existing situation
- ADR: 15.1 l/s
- $Vol_{att}$: DN225 surface water pipe, 52m long

Ch A6+488 to A6+575 (right hand side):
- No increase in impermeable catchment area.
- Additional narrow profile gullies and connections will be required.
- Existing gullies connected to the Ø225mm surface water network. All gullies to be therefore connected to the existing surface water network.
- Depth to soffit of existing surface water network 1.60m.

Ch A6+575 to A6+642 (right hand side):
- No increase in impermeable catchment area.
- Additional narrow profile gullies and connections will be required.
- Existing gullies connected to the Ø300mm surface water network. All gullies to be therefore connected to the existing surface water network.
- Depth to soffit of existing surface water network 1.55m.

Ch A6+642 to A6+745 (right hand side):
- No increase in impermeable catchment area.
- Additional narrow profile gullies and connections will be required.
- Existing gullies connected to the Ø150mm surface water network.
- Depth to soffit of existing surface water network varies from 1.48m to 0.50m.
- New gullies to connect into new network to avoid multiple connections to the surface water network across the road.

Outlet to tie into existing network
- DN225 mm
- Ch A6+488
- CL: 42.9
- IL: 41.08

Outlet to tie into existing network
- DN375 mm
- Ch A6+575
- CL: 41.29
- IL: unknown

Outlet to tie into existing network
- DN300 mm
- Ch A6+562
- CL: 42.48
- IL: 40.85

Proposed flow control structure

Proposed flow control structure

Proposed flow control structure

HIGH POINT

LOW POINT

HIGH POINT

NAVAN ROAD

NEPHIN ROAD

CABRA GARDA STATION

ROOSEVELT COTTAGES

VILLA PARK GARDENS

PARKSIDE VIEW

NEPHIN ROAD

SHEET 25

SHEET 26

SHEET 26

SHEET 27

A 6350 A 6400 A 6450 A 6500 A 6550 A 6600 A 6650 A 6700 A 6750

DN225 DN300 DN375

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

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6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE

$Vol_{att}$: VOLUME OF ATTENUATION

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| Rev | Date | Drn | Chk'd | App'd | Description |
|---|---|---|---|---|---|
| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA — Údarás Náisiúnta Iompair, National Transport Authority

Engineering Designer: ARUP

Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

| Date | Scale | Drawn | Checked | Approved |
|---|---|---|---|---|
| 04/04/2022 | 1:500 @ A1, 1:1000 @ A3 | AG | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0026 | 26 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

Ch A6+745 to A6+900 (left hand side):
- Increase of additional catchment area: 38m² + 74m² (from Ch A6+900 to A7+040 - left hand side) = 112m²
- Existing gullies connected to the 525mm surface water network.
- Depth to soffit of existing surface water network varies from 1.56m to 1.47m.
- New narrow profile gullies will collect surface water from the carriageway, footpaths and cycle track before discharging to the proposed surface water pipe
- This system will collect, convey and attenuate flows before discharging to the existing surface water network to replicate the existing situation
- ADR: 17.8 l/s
- $Vol_{att}$: DN225 surface water pipe, 121 m long

Outlets to tie into existing network
- DN525 mm
- Ch A6+900
- CL: 41.21
- IL: 39.13

Proposed flow control structure

Ch A6+900 to A7+040 (left hand side):
- Increase of additional catchment area: 74m²
- Existing gullies connected to the 525mm surface water network.
- Depth to soffit of existing surface water network varies from 1.47m to 1.88m.
- New narrow profile gullies will collect surface water from the carriageway, footpaths and cycle track before discharging to the existing surface water pipe
- The proposed surface water pipe located at Ch A6+745 to A6+900 - left hand side will provide attenuation to compensate for the additional impermeable area

Ch A7+040 to A7+132 (left hand side):
- No increase in impermeable catchments.
- Existing gullies connected to the 225mm surface water network thus additional gullies where necessary connected to the same network.
- Depth to soffit of existing surface water network varies from 2.19m to 1.31m.

Ch A6+745 to A6+900 (right hand side):
- No increase in impermeable catchment area.
- Additional narrow profile gullies and connections will be required.
- Existing gullies connected to the Ø525mm surface water network. Further investigation to be carried out on-site to confirm if the gullies are connected to the surface water network. If the gullies are connected to the combined network, the new pipe might not be necessary and the new gullies should be connected to the combined network instead. Coordination with DCC should be carried out to confirm the possible connection from the other side of the road.
- Depth to soffit of existing surface water network varies from 1.73m to 1.56m.
- New gullies to connect into new network to avoid multiple connections to the surface water network across the road.

Ch A6+900 to A7+075 (right hand side) :
- No increase in impermeable catchments.
- Additional narrow profile gullies and connections will be required.
- Existing gullies connected to the 375mm combined network thus additional gullies where necessary connected to the same network.
- Sealed gullies connection to be provided.

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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5. EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE
$Vol_{att}$: VOLUME OF ATTENUATION

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| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: ARUP

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| 04/04/2022 | 1:500 @ A1 1:1000 @ A3 | AG | MR | BD |

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| BCIDC | ARP | 268401-00 |

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Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0027 | 27 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

SWILLY ROAD

RATOATH ROAD

CABRA ROAD

OLD CABRA COURT

CABRA LIBRARY

NAVAN ROAD

PINE HURST

HIGH POINT

HAMPTON SQUARE

HAMPTON GREEN

Chapel

Aras Slainte

Telecommunication Complex

Rosecourt

Library

SHEET 27

SHEET 28

SHEET 29

A 7100

A 7150

A 7200

A 7250

A 7300

A 7350

A 7400

A 7450

Swilly Road Intersection (All approaches):
- No increase in impermeable areas.
- Existing gullies connected to the Ø225 surface water network (cover depth unknown).
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

Ch A7132 to A7780 (left hand side):
- No increase in impermeable catchments.
- Existing gullies connected to the 225mm surface water network, therefore existing gully connections to be used.
- Depth to soffit of existing surface water network varies from 1.77m to 0.84m.

Ch A7280 to A7400 (left hand side):
- Increase in permeable catchment area of 625m$^2$
- Existing gullies connected to the Ø225mm surface water network. All gullies to be therefore connected to the existing surface water network.
- Depth to soffit of existing surface water network varies from 0.84m to 1.38m.
- Additional narrow profile gullies and connections will be required.
- SuDS measures i.e. bio-retention areas proposed to provide additional treatment for additional impermeable areas located at Ch A6740 to A7260.

Proposed flow control structure

Outlet to tie into existing network
- Ø525mm
- Ch A6880
- CL: TBCm
- IL: TBCm

Ch A7075 to A7260 (right hand side):
- Additional impermeable catchment area = 224m$^2$
- Existing gullies connected to the 525mm surface water network, thus new drainage system to be connected to the same.
- Depth to soffit of existing surface water network varies from 2.00m to 3.48m.
- Additional gullies where required to be connected to the proposed surface water pipe which will provide attenuation
- ADR: 30.6 l/s
- Vol$_{att}$: DN300 SW, 64m long
  DN225 SW, 96m long

New manhole required if existing manhole connection not available Existing Ø525mm surface water sewer thought to run through verge set back away from road and not as indicated from records.

Ch A7280 to A7420 (right hand side):
- No increase in additional catchment area.
- Existing gullies connected to the 525mm surface water, thus new drainage to be connected to the same.
- Depth to soffit of existing surface water network varies from 3.48m to 2.90m.
- SuDS measures i.e. bio-retention areas proposed to provide additional treatment for additional impermeable areas.

## LEGEND:

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- EXISTING PAVED AREAS TO BECOME GRASSED
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- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
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- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
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- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
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| Drawing File Name | Sheet Number | Status | Rev |
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| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0028 | 28 of 40 | A | M01 |

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## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE

$Vol_{att}$: VOLUME OF ATTENUATION

Ch A7400 to A7560 (left hand side):
- No increase in impermeable catchment area.
- Existing gullies connected to the Ø300mm combined network, thus new drainage system to be connected to the same.
- Depth to soffit of existing surface combined network varies from 2.33m to 1.65m.
- If additional narrow profile gullies and connections are required, they should connect to the existing combined network.
- New sealed gullies connection to be provided.

Ch A7420 to A7560 (right hand side):
- No increase of additional catchment area.
- New narrow profile gullies to be installed and upstream of pedestrian crossings where necessary.
- Existing gullies connected to the Ø225mm surface water network. All gullies to be therefore connected to the existing surface water network.
- Depth to soffit of existing surface water network varies from 0.80m to 1.31m.

Ch A7560 to A7720 (left hand side):
- No increase in impermeable catchments.
- Existing gullies connected to the 300mm combined network.
- Depth to soffit of existing surface combined network varies from 1.65m to 1.4m.
- New network added to avoid multiple connections to the combined sewer across the road.
- Additional gullies and connections should be added to the new network.

Ch A7560 to A7740 (right hand side):
- No increase in impermeable catchments.
- Existing gullies connected to the 300mm combined network, all gullies therefore connected to the same.
- Depth to soffit of existing surface combined network varies from 1.65m to 1.4m.
- Where additional gullies are required, sealed gully connections shall be provided.

Outlet to tie into existing network
- Ø300mm
- Ch A7700
- CL: 35.850m
- IL: 33.830m

Interceptor trap to be provided in manhole

Ch A7720 to A7740 (left hand side):
- No increase in impermeable catchments.
- Existing gully connected to the 375mm combined network, all gullies therefore connected to the same.
- Depth to soffit of existing surface combined network varies from 1.63m to 2.06m.
- New sealed gullies connection to be provided for new gullies if any.

Ch A7740 to A7770 (both sides):
- Existing railway bridge

CABRA

OLD CABRA COURT

OLD CABRA ROAD

EARLS COURT

DUNARD ROAD

CARAGH ROAD

GLENBEIGH ROAD

SHEET 28

SHEET 29

SHEET 30

A 7450

A 7500

A 7550

A 7600

A 7650

A 7700

A 7750

A 7800

A 7850

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
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- PROPOSED NEW TREE PIT
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SCALE 1:500 @ A1; 1:1000 @ A3


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| Rev | Date | Drn | Chk'd | App'd | Description |
|---|---|---|---|---|---|
| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: ARUP

| Date | Scale | Drawn | Checked | Approved |
|---|---|---|---|---|
| 04/04/2022 | 1:500 @ A1<br>1:1000 @ A3 | AG | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0029 | 29 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

SHEET 29

SHEET 30

CABRA DRIVE

OLD CABRA ROAD

DOON AVENUE

ARDMORE AVENUE

EVERTON AVENUE

A 7850

A 7900

A 7950

A 8000

A 8050

A 8100

A 8150

Ch A7800 to A7920 (left hand side):
- No increase in impermeable catchments.
- Existing gullies are connected to existing 375mmØ combined network (cover 1.5m), thus new drainage system to be connected to the same.
- If additional narrow profile gullies and connections are required, they should connect to the existing combined network.
- New sealed gullies connection to be provided.

Ch A7920 to A8040 (left hand side):
- No increase in impermeable catchments.
- Existing gullies are connected to existing 225mmØ storm network (cover 0.6m), thus new drainage system to be connected to the same.
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

Ch A8040 to A8080 (left hand side):
- No increase in impermeable catchments.
- Existing gullies are connected to existing 375mmØ combined network (cover 2.5m), thus new drainage system to be connected to the same.
- New network added to avoid multiple connections to the combined sewer.
- Additional gullies and connections to be added and connected to new storm network.

Ch A7800 to A8160 (right hand side):
- No increase in impermeable catchments.
- Existing gullies are connected to existing 375mm combined network. (cover 2m), thus new drainage system to be connected to the same.
- If additional narrow profile gullies and connections are required, they should connect to the existing combined network.
- New sealed gullies connection to be provided.

Ch A8080 to A8160 (left hand side):
- No increase of additional catchment area
- Existing gullies are connected to existing 300mmØ combined network (cover 2.0m), thus new drainage system to be connected to the same.
- If additional narrow profile gullies and connections are required, they should connect to the existing combined network.
- New sealed gullies connection to be provided.

Interceptor trap to be provided in manhole

Outlets to tie into existing network
- Ø375mm
- Ch A8080
- CL: TBCm
- IL: 29.330m

Annamoe Intersection (All approaches):
- No increase in impermeable areas.
- Existing gullies connected to the Ø300 combined network (cover depth unknown).
- If additional narrow profile gullies and connections are required, they should connect to the existing combined network.
- New gullies should be sealed.

SHEET 30

SHEET 31

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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4. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
5. EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE

$Vol_{att}$: VOLUME OF ATTENUATION


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| Rev | Date | Drn | Chk'd | App'd | Description |
|---|---|---|---|---|---|
| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: ARUP

| Date | Scale | Drawn | Checked | Approved |
|---|---|---|---|---|
| 04/04/2022 | 1:500 @ A1 1:1000 @ A3 | AG | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0030 | 30 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

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4. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
5. EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE

$Vol_{att}$: VOLUME OF ATTENUATION

SHEET 30

SHEET 31

SHEET 31

SHEET 32

Ch A8160 to A8210 (both sides):
- No increase in impermeable catchments.
- Existing gullies are connected to existing 375mm combined network. (cover 1.7m), thus new drainage system to be connected to the same.
- If additional narrow profile gullies and connections are required, they should connect to the existing combined network.
- New sealed gullies connection to be provided.

Ch A8210 to A8285 (both sides):
- No increase in impermeable catchments.
- Existing gullies connected to the 620*1030mm Egg combined network. (cover depth approx 2.5m).
- New network added to avoid multiple connections to the combined sewer.
- Additional gullies and connections to be added and connected to new storm network
- SuDS measures i.e. bio-retention area proposed to provide additional treatment

Ch A8285 to A8400 (both sides):
- No increase of additional catchment area
- Existing gullies connected to the 620*1030mm Egg combined network. (cover depth approx 2.5m).
- New network added to avoid multiple connections to the combined sewer.
- Additional gullies and connections to be added and connected to new storm network.

Interceptor trap to be provided in manhole

Interceptor trap to be provided in manhole

Interceptor trap to be provided in manhole

Outlets to tie into existing network
- Egg 620*1030mm
- Ch A8300
- CL: 26.840m
- IL: 23.570m

Outlets to tie into existing network
- Egg 620*1010mm
- Ch A8400
- CL: 25.060m
- IL: 21.830m

EVERTON AVENUE

ANNAMOE ROAD

NORTH CIRCULAR ROAD

RATHDOWN SQUARE

DRUMALEE ROAD

DRUMALEE GROVE

DRUMALEE DRIVE

DRUMALEE COURT

DRUMALEE ROAD

PRUSSIA STREET

ST JOSEPH'S PLACE

ST JOSEPHS COURT

ELLESMERE AVENUE

Phoenix Care Centre

Park Shopping Centre

College

University

Car Park

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
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| Rev | Date | Drn | Chk'd | App'd | Description |
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| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: ARUP

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| 04/04/2022 | 1:500 @ A1<br>1:1000 @ A3 | AG | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0031 | 31 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

ST JOSEPH'S PLACE

ST JOSEPHS COURT

SAINT JOSEPH'S PLACE

Outlets to tie into existing network
- Egg 620*1010mm
- Ch A8400
- CL: 25.060m
- IL: 21.830m

SHEET 31
SHEET 32

A 8450

A 8500

A 8550

A 8600

A 8650

A 8700

ST JOSEPH'S ROAD

AUGHRIM STREET

AUGHRIM LANE

AUGHRIM VILLAS

PRUSSIA STREET

FINGAL PLACE

KINGS COURT

Church of the Holy Family

Car Park

Manor Street Business Park

SHEET 40
SHEET 32

SHEET 32
SHEET 33

Bio-retention areas

Ch A8400 to A8685 (both sides)
- No increase in impermeable catchments.
- Existing gullies connected to the 620*1010mm Egg combined network. (cover depth approx 2.5m).
- New network added to avoid multiple connections to the combined sewer.
- Additional gullies and connections to be added and connected to new storm network.

Ch A8685 to A8730 (left hand side)
- No increase in impermeable catchments.
- Existing gullies connected to the 620*990mm combined network. (cover depth approx 2.5m).
- New network added to avoid multiple connections to the combined sewer.
- Additional gullies and connections to be added and connected to new storm network.

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6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
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10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE
$Vol_{att}$: VOLUME OF ATTENUATION

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
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Programme Title: BUSCONNECTS DUBLIN
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Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
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| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0032 | 32 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

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4. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
5. EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE

$Vol_{att}$: VOLUME OF ATTENUATION

Aughrim Street (both sides)
- No increase in impermeable catchments.
- Existing gullies connected to the 225mm or 1200mm combined network. (cover depth approx 2.6m & 2.7m respectively).
- If additional narrow profile gullies and connections are required, they should connect to the existing combined network.

Ch A8685 to A8730 (right hand side)
- Additional impermeable catchment area = 55m²
- Additional grassed (permeable area) = 325m²
- No net impermeable area to be attenuated
- Existing gullies connected to the 620*990mm Egg & 1200mm combined network (cover depth approx 2.5m).
- New narrow profile gullies and connections will be required and will collect surface water from the carriageway, cycle track and footpath before discharging to the proposed surface water network.
- The proposed surface water network will convey the flows to the combined network.

Ch A8685 to A8730 (left hand side)
- No increase in impermeable catchments.
- Existing gullies connected to the 620*990mm combined network. (cover depth approx 2.5m).
- New network added to avoid multiple connections to the combined sewer.
- Additional gullies and connections to be added and connected to new storm network.

Outlet to tie into existing network
- Egg 620*990mm
- Ch A8715
- CL: 16.020m
- IL: 12.750m

Outlet to tie into existing network
- Egg 630*1010mm
- Ch A8730
- CL: 15.880m
- IL: 12.450m

Ch A8730 to A9000 (left hand side)
- No increase in impermeable catchments.
- Existing gullies connected to the 1200 - 1350mm combined network. (cover depth approx 2.5m & 1.7m respectively).
- If additional narrow profile gullies and connections are required, they should connect to the existing combined network..
- Sealed gullies to be provided.

Ch A8730 to A9000 (right hand side)
- No increase in impermeable catchments.
- Existing gullies connected to the 1200 - 1350mm combined network. (cover depth approx 2.5m & 1.7m respectively).
- New network added to avoid multiple connections to the combined sewer.
- Additional gullies where required to be connected to a system of tree pits interconnected through filter drains or the new storm network depending on location.
- The proposed surface water network will convey the flows to the combined network.

Bio-retention areas

Bio-retention area

Interceptor trap to be provided in manhole

Interceptor trap to be provided in manhole

AUGHRIM STREET
AUGHRIM LANE
AUGHRIM COURT
HALLIDAY ROAD
SHEA'S LANE
KIRWAN STREET
MALACHI ROAD
HAROLD ROAD
MURTAGH ROAD
SIGURD ROAD
OSTMAN PLACE
IVAR STREET
MANOR PLACE
MOUNT TEMPLE ROAD
MOUNT TEMPLE
SITRIC ROAD
NORSEMAN
MANOR STREET
Stanhope Street Primary School
Recreation Complex

SHEET 32
SHEET 33
SHEET 34

A 8700
A 8750
A 8800
A 8850
A 8900
A 8950
A 9000

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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| Rev | Date | Drn | Chk'd | App'd | Description |
|---|---|---|---|---|---|
| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: ARUP

| Date | Scale | Drawn | Checked | Approved |
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| 04/04/2022 | 1:500 @ A1<br>1:1000 @ A3 | AG | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0033 | 33 of 40 | A | M01 |

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$Vol_{att}$: VOLUME OF ATTENUATION

0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

Outlet to tie into existing network
- Ø1350mm
- Ch A9000
- CL: 10.263m
- IL: 7.093m

Interceptor trap to be provided in manhole

Brunswick Street North:
- No increase in impermeable catchments.
- Existing gullies connected to the existing Ø1350mm combined network. Depth to invert of existing combined network varies from 3.14m and 3.48m.
- Additional gullies and connections will be required and upstream of the pedestrian crossings where necessary
- New network also added to avoid multiple connections to the combined sewer.

Outlet to tie into existing network
- Ø1350mm
- Ch K81.205
- CL: 8.670m
- IL: 5.520m

Ch A9000 to A9100 (both sides) :
- No increase in impermeable catchments.
- Additional narrow profile gullies and connections will be required.
- Existing gullies connected to the Ø1350mm combined. Depth to invert of existing combined network varies from 3.17m to 3.24m.
- New network also added to avoid multiple connections to the combined sewer.

Outlet to tie into existing network
- Ø1350mm
- Ch A9100
- CL: 9.560m
- IL: 5.900m

Interceptor trap to be provided in manhole

Ch A9100 to A9140 (both sides) :
- No increase in impermeable catchments.
- Existing gullies connected to the Ø300mm combined.
- Depth to invert of existing combined network varies from 2.96m to 3.90m.
- Sealed gullies connection to be provided.

King Street North:
- No increase in impermeable catchments.
- Additional narrow profile gullies and connections will be required.
- Existing gullies connected to the existing Ø1020mm combined network. Depth to invert of existing combined network varies from 3.66m to 3.71m.
- New network added to avoid multiple connections to the combined sewer subject to space availability.

Outlet to tie into existing network
- Egg 1020*640mm
- Ch G0390
- CL: 8.740m
- IL: 5.030m

Interceptor trap to be provided in manhole

George's Lane (both sides) :
- No increase in impermeable catchments.
- Existing gullies connected to the Ø600mm surface water. Depth to invert of existing combined network varies from 2.47m to 2.82m Thus additional gullies where necessary connected to the same network.
- Bioretention areas zoned for future SuDS application.

Ch A9140 to A9290 (both sides) :
- No increase in impermeable catchments
- Additional narrow profile gullies and connections will be required
- Existing gullies connected to the Ø375mm combined. Depth to invert of existing combined network varies from 3.90m to 4.07m
- New network also added to avoid multiple connections to the combined sewer across the road

Ch G0200 to G0400 (both sides) :
- No increase in impermeable catchments.
- Heavy congestion of service crossings throughout this section.
- Additional narrow profile gullies and connections will be required.
- Existing gullies connected to the Ø1080mm combined. Depth to invert of existing combined network varies from 3.79m to 3.62m. Thus additional gullies where necessary connected to the same network.
- Sealed gullies connection to be provided.

## LEGEND:

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- EXISTING PAVED AREAS TO BECOME GRASSED
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| 04/04/2022 | 1:500 @ A1 1:1000 @ A3 | AG | MR | BD |

| Project Code | Originator Code | QMS Code |
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Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0034 | 34 of 40 | A | M01 |

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SCALE 1:500 @ A1; 1:1000 @ A3

0 5.0 10.0 20.0 30.0 40.0 50.0m

Ch A9140 to A9290 (both sides) :
- No increase in impermeable catchments
- Additional narrow profile gullies and connections will be required
- Existing gullies connected to the Ø375mm combined. Depth to invert of existing combined network varies from 3.90m to 4.07m
- New network also added to avoid multiple connections to the combined sewer across the road

Ch A9290 to A9360 (right hand side) :
- No increase in impermeable catchments.
- Existing gullies connected to the 980mm combined network Depth to invert of existing combined network varies from 2.90m to 2.97m.
- Additional narrow profile gullies and connections will be required.
- New network also added to avoid multiple connections to the combined sewer across the road.

Outlet to tie into existing network
- Egg 980*640mm
- Ch A9440
- CL: 5.753m
- IL: 2.783m

Interceptor trap to be provided in manhole

Ch A9320 to A9360 (left hand side) :
- No increase in impermeable catchments.
- Existing gullies connected to the Ø980mm combined. Depth to invert of existing combined network varies from 2.90m to 2.97m
- All gullies to therefore connect to the existing combined network.
- Sealed gullies connection to be provided.

Blackhall Street:
- No increase in impermeable catchments.
- Existing gullies connected to the Ø900mm combined.
- Depth to invert of existing combined network varies from 4.20m to 3.80m.
- Sealed gullies connection to be provided.

Ch A9380 to A9440 (right hand side) :
- No increase in impermeable catchments.
- Existing gullies connected to the 900mm combined network. Depth to invert of existing combined network varies from 2.69m to 3.23m.
- Additional narrow profile gullies and connections will be required.
- New network added to avoid multiple connections to the combined sewer across the road.

Outlet to tie into existing network
- Egg 1050*760mm
- Ch A9490
- CL: 3.850m
- IL: 0.720m

Interceptor trap to be provided in manhole

Ch A9380 to A9440 (left hand side) :
- No increase in impermeable catchments.
- Existing gullies connected to the Ø225mm combined. Depth to invert of existing combined network varies from 2.69m to 3.23m.
- All gullies to therefore connect to the existing combined network.
- Sealed gullies connection to be provided.

Ch G0200 to G0400 (both sides) :
- No increase in impermeable catchments.
- Heavy congestion of service crossings throughout this section.
- Additional narrow profile gullies and connections will be required.
- Existing gullies connected to the Ø1080mm combined. Depth to invert of existing combined network varies from 3.79m to 3.62m. Thus additional gullies where necessary connected to the same network.
- Sealed gullies connection to be provided.

Ch G0140 to G0200 (both sides) :
- No increase in impermeable catchments.
- Heavy congestion of service crossings throughout this section.
- Existing gullies connected to the Ø1230mm combined. Depth to invert of existing combined network varies from 3.64m to 3.46m.
- Sealed gullies connection to be provided.

Ch G0060 to G0140 (both sides) :
- No increase in impermeable catchments.
- Heavy congestion of service crossings throughout this section.
- Existing gullies connected to the Ø1180mm combined. Depth to invert of existing combined network varies from 3.46m to 3.35m.
- Sealed gullies connection to be provided.

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
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NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0035 | 35 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

SHEET 35

SHEET 36

Ch A9380 to A9440 (right hand side) :
- No increase in impermeable catchments.
- Existing gullies connected to the 900mm combined network. Depth to invert of existing combined network varies from 2.69m to 3.23m.
- Additional narrow profile gullies and connections will be required.
- New network added to avoid multiple connections to the combined sewer across the road.

Interceptor trap to be provided in manhole

Outlet to tie into existing network
- Egg 1050*760mm
- Ch A9490
- CL: 3.850m
- IL: 0.720m

Ch A9380 to A9440 (left hand side) :
- No increase in impermeable catchments.
- Existing gullies connected to the Ø225mm combined. Depth to invert of existing combined network varies from 2.69m to 3.23m.
- All gullies to therefore connect to the existing combined network.
- Sealed gullies connection to be provided.

Ch A9440 to A9490 (left hand side) :
- No increase in impermeable catchments.
- Existing gullies connect to the existing combined network which is a Ø450mm pipe. Depth to invert varies from 1.65m to 3.13m.
- All gullies to therefore connect to the existing combined network.
- Sealed gullies connection to be provided.

Ch A9440 to A9490 (right hand side) :
- No increase in impermeable catchments.
- Existing gullies connect to the existing combined network which is egg shaped (Ø1 = 1020, Ø2 = 630). Depth to invert varies from 2.92m to 3.23m.
- All gullies to therefore connect to the existing combined network.
- Sealed gullies connection to be provided.

Ch G0060 to G0140 (both sides) :
- No increase in impermeable catchments.
- Heavy congestion of service crossings throughout this section.
- Existing gullies connected to the Ø1180mm combined. Depth to invert of existing combined network varies from 3.46m to 3.35m.
- Sealed gullies connection to be provided.

Ch G0000 to G0060 (both sides) :
- No increase in impermeable catchments.
- Additional narrow profile gullies and connections will be required.
- Existing gullies connect to the existing combined network which is a 2280mm egg-shaped sewer. Depth to invert varies from 3.38m to 4.89m.
- New network also added to avoid multiple connections to the combined sewer.

Interceptor trap to be provided in manhole

Outlet to tie into existing network
- Arch 2280*1010mm
- Ch G0000
- CL: 4.383m
- IL: 0.813m

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
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9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
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11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE

$Vol_{att}$: VOLUME OF ATTENUATION

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| Rev | Date | Drn | Chk'd | App'd | Description |
|---|---|---|---|---|---|
| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: ARUP

| Date | Scale | Drawn | Checked | Approved |
|---|---|---|---|---|
| 04/04/2022 | 1:500 @ A1, 1:1000 @ A3 | AG | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0036 | 36 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

CEDARHURST ROAD

CASTLEKNOCK ROAD

BLACKHORSE AVENUE

ASHTOWN GATE ROAD

Car Park

Phoenix Park

Belleville

1-53

61-70

71-80

81-90

The IW records information does not show any existing combined or surface water pipe here. Additional survey will be required in this area to determine where existing gullies are connected to.

SHEET 21

SHEET 37

Castleknock Road (both sides):
- No increase in impermeable catchments.
- No existing gullies shown in topographical survey.
- Existing drainage elements to be maintained.

Blackhorse Avenue (both sides):
- No increase in impermeable catchments.
- Existing gullies connected to the 225mm surface water network (cover depth approx 0.875m).
- If additional narrow profile gullies and connections are required, they should connect to the existing surface water network.

Blackhorse Avenue (both sides):
- No increase in impermeable catchments.
- Existing gullies connected to the 225mm surface water network (cover depth approx 0.6m).
- Existing drainage connections to be maintained.

The IW records information does not show any existing combined or surface water pipe here. Additional survey will be required in this area to determine where existing gullies are connected to.

Ashtown Gate Road (both sides):
- No increase in impermeable catchments.
- Existing gullies shown in topographical survey.
- Existing drainage elements to be maintained.

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
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NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
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## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE

$Vol_{att}$: VOLUME OF ATTENUATION


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| Rev | Date | Drn | Chk'd | App'd | Description |
|---|---|---|---|---|---|
| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: ARUP

| Date | Scale | Drawn | Checked | Approved |
|---|---|---|---|---|
| 04/04/2022 | 1:500 @ A1 1:1000 @ A3 | AG | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0037 | 37 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

CABRA ROAD

ANNAMOE DRIVE

ANNAMOE PARK

ANNAMOE PARADE

CHARLEVILLE ROAD

NORTH CIRCULAR ROAD

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## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE

$Vol_{att}$: VOLUME OF ATTENUATION

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
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- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
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- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
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Charleville Road (both sides):
- No increase in impermeable catchments.
- Existing gullies connected to the Ø450 combined network (cover depth unknown).
- If additional narrow profile gullies and connections are required, they should connect to the existing combined network.
- New gullies should be sealed.


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Client: NTA — Údarás Náisiúnta Iompair, National Transport Authority

Engineering Designer: ARUP

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| 04/04/2022 | 1:500 @ A1<br>1:1000 @ A3 | AG | MR | BD |

| Project Code | Originator Code | QMS Code |
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| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0038 | 38 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

North Circular Road (left hand side):
• No increase in impermeable catchments.
• Existing gullies connected to the 300mm combined network (cover depth approx 1.5m).
• If additional narrow profile gullies and connections are required, they should connect to the existing combined network.
• New gullies should be sealed.

Dalymount (both sides):
• No increase in impermeable catchments.
• Existing gullies connected to the 300mm combined network (cover depth approx 1.5m).
• If additional narrow profile gullies and connections are required, they should connect to the existing combined network.
• New gullies should be sealed.

North Circular Road (right hand side):
• No increase in impermeable catchments.
• Existing gullies connected to the 300mm combined network (cover depth approx 1.5m & 2.8m respectively).
• If additional narrow profile gullies and connections are required, they should connect to the existing 300mm combined network.
• New gullies should be sealed.

North Circular Road (both sides):
• No increase in impermeable catchments.
• Existing gullies connected to the 300mm - 435mm combined network (cover depth approx 2.7m).
• If additional narrow profile gullies and connections are required, they should connect to the existing combined network..
• New gullies should be sealed.

Phibsborough Road (both sides):
• No increase in impermeable catchments.
• Existing gullies connected to the combined network (cover depth unknown).
• If additional narrow profile gullies and connections are required, they should connect to the existing combined network.
• New gullies should be sealed.

Monck Place (both sides):
• No increase in impermeable catchments.
• Existing gullies connected to the combined network (cover depth unknown).
• If additional narrow profile gullies and connections are required, they should connect to the existing combined network.
• New gullies should be sealed.

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11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE

$Vol_{att}$: VOLUME OF ATTENUATION

## LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.


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| Rev | Date | Drn | Chk'd | App'd | Description |
|---|---|---|---|---|---|
| M01 | 04/04/2022 | AG | MR | BD | ISSUE FOR PHASE 4: PLANNING |

Client: NTA Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: ARUP

| Date | Scale | Drawn | Checked | Approved |
|---|---|---|---|---|
| 04/04/2022 | 1:500 @ A1<br>1:1000 @ A3 | AG | MR | BD |

| Project Code | Originator Code | QMS Code |
|---|---|---|
| BCIDC | ARP | 268401-00 |

Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

| Drawing File Name | Sheet Number | Status | Rev |
|---|---|---|---|
| BCIDC-ARP-DNG_RD-0005_XX_00-DR-CD-0039 | 39 of 40 | A | M01 |

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0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

## NOTES:

1. THIS DRAWING IS ONLY TO BE USED FOR THE DESIGN ELEMENT(S) IDENTIFIED IN THE TITLE BOX. ALL OTHER INFORMATION SHOWN ON THE DRAWING IS TO BE CONSIDERED INDICATIVE ONLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS AND REPORTS.
3. STORMWATER DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH THE GREATER DUBLIN REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS AND/OR THE DRAINAGE DESIGN BASIS REPORT FOR CBC BUSCONNECTS.
4. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
5. EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

## ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE

$Vol_{att}$: VOLUME OF ATTENUATION

Aughrim Place (both sides):
- No increase in impermeable catchments.
- Existing gullies connected to the Ø300 combined network (cover depth unknown).
- If additional narrow profile gullies and connections are required, they should connect to the existing combined network.
- New gullies should be sealed.

Cowper Street (both sides):
- No increase in impermeable catchments.
- Existing gullies connected to the Ø375 combined network (cover depth unknown).
- If additional narrow profile gullies and connections are required, they should connect to the existing combined network.
- New gullies should be sealed.

## LEGEND:

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SHEET 40
SHEET 32

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Programme Title: **BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

Drawing Title: BLANCHARDSTOWN TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS

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