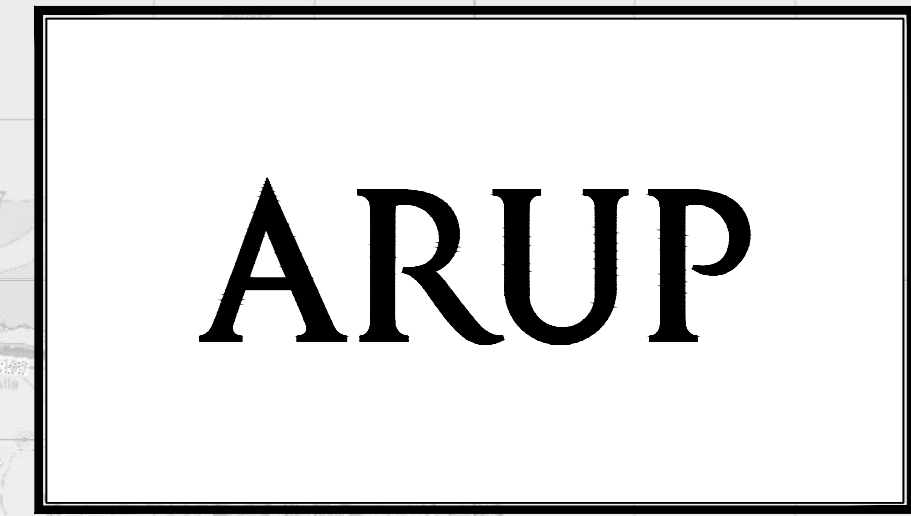


Proposed Surface Water
Drainage Works





BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS

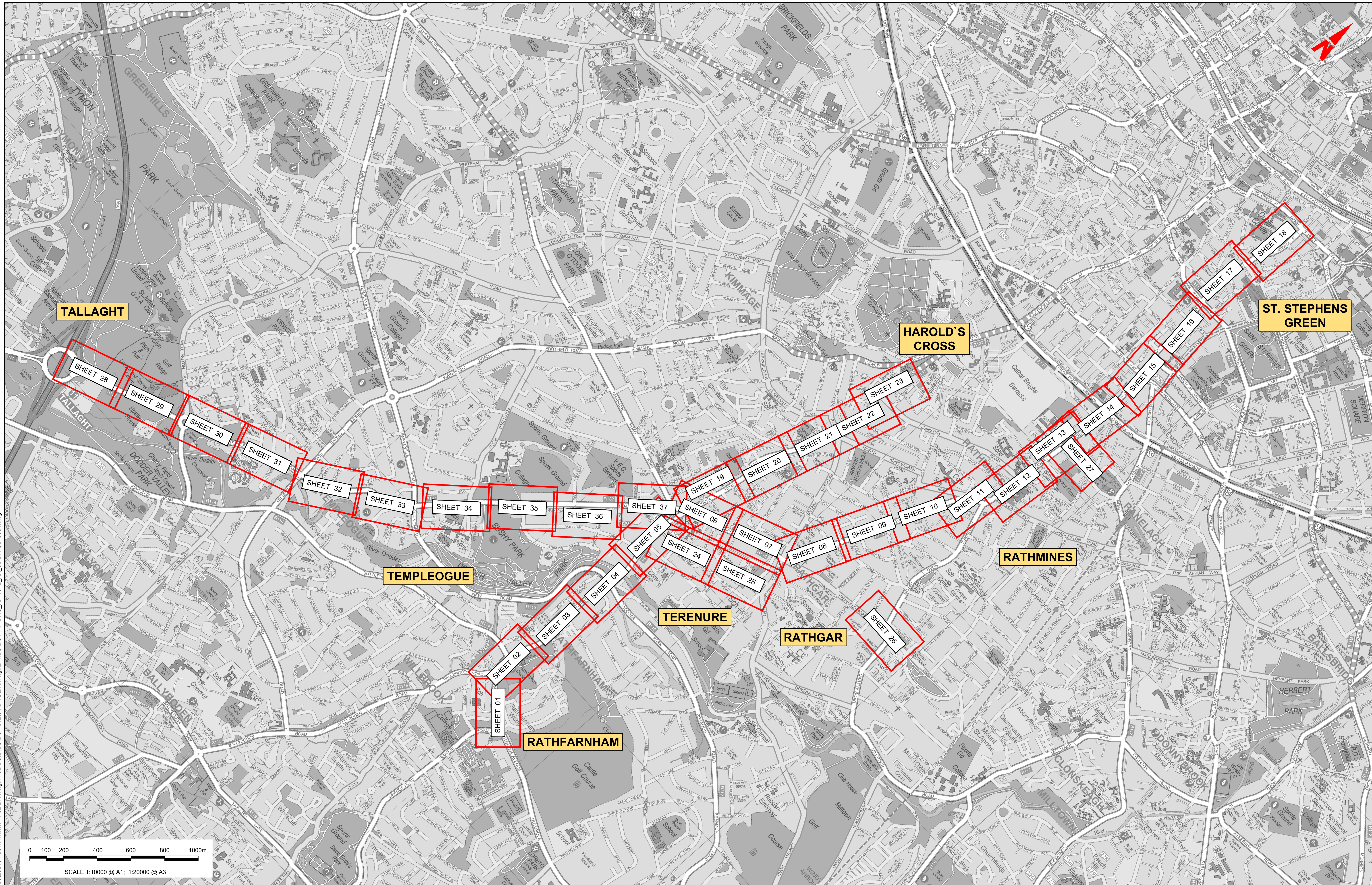
TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME

PROPOSED SURFACE WATER DRAINAGE WORKS

DRAWING SERIES NUMBER(S)	DRAWING SERIES DESCRIPTION
BCIDC-ARP-DNG_IX-1012_XX_00-DR-CD-0001	TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME. PROPOSED SURFACE WATER DRAINAGE WORKS. COVER SHEET
BCIDC-ARP-DNG_KP-1012_XX_00-DR-CD-0001	TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME. PROPOSED SURFACE WATER DRAINAGE WORKS. KEY PLAN
BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-1001-1003	TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME. OVERALL CATCHMENT AREAS
BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0001 to 0037	TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME. PROPOSED SURFACE WATER DRAINAGE WORKS

\\global\europa\dublin\jobs\268600020268401-004_Interna\4-02 Drawings\4-02 BCIDC\BCIDC_101204 DNG\Drawings\DR\BCIDC-ARP-DNG_IX-1012_XX_00-DR-CD-0001.dwg

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0 100 200 400 600 800 1000m
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Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AG	MR	DC	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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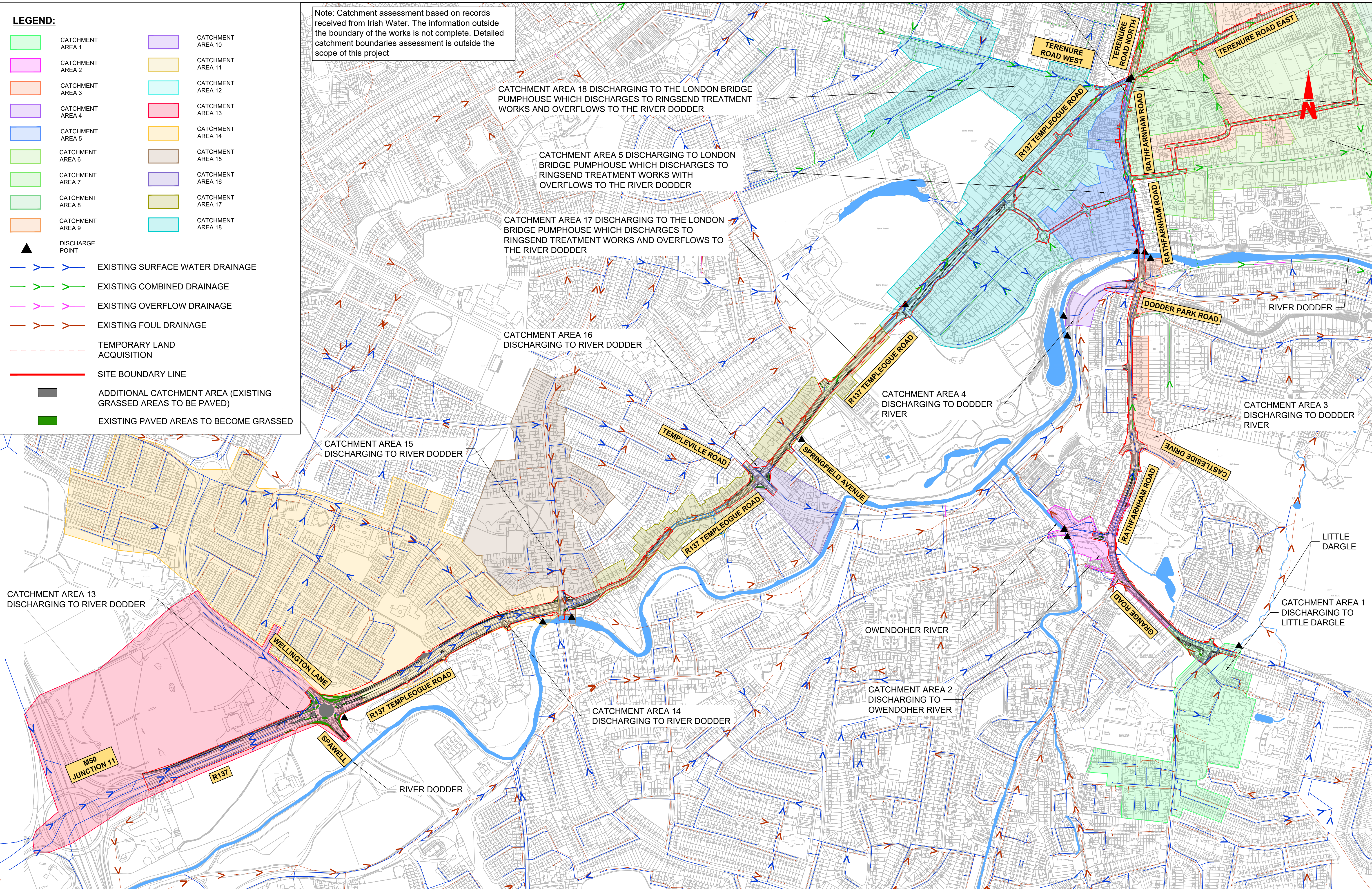
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Drawing Title TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS KEY PLAN	
Drawing File Name BCIDC-ARP-DNG_KP-1012_XX_00-DR-CD-0001	Sheet Number 01 of 01
Status A	Rev M01

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Note: Catchment assessment based on records received from Irish Water. The information outside the boundary of the works is not complete. Detailed catchment boundaries assessment is outside the scope of this project

LEGEND:

	CATCHMENT AREA 1		CATCHMENT AREA 10
	CATCHMENT AREA 2		CATCHMENT AREA 11
	CATCHMENT AREA 3		CATCHMENT AREA 12
	CATCHMENT AREA 4		CATCHMENT AREA 13
	CATCHMENT AREA 5		CATCHMENT AREA 14
	CATCHMENT AREA 6		CATCHMENT AREA 15
	CATCHMENT AREA 7		CATCHMENT AREA 16
	CATCHMENT AREA 8		CATCHMENT AREA 17
	CATCHMENT AREA 9		CATCHMENT AREA 18
	DISCHARGE POINT		
	EXISTING SURFACE WATER DRAINAGE		
	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		



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Client: **NTA**
 Údarás Náisiúnta Iompair
 National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023
 Scale: 1:5000 @ A1
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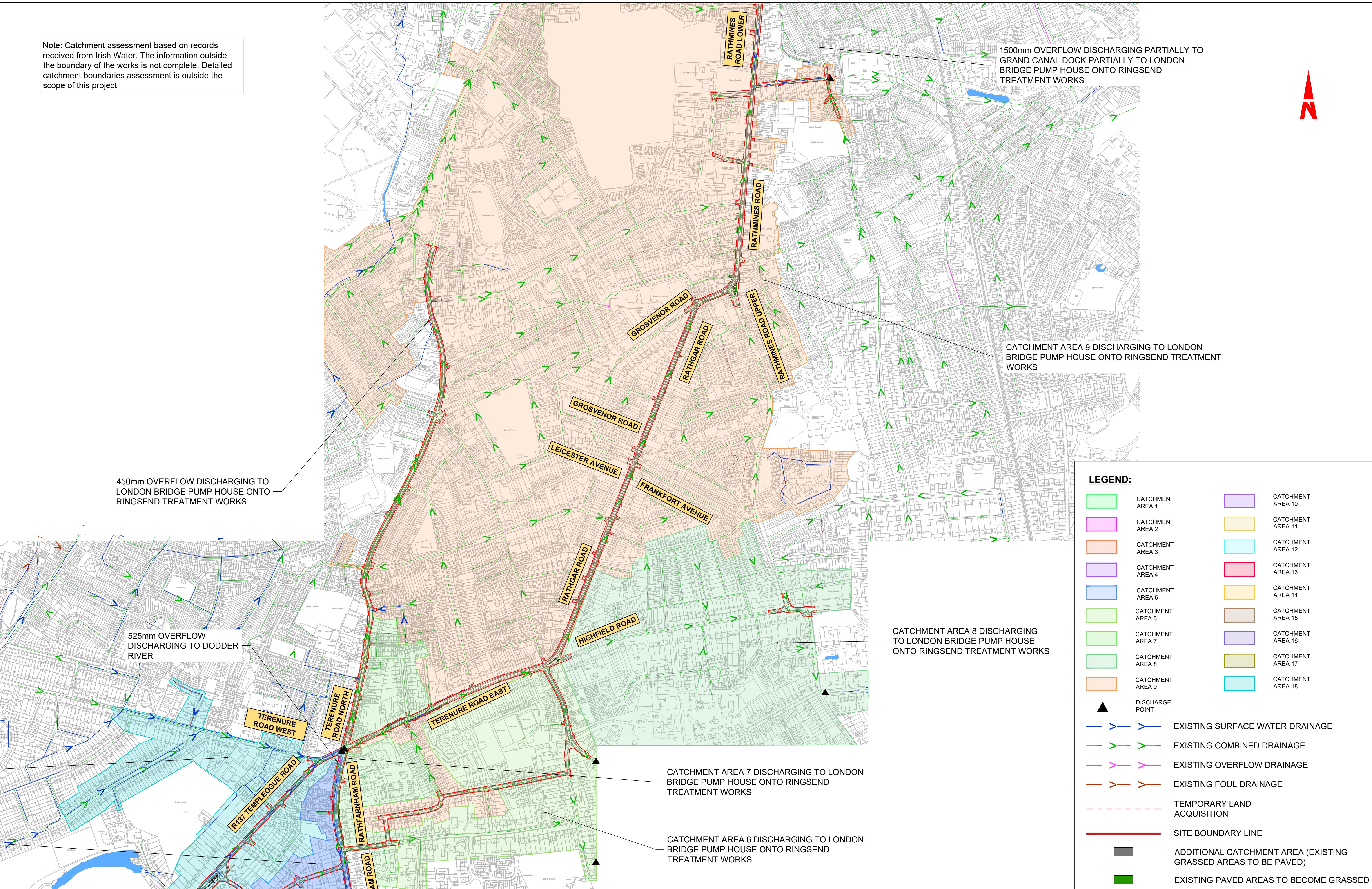
Drawn: AG
 Checked: MR
 Approved: DC

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

Programme Title		BUSCONNECTS DUBLIN	
		CORE BUS CORRIDORS INFRASTRUCTURE WORKS	
Drawing Title		TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME OVERALL CATCHMENT AREAS	
Drawing File Name	Sheet Number	Status	Rev
BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-1001	01 of 03	A	M01

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450mm OVERFLOW DISCHARGING TO LONDON BRIDGE PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

525mm OVERFLOW DISCHARGING TO DODDER RIVER

1500mm OVERFLOW DISCHARGING PARTIALLY TO GRAND CANAL DOCK PARTIALLY TO LONDON BRIDGE PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

CATCHMENT AREA 9 DISCHARGING TO LONDON BRIDGE PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

CATCHMENT AREA 8 DISCHARGING TO LONDON BRIDGE PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

CATCHMENT AREA 7 DISCHARGING TO LONDON BRIDGE PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

CATCHMENT AREA 6 DISCHARGING TO LONDON BRIDGE PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

LEGEND:

	CATCHMENT AREA 1		CATCHMENT AREA 10
	CATCHMENT AREA 2		CATCHMENT AREA 11
	CATCHMENT AREA 3		CATCHMENT AREA 12
	CATCHMENT AREA 4		CATCHMENT AREA 13
	CATCHMENT AREA 5		CATCHMENT AREA 14
	CATCHMENT AREA 6		CATCHMENT AREA 15
	CATCHMENT AREA 7		CATCHMENT AREA 16
	CATCHMENT AREA 8		CATCHMENT AREA 17
	CATCHMENT AREA 9		CATCHMENT AREA 18

▲ DISCHARGE POINT

— EXISTING SURFACE WATER DRAINAGE

— 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

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Client: **NTA**
Údarás Náisiúnta Iompair
National Transport Authority

Engineering Designer: **ARUP**

Date	Scale	Drawn	Checked	Approved
27/01/2023	1:5000 @ A1 1:10000 @ A3	AG	MR	DC

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

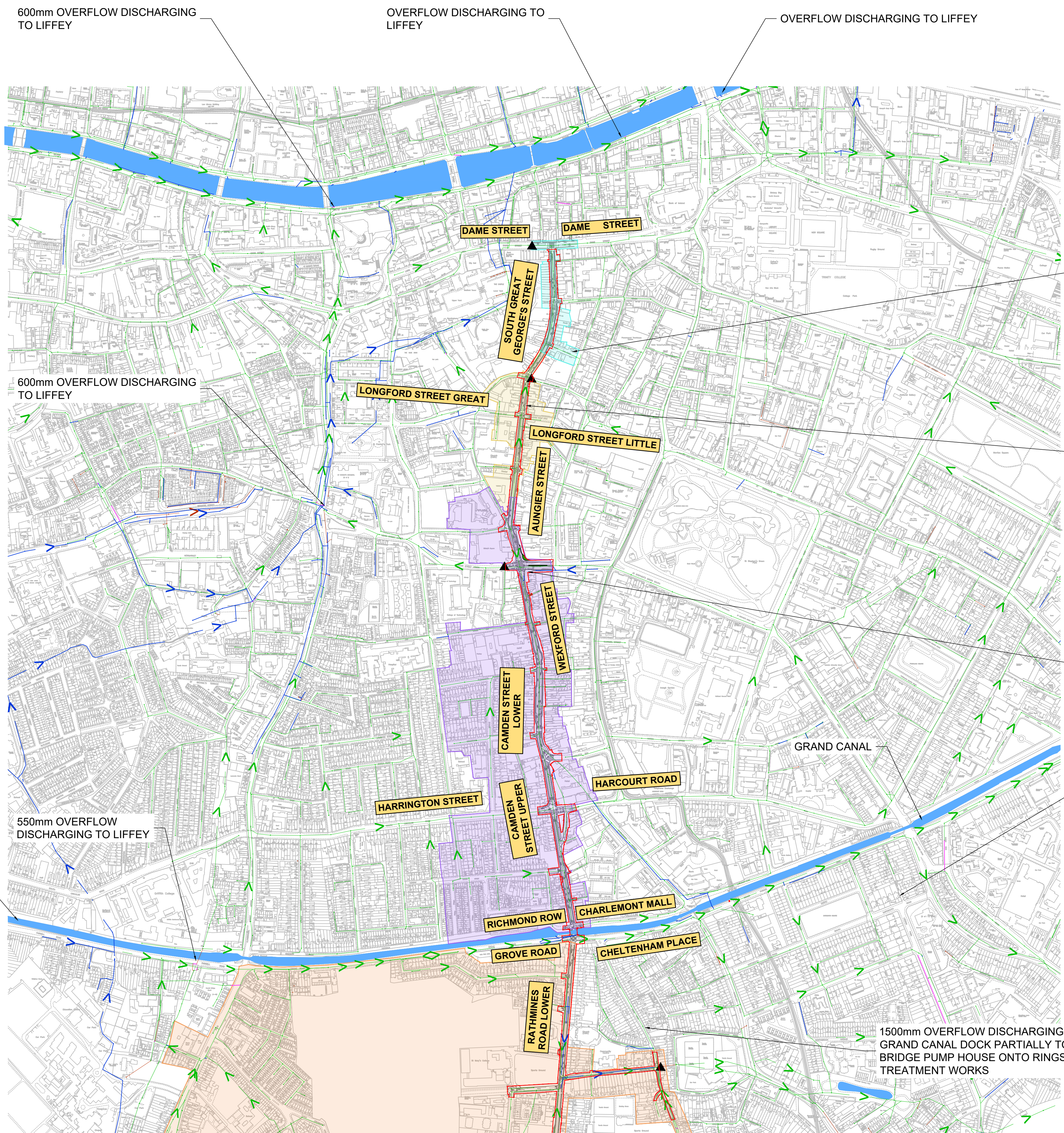
Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME OVERALL CATCHMENT AREAS			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-1002	Sheet Number: 02 of 03	Status: A	Rev: M01

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LEGEND:

- CATCHMENT AREA 1
- CATCHMENT AREA 2
- CATCHMENT AREA 3
- CATCHMENT AREA 4
- CATCHMENT AREA 5
- CATCHMENT AREA 6
- CATCHMENT AREA 7
- CATCHMENT AREA 8
- CATCHMENT AREA 9
- CATCHMENT AREA 10
- CATCHMENT AREA 11
- CATCHMENT AREA 12
- CATCHMENT AREA 13
- CATCHMENT AREA 14
- CATCHMENT AREA 15
- CATCHMENT AREA 16
- CATCHMENT AREA 17
- CATCHMENT AREA 18
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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



CATCHMENT AREA 12 DISCHARGING TO RINGSEND MAIN LIFT PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

CATCHMENT AREA 11 DISCHARGING TO RINGSEND MAIN LIFT PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

CATCHMENT AREA 10 DISCHARGING TO RINGSEND MAIN LIFT PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

1700mm OVERFLOW DISCHARGING PARTIALLY TO GRAND CANAL DOCK PARTIALLY TO LONDON BRIDGE PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

1500mm OVERFLOW DISCHARGING PARTIALLY TO GRAND CANAL DOCK PARTIALLY TO LONDON BRIDGE PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

Note: Catchment assessment based on records received from Irish Water. 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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 National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:5000 @ A1, 1:10000 @ A3 | Drawn: AG, Checked: MR, Approved: DC

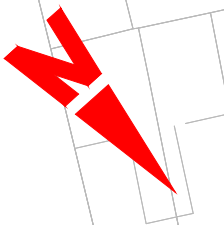
Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME OVERALL CATCHMENT AREAS			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-1003	Sheet Number: 03 of 03	Status: A	Rev: M01

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



Ch A0-058 to A0+024 (left hand side):

- Additional impermeable area = 447m².
- Existing gullies connected to the surface water network. All new gullies to be therefore connected to the existing surface water network.
- The proposed raingarden will collect surface water from the footpath & cycle track through breaks in the kerbline.
- The raingarden will attenuate flows before discharging to the existing surface water network to replicate the existing situation.
- ADR: 11.3 l/s.
- Vol_{att}: SuDS bio-retention area: 5.5 m³.

Ch A0+024 to A0+076 (left hand side):

- Additional impermeable area = 257m².
- Additional grassed (permeable) area = 76m².
- Net impermeable area to be attenuated = 181m².
- Collection of surface water from the footpath, cycle track and carriageway through gullies.
- The gullies will be connected to the proposed filter drain.
- Filter drain to discharge to the proposed SuDS feature which will have a controlled discharge to the existing stormwater system
- ADR: 22.2 l/s.
- Vol_{att}: SuDS Bio-retention area: 4.5 m³ & DN225 filter drain, 54m long

Ch A0+162 to A0+347 (left hand side):

- Proposed new drainage network to collect the gullies.
- New network also added because the record drawings show that there is no existing surface water/combined networks in this area.
- Proposed network to discharge to existing surface water network.
- No increase in impermeable catchments.

Outlet pipe to tie into existing network

- DN225
- Ch A0+021
- CL: 49.250
- IL: 47.610

Outlet pipe to tie into existing network

- DN225
- Ch A0+076
- CL: 49.977
- IL: 48.830

Ch A0+162 to A0+333 (right hand side):

- Additional catchment area: 904m².
- Collection of surface water from the footpath, cycle track and carriageway through gullies.
- The gullies will be connected to a system of tree pits interconnected through filter drains.
- Filter drains to discharge to the proposed surface water pipe.
- ADR: 12.4 l/s.
- Vol_{att}: DN225 filter drain, 163m long; DN225 surface water pipe, 156m long.

Ch A0+076 to A0+162 (both sides):

- Additional catchment area: 260m².
- Additional grassed (permeable) area = 10m².
- Net impermeable area = 250m².
- Collection of surface water from the footpath, cycle track and carriageway through gullies.
- The gullies will be connected to a system of tree pits interconnected through filter drains
- The filter drain will discharge to the proposed stormwater pipe.
- The proposed stormwater pipe will also provide attenuation to compensate for the additional impermeable area (41 m²) located at Ch 0-058 to 0+076.
- Total additional impermeable area to be attenuated = 291m².
- ADR: 21.4 l/s.
- Vol_{att}: DN225 filter drain, 20m long & DN225 surface water pipe, 127m long.

Ch A0-058 to A0+076 (right hand side)

- 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 2.26 to 2.68m.
- Additional impermeable catchment area = 41m².
- The proposed surface water system located at Ch A0+076 to A0+162 will provide attenuation to compensate for this additional impermeable catchment area.

LEGEND:

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

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ABBREVIATIONS:

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

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<p>Date 27/01/2023 Scale 1:500 @ A1 1:1000 @ A3</p>		<p>Drawn AF</p>		<p>Checked MR</p>		<p>Approved DC</p>		<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0001</p>		<p>Sheet Number 01 of 37</p>	
<p>Project Code BCIDC</p>		<p>Originator Code ARP</p>		<p>QMS Code 268401-00</p>		<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0001</p>		<p>Sheet Number 01 of 37</p>		<p>Status A</p>	
<p>Project Code BCIDC</p>		<p>Originator Code ARP</p>		<p>QMS Code 268401-00</p>		<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0001</p>		<p>Sheet Number 01 of 37</p>		<p>Status A</p>	
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- EXISTING PAVED AREAS TO BECOME GRASSED
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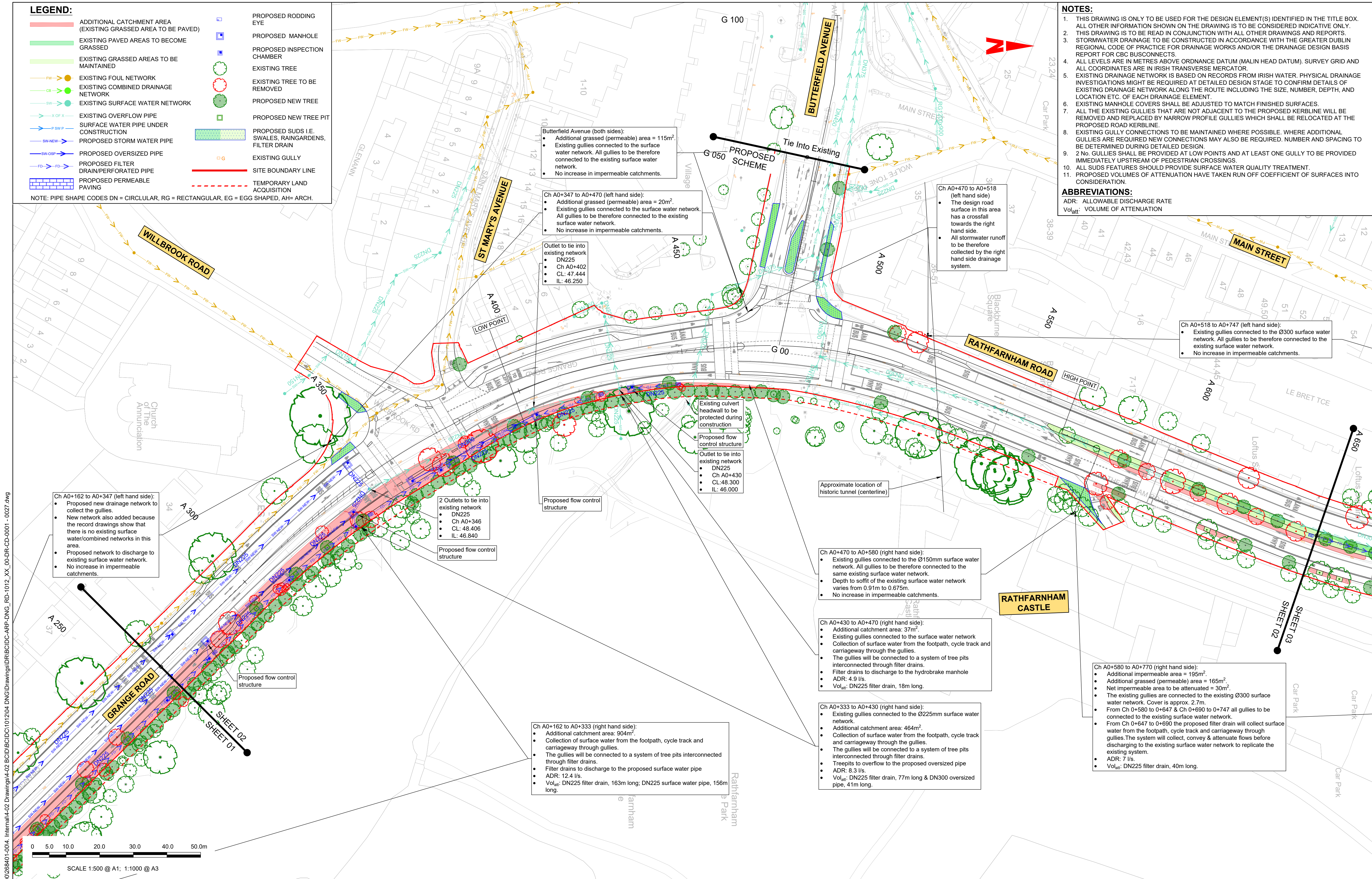
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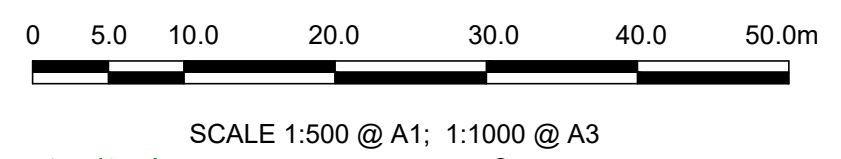
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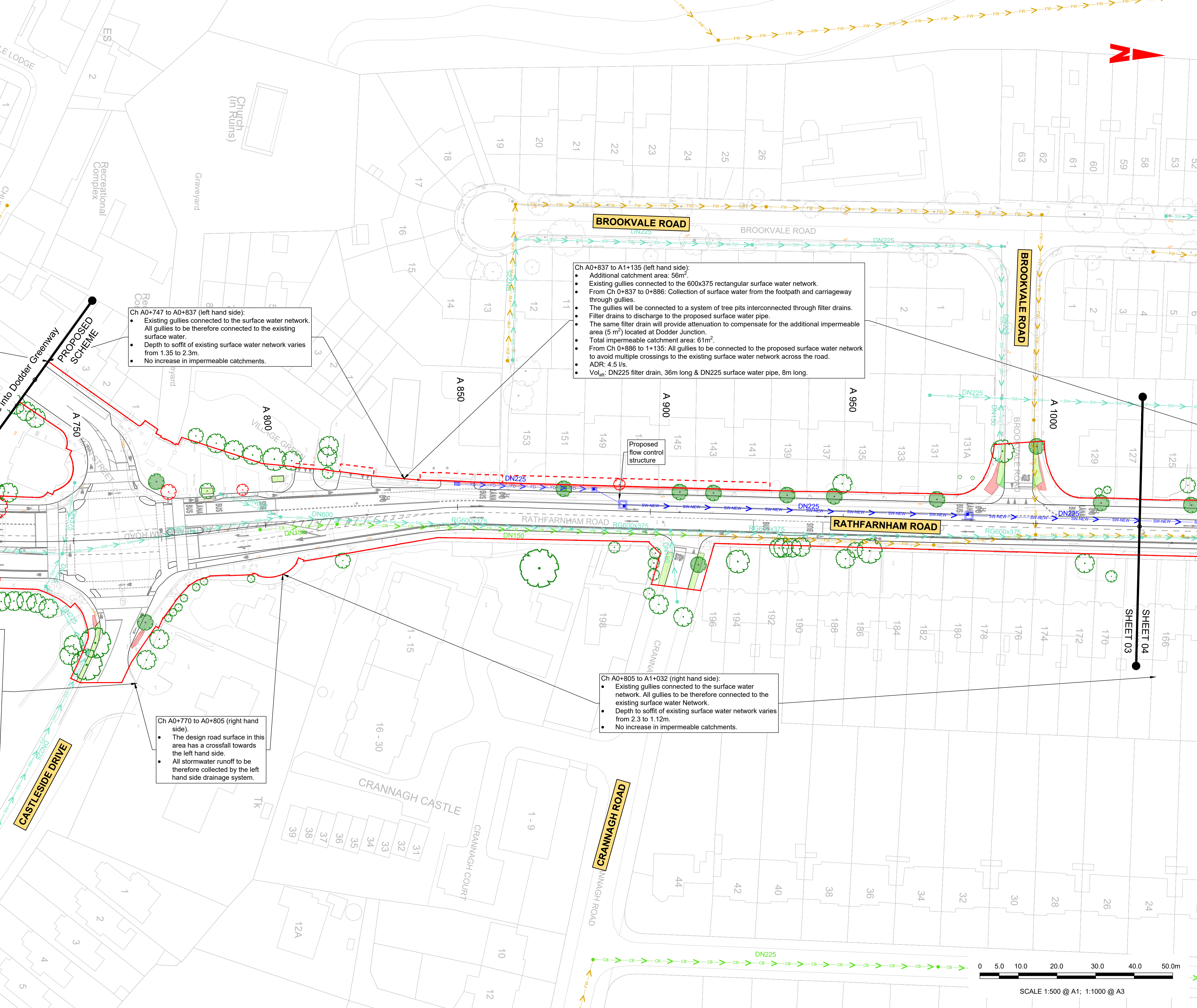
<p>Rev M01 Date 27/01/2023 Dm AF Chk'd MR App'd DC Description ISSUE FOR PHASE 4: PLANNING</p>					<p>Client NTA Údarás Náisiúnta Iompair National Transport Authority</p>			<p>Engineering Designer ARUP</p>			<p>Programme Title BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</p>		
<p>Project Code BCIDC Originator Code ARP QMS Code 268401-00</p>					<p>Date 27/01/2023 Scale 1:500 @ A1 1:1000 @ A3 Drawn AF Checked MR Approved DC</p>			<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0002 Sheet Number 02 of 37 Status A Rev M01</p>					

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Ch A0+518 to A0+747 (left hand side):

- Existing gullies connected to the surface water network. All gullies to be therefore connected to the existing surface water.
- No increase in impermeable catchments.

Ch A0+747 to A0+837 (left hand side):

- Existing gullies connected to the surface water network. All gullies to be therefore connected to the existing surface water.
- Depth to soffit of existing surface water network varies from 1.35 to 2.3m.
- No increase in impermeable catchments.

Ch A0+837 to A1+135 (left hand side):

- Additional catchment area: 56m².
- Existing gullies connected to the 600x375 rectangular surface water network.
- From Ch 0+837 to 0+886: Collection of surface water from the footpath and carriageway through gullies.
- The gullies will be connected to a system of tree pits interconnected through filter drains.
- Filter drains to discharge to the proposed surface water pipe.
- The same filter drain will provide attenuation to compensate for the additional impermeable area (5 m²) located at Dodder Junction.
- Total impermeable catchment area: 61m².
- From Ch 0+886 to 1+135: All gullies to be connected to the proposed surface water network to avoid multiple crossings to the existing surface water network across the road.
- ADR: 4.5 l/s.
- Vol_{att}: DN225 filter drain, 36m long & DN225 surface water pipe, 8m long.

Outlet to tie into existing network

- DN300
- Ch A0+707
- CL: 50.4
- IL: 48.31

Ch A0+580 to A0+770 (right hand side):

- Additional impermeable area = 195m².
- Additional grassed (permeable) area = 165m².
- Net impermeable area to be attenuated = 30m².
- The existing gullies are connected to the existing Ø300 surface water network. Cover is approx. 2.7m.
- From Ch 0+580 to 0+647 & Ch 0+690 to 0+747 all gullies to be connected to the existing surface water network.
- From Ch 0+647 to 0+690 the proposed filter drain will collect surface water from the footpath, cycle track and carriageway through gullies. The system will collect, convey & attenuate flows before discharging to the existing surface water network to replicate the existing system.
- ADR: 7 l/s.
- Vol_{att}: DN225 filter drain, 40m long.

Ch A0+770 to A0+805 (right hand side):

- The design road surface in this area has a crossfall towards the left hand side.
- All stormwater runoff to be therefore collected by the left hand side drainage system.

Ch A0+805 to A1+032 (right hand side):

- Existing gullies connected to the 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 2.3 to 1.12m.
- No increase in impermeable catchments.

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ABBREVIATIONS:

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Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**
Udárás Náisiúnta Iompair
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

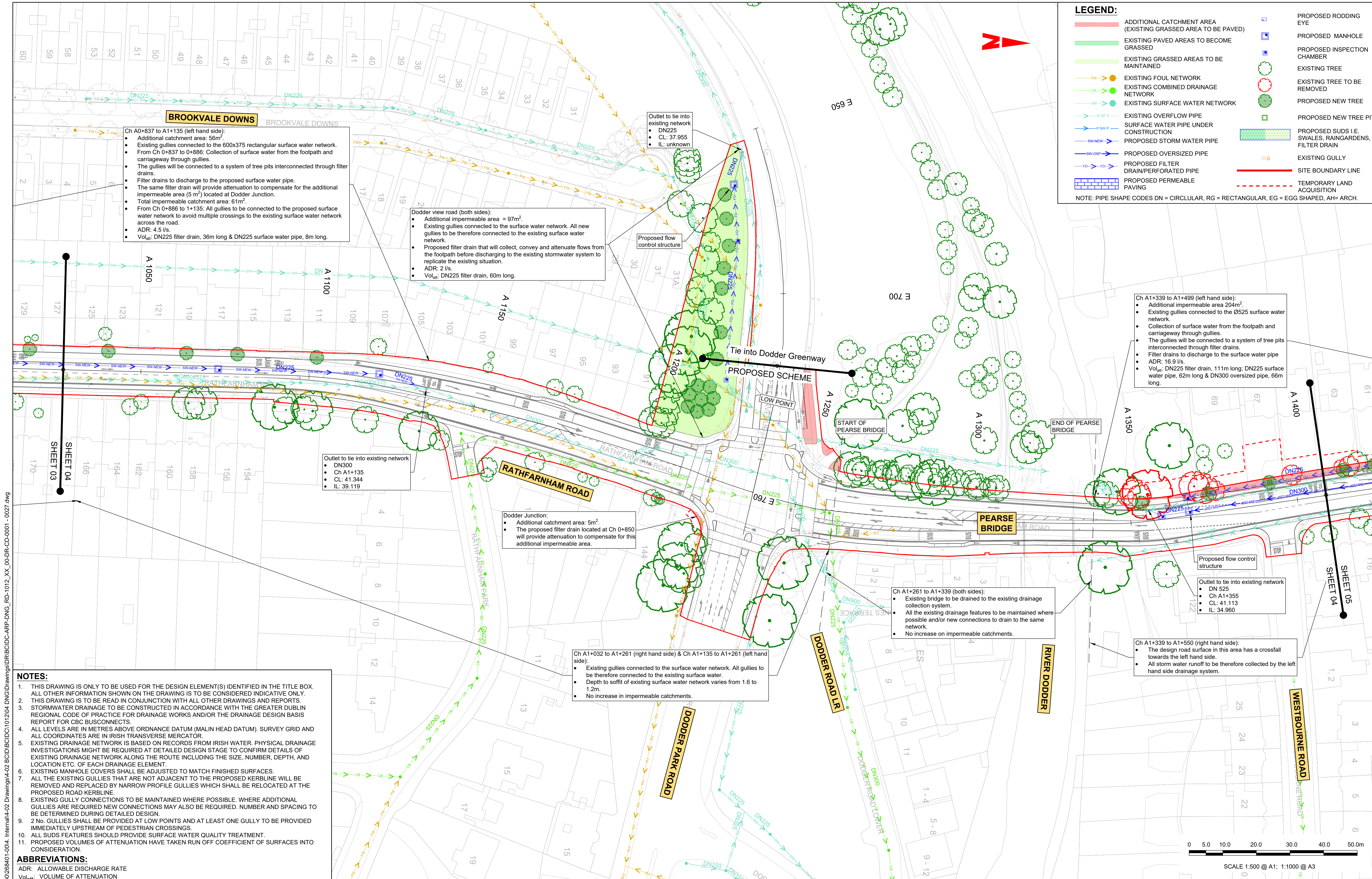
Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

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

Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0003 | Sheet Number: 03 of 37 | Status: A | Rev: M01

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Ch A0+837 to A1+135 (left hand side):

- Additional catchment area: 56m².
- Existing gullies connected to the 600x375 rectangular surface water network.
- From Ch 0+837 to 0+886: Collection of surface water from the footpath and carriageway through gullies.
- The gullies will be connected to a system of tree pits interconnected through filter drains.
- Filter drains to discharge to the proposed surface water pipe.
- The same filter drain will provide attenuation to compensate for the additional impermeable area (5 m²) located at Dodder Junction.
- Total impermeable catchment area: 61m².
- From Ch 0+886 to 1+135: All gullies to be connected to the proposed surface water network to avoid multiple crossings to the existing surface water network across the road.
- ADR: 4.5 l/s.
- Vol_{att}: DN225 filter drain, 36m long & DN225 surface water pipe, 8m long.

Dodder view road (both sides):

- Additional impermeable area = 97m².
- Existing gullies connected to the surface water network. All new gullies to be therefore connected to the existing surface water network.
- Proposed filter drain that will collect, convey and attenuate flows from the footpath before discharging to the existing stormwater system to replicate the existing situation.
- ADR: 2 l/s.
- Vol_{att}: DN225 filter drain, 60m long.

Outlet to tie into existing network

- DN225
- CL: 37.955
- IL: unknown

Outlet to tie into existing network

- DN300
- Ch A1+135
- CL: 41.344
- IL: 39.119

Dodder Junction:

- Additional catchment area: 5m².
- The proposed filter drain located at Ch 0+850 will provide attenuation to compensate for this additional impermeable area.

Ch A1+032 to A1+261 (right hand side) & Ch A1+135 to A1+261 (left hand side):

- Existing gullies connected to the surface water network. All gullies to be therefore connected to the existing surface water.
- Depth to soffit of existing surface water network varies from 1.6 to 1.2m.
- No increase in impermeable catchments.

Ch A1+261 to A1+339 (both sides):

- Existing bridge to be drained to the existing drainage collection system.
- All the existing drainage features to be maintained where possible and/or new connections to drain to the same network.
- No increase on impermeable catchments.

Ch A1+339 to A1+499 (left hand side):

- Additional impermeable area 204m².
- Existing gullies connected to the Ø525 surface water network.
- Collection of surface water from the footpath and carriageway through gullies.
- The gullies will be connected to a system of tree pits interconnected through filter drains.
- Filter drains to discharge to the surface water pipe
- ADR: 16.9 l/s.
- Vol_{att}: DN225 filter drain, 111m long; DN225 surface water pipe, 62m long & DN300 oversized pipe, 66m long.

Ch A1+339 to A1+550 (right hand side):

- The design road surface in this area has a crossfall towards the left hand side.
- All storm water runoff to be therefore collected by the left hand side drainage system.

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Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**
Údaráis Náisiúnta Iompair
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 Scale: 1:500 @ A1, 1:1000 @ A3
Drawn: AF, Checked: MR, Approved: DC

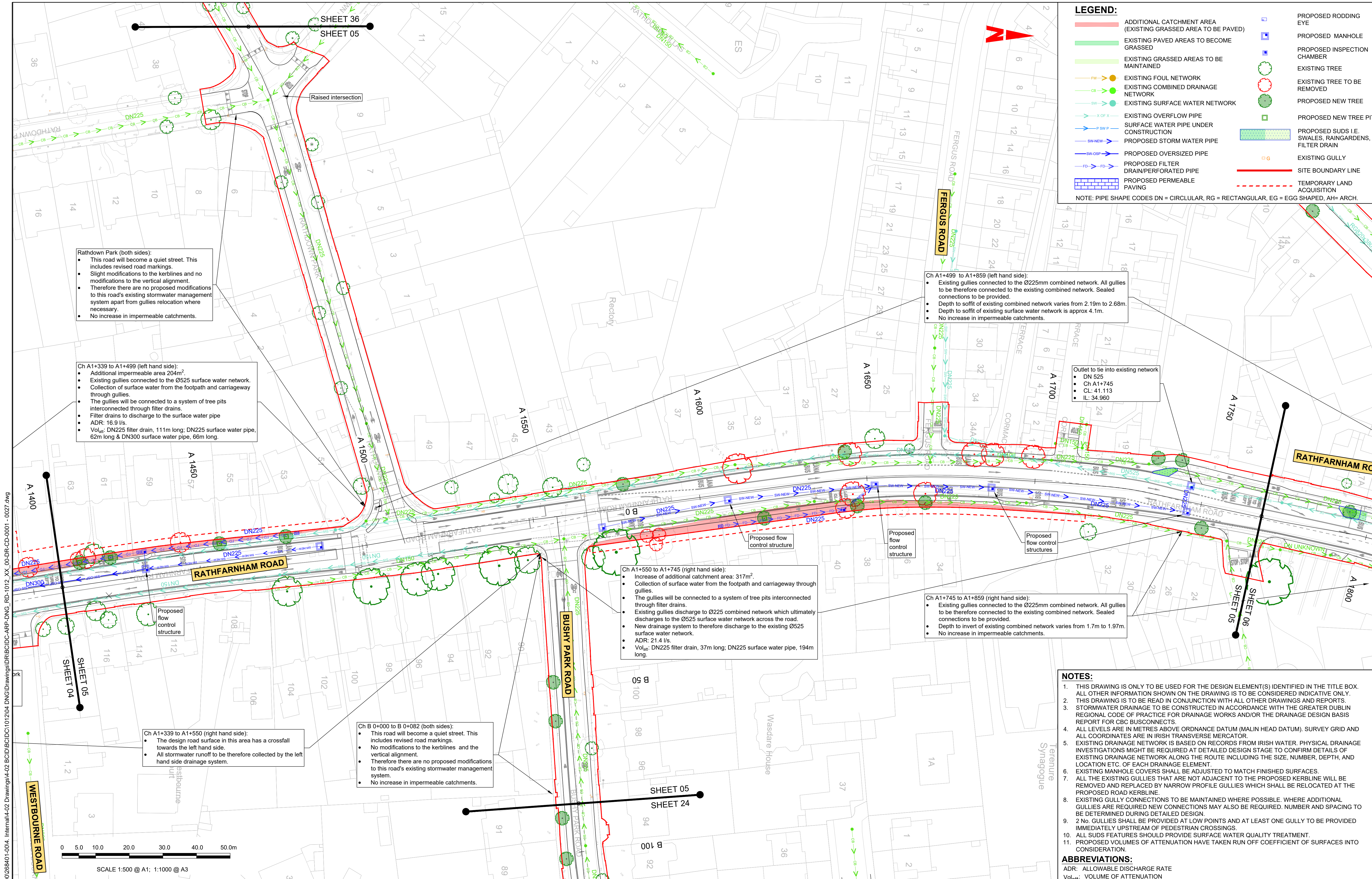
Project Code: BCIDC, Originator Code: ARP, QMS Code: 268401-00

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

Drawing Title: **TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS**

Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0004	Sheet Number: 04 of 37	Status: A	Rev: M01
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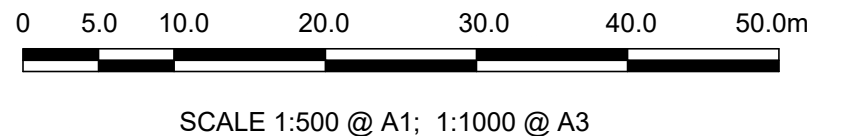
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- SITE BOUNDARY LINE
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NOTE: PIPE SHAPE CODES DN = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.

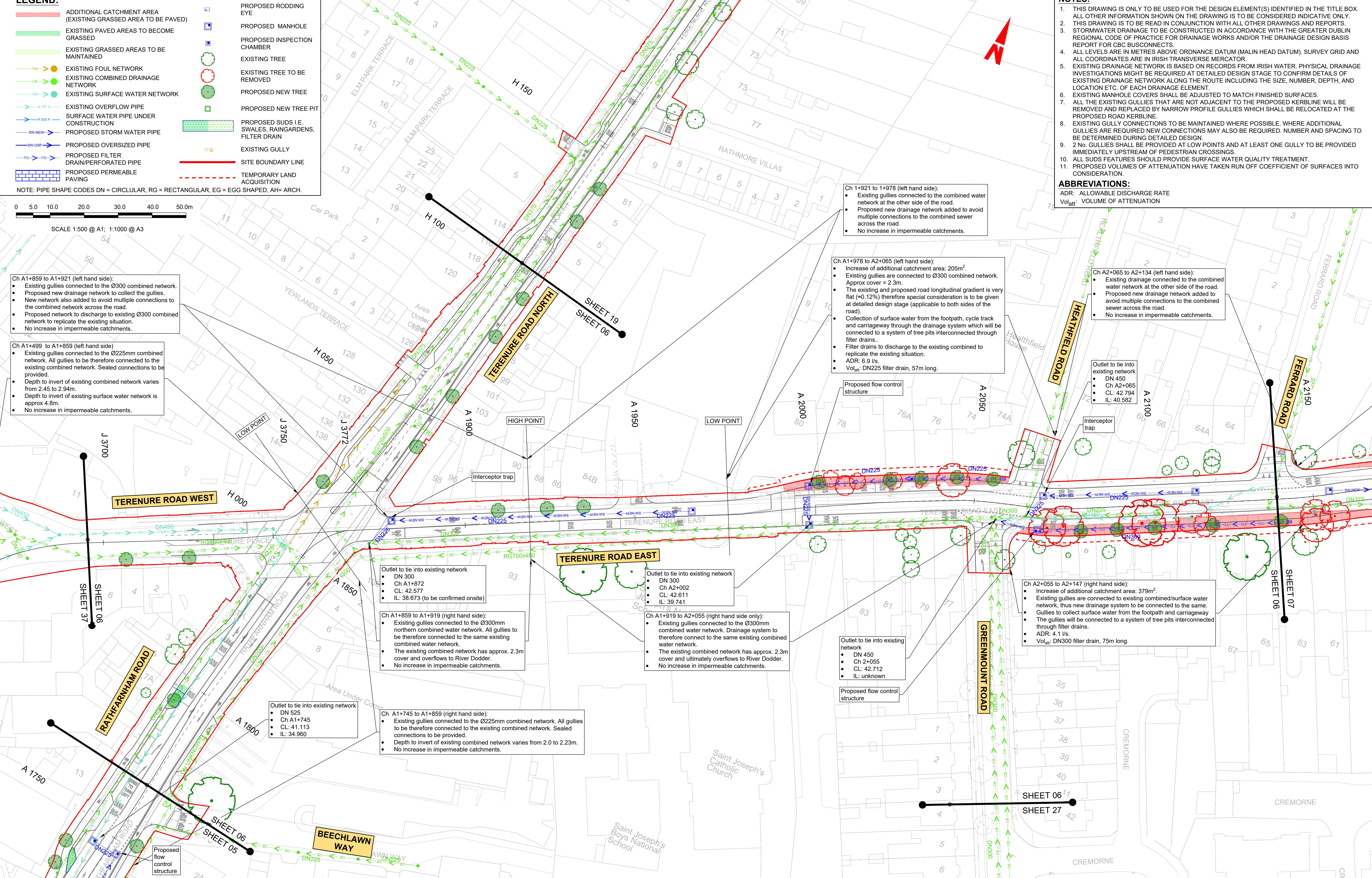


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ABBREVIATIONS:

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



<p>Rev M01 Date 27/01/2023 Dm AF Chk'd MR App'd DC Description ISSUE FOR PHASE 4: PLANNING</p>					<p>Client NTA Údaráis Náisiúnta Iompair National Transport Authority</p>			<p>Engineering Designer ARUP</p>			<p>Programme Title BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</p>		
<p>Date 27/01/2023 Scale 1:500 @ A1 1:1000 @ A3 Drawn AF Checked MR Approved DC</p>					<p>Project Code BCIDC Originator Code ARP QMS Code 268401-00</p>			<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0006 Sheet Number 06 of 37 Status A Rev M01</p>					

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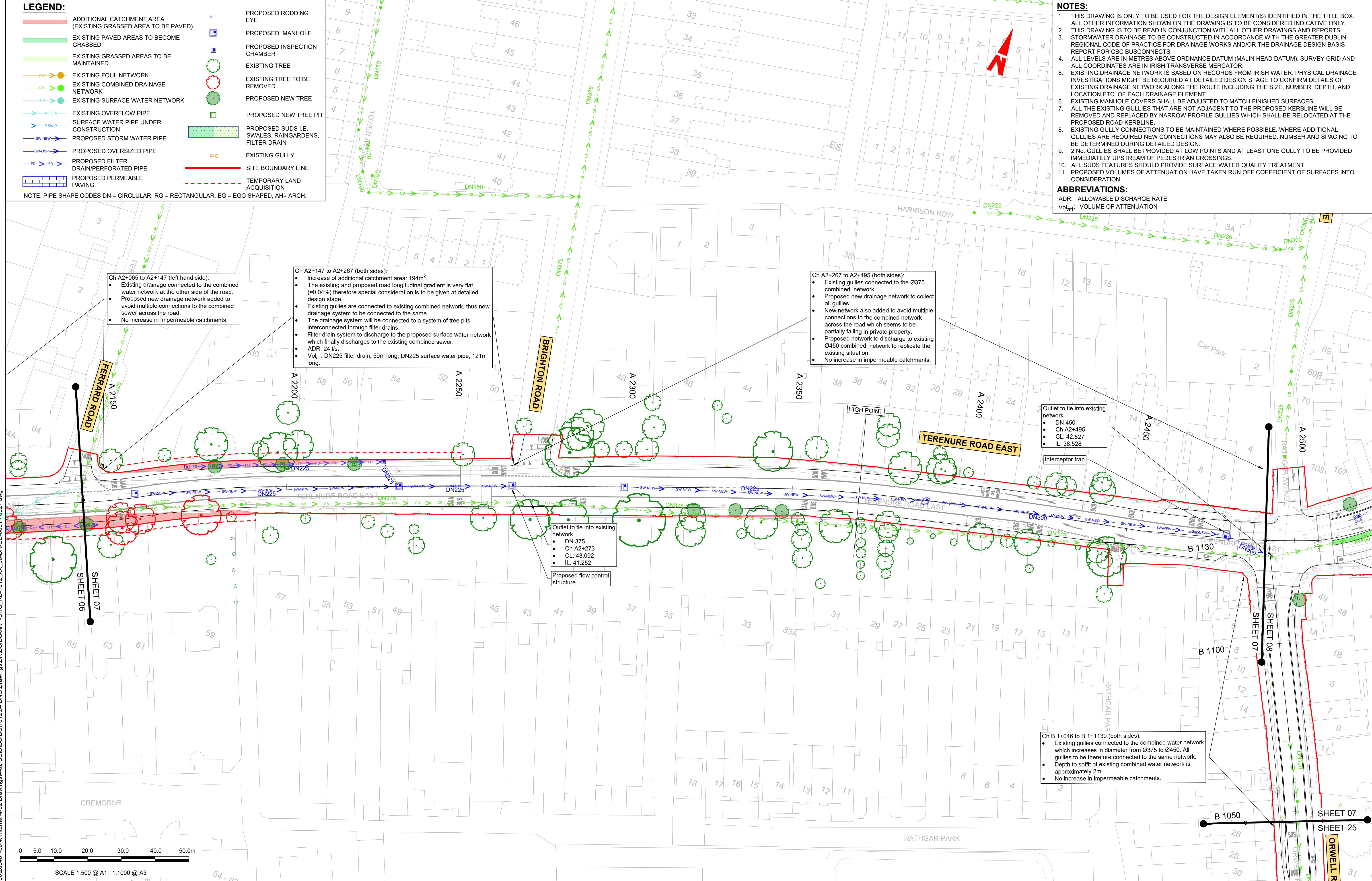
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Project Ireland 2040
Building Ireland's Future

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Client: **NTA**
Údarás Náisiúnta Iompair
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

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

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

Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS

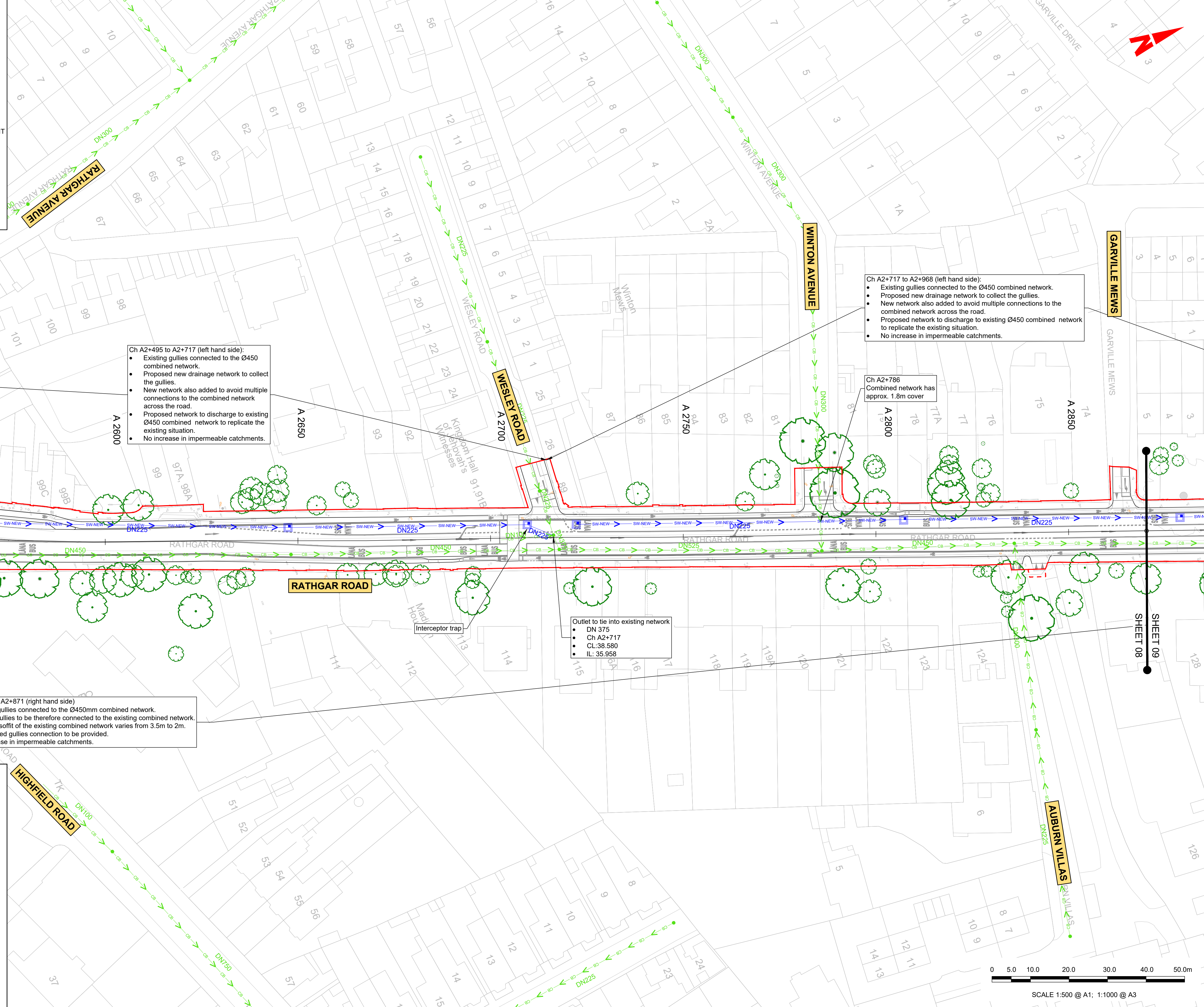
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0007 | Sheet Number: 07 of 37 | Status: A | Rev: M01

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Interceptor trap to provided in manhole

Outlet to tie into existing network

- DN 450
- Ch 2+495
- CL: 42.527
- IL: 38.528

Ch A2+495 to A2+717 (left hand side):

- Existing gullies connected to the Ø450 combined network.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to the combined network across the road.
- Proposed network to discharge to existing Ø450 combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A2+717 to A2+968 (left hand side):

- Existing gullies connected to the Ø450 combined network.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to the combined network across the road.
- Proposed network to discharge to existing Ø450 combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A2+786 Combined network has approx. 1.8m cover

Outlet to tie into existing network

- DN 375
- Ch A2+717
- CL: 38.580
- IL: 35.958

Ch A2+495 to A2+871 (right hand side)

- Existing gullies connected to the Ø450mm combined network.
- All new gullies to be therefore connected to the existing combined network.
- Depth to soffit of the existing combined network varies from 3.5m to 2m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

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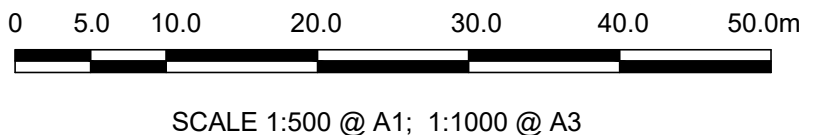
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Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0008	Sheet Number: 08 of 37	Status: A	Rev: M01

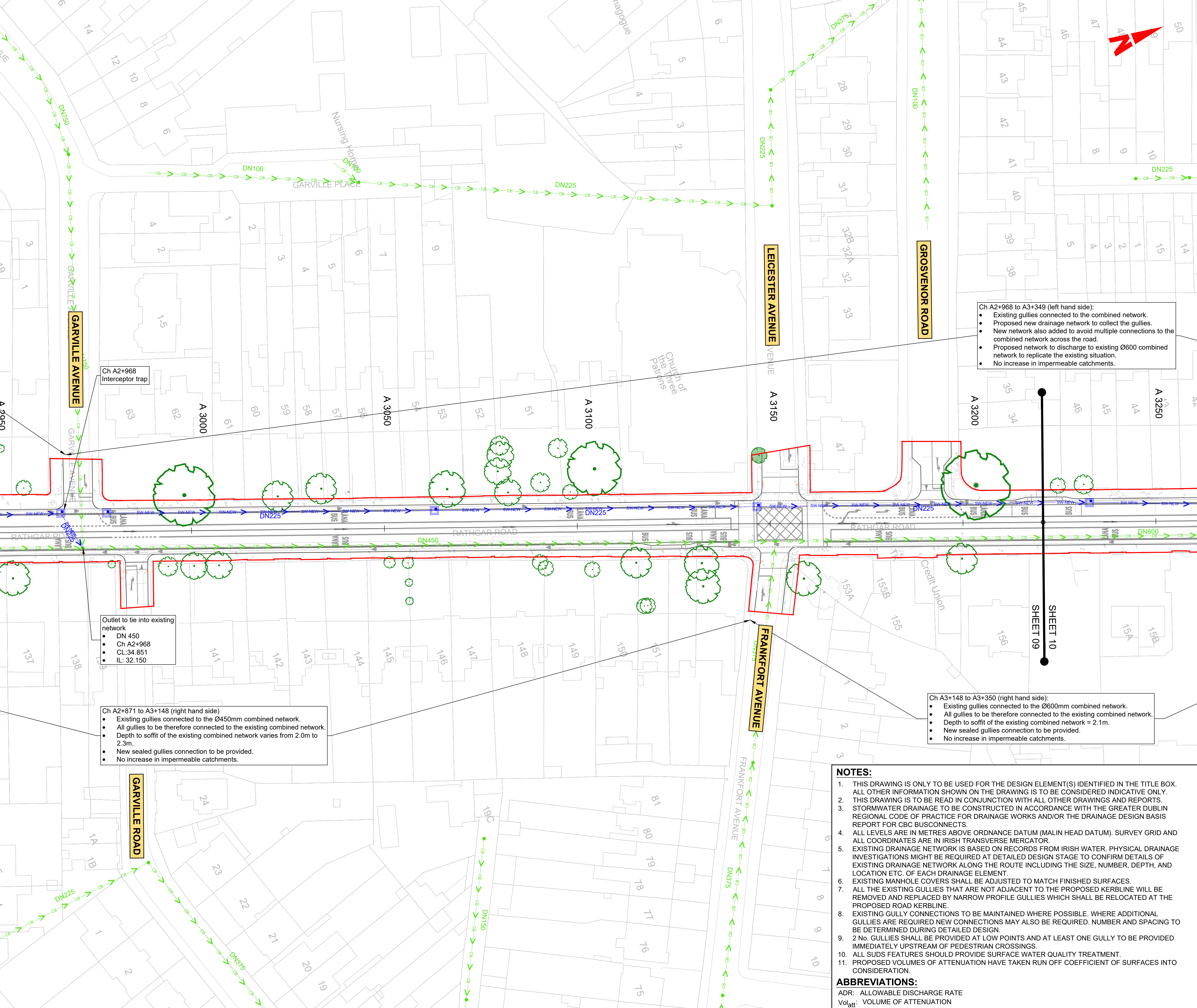


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Ch A2+717 to A2+968 (left hand side):

- Existing gullies connected to the Ø450 combined network.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to the combined network across the road.
- Proposed network to discharge to existing Ø450 combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A2+968 Interceptor trap

Ch A2+968 to A3+349 (left hand side):

- Existing gullies connected to the combined network.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to the combined network across the road.
- Proposed network to discharge to existing Ø600 combined network to replicate the existing situation.
- No increase in impermeable catchments.

Outlet to tie into existing network

- DN 450
- Ch A2+968
- CL: 34.851
- IL: 32.150

Ch A2+871 to A3+148 (right hand side):

- Existing gullies connected to the Ø450mm combined network.
- All gullies to be therefore connected to the existing combined network.
- Depth to soffit of the existing combined network varies from 2.0m to 2.3m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Ch A3+148 to A3+350 (right hand side):

- Existing gullies connected to the Ø600mm combined network.
- All gullies to be therefore connected to the existing combined network.
- Depth to soffit of the existing combined network = 2.1m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

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- ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
- PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

ABBREVIATIONS:

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

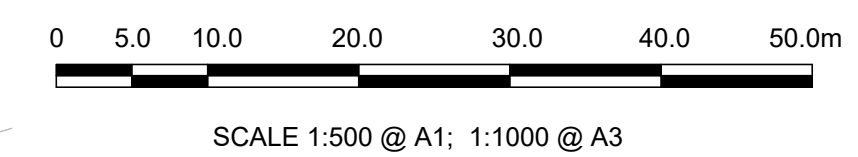
Client: NTA
Engineering Designer: ARUP

Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME
PROPOSED SURFACE WATER DRAINAGE WORKS

Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0009
Sheet Number: 09 of 37
Status: A
Rev: M01

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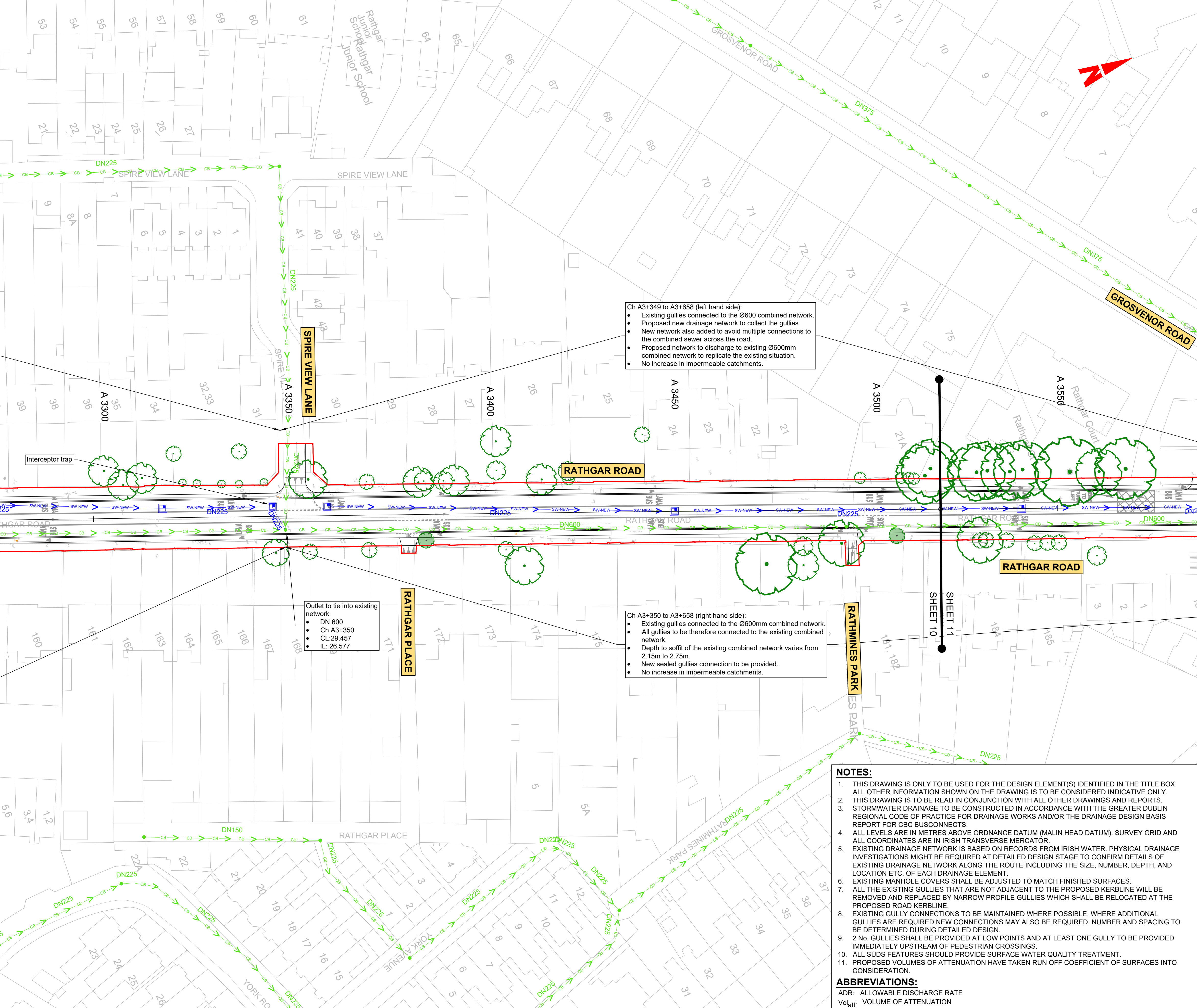


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<p>Date: 27/01/2023</p> <p>Scale: 1:500 @ A1 1:1000 @ A3</p> <p>Project Code: BCIDC</p> <p>Originator Code: ARP</p> <p>QMS Code: 268401-00</p>		<p>Drawn: AF</p> <p>Checked: MR</p> <p>Approved: DC</p>			<p>Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0009</p> <p>Sheet Number: 09 of 37</p> <p>Status: A</p> <p>Rev: M01</p>		<p>DO NOT SCALE USE FIGURED DIMENSIONS ONLY</p>			

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



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ABBREVIATIONS:

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Vol_{att}: VOLUME OF ATTENUATION

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Project Ireland 2040
Building Ireland's Future

Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**
Udárás Náisiúnta Iompair
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023
Scale: 1:500 @ A1, 1:1000 @ A3
Drawn: AF, Checked: MR, Approved: DC

Project Code: BCIDC, Originator Code: ARP, QMS Code: 268401-00

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0010	Sheet Number: 10 of 37	Status: A	Rev: M01

0 5.0 10.0 20.0 30.0 40.0 50.0m

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

Ch A3+349 to A3+658 (left hand side):

- Existing gullies connected to the Ø600 combined network.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to the combined sewer across the road.
- Proposed network to discharge to existing Ø600mm combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A3+350 to A3+658 (right hand side):

- Existing gullies connected to the Ø600mm combined network.
- All gullies to be therefore connected to the existing combined network.
- Depth to soffit of the existing combined network varies from 2.15m to 2.75m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Outlet to tie into existing network

- DN 600
- Ch A3+658
- CL: 25.746
- IL: 22.307

Ch A3+658 to A3+761 (left hand side only):

- Existing gullies connected to the Ø600 combined network.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to the combined sewer across the road.
- Proposed network to discharge to the existing combined network further downstream to replicate the existing situation.
- No increase in impermeable catchments.

Ch A3+658 to A3+761 (right hand side):

- Existing gullies connected to the Ø600mm combined network.
- All gullies to be therefore connected to the existing combined network.
- Depth to soffit of the existing combined network varies from 2.8m to 2.4m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Outlet to tie into existing network

- Egg shaped 1130x710
- Ch A3+761
- CL: 23.248
- IL: 19.792

Ch A3+761 to A3+795 (left hand side) & Ch A3+795 to A3+863 (both sides):

- Existing gullies connected to the 1130x710 & 1180x920 egg shaped combined networks.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple new connections to the egg shaped combined networks.
- Proposed network to discharge to existing combined network to replicate the existing situation.
- No increase in impermeable catchments.

Outlet to tie into existing network

- Egg shaped 1070x720
- Ch A3+852
- CL: 22.074
- IL: 18.733

Ch A3+761 to A3+795 (right hand side):

- The design road surface in this area has a crossfall towards the left hand side.
- All stormwater runoff to be therefore collected by the left hand side drainage system.

Ch A3+863 to A3+976 (both sides):

- Existing gullies connected to the 1070x720 & 1110x730 egg shaped combined networks.
- Proposed new drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple new connections to the egg shaped combined networks.
- Proposed network to discharge to existing combined network to replicate the existing situation.
- No increase in impermeable catchments.

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- ABBREVIATIONS:**
- ADR: ALLOWABLE DISCHARGE RATE
Vol_{att}: VOLUME OF ATTENUATION

LEGEND:

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE CHAMBER
	EXISTING GRASSED AREAS TO BE MAINTAINED		EXISTING TREE
	EXISTING FOUL NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING COMBINED DRAINAGE NETWORK		PROPOSED NEW TREE
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	SURFACE WATER PIPE UNDER CONSTRUCTION		EXISTING GULLY
	PROPOSED STORM WATER PIPE		SITE BOUNDARY LINE
	PROPOSED OVERSIZED PIPE		TEMPORARY LAND ACQUISITION
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	PROPOSED PERMEABLE PAVING		

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Rev	Date	Drn	Chk'd	App'd	Description
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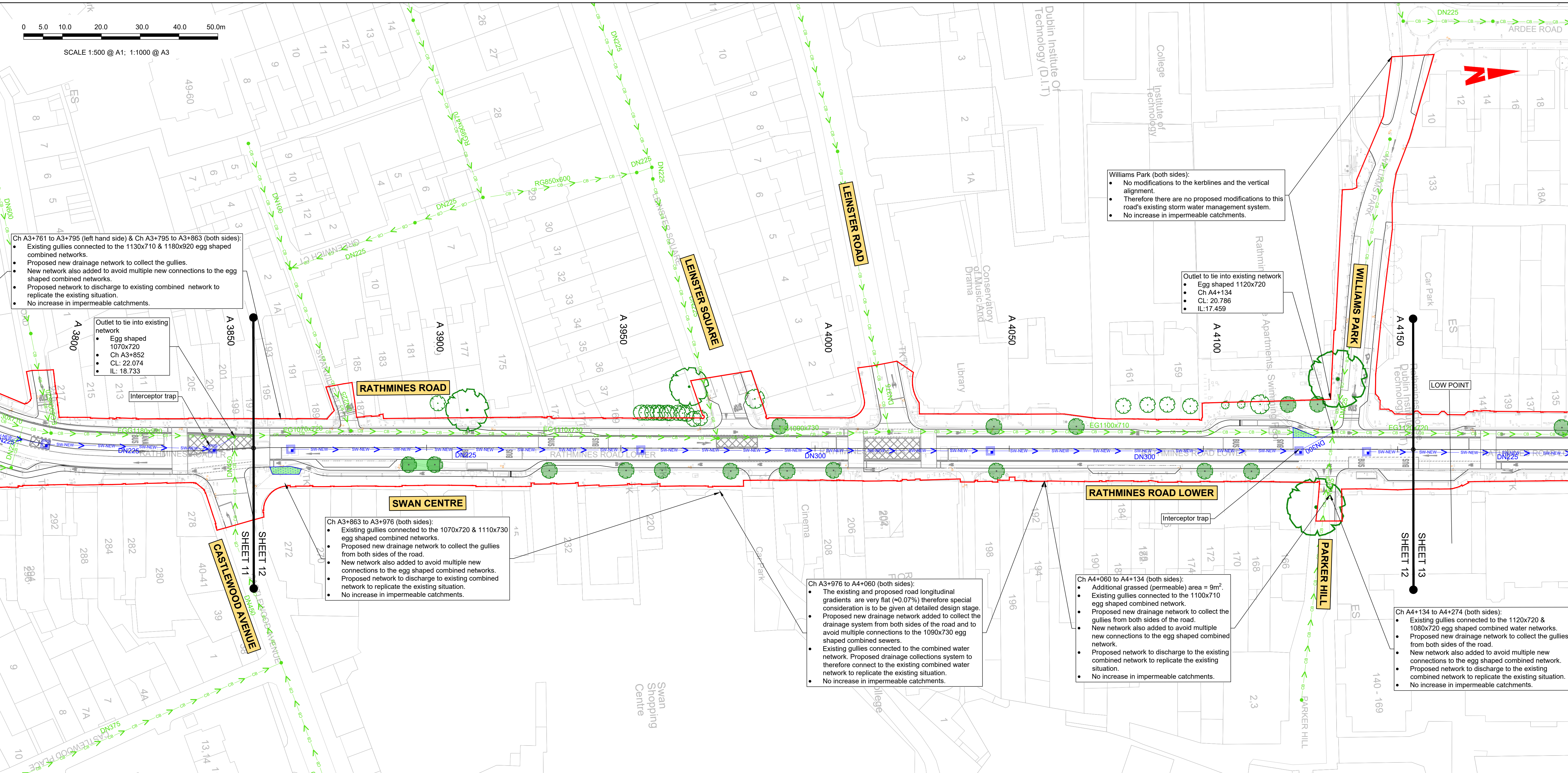
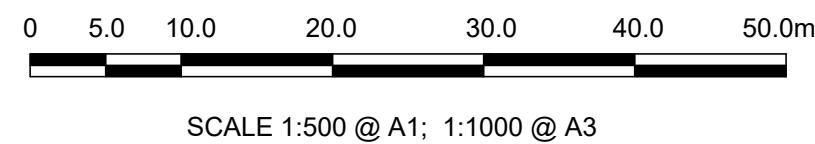
Engineering Designer: **ARUP**

Date: 27/01/2023 Scale: 1:500 @ A1, 1:1000 @ A3
Drawn: AF, Checked: MR, Approved: DC

Project Code: BCIDC, Originator Code: ARP, QMS Code: 268401-00

Programme Title			
BUSCONNECTS DUBLIN			
CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title			
TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name	Sheet Number	Status	Rev
BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0011	11 of 37	A	M01

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Ch A3+761 to A3+795 (left hand side) & Ch A3+795 to A3+863 (both sides):

- Existing gullies connected to the 1130x710 & 1180x920 egg shaped combined networks.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple new connections to the egg shaped combined networks.
- Proposed network to discharge to existing combined network to replicate the existing situation.
- No increase in impermeable catchments.

Outlet to tie into existing network

- Egg shaped 1070x720
- Ch A3+852
- CL: 22.074
- IL: 18.733

Interceptor trap

Ch A3+863 to A3+976 (both sides):

- Existing gullies connected to the 1070x720 & 1110x730 egg shaped combined networks.
- Proposed new drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple new connections to the egg shaped combined networks.
- Proposed network to discharge to existing combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A3+976 to A4+060 (both sides):

- The existing and proposed road longitudinal gradients are very flat ($\approx 0.07\%$) therefore special consideration is to be given at detailed design stage.
- Proposed new drainage network added to collect the drainage system from both sides of the road and to avoid multiple connections to the 1090x730 egg shaped combined sewers.
- Existing gullies connected to the combined water network. Proposed drainage collections system to therefore connect to the existing combined water network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A4+060 to A4+134 (both sides):

- Additional grassed (permeable) area = 9m².
- Existing gullies connected to the 1100x710 egg shaped combined network.
- Proposed new drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple new connections to the egg shaped combined network.
- Proposed network to discharge to the existing combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A4+134 to A4+274 (both sides):

- Existing gullies connected to the 1120x720 & 1080x720 egg shaped combined water networks.
- Proposed new drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple new connections to the egg shaped combined network.
- Proposed network to discharge to the existing combined network to replicate the existing situation.
- No increase in impermeable catchments.

Williams Park (both sides):

- No modifications to the kerblines and the vertical alignment.
- Therefore there are no proposed modifications to this road's existing storm water management system.
- No increase in impermeable catchments.

Outlet to tie into existing network

- Egg shaped 1120x720
- Ch A4+134
- CL: 20.786
- IL: 17.459

LEGEND:

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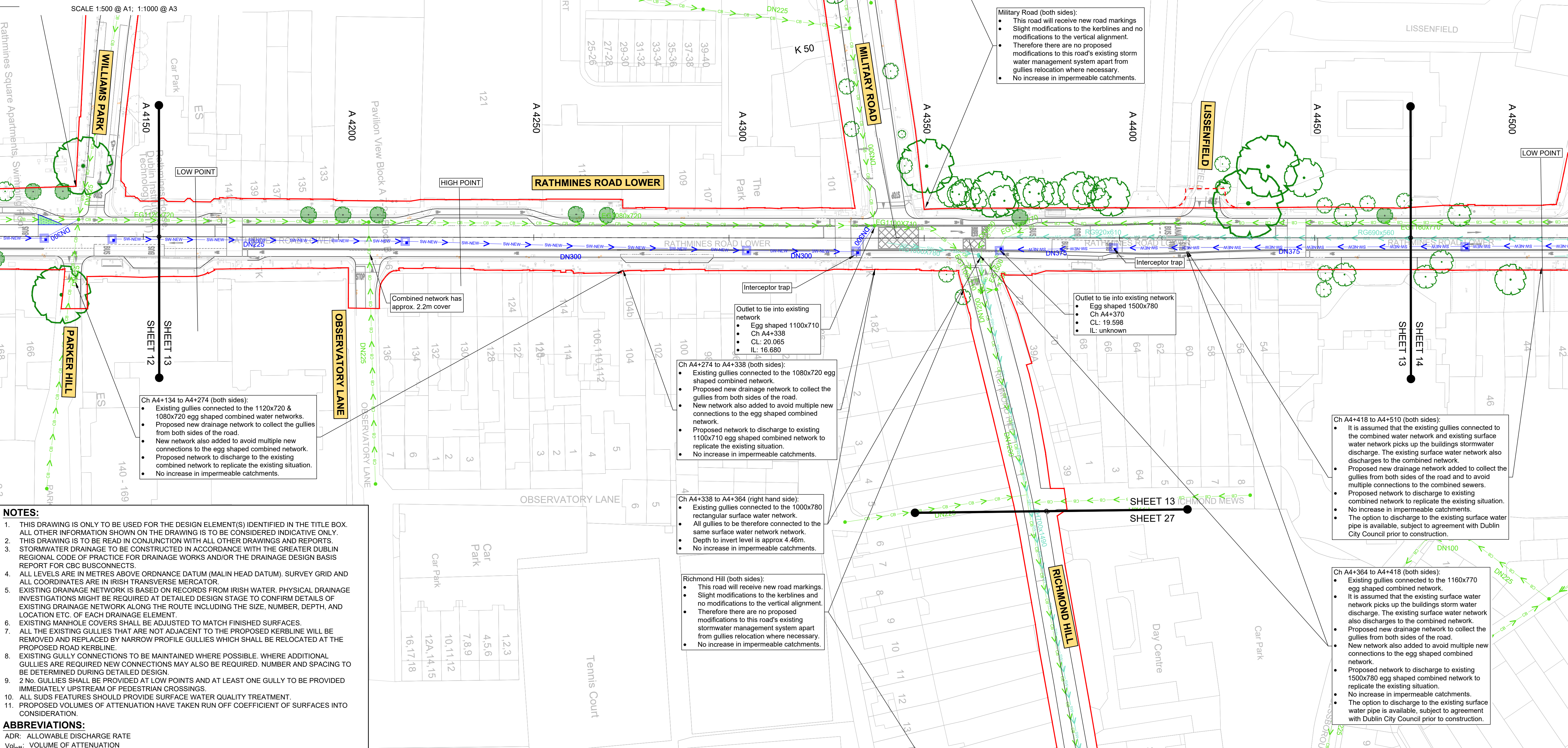
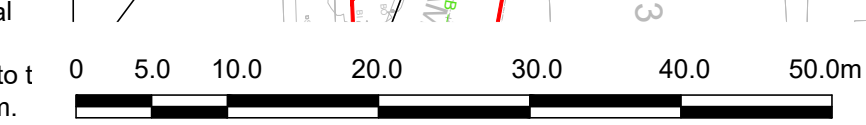
ADR: ALLOWABLE DISCHARGE RATE
Vol_{att}: VOLUME OF ATTENUATION

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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
- TEMPORARY LAND ACQUISITION

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



Military Road (both sides):

- This road will receive new road markings
- Slight modifications to the kerblines and no modifications to the vertical alignment.
- Therefore there are no proposed modifications to this road's existing storm water management system apart from gullies relocation where necessary.
- No increase in impermeable catchments.

Ch A4+134 to A4+274 (both sides):

- Existing gullies connected to the 1120x720 & 1080x720 egg shaped combined water networks.
- Proposed new drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple new connections to the egg shaped combined network.
- Proposed network to discharge to the existing combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A4+274 to A4+338 (both sides):

- Existing gullies connected to the 1080x720 egg shaped combined network.
- Proposed new drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple new connections to the egg shaped combined network.
- Proposed network to discharge to existing 1100x710 egg shaped combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A4+338 to A4+364 (right hand side):

- Existing gullies connected to the 1000x780 rectangular surface water network.
- All gullies to be therefore connected to the same surface water network.
- Depth to invert level is approx 4.46m.
- No increase in impermeable catchments.

Richmond Hill (both sides):

- This road will receive new road markings.
- Slight modifications to the kerblines and no modifications to the vertical alignment.
- Therefore there are no proposed modifications to this road's existing stormwater management system apart from gullies relocation where necessary.
- No increase in impermeable catchments.

Outlet to tie into existing network

- Egg shaped 1500x780
- Ch A4+370
- CL: 19.598
- IL: unknown

Ch A4+418 to A4+510 (both sides):

- It is assumed that the existing gullies connected to the combined water network and existing surface water network picks up the buildings stormwater discharge. The existing surface water network also discharges to the combined network.
- Proposed new drainage network added to collect the gullies from both sides of the road and to avoid multiple connections to the combined sewers.
- Proposed network to discharge to existing combined network to replicate the existing situation.
- No increase in impermeable catchments.
- The option to discharge to the existing surface water pipe is available, subject to agreement with Dublin City Council prior to construction.

Ch A4+364 to A4+418 (both sides):

- Existing gullies connected to the 1160x770 egg shaped combined network.
- It is assumed that the existing surface water network picks up the buildings stormwater discharge. The existing surface water network also discharges to the combined network.
- Proposed new drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple new connections to the egg shaped combined network.
- Proposed network to discharge to existing 1500x780 egg shaped combined network to replicate the existing situation.
- No increase in impermeable catchments.
- The option to discharge to the existing surface water pipe is available, subject to agreement with Dublin City Council prior to construction.

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 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS AND REPORTS.
 - 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.
 - ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
 - 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.
 - EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
 - 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.
 - 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.
 - 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
 - ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
 - 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	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client

NTA
Udárás Náisiúnta Iompair
National Transport Authority

Engineering Designer

ARUP

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

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

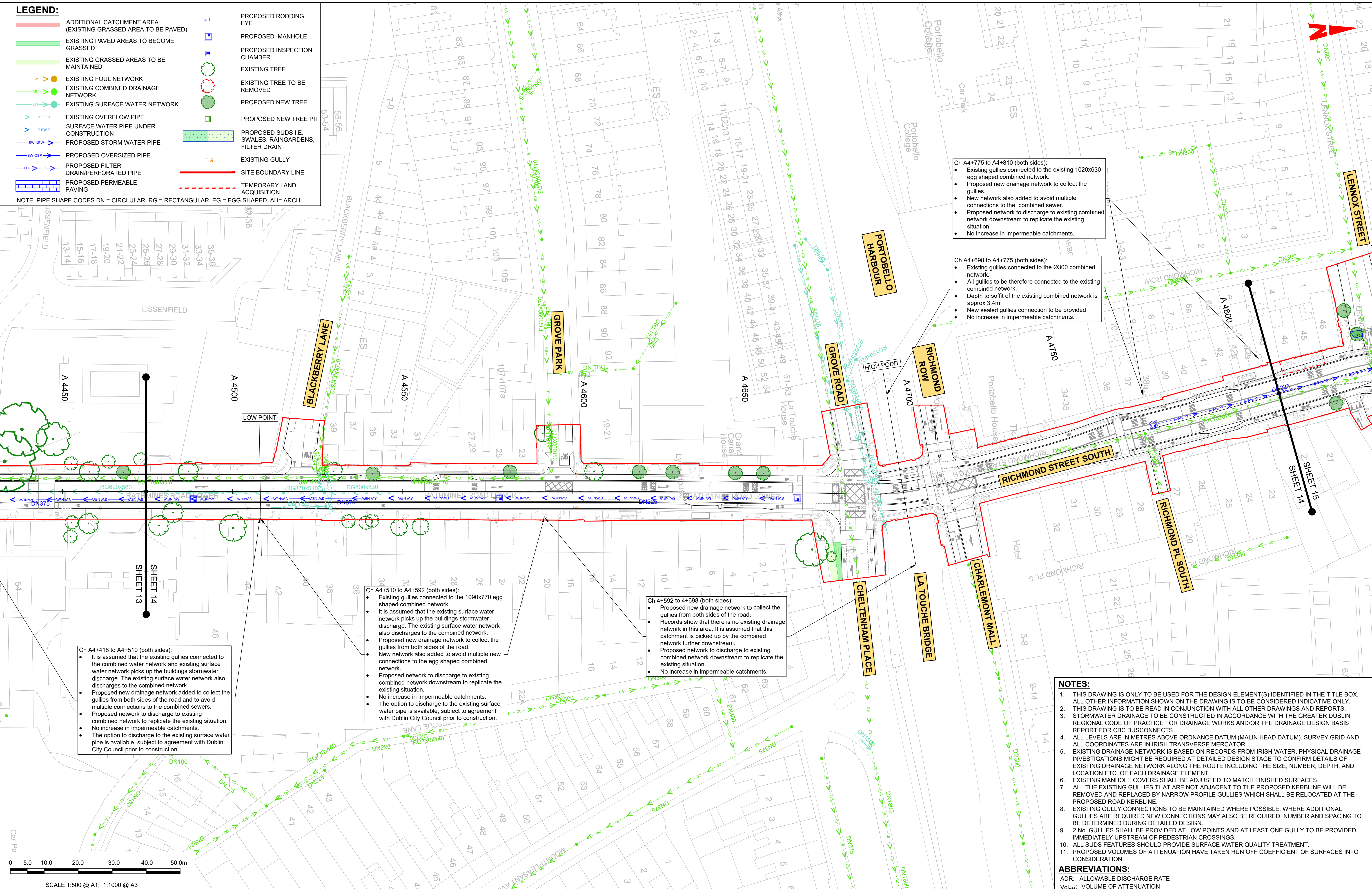
Programme Title		Drawing Title		Drawing File Name		Sheet Number		Status		Rev	
BUSCONNECTS DUBLIN		CORE BUS CORRIDORS INFRASTRUCTURE WORKS		TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME		PROPOSED SURFACE WATER DRAINAGE WORKS		13 of 37		A	
M01		M01		M01		M01		M01		M01	

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

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
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- 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 A4+418 to A4+510 (both sides):

- Existing gullies connected to the combined water network and existing surface water network picks up the buildings stormwater discharge. The existing surface water network also discharges to the combined network.
- Proposed new drainage network added to collect the gullies from both sides of the road and to avoid multiple connections to the combined sewers.
- Proposed network to discharge to existing combined network to replicate the existing situation.
- No increase in impermeable catchments.
- The option to discharge to the existing surface water pipe is available, subject to agreement with Dublin City Council prior to construction.

Ch A4+510 to A4+592 (both sides):

- Existing gullies connected to the 1090x770 egg shaped combined network.
- It is assumed that the existing surface water network picks up the buildings stormwater discharge. The existing surface water network also discharges to the combined network.
- Proposed new drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple new connections to the egg shaped combined network.
- Proposed network to discharge to existing combined network downstream to replicate the existing situation.
- No increase in impermeable catchments.
- The option to discharge to the existing surface water pipe is available, subject to agreement with Dublin City Council prior to construction.

Ch 4+592 to 4+698 (both sides):

- Proposed new drainage network to collect the gullies from both sides of the road.
- Records show that there is no existing drainage network in this area. It is assumed that this catchment is picked up by the combined network further downstream.
- Proposed network to discharge to existing combined network downstream to replicate the existing situation.
- No increase in impermeable catchments.

Ch A4+775 to A4+810 (both sides):

- Existing gullies connected to the existing 1020x630 egg shaped combined network.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to the combined sewer.
- Proposed network to discharge to existing combined network downstream to replicate the existing situation.
- No increase in impermeable catchments.

Ch A4+698 to A4+775 (both sides):

- Existing gullies connected to the Ø300 combined network.
- All gullies to be therefore connected to the existing combined network.
- Depth to soffit of the existing combined network is approx 3.4m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

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 - EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
 - 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.
 - 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.
 - 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
 - ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
 - 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	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**
 Údaráis Náisiúnta Iompair
 National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 Scale: 1:500 @ A1, 1:1000 @ A3

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

Drawn: AF Checked: MR Approved: DC

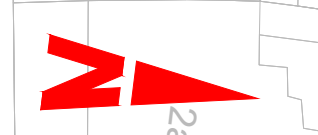
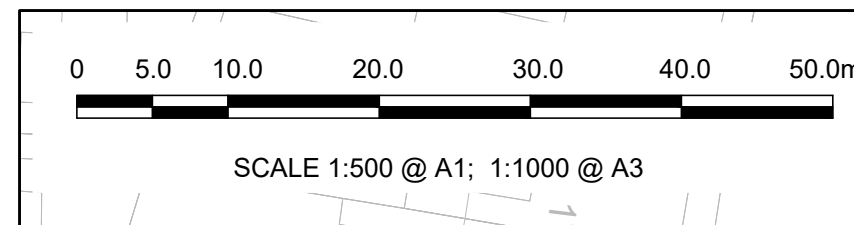
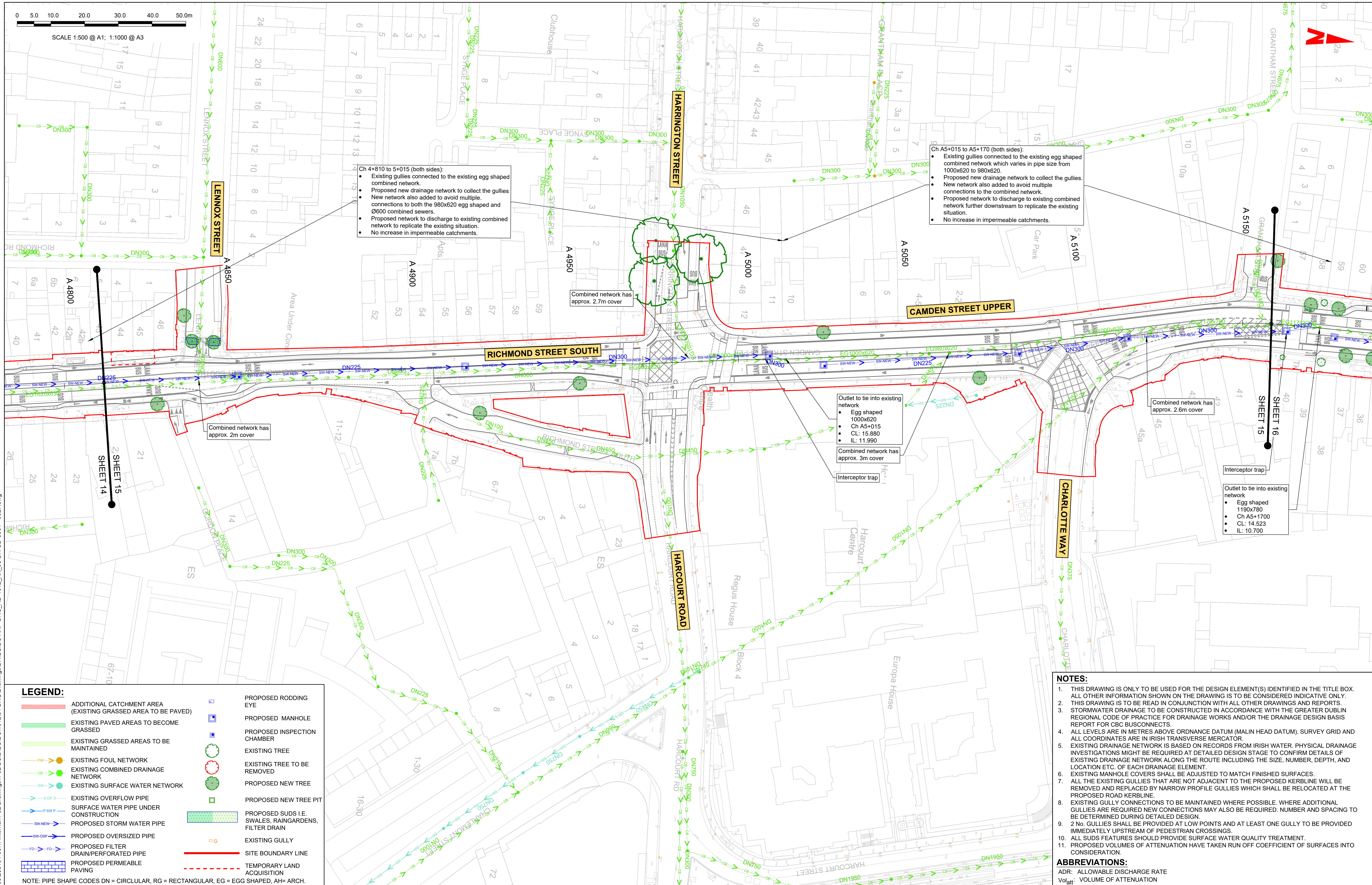
Programme Title: **BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

Drawing Title: **TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS**

Drawing File Name: BCIDC-ARP-DNG_RD-12_XX_00-DR-CD-0014

Sheet Number: 14 of 37 Status: A Rev: M01

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Ch 4+810 to 5+015 (both sides):

- Existing gullies connected to the existing egg shaped combined network.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to both the 980x620 egg shaped and Ø600 combined sewers.
- Proposed network to discharge to existing combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A5+015 to A5+170 (both sides):

- Existing gullies connected to the existing egg shaped combined network which varies in pipe size from 1000x620 to 980x620.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to the combined network.
- Proposed network to discharge to existing combined network further downstream to replicate the existing situation.
- No increase in impermeable catchments.

Combined network has approx. 2m cover

Combined network has approx. 2.7m cover

Outlet to tie into existing network

- Egg shaped 1000x620
- Ch A5+015
- CL: 15.880
- IL: 11.990

Combined network has approx. 3m cover

Interceptor trap

Combined network has approx. 2.6m cover

Outlet to tie into existing network

- Egg shaped 1190x780
- Ch A5+1700
- CL: 14.523
- IL: 10.700

Interceptor trap

LEGEND:

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

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Project Ireland 2040
Building Ireland's Future

Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**
Udárás Náisiúnta Iompair
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 Scale: 1:500 @ A1, 1:1000 @ A3

Drawn: AF, Checked: MR, Approved: DC

Project Code: BCIDC, Originator Code: ARP, QMS Code: 268401-00

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDC-ARP-DNG-RD-12_XX_00-DR-CD-0015	Sheet Number: 15 of 37	Status: A	Rev: M01

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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
- 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

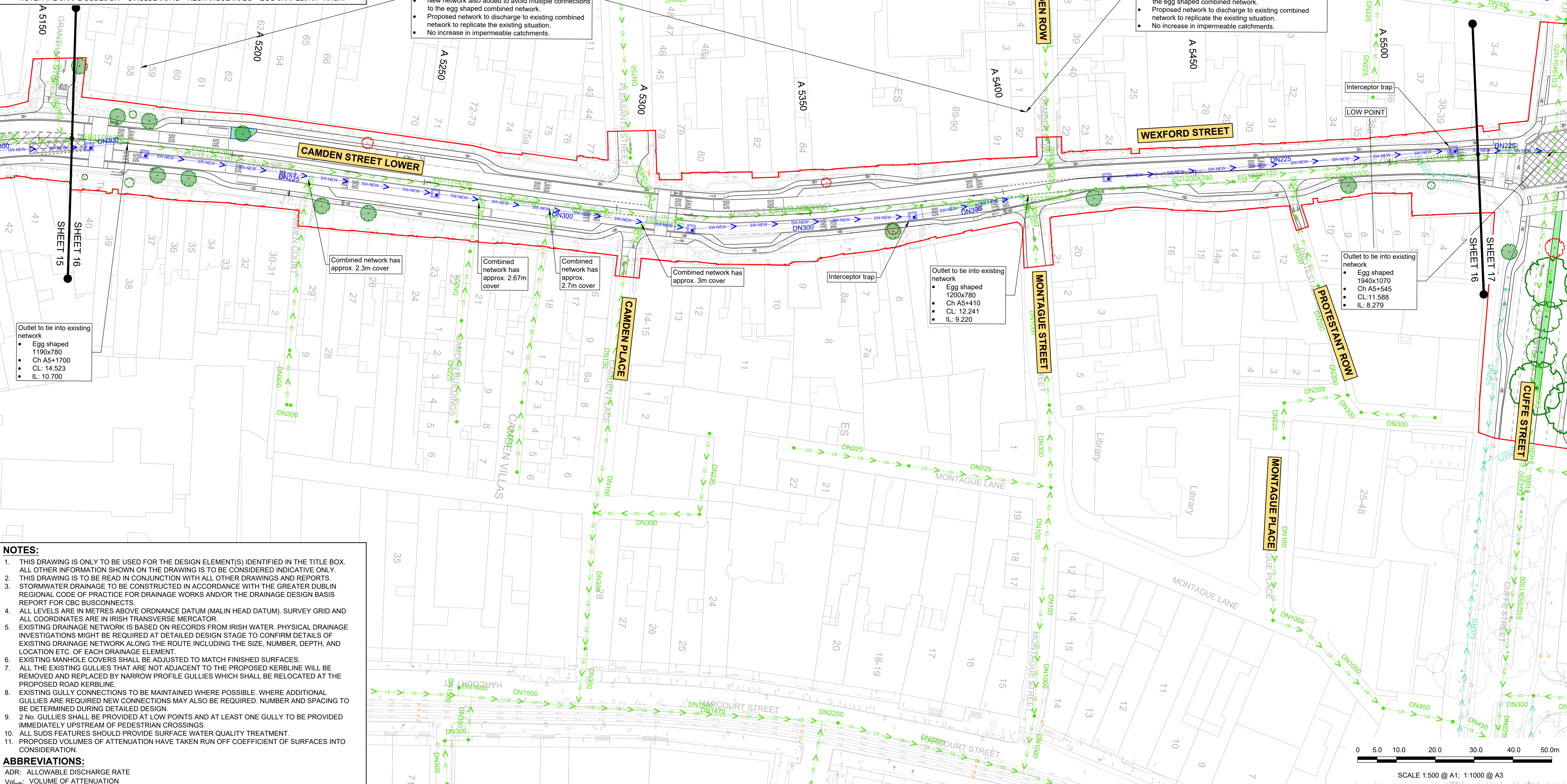
NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.

Ch A5+170 to A5+410 (both sides):

- Existing gullies connected to the existing egg shaped combined network which varies in pipe size from 1170x780 to 1150x780.
- Proposed new drainage network to collect the gullies
- New network also added to avoid multiple connections to the egg shaped combined network.
- Proposed network to discharge to existing combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A5+410 to A5+545 (both sides):

- Existing gullies connected to the existing egg shaped combined network which varies in pipe size from 1200x780 to 1940x1070.
- Proposed new drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple connections to the egg shaped combined network.
- Proposed network to discharge to existing combined network to replicate the existing situation.
- No increase in impermeable catchments.



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 - EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
 - 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.
 - 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.
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 - ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
 - 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	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**
Udárás Náisiúnta Iompair
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 Scale: 1:500 @ A1, 1:1000 @ A3

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

Drawn: AF Checked: MR Approved: DC

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

Drawing Title: **TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS**

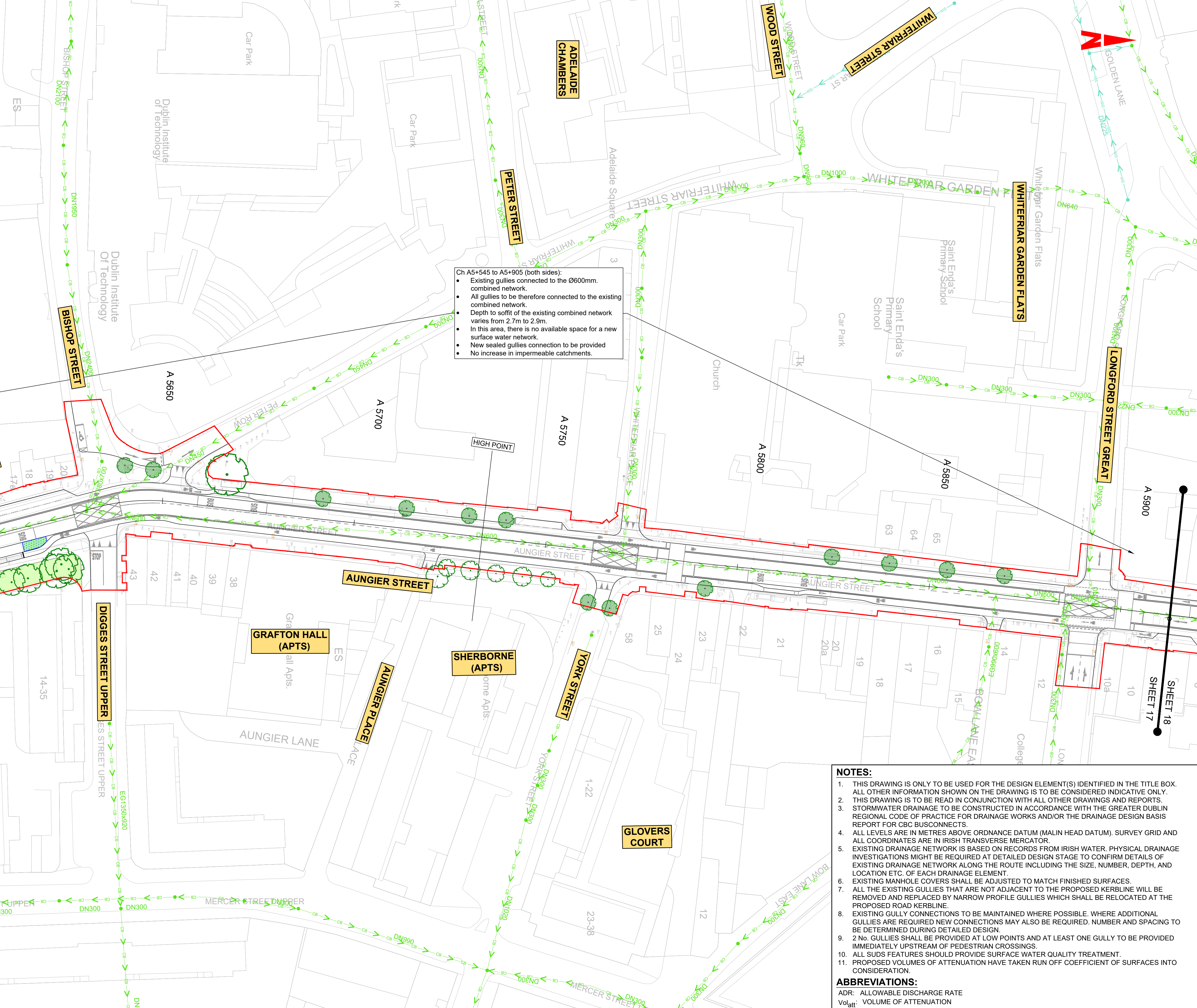
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0016 Sheet Number: 16 of 37 Status: A Rev: M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

LEGEND:

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- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
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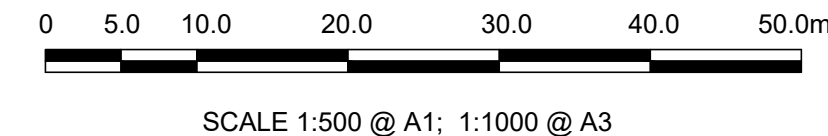


Ch A5+545 to A5+905 (both sides):

- Existing gullies connected to the Ø600mm. combined network.
- All gullies to be therefore connected to the existing combined network.
- Depth to soffit of the existing combined network varies from 2.7m to 2.9m.
- In this area, there is no available space for a new surface water network.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

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



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M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client

Udárás Náisiúnta Iompair
National Transport Authority

Date: 27/01/2023
 Scale: 1:500 @ A1
 1:1000 @ A3

Engineering Designer

Drawn: AF
 Checked: MR
 Approved: DC

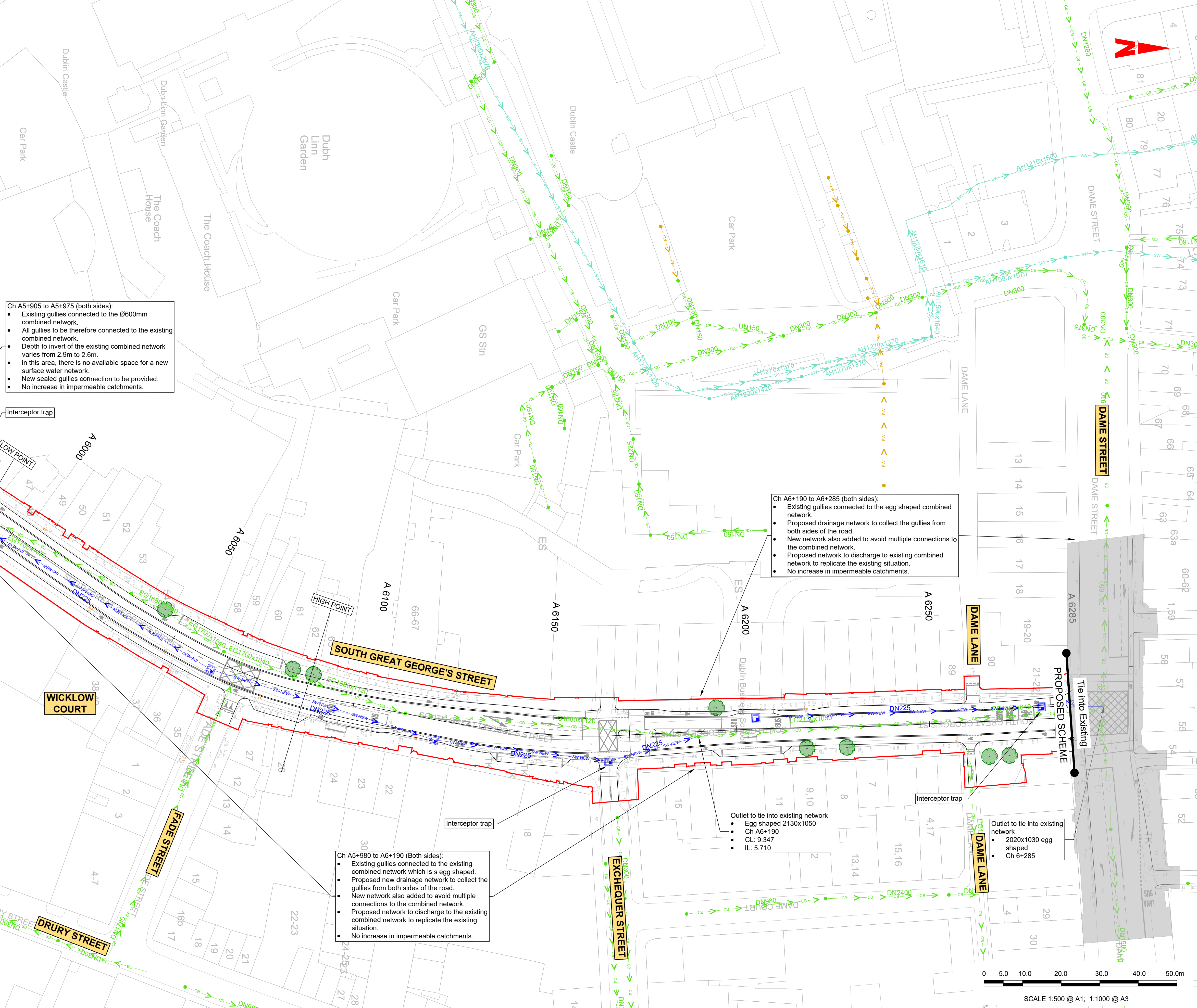
Programme Title BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0017	Sheet Number 17 of 37	Status A	Rev M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

LEGEND:

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Ch A5+905 to A5+975 (both sides):

- Existing gullies connected to the Ø600mm combined network.
- All gullies to be therefore connected to the existing combined network.
- Depth to invert of the existing combined network varies from 2.9m to 2.6m.
- In this area, there is no available space for a new surface water network.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Ch A6+190 to A6+285 (both sides):

- Existing gullies connected to the egg shaped combined network.
- Proposed drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple connections to the combined network.
- Proposed network to discharge to existing combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A5+980 to A6+190 (Both sides):

- Existing gullies connected to the existing combined network which is s egg shaped.
- Proposed new drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple connections to the combined network.
- Proposed network to discharge to the existing combined network to replicate the existing situation.
- No increase in impermeable catchments.

Outlet to tie into existing network

- 2020x1030 egg shaped
- Ch A5+980
- CL: 9.544
- IL: 8.190

Outlet to tie into existing network

- Egg shaped 2130x1050
- Ch A6+190
- CL: 9.347
- IL: 5.710

Outlet to tie into existing network

- 2020x1030 egg shaped
- Ch 6+285

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ABBREVIATIONS:

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Client: **NTA**
Udárás Náisiúnta Iompair
National Transport Authority

Date: 27/01/2023 Scale: 1:500 @ A1
1:1000 @ A3

Engineering Designer: **ARUP**

Drawn: AF Checked: MR Approved: DC

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

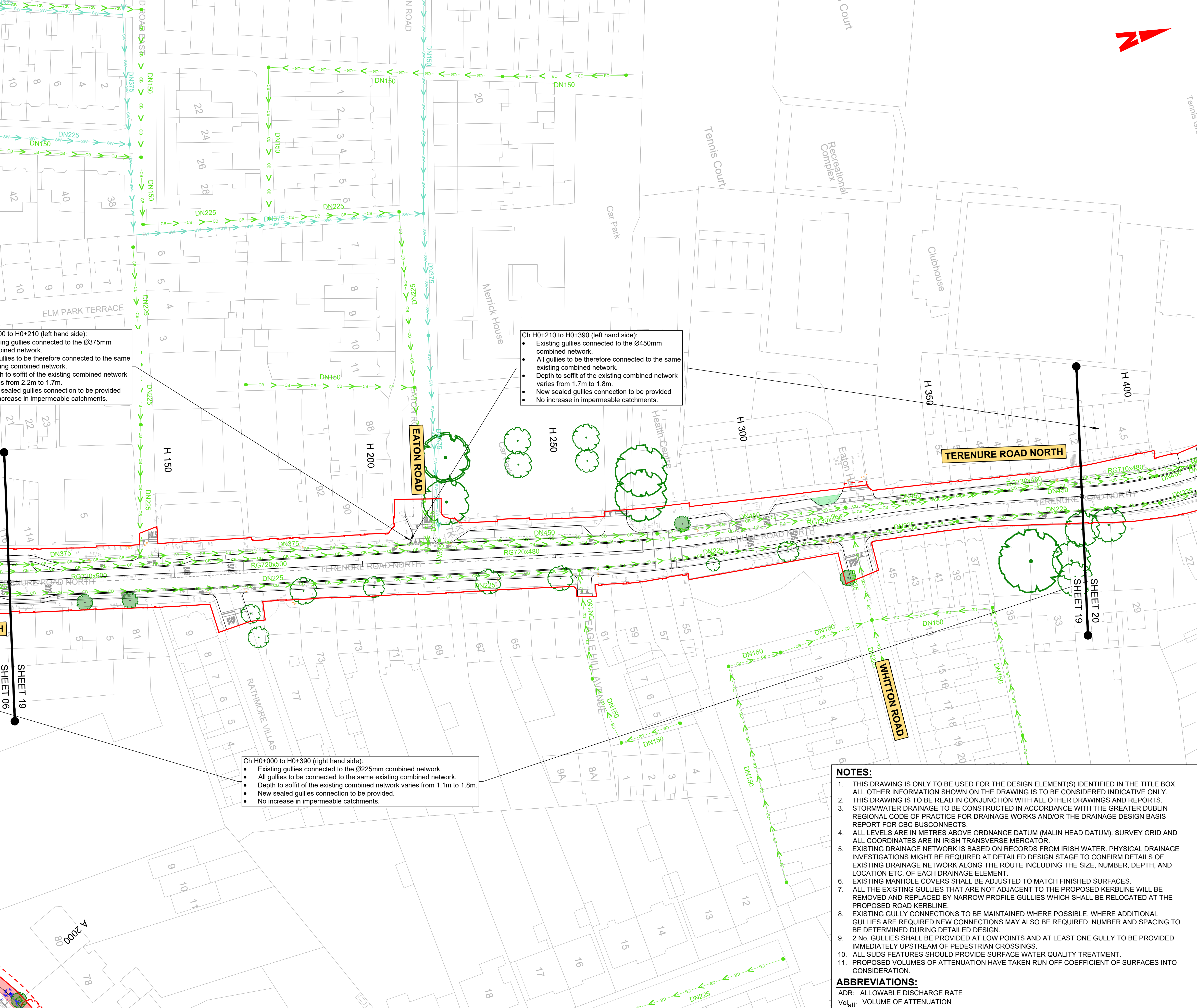
Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0018	Sheet Number: 18 of 37	Status: A	Rev: M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

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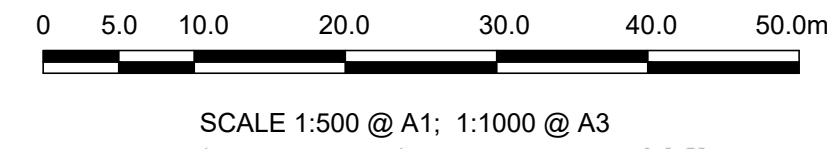


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Client: **NTA**
Údarás Náisiúnta Iompair
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

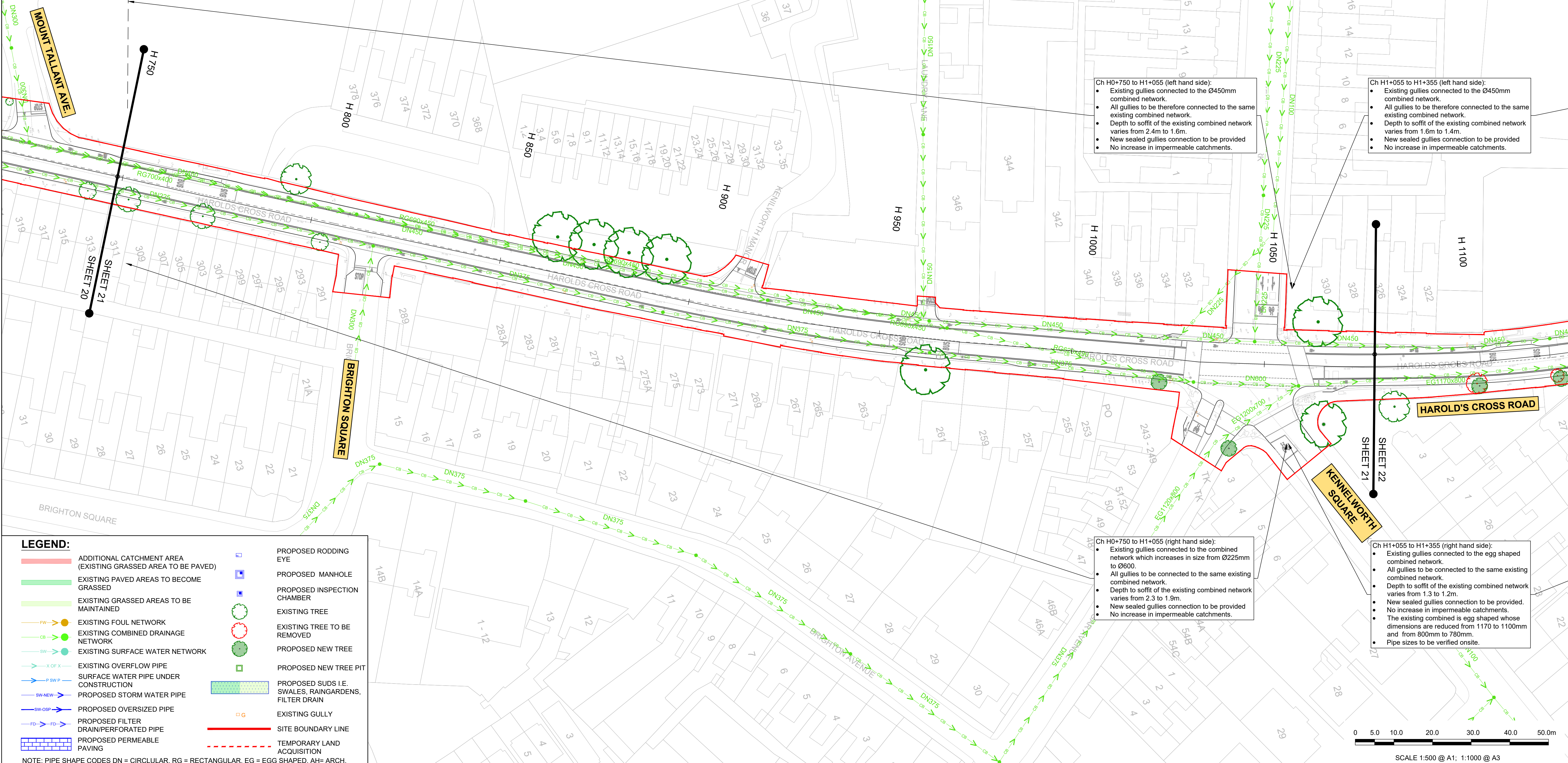
Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

Programme Title		Drawing Title	
BUSCONNECTS DUBLIN		TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME	
CORE BUS CORRIDORS INFRASTRUCTURE WORKS		PROPOSED SURFACE WATER DRAINAGE WORKS	
Drawing File Name	Sheet Number	Status	Rev
BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0019	19 of 37	A	M01

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 - ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
 - 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.
 - EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
 - 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.
 - 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.
 - 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
 - ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
 - PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

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



Ch H0+750 to H1+055 (left hand side):

- Existing gullies connected to the Ø450mm combined network.
- All gullies to be therefore connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 2.4m to 1.6m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Ch H1+055 to H1+355 (left hand side):

- Existing gullies connected to the Ø450mm combined network.
- All gullies to be therefore connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 1.6m to 1.4m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Ch H0+750 to H1+055 (right hand side):

- Existing gullies connected to the combined network which increases in size from Ø225mm to Ø600.
- All gullies to be connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 2.3 to 1.9m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Ch H1+055 to H1+355 (right hand side):

- Existing gullies connected to the egg shaped combined network.
- All gullies to be connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 1.3 to 1.2m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.
- The existing combined is egg shaped whose dimensions are reduced from 1170 to 1100mm and from 800mm to 780mm.
- Pipe sizes to be verified onsite.

LEGEND:

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

NOTE: PIPE SHAPE CODING DN = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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Project Ireland 2040
 Building Ireland's Future

Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**
 Údarás Náisiúnta Iompair
 National Transport Authority

Engineering Designer: **ARUP**

Date	Scale	Drawn	Checked	Approved
27/01/2023	1:500 @ A1 1:1000 @ A3	AF	MR	DC

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

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

Drawing Title: **TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS**

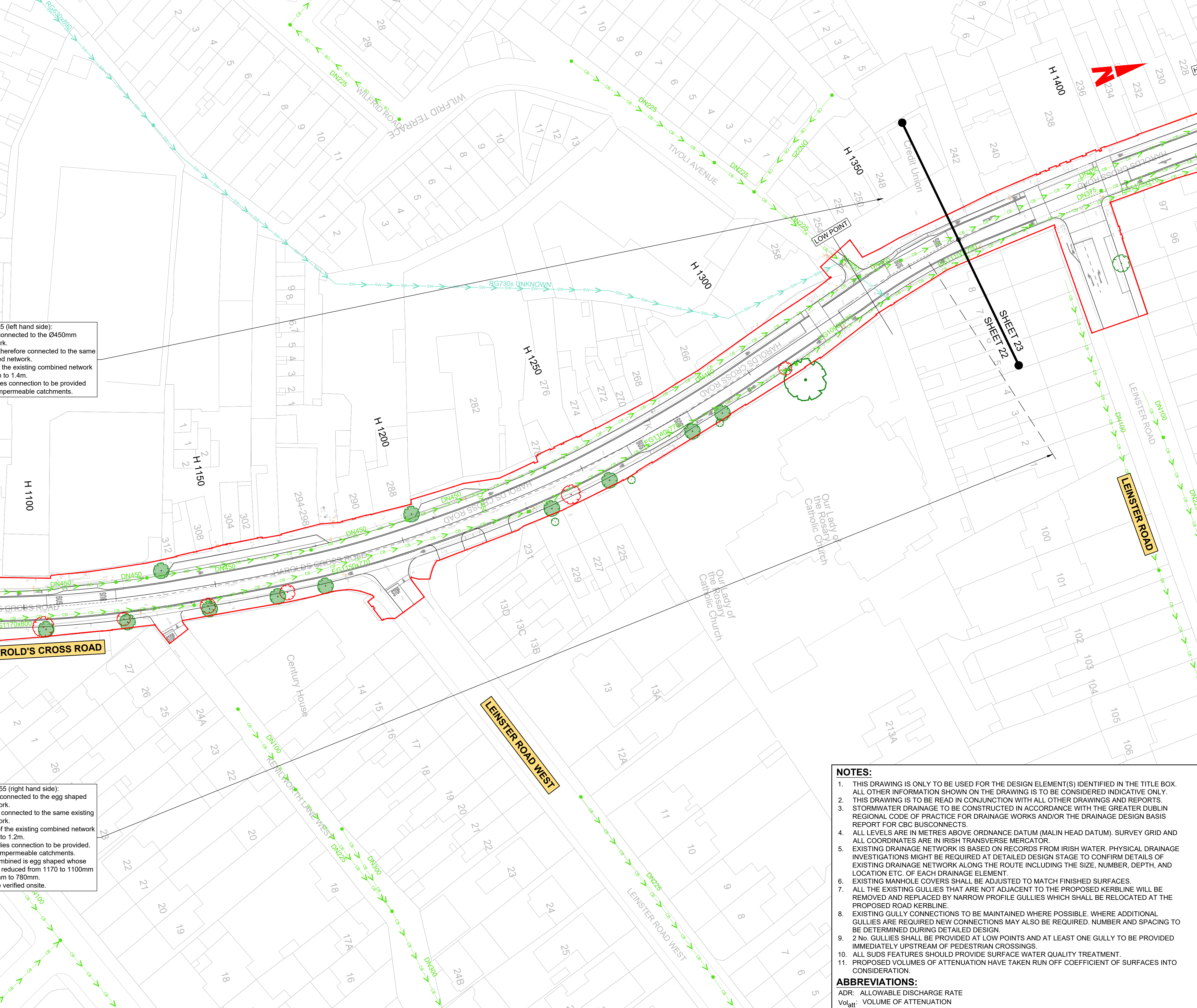
Drawing File Name	Sheet Number	Status	Rev
BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0021	21 of 37	A	M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

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 H0+750 to H1+055 (left hand side):

- Existing gullies connected to the Ø450mm combined network.
- All gullies to be therefore connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 2.4m to 1.6m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Ch H1+055 to H1+355 (left hand side):

- Existing gullies connected to the Ø450mm combined network.
- All gullies to be therefore connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 1.6m to 1.4m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Ch H0+750 to H1+055 (right hand side):

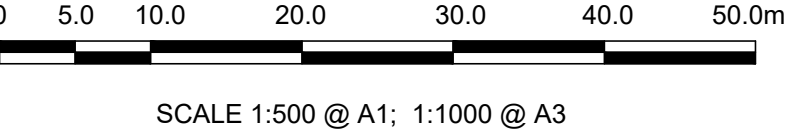
- Existing gullies connected to the combined network which increases in size from Ø225mm to Ø600.
- All gullies to be connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 2.3 to 1.9m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Ch H1+055 to H1+355 (right hand side):

- Existing gullies connected to the egg shaped combined network.
- All gullies to be connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 1.3 to 1.2m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.
- The existing combined is egg shaped whose dimensions are reduced from 1170 to 1100mm and from 800mm to 780mm.
- Pipe sizes to be verified onsite.

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 - EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
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 - ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
 - 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	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**
 Údarás Náisiúnta Iompair
 National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 Scale: 1:500 @ A1, 1:1000 @ A3
 Drawn: AF, Checked: MR, Approved: DC

Project Code: BCIDC, Originator Code: ARP, QMS Code: 268401-00

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0022	Sheet Number: 22 of 37	Status: A	Rev: M01

LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
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- EXISTING FOUL NETWORK
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- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
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- TEMPORARY LAND ACQUISITION

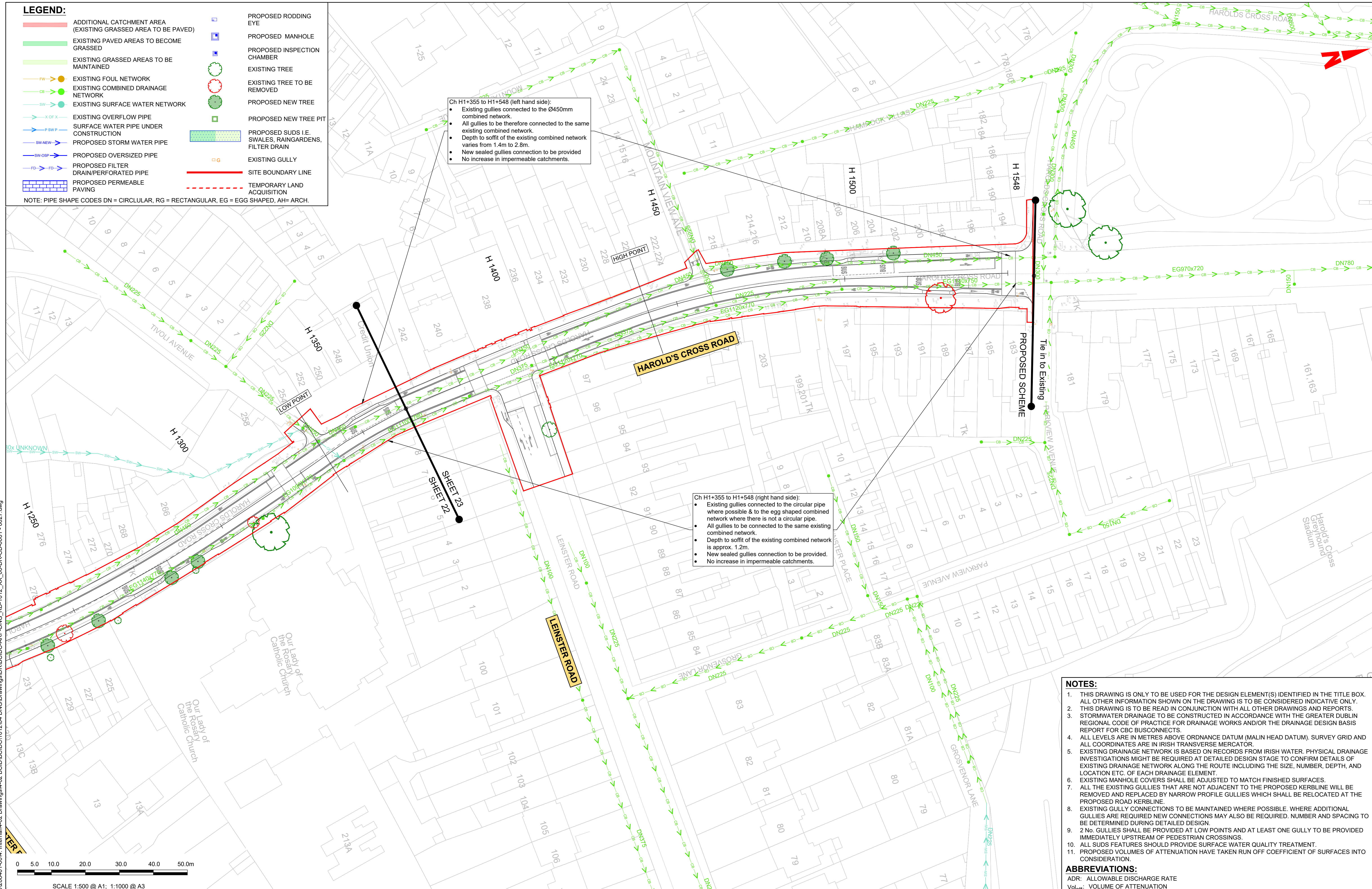
NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

Ch H1+355 to H1+548 (left hand side):

- Existing gullies connected to the Ø450mm combined network.
- All gullies to be therefore connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 1.4m to 2.8m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Ch H1+355 to H1+548 (right hand side):

- Existing gullies connected to the circular pipe where possible & to the egg shaped combined network where there is not a circular pipe.
- All gullies to be connected to the same existing combined network.
- Depth to soffit of the existing combined network is approx. 1.2m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.



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

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Project Ireland 2040
 Building Ireland's Future

Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**
 Údarás Náisiúnta Iompair
 National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

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

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0023	Sheet Number: 23 of 37	Status: A	Rev: M01

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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
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
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- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
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- EXISTING TREE TO BE REMOVED
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- PROPOSED NEW TREE PIT
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- EXISTING GULLY
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- TEMPORARY LAND ACQUISITION

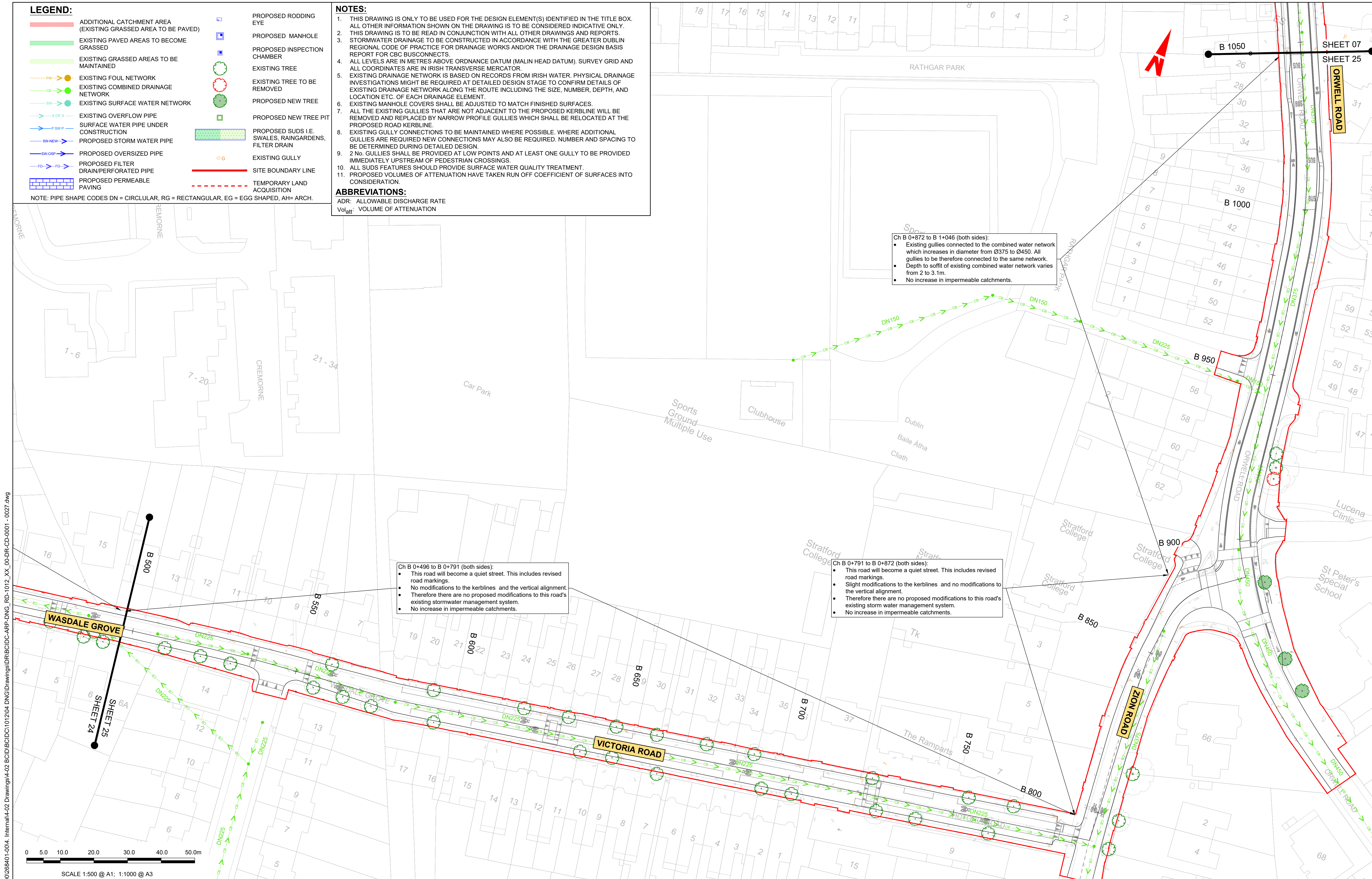
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ABBREVIATIONS:

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



Ch B 0+872 to B 1+046 (both sides):

- Existing gullies connected to the combined water network which increases in diameter from Ø375 to Ø450. All gullies to be therefore connected to the same network.
- Depth to soffit of existing combined water network varies from 2 to 3 fm.
- No increase in impermeable catchments.

Ch B 0+496 to B 0+791 (both sides):

- This road will become a quiet street. This includes revised road markings.
- No modifications to the kerblines and the vertical alignment.
- Therefore there are no proposed modifications to this road's existing stormwater management system.
- No increase in impermeable catchments.

Ch B 0+791 to B 0+872 (both sides):

- This road will become a quiet street. This includes revised road markings.
- Slight modifications to the kerblines and no modifications to the vertical alignment.
- Therefore there are no proposed modifications to this road's existing stormwater management system.
- No increase in impermeable catchments.

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 26840-004\Internal\4-02 Drawings\4-02 BCID\BCID\DC-ARP-DNG-RD-1012_XX_00-DR-CD-0025 - 0027.dwg

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<p>Date 27/01/2023 Scale 1:500 @ A1 1:1000 @ A3 Drawn AF Checked MR Approved DC</p>		<p>Project Code BCIDC Originator Code ARP QMS Code 26840-00</p>		<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0025 Sheet Number 25 of 37 Status A Rev M01</p>								

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LEGEND:

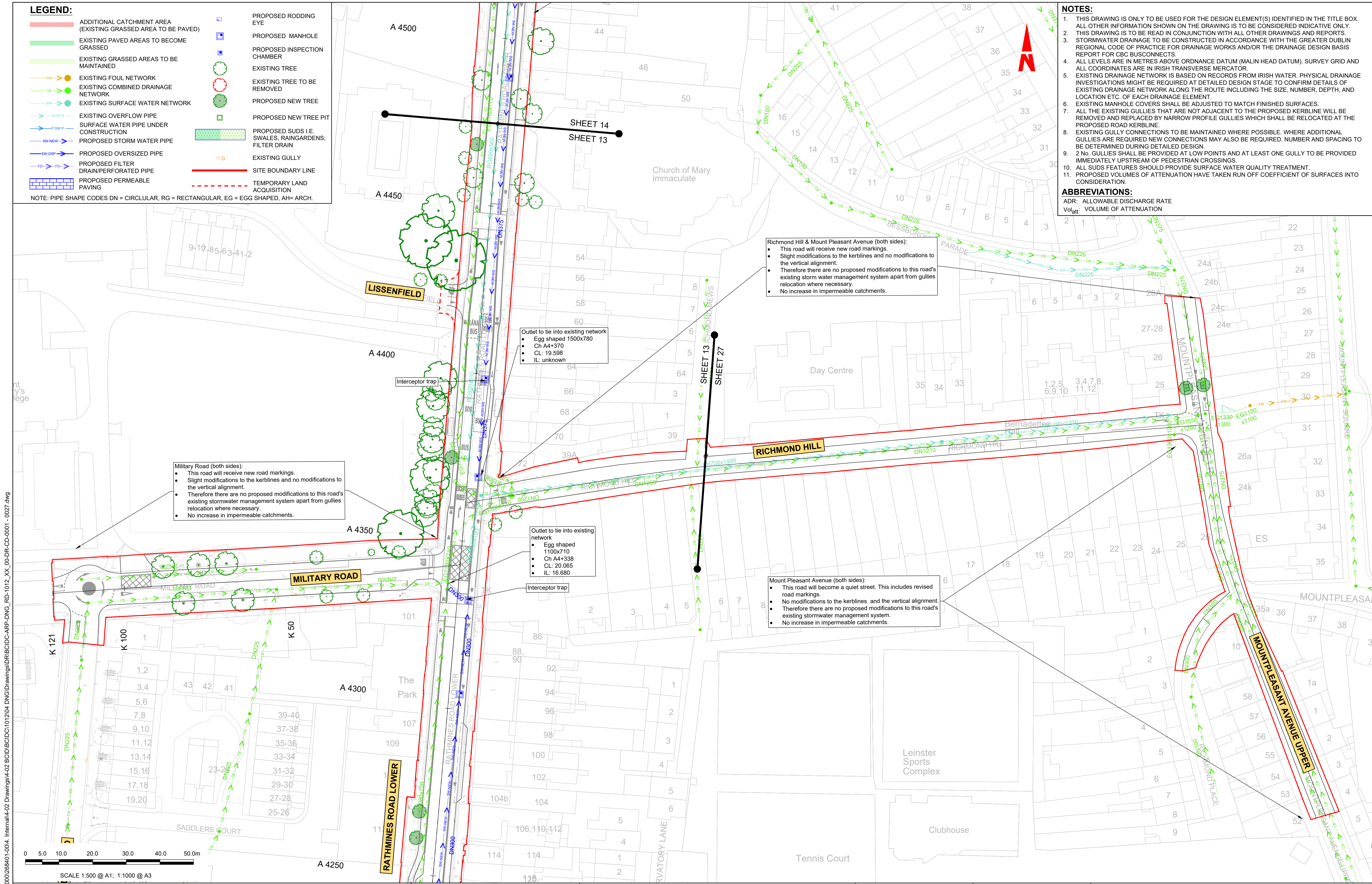
	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE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

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- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (MALIN HEAD DATUM), SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
- 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.
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- 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.
- 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
- ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
- PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

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



Military Road (both sides):

- This road will receive new road markings.
- Slight modifications to the kerblines and no modifications to the vertical alignment.
- Therefore there are no proposed modifications to this road's existing stormwater management system apart from gullies relocation where necessary.
- No increase in impermeable catchments.

Richmond Hill & Mount Pleasant Avenue (both sides):

- This road will receive new road markings.
- Slight modifications to the kerblines and no modifications to the vertical alignment.
- Therefore there are no proposed modifications to this road's existing storm water management system apart from gullies relocation where necessary.
- No increase in impermeable catchments.

Mount Pleasant Avenue (both sides):

- This road will become a quiet street. This includes revised road markings.
- No modifications to the kerblines and the vertical alignment.
- Therefore there are no proposed modifications to this road's existing stormwater management system.
- No increase in impermeable catchments.

Outlet to tie into existing network

- Egg shaped 1500x780
- Ch A4+370
- CL: 19.598
- IL: unknown

Outlet to tie into existing network

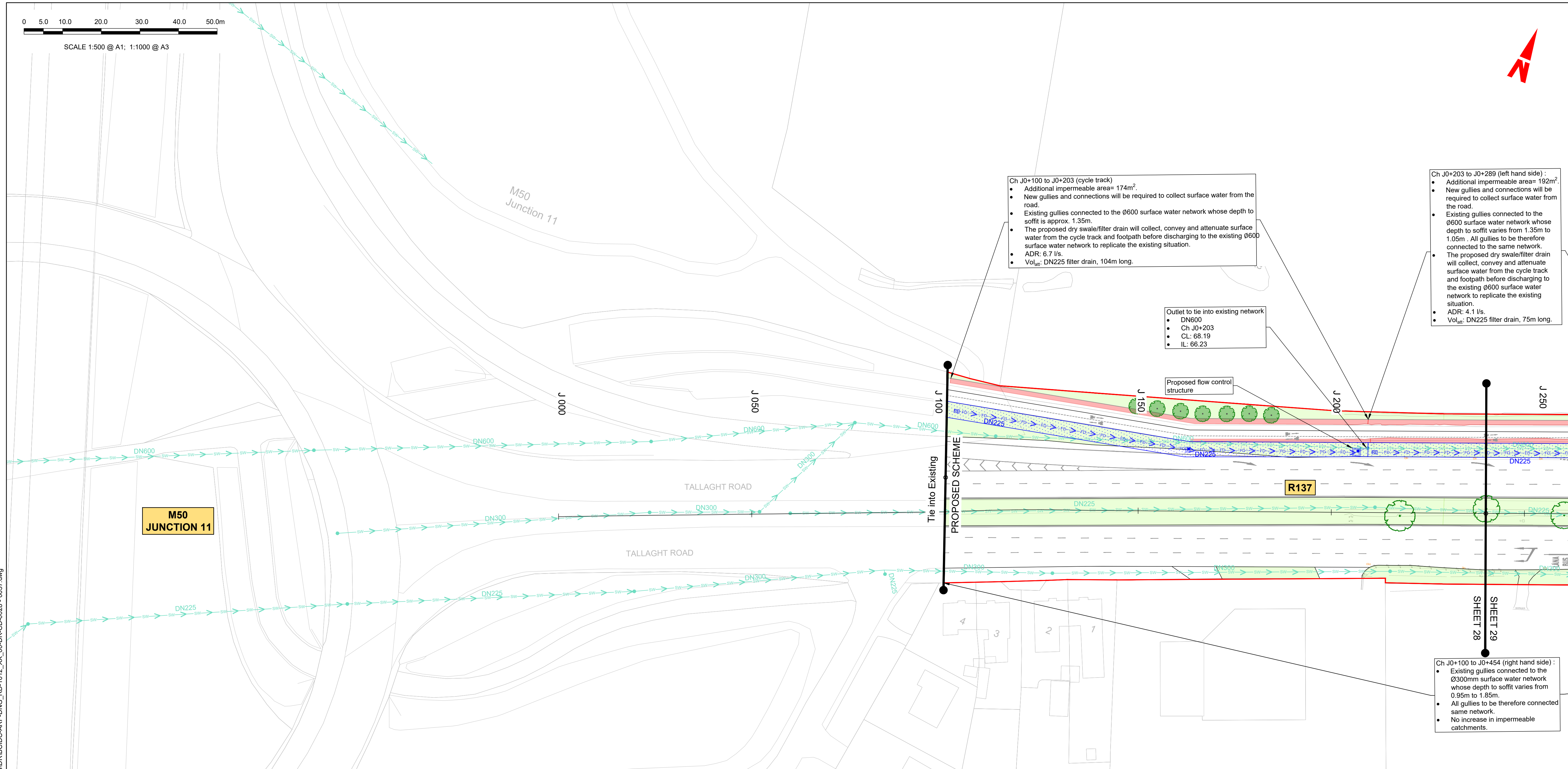
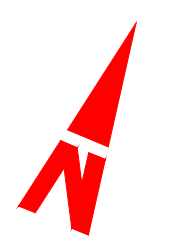
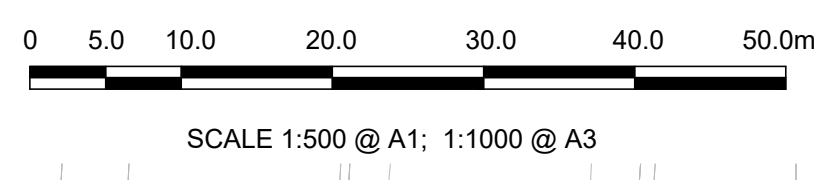
- Egg shaped 1100x710
- Ch A4+338
- CL: 20.065
- IL: 16.680

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

<p>Rev M01 Date 27/01/2023 Drn AF Chk'd MR App'd DC Description ISSUE FOR PHASE 4: PLANNING</p>					<p>Client NTA Údarás Náisiúnta Iompair National Transport Authority</p>			<p>Engineering Designer ARUP</p>			<p>Programme Title BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</p>		
<p>Project Code BCIDC Originator Code ARP QMS Code 26840-00</p>					<p>Date 27/01/2023 Scale 1:500 @ A1 1:1000 @ A3 Drawn AF Checked MR Approved DC</p>			<p>Drawing Title TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</p>					
<p>Project Code BCIDC Originator Code ARP QMS Code 26840-00</p>					<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0027</p>			<p>Sheet Number 27 of 37 Status A Rev M01</p>					

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



Ch J0+100 to J0+203 (cycle track)

- Additional impermeable area= 174m².
- New gullies and connections will be required to collect surface water from the road.
- Existing gullies connected to the Ø600 surface water network whose depth to soffit is approx. 1.35m.
- The proposed dry swale/filter drain will collect, convey and attenuate surface water from the cycle track and footpath before discharging to the existing Ø600 surface water network to replicate the existing situation.
- ADR: 6.7 l/s.
- Vol_{att}: DN225 filter drain, 104m long.

Outlet to tie into existing network

- DN600
- Ch J0+203
- CL: 68.19
- IL: 66.23

Ch J0+203 to J0+289 (left hand side)

- Additional impermeable area= 192m².
- New gullies and connections will be required to collect surface water from the road.
- Existing gullies connected to the Ø600 surface water network whose depth to soffit varies from 1.35m to 1.05m. All gullies to be therefore connected to the same network.
- The proposed dry swale/filter drain will collect, convey and attenuate surface water from the cycle track and footpath before discharging to the existing Ø600 surface water network to replicate the existing situation.
- ADR: 4.1 l/s.
- Vol_{att}: DN225 filter drain, 75m long.

Ch J0+100 to J0+454 (right hand side)

- Existing gullies connected to the Ø300mm surface water network whose depth to soffit varies from 0.95m to 1.85m.
- All gullies to be therefore connected same network.
- No increase in impermeable catchments.

LEGEND:

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

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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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<p>Date 27/01/2023 Scale 1:500 @ A1 1:1000 @ A3 Drawn AF Checked MR Approved DC</p>		<p>Project Code BCIDC Originator Code ARP QMS Code 268401-00</p>			<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0028 Sheet Number 28 of 37 Status A Rev M01</p>						

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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 J0+203 to J0+289 (left hand side) :

- Additional impermeable area= 192m².
- New gullies and connections will be required to collect surface water from the road.
- Existing gullies connected to the Ø600 surface water network whose depth to soffit varies from 1.35m to 1.05m. All gullies to be therefore connected to the same network.
- The proposed dry swale/filter drain will collect, convey and attenuate surface water from the cycle track and footpath before discharging to the existing Ø600 surface water network to replicate the existing situation.
- ADR: 4.1 l/s.
- Vol_{att}: DN225 filter drain, 75m long.

Ch J0+289 to J0+384 (left hand side)

- Additional impermeable area= 214m².
- New gullies and connections will be required to collect surface water from the road.
- Existing gullies connected to the Ø600 surface water network whose depth to soffit varies from 1.05 to 0.65m. All gullies to be therefore connected to the same network.
- The proposed dry swale/filter drain will collect, convey and attenuate surface water from the cycle track and footpath before discharging to the existing Ø600 surface water network to replicate the existing situation.
- ADR: 4.8 l/s.
- Vol_{att}: DN225 filter drain, 88m long.

Ch J0+384 to J0+549 (left hand side) :

- Additional impermeable area= 494m².
- New gullies and connections will be required to collect surface water from the road.
- Existing gullies connected to the Ø600 surface water network whose depth to soffit is approx. 0.65m. All gullies to be therefore connected to the same network.
- The proposed dry swale/filter drain will collect, convey and attenuate surface water from the cycle track and footpath before discharging to the existing Ø600 surface water network to replicate the existing situation.
- ADR: 8.1 l/s.
- Vol_{att}: DN225 filter drain, 131m long.

Ch J0+549 to J0+673 (left hand side) :

- Existing gullies connected to the Ø600mm surface water network whose depth to soffit is unknown.
- All gullies to be therefore connected to the same network.
- Additional impermeable area = 755m².
- Additional grassed (permeable) area = 381m².
- Net impermeable area to be attenuated = 374m².
- The SuDS feature located at ch 0+673 to 0+783 will provide attenuation to compensate for this net additional impermeable area.

Outlet to tie into existing network

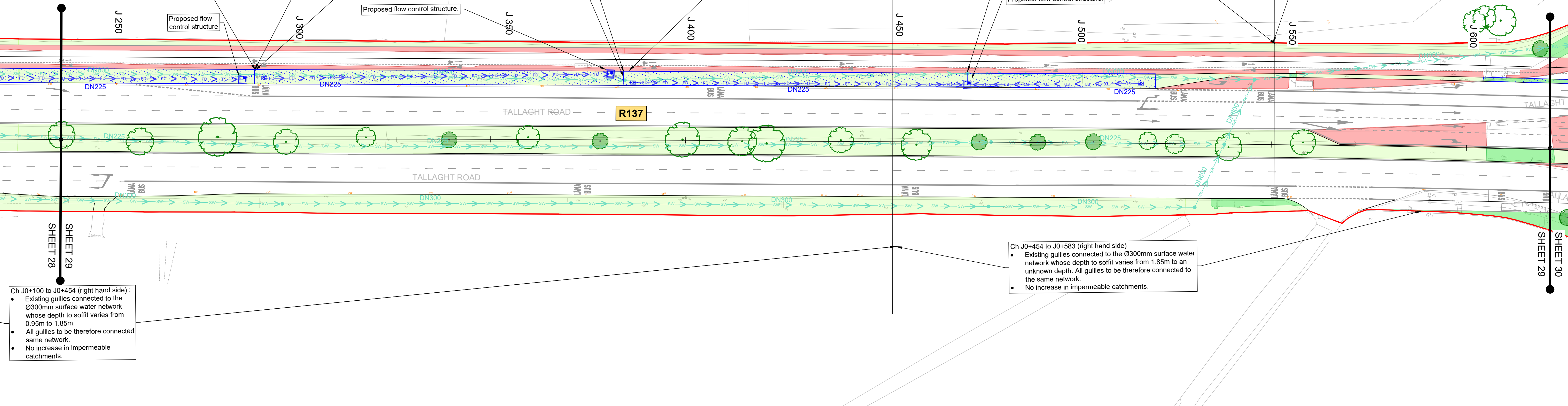
- DN600
- Ch J0+289
- CL: 67.660
- IL: 65.820

Outlet to tie into existing network

- DN600
- Ch J0+384
- CL: 66.662
- IL: 65.300

Outlet to tie into existing network

- DN600
- Ch J0+471
- CL: 66.300
- IL: 64.820



Ch J0+100 to J0+454 (right hand side) :

- Existing gullies connected to the Ø300mm surface water network whose depth to soffit varies from 0.95m to 1.85m.
- All gullies to be therefore connected same network.
- No increase in impermeable catchments.

Ch J0+454 to J0+583 (right hand side)

- Existing gullies connected to the Ø300mm surface water network whose depth to soffit varies from 1.85m to an unknown depth. All gullies to be therefore connected to the same network.
- No increase in impermeable catchments.

LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
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- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
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- 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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Rev	Date	Drm	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**
Udarás Náisiúnta Iompair
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

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

Programme Title BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0029	Sheet Number 29 of 37	Status A	Rev M01

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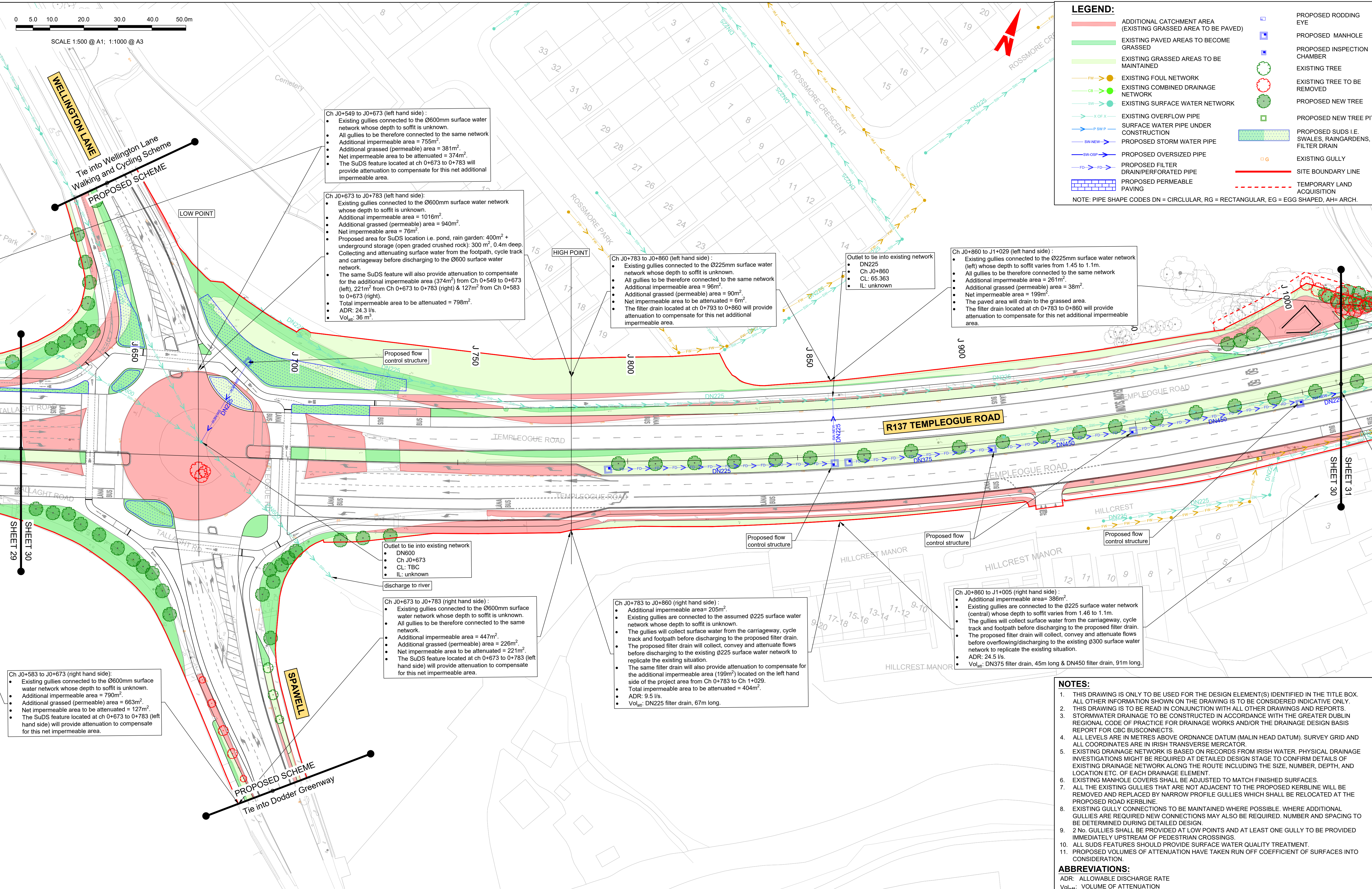
0 5.0 10.0 20.0 30.0 40.0 50.0m

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

LEGEND:

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Tie into Wellington Lane Walking and Cycling Scheme

PROPOSED SCHEME

SHEET 29

SHEET 30

SHEET 30

SHEET 31

Ch J0+583 to J0+673 (right hand side):

- Existing gullies connected to the Ø600mm surface water network whose depth to soffit is unknown.
- Additional impermeable area = 790m².
- Additional grassed (permeable) area = 663m².
- Net impermeable area to be attenuated = 127m².
- The SuDS feature located at ch 0+673 to 0+783 (left hand side) will provide attenuation to compensate for this net impermeable area.

Ch J0+549 to J0+673 (left hand side):

- Existing gullies connected to the Ø600mm surface water network whose depth to soffit is unknown.
- All gullies to be therefore connected to the same network.
- Additional impermeable area = 755m².
- Additional grassed (permeable) area = 381m².
- Net impermeable area to be attenuated = 374m².
- The SuDS feature located at ch 0+673 to 0+783 will provide attenuation to compensate for this net additional impermeable area.

Ch J0+673 to J0+783 (left hand side):

- Existing gullies connected to the Ø600mm surface water network whose depth to soffit is unknown.
- Additional impermeable area = 1016m².
- Additional grassed (permeable) area = 940m².
- Net impermeable area = 76m².
- Proposed area for SuDS location i.e. pond, rain garden: 400m² + underground storage (open graded crushed rock): 300 m², 0.4m deep.
- Collecting and attenuating surface water from the footpath, cycle track and carriageway before discharging to the Ø600 surface water network.
- The same SuDS feature will also provide attenuation to compensate for the additional impermeable area (374m²) from Ch 0+549 to 0+673 (left), 221m² from Ch 0+673 to 0+783 (right) & 127m² from Ch 0+583 to 0+673 (right).
- Total impermeable area to be attenuated = 798m².
- ADR: 24.3 l/s.
- Vol_{att}: 36 m³.

Ch J0+783 to J0+860 (left hand side):

- Existing gullies connected to the Ø225mm surface water network whose depth to soffit is unknown.
- All gullies to be therefore connected to the same network.
- Additional impermeable area = 96m².
- Additional grassed (permeable) area = 90m².
- Net impermeable area to be attenuated = 6m².
- The filter drain located at ch 0+793 to 0+860 will provide attenuation to compensate for this net additional impermeable area.

Outlet to tie into existing network

- DN225
- Ch J0+860
- CL: 65.363
- IL: unknown

Ch J0+860 to J1+029 (left hand side):

- Existing gullies connected to the Ø225mm surface water network (left) whose depth to soffit varies from 1.45 to 1.1m.
- All gullies to be therefore connected to the same network.
- Additional impermeable area = 261m².
- Additional grassed (permeable) area = 38m².
- Net impermeable area = 199m².
- The paved area will drain to the grassed area.
- The filter drain located at ch 0+783 to 0+860 will provide attenuation to compensate for this net additional impermeable area.

Outlet to tie into existing network

- DN600
- Ch J0+673
- CL: TBC
- IL: unknown

discharge to river

Ch J0+673 to J0+783 (right hand side):

- Existing gullies connected to the Ø600mm surface water network whose depth to soffit is unknown.
- All gullies to be therefore connected to the same network.
- Additional impermeable area = 447m².
- Additional grassed (permeable) area = 226m².
- Net impermeable area to be attenuated = 221m².
- The SuDS feature located at ch 0+673 to 0+783 (left hand side) will provide attenuation to compensate for this net impermeable area.

Ch J0+783 to J0+860 (right hand side):

- Additional impermeable area = 205m².
- Existing gullies are connected to the assumed Ø225 surface water network whose depth to soffit is unknown.
- The gullies will collect surface water from the carriageway, cycle track and footpath before discharging to the proposed filter drain.
- The proposed filter drain will collect, convey and attenuate flows before discharging to the existing Ø225 surface water network to replicate the existing situation.
- The same filter drain will also provide attenuation to compensate for the additional impermeable area (199m²) located on the left hand side of the project area from Ch 0+783 to Ch 1+029.
- Total impermeable area to be attenuated = 404m².
- ADR: 9.5 l/s.
- Vol_{att}: DN225 filter drain, 67m long.

Ch J0+860 to J1+005 (right hand side):

- Additional impermeable area = 386m².
- Existing gullies are connected to the Ø225 surface water network (central) whose depth to soffit varies from 1.46 to 1.1m.
- The gullies will collect surface water from the carriageway, cycle track and footpath before discharging to the proposed filter drain.
- 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: 24.5 l/s.
- Vol_{att}: DN375 filter drain, 45m long & DN450 filter drain, 91m long.

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 - 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.
 - ALL LEVELS ARE IN METRES ABOVE ORDINANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
 - 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.
 - EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
 - 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.
 - 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.
 - 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
 - ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
 - 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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Project Ireland 2040

Building Ireland's Future

Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**
Údaráis Náisiúnta Iompair
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDC Originator Code: ARP

QMS Code: 268401-00

Drawn: AF, Checked: MR, Approved: DC

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

Drawing Title: **TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS**

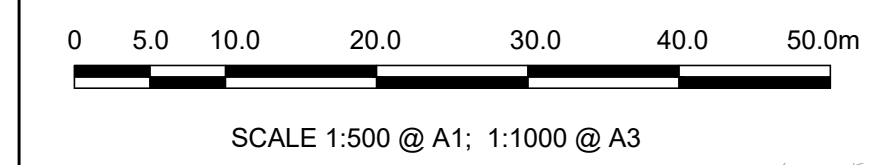
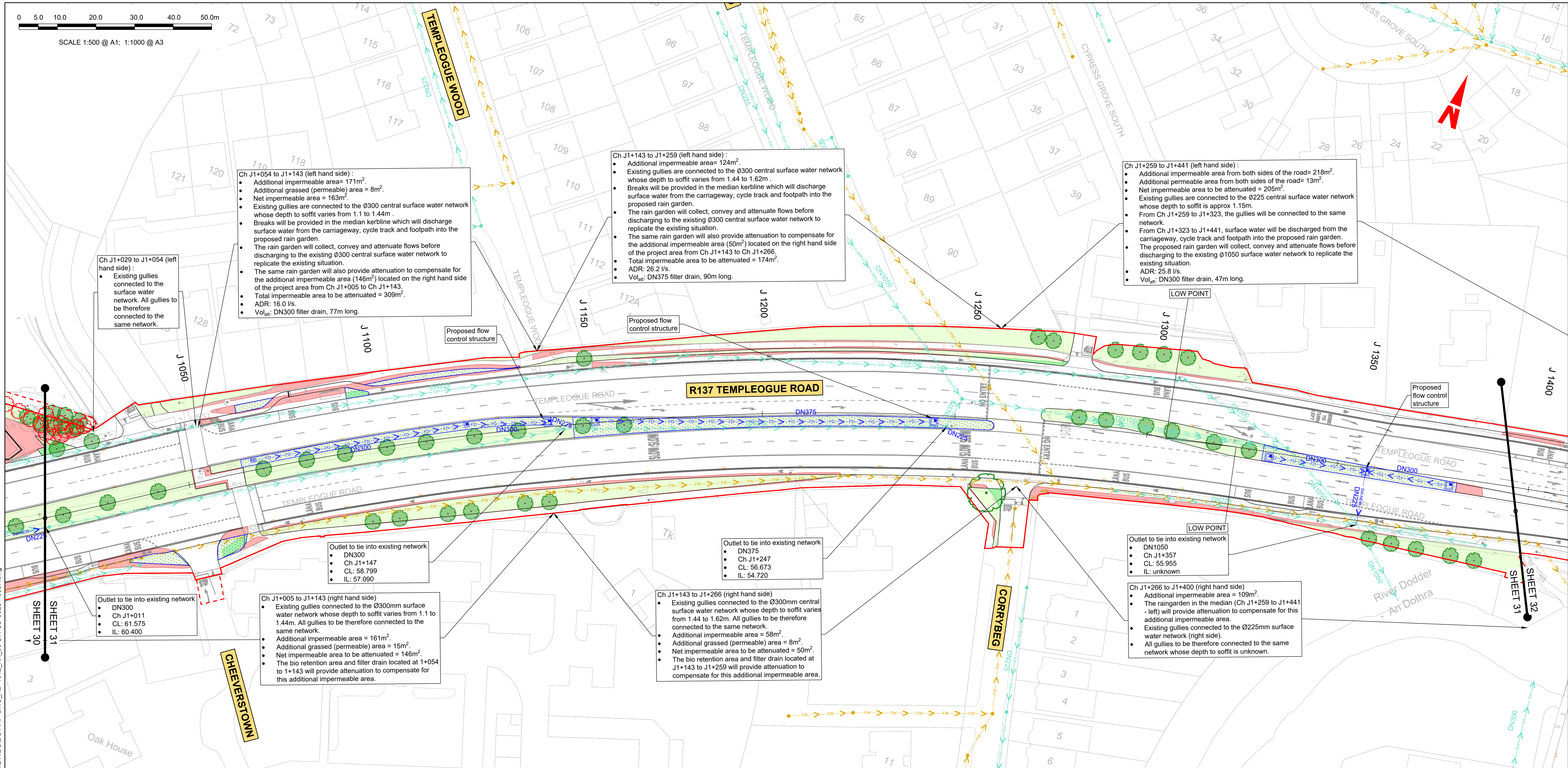
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0030

Sheet Number: 30 of 37

Status: A

Rev: M01

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Ch J1+259 to J1+441 (left hand side):

- Additional impermeable area from both sides of the road= 218m².
- Additional permeable area from both sides of the road= 13m².
- Net impermeable area to be attenuated = 205m².
- Existing gullies are connected to the Ø225 central surface water network whose depth to soffit is approx 1.15m.
- From Ch J1+259 to J1+323, the gullies will be connected to the same network.
- From Ch J1+323 to J1+441, surface water will be discharged from the carriageway, cycle track and footpath into the proposed rain garden.
- The proposed rain garden will collect, convey and attenuate flows before discharging to the existing Ø1050 surface water network to replicate the existing situation.
- ADR: 25.8 l/s.
- Vol_{att}: DN300 filter drain, 47m long.

Ch J1+054 to J1+143 (left hand side):

- Additional impermeable area= 171m².
- Additional grassed (permeable) area = 8m².
- Net impermeable area = 163m².
- Existing gullies are connected to the Ø300 central surface water network whose depth to soffit varies from 1.1 to 1.44m.
- Breaks will be provided in the median kerblines which will discharge surface water from the carriageway, cycle track and footpath into the proposed rain garden.
- The rain garden will collect, convey and attenuate flows before discharging to the existing Ø300 central surface water network to replicate the existing situation.
- The same rain garden will also provide attenuation to compensate for the additional impermeable area (146m²) located on the right hand side of the project area from Ch J1+005 to Ch J1+143.
- Total impermeable area to be attenuated = 309m².
- ADR: 16.0 l/s.
- Vol_{att}: DN300 filter drain, 77m long.

Ch J1+143 to J1+259 (left hand side):

- Additional impermeable area= 124m².
- Existing gullies are connected to the Ø300 central surface water network whose depth to soffit varies from 1.44 to 1.62m.
- Breaks will be provided in the median kerblines which will discharge surface water from the carriageway, cycle track and footpath into the proposed rain garden.
- The rain garden will collect, convey and attenuate flows before discharging to the existing Ø300 central surface water network to replicate the existing situation.
- The same rain garden will also provide attenuation to compensate for the additional impermeable area (50m²) located on the right hand side of the project area from Ch J1+143 to Ch J1+266.
- Total impermeable area to be attenuated = 174m².
- ADR: 26.2 l/s.
- Vol_{att}: DN375 filter drain, 90m long.

Outlet to tie into existing network

- DN1050
- Ch J1+357
- CL: 55.955
- IL: unknown

Outlet to tie into existing network

- DN375
- Ch J1+247
- CL: 56.673
- IL: 54.720

Outlet to tie into existing network

- DN300
- Ch J1+147
- CL: 58.799
- IL: 57.090

Ch J1+266 to J1+400 (right hand side):

- Additional impermeable area = 109m².
- The raingarden in the median (Ch J1+259 to J1+441 - left) will provide attenuation to compensate for this additional impermeable area.
- Existing gullies connected to the Ø225mm surface water network (right side).
- All gullies to be therefore connected to the same network whose depth to soffit is unknown.

Ch J1+143 to J1+266 (right hand side):

- Existing gullies connected to the Ø300mm central surface water network whose depth to soffit varies from 1.44 to 1.62m. All gullies to be therefore connected to the same network.
- Additional impermeable area = 58m².
- Additional grassed (permeable) area = 8m².
- Net impermeable area to be attenuated = 50m².
- The bio retention area and filter drain located at J1+143 to J1+259 will provide attenuation to compensate for this additional impermeable area.

Ch J1+005 to J1+143 (right hand side):

- Existing gullies connected to the Ø300mm surface water network whose depth to soffit varies from 1.1 to 1.44m. All gullies to be therefore connected to the same network.
- Additional impermeable area = 161m².
- Additional grassed (permeable) area = 15m².
- Net impermeable area to be attenuated = 146m².
- The bio retention area and filter drain located at J1+054 to J1+143 will provide attenuation to compensate for this additional impermeable area.

Outlet to tie into existing network

- DN300
- Ch J1+011
- CL: 61.575
- IL: 60.400

LEGEND:

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

NOTE: PIPE SHAPE CODING DN = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

NOTES:

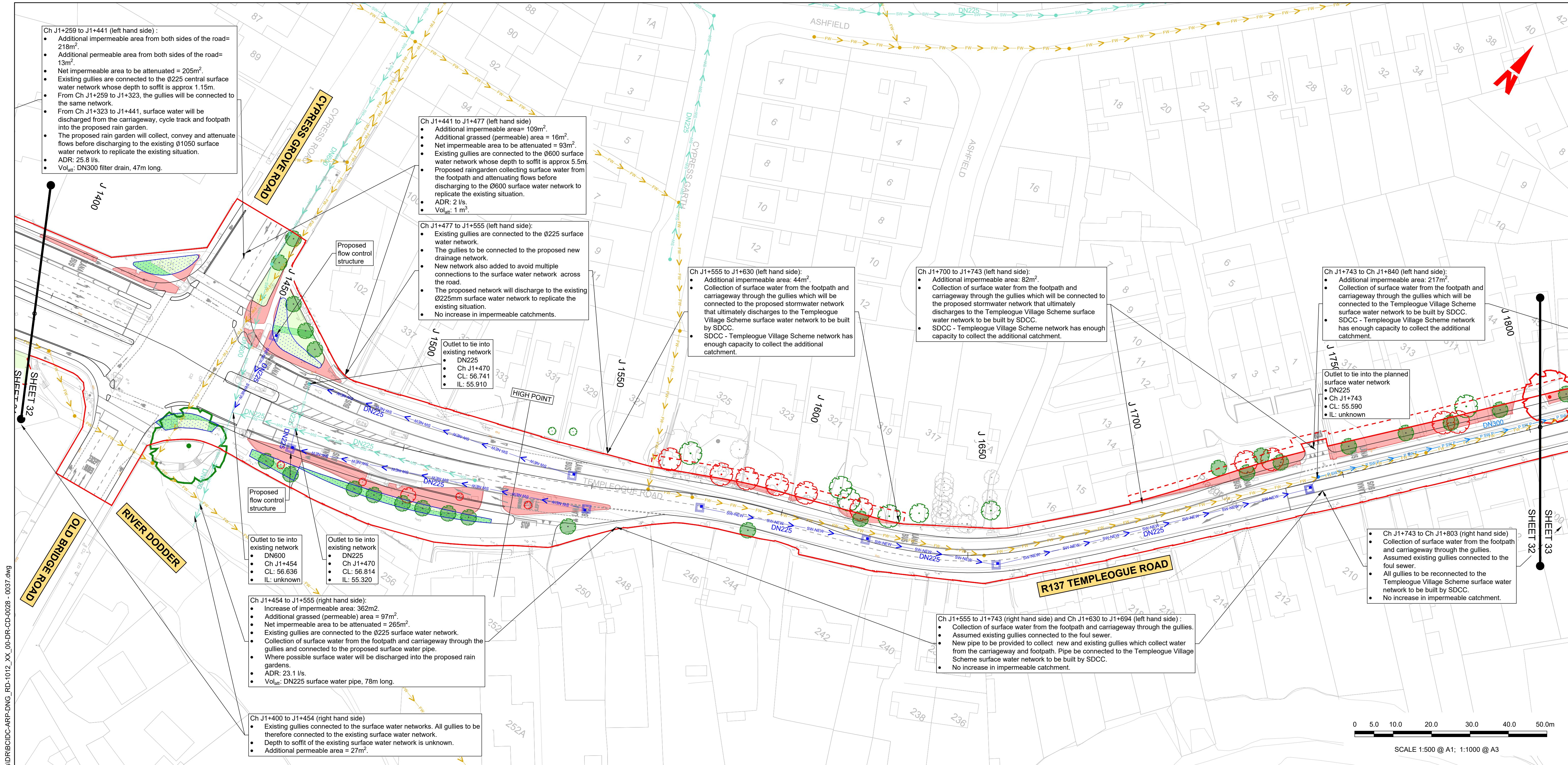
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6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD 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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<p>Date 27/01/2023 Scale 1:500 @ A1 1:1000 @ A3</p>		<p>Drawn AF Checked MR Approved DC</p>		<p>Project Code BCIDC Originator Code ARP QMS Code 268401-00</p>		<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0031</p>		<p>Sheet Number 31 of 37 Status A Rev M01</p>		

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Ch J1+259 to J1+441 (left hand side):

- Additional impermeable area from both sides of the road= 218m².
- Additional permeable area from both sides of the road= 13m².
- Net impermeable area to be attenuated = 205m².
- Existing gullies are connected to the Ø225 central surface water network whose depth to soffit is approx 1.15m.
- From Ch J1+259 to J1+323, the gullies will be connected to the same network.
- From Ch J1+323 to J1+441, surface water will be discharged from the carriageway, cycle track and footpath into the proposed rain garden.
- The proposed rain garden will collect, convey and attenuate flows before discharging to the existing Ø1050 surface water network to replicate the existing situation.
- ADR: 25.8 l/s.
- Vol_{att}: DN300 filter drain, 47m long.

Ch J1+441 to J1+477 (left hand side):

- Additional impermeable area= 109m².
- Additional grassed (permeable) area = 16m².
- Net impermeable area to be attenuated = 93m².
- Existing gullies are connected to the Ø600 surface water network whose depth to soffit is approx 5.5m.
- Proposed raingarden collecting surface water from the footpath and attenuating flows before discharging to the Ø600 surface water network to replicate the existing situation.
- ADR: 2 l/s.
- Vol_{att}: 1 m³.

Ch J1+477 to J1+555 (left hand side):

- Existing gullies are connected to the Ø225 surface water network.
- The gullies to be connected to the proposed new drainage network.
- New network also added to avoid multiple connections to the surface water network across the road.
- The proposed network will discharge to the existing Ø225mm surface water network to replicate the existing situation.
- No increase in impermeable catchments.

Ch J1+555 to J1+630 (left hand side):

- Additional impermeable area: 44m².
- Collection of surface water from the footpath and carriageway through the gullies which will be connected to the proposed stormwater network that ultimately discharges to the Templeogue Village Scheme surface water network to be built by SDCC.
- SDCC - Templeogue Village Scheme network has enough capacity to collect the additional catchment.

Ch J1+700 to J1+743 (left hand side):

- Additional impermeable area: 82m².
- Collection of surface water from the footpath and carriageway through the gullies which will be connected to the proposed stormwater network that ultimately discharges to the Templeogue Village Scheme surface water network to be built by SDCC.
- SDCC - Templeogue Village Scheme network has enough capacity to collect the additional catchment.

Ch J1+743 to Ch J1+840 (left hand side):

- Additional impermeable area: 217m².
- Collection of surface water from the footpath and carriageway through the gullies which will be connected to the Templeogue Village Scheme surface water network to be built by SDCC.
- SDCC - Templeogue Village Scheme network has enough capacity to collect the additional catchment.

Outlet to tie into the planned surface water network

- DN225
- Ch J1+743
- CL: 55.590
- IL: unknown

Ch J1+743 to Ch J1+803 (right hand side):

- Collection of surface water from the footpath and carriageway through the gullies.
- Assumed existing gullies connected to the foul sewer.
- All gullies to be reconnected to the Templeogue Village Scheme surface water network to be built by SDCC.
- No increase in impermeable catchment.

Ch J1+555 to J1+743 (right hand side) and Ch J1+630 to J1+694 (left hand side):

- Collection of surface water from the footpath and carriageway through the gullies.
- Assumed existing gullies connected to the foul sewer.
- New pipe to be provided to collect new and existing gullies which collect water from the carriageway and footpath. Pipe to be connected to the Templeogue Village Scheme surface water network to be built by SDCC.
- No increase in impermeable catchment.

Outlet to tie into existing network

- DN600
- Ch J1+454
- CL: 56.638
- IL: unknown

Outlet to tie into existing network

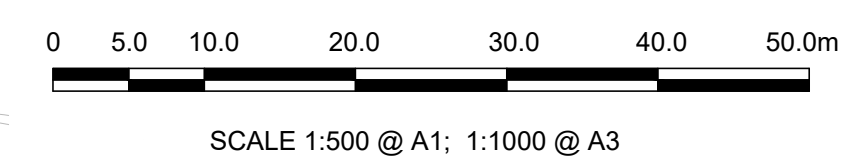
- DN225
- Ch J1+470
- CL: 56.814
- IL: 55.320

Ch J1+454 to J1+555 (right hand side):

- Increase of impermeable area: 362m².
- Additional grassed (permeable) area = 97m².
- Net impermeable area to be attenuated = 265m².
- Existing gullies are connected to the Ø225 surface water network.
- Collection of surface water from the footpath and carriageway through the gullies and connected to the proposed surface water pipe.
- Where possible surface water will be discharged into the proposed rain gardens.
- ADR: 23.1 l/s.
- Vol_{att}: DN225 surface water pipe, 78m long.

Ch J1+400 to J1+454 (right hand side)

- Existing gullies connected to the surface water networks. All gullies to be therefore connected to the existing surface water network.
- Depth to soffit of the existing surface water network is unknown.
- Additional permeable area = 27m².



LEGEND:

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

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

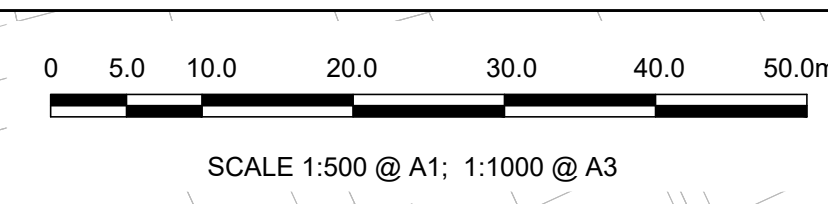
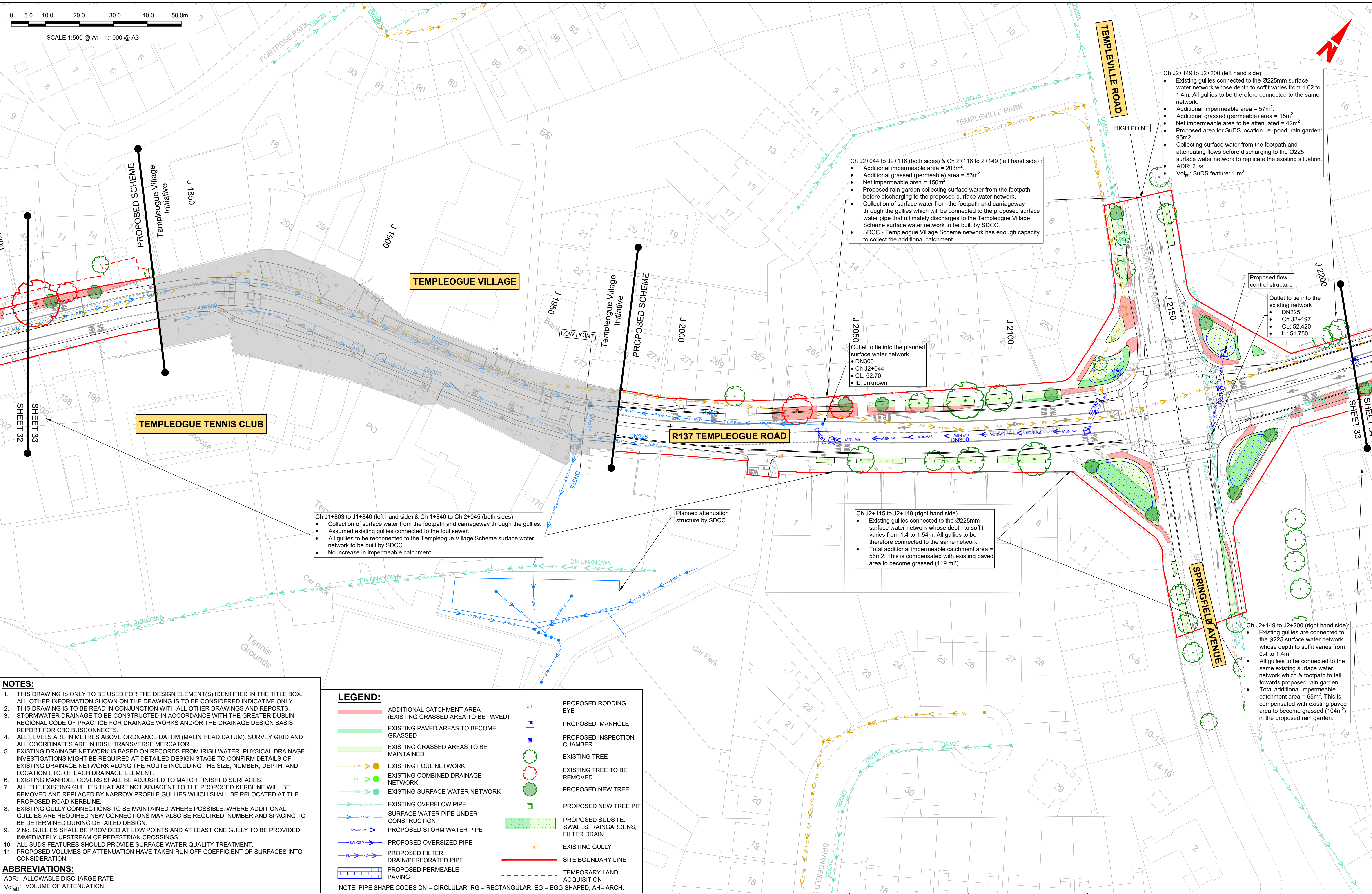
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4. ALL LEVELS ARE IN METRES ABOVE ORDINANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
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7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
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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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<p>Date 27/01/2023</p> <p>Scale 1:500 @ A1 1:1000 @ A3</p> <p>Project Code BCIDC</p> <p>Originator Code ARP</p> <p>QMS Code 268401-00</p>		<p>Drawn AF</p> <p>Checked MR</p> <p>Approved DC</p>			<p>Drawing File Name</p> <p>BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0032</p>		<p>Sheet Number 32 of 37</p> <p>Status A</p> <p>Rev M01</p>			



Ch J2+149 to J2+200 (left hand side):

- Existing gullies connected to the Ø225mm surface water network whose depth to soffit varies from 1.02 to 1.4m. All gullies to be therefore connected to the same network.
- Additional impermeable area = 57m².
- Additional grassed (permeable) area = 15m².
- Net impermeable area to be attenuated = 42m².
- Proposed area for SuDS location i.e. pond, rain garden: 95m².
- Collecting surface water from the footpath and attenuating flows before discharging to the Ø225 surface water network to replicate the existing situation.
- ADR: 2 l/s.
- Vol_{att}: SuDS feature: 1 m³.

Ch J2+044 to J2+116 (both sides) & Ch 2+116 to 2+149 (left hand side):

- Additional impermeable area = 203m².
- Additional grassed (permeable) area = 53m².
- Net impermeable area = 150m².
- Proposed rain garden collecting surface water from the footpath before discharging to the proposed surface water network.
- Collection of surface water from the footpath and carriageway through the gullies which will be connected to the proposed surface water pipe that ultimately discharges to the Templeogue Village Scheme surface water network to be built by SDCC.
- SDCC - Templeogue Village Scheme network has enough capacity to collect the additional catchment.

Outlet to tie into the planned surface water network

- DN300
- Ch J2+044
- CL: 52.70
- IL: unknown

Ch J1+803 to J1+840 (left hand side) & Ch 1+840 to Ch 2+045 (both sides):

- Collection of surface water from the footpath and carriageway through the gullies.
- Assumed existing gullies connected to the foul sewer.
- All gullies to be reconnected to the Templeogue Village Scheme surface water network to be built by SDCC.
- No increase in impermeable catchment.

Ch J2+115 to J2+149 (right hand side):

- Existing gullies connected to the Ø225mm surface water network whose depth to soffit varies from 1.4 to 1.54m. All gullies to be therefore connected to the same network.
- Total additional impermeable catchment area = 56m². This is compensated with existing paved area to become grassed (119 m²).

Ch J2+149 to J2+200 (right hand side):

- Existing gullies are connected to the Ø225 surface water network whose depth to soffit varies from 0.4 to 1.4m.
- All gullies to be connected to the same existing surface water network which & footpath to fall towards proposed rain garden.
- Total additional impermeable catchment area = 65m². This is compensated with existing paved area to become grassed (104m²) in the proposed rain garden.

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

LEGEND:

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE CHAMBER
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	SURFACE WATER PIPE UNDER CONSTRUCTION		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PROPOSED STORM WATER PIPE		EXISTING GULLY
	PROPOSED OVERSIZED PIPE		TEMPORARY LAND ACQUISITION
	PROPOSED FILTER DRAIN/PERFORATED PIPE		
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Rev	Date	Drm	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

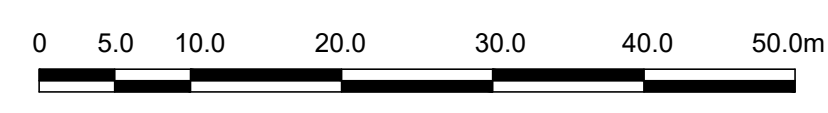
Client: **NTA**
 Údarás Náisiúnta Iompair
 National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

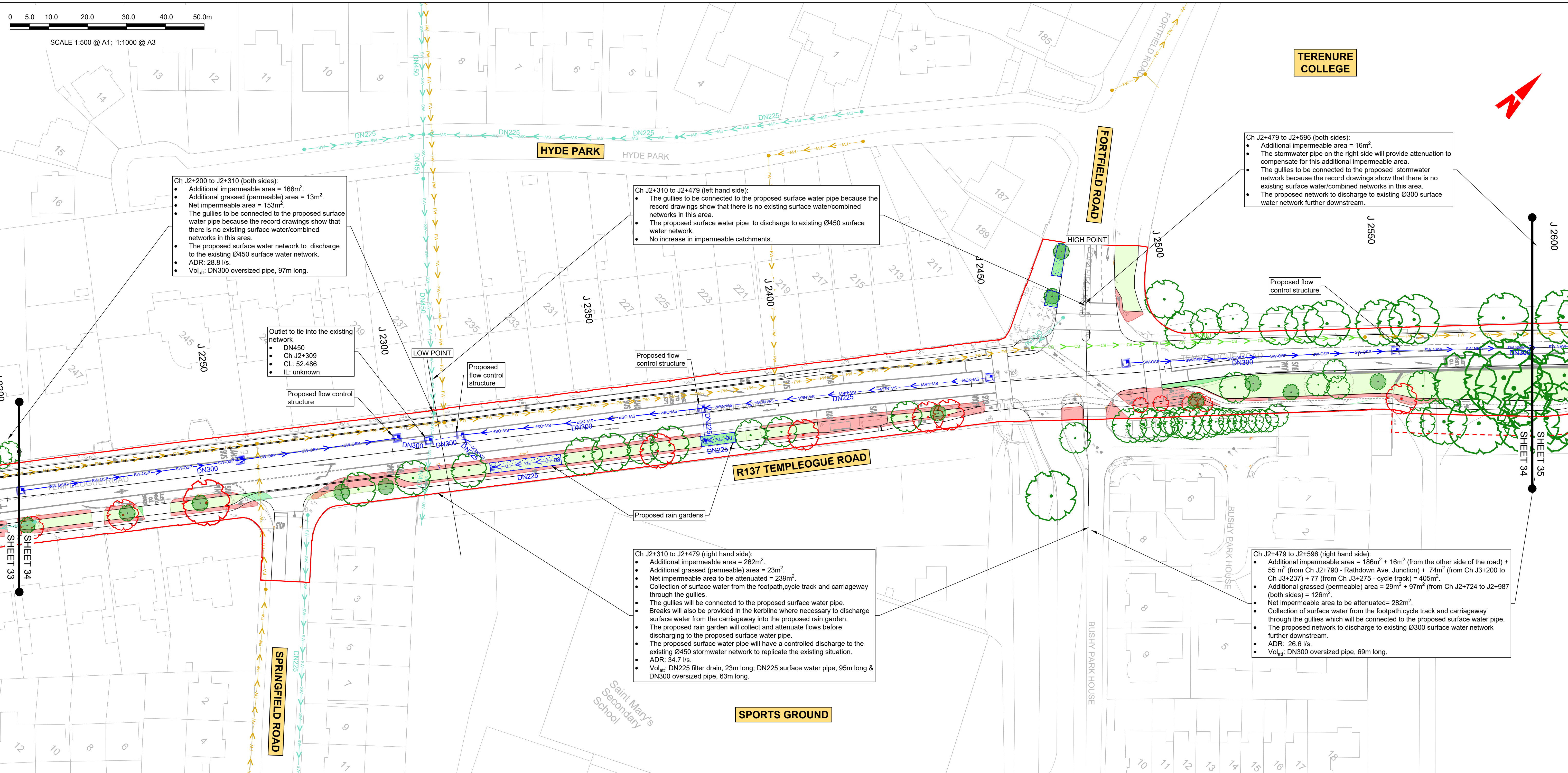
Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0033	Sheet Number: 33 of 37	Status: A	Rev: M01



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

TERENURE COLLEGE



Ch J2+200 to J2+310 (both sides):

- Additional impermeable area = 166m².
- Additional grassed (permeable) area = 13m².
- Net impermeable area = 153m².
- The gullies to be connected to the proposed surface water pipe because the record drawings show that there is no existing surface water/combined networks in this area.
- The proposed surface water network to discharge to the existing Ø450 surface water network.
- ADR: 28.8 l/s.
- Vol_{att}: DN300 oversized pipe, 97m long.

Ch J2+310 to J2+479 (left hand side):

- The gullies to be connected to the proposed surface water pipe because the record drawings show that there is no existing surface water/combined networks in this area.
- The proposed surface water pipe to discharge to existing Ø450 surface water network.
- No increase in impermeable catchments.

Ch J2+479 to J2+596 (both sides):

- Additional impermeable area = 16m².
- The stormwater pipe on the right side will provide attenuation to compensate for this additional impermeable area.
- The gullies to be connected to the proposed stormwater network because the record drawings show that there is no existing surface water/combined networks in this area.
- The proposed network to discharge to existing Ø300 surface water network further downstream.

Outlet to tie into the existing network:

- DN450
- Ch J2+309
- CL: 52.486
- IL: unknown

Ch J2+310 to J2+479 (right hand side):

- Additional impermeable area = 262m².
- Additional grassed (permeable) area = 23m².
- Net impermeable area to be attenuated = 239m².
- Collection of surface water from the footpath, cycle track and carriageway through the gullies.
- The gullies will be connected to the proposed surface water pipe.
- Breaks will also be provided in the kerbline where necessary to discharge surface water from the carriageway into the proposed rain garden.
- The proposed rain garden will collect and attenuate flows before discharging to the proposed surface water pipe.
- The proposed surface water pipe will have a controlled discharge to the existing Ø450 stormwater network to replicate the existing situation.
- ADR: 34.7 l/s.
- Vol_{att}: DN225 filter drain, 23m long; DN225 surface water pipe, 95m long & DN300 oversized pipe, 63m long.

Ch J2+479 to J2+596 (right hand side):

- Additional impermeable area = 186m² + 16m² (from the other side of the road) + 55 m² (from Ch J2+790 - Rathdown Ave. Junction) + 74m² (from Ch J3+200 to Ch J3+237) + 77 (from Ch J3+275 - cycle track) = 405m².
- Additional grassed (permeable) area = 29m² + 97m² (from Ch J2+724 to J2+987 (both sides)) = 126m².
- Net impermeable area to be attenuated = 282m².
- Collection of surface water from the footpath, cycle track and carriageway through the gullies which will be connected to the proposed surface water pipe.
- The proposed network to discharge to existing Ø300 surface water network further downstream.
- ADR: 26.6 l/s.
- Vol_{att}: DN300 oversized pipe, 69m long.

LEGEND:

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

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Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**
Udárás Náisiúnta Iompair
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

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

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0034	Sheet Number: 34 of 37	Status: A	Rev: M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



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



TERENURE COLLEGE

Ch J2+596 to J2+724 (Templeogue Road both sides):

- Gullies to be connected to the proposed stormwater network because the record drawings show that there is no existing surface water/combined networks in this area.
- The proposed network to discharge to existing Ø300 surface water network.
- No increase in impermeable catchments.

Outlet to tie into the existing network

- DN300
- Ch J2+724
- CL: 49.287
- IL: 47.706

Ch J2+724 to J2+987 (both sides):

- Additional grassed (permeable) area = 97m²
- Existing gullies connected to the Ø300mm surface water network whose depth to soffit varies from 1.1m to 1.67m.
- All gullies to be therefore connected same network.
- No increase in impermeable catchments.

Junction: Rathdown Avenue (left hand side)

- Increase of impermeable area: 55m².
- The proposed surface water pipe located at Ch J2+479 to J2+596 (right) will provide attenuation to compensate for this additional impermeable area.

Ch 2+596 to 2+798 (right hand side) - cycle track:

- The existing footpath drains to the grassed area where the runoff infiltrates into the ground.
- There is no outlet to the existing surface water/combined networks.
- Therefore, no additional stormwater management techniques are being proposed for this area.

Ch J2+798 to J2+987 (cycle track & footpath):

- The proposed permeable paving will promote infiltration into the ground and therefore has not been considered as additional impermeable area.
- Existing gullies connected to the Ø225mm surface water network whose depth to soffit varies from 2m to 1.31m.
- Rathdown Drive will become a quiet street. This includes revised road markings & no modifications to the kerblines and the vertical alignment.
- Therefore there are no proposed modifications to Rathdown Drive's existing stormwater management system.

BUSHY PARK

LEGEND:

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	SURFACE WATER PIPE UNDER CONSTRUCTION		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PROPOSED STORM WATER PIPE		EXISTING GULLY
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Building Ireland's Future

Rev	Date	Drm	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**
Udarás Náisiúnta Iompair
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

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

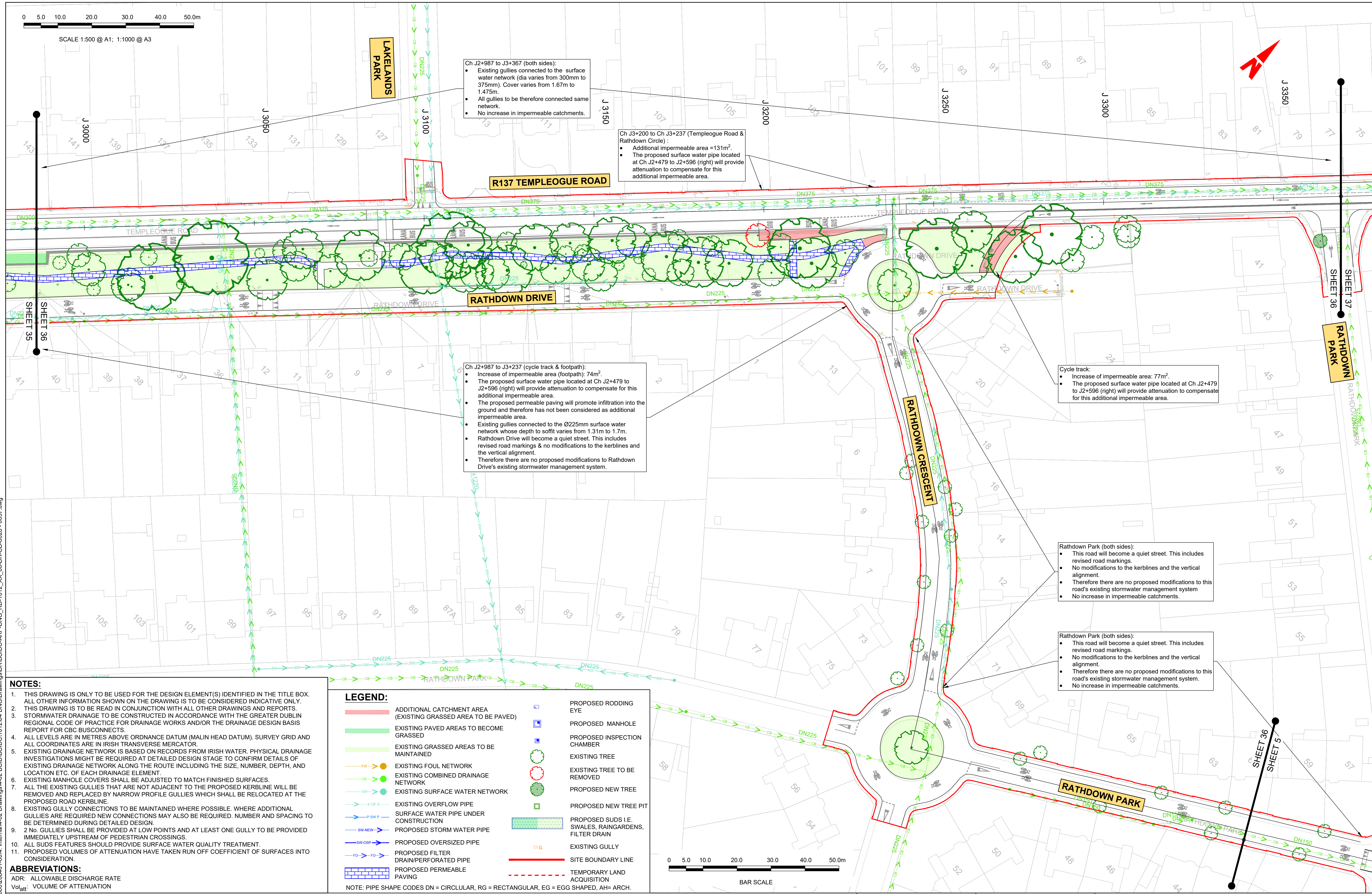
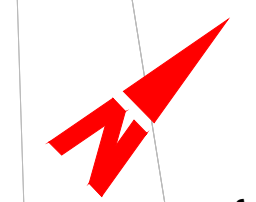
Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0035	Sheet Number: 35 of 37	Status: A	Rev: M01

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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 J2+987 to J3+367 (both sides):

- Existing gullies connected to the surface water network (dia varies from 300mm to 375mm). Cover varies from 1.67m to 1.475m.
- All gullies to be therefore connected same network.
- No increase in impermeable catchments.

Ch J3+200 to Ch J3+237 (Templeogue Road & Rathdown Circle):

- Additional impermeable area = 131m².
- The proposed surface water pipe located at Ch J2+479 to J2+596 (right) will provide attenuation to compensate for this additional impermeable area.

Ch J2+987 to J3+237 (cycle track & footpath):

- Increase of impermeable area (footpath): 74m².
- The proposed surface water pipe located at Ch J2+479 to J2+596 (right) will provide attenuation to compensate for this additional impermeable area.
- The proposed permeable paving will promote infiltration into the ground and therefore has not been considered as additional impermeable area.
- Existing gullies connected to the Ø225mm surface water network whose depth to soffit varies from 1.31m to 1.7m.
- Rathdown Drive will become a quiet street. This includes revised road markings & no modifications to the kerblines and the vertical alignment.
- Therefore there are no proposed modifications to Rathdown Drive's existing stormwater management system.

Cycle track:

- Increase of impermeable area: 77m².
- The proposed surface water pipe located at Ch J2+479 to J2+596 (right) will provide attenuation to compensate for this additional impermeable area.

Rathdown Park (both sides):

- This road will become a quiet street. This includes revised road markings.
- No modifications to the kerblines and the vertical alignment.
- Therefore there are no proposed modifications to this road's existing stormwater management system.
- No increase in impermeable catchments.

Rathdown Park (both sides):

- This road will become a quiet street. This includes revised road markings.
- No modifications to the kerblines and the vertical alignment.
- Therefore there are no proposed modifications to this road's existing stormwater management system.
- No increase in impermeable catchments.

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 - 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.
 - ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
 - EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MAY 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.
 - EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
 - 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.
 - 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.
 - 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
 - ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
 - 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)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE CHAMBER
	EXISTING GRASSED AREAS TO BE MAINTAINED		EXISTING TREE
	EXISTING FOUL NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING COMBINED DRAINAGE NETWORK		PROPOSED NEW TREE
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE PIT
	EXISTING OVERFLOW PIPE		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	SURFACE WATER PIPE UNDER CONSTRUCTION		EXISTING GULLY
	PROPOSED STORM WATER PIPE		SITE BOUNDARY LINE
	PROPOSED OVERSIZED PIPE		TEMPORARY LAND ACQUISITION
	PROPOSED FILTER DRAIN/PERFORATED PIPE		
	PROPOSED PERMEABLE PAVING		

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

0 5.0 10.0 20.0 30.0 40.0 50.0m
 BAR SCALE

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Project Ireland 2040
 Building Ireland's Future

Rev	Date	Drm	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**
 Údarás Náisiúnta Iompair
 National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 Scale: 1:500 @ A1, 1:1000 @ A3
 Drawn: AF, Checked: MR, Approved: DC

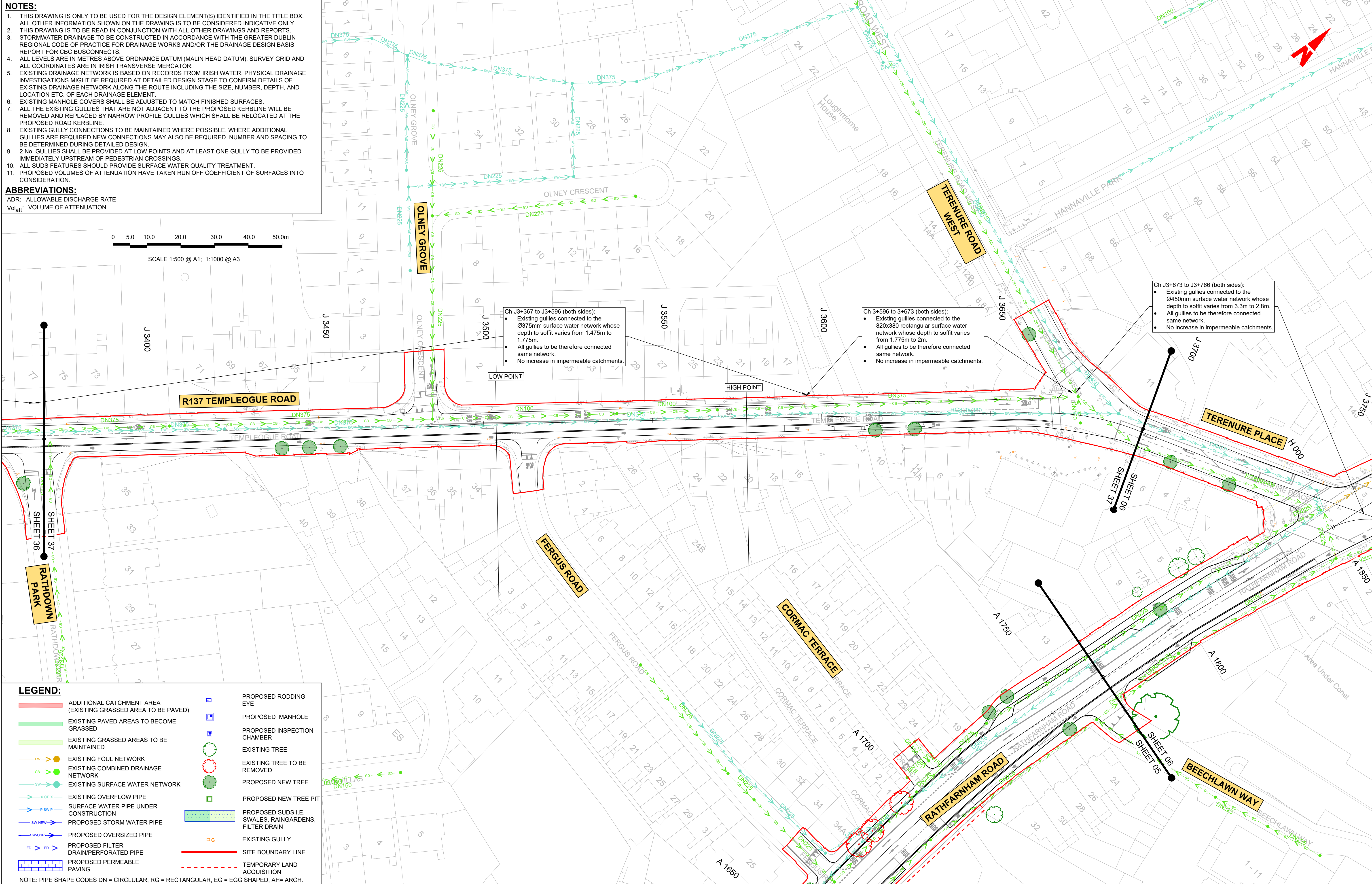
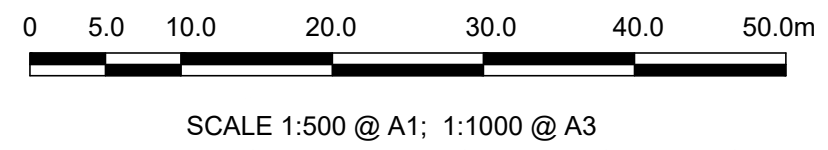
Project Code: BCIDC, Originator Code: ARP, QMS Code: 268401-00

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0036	Sheet Number: 36 of 37	Status: A	Rev: M01

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

Engineering Designer: **ARUP**

Date: 27/01/2023 Scale: 1:500 @ A1, 1:1000 @ A3

Drawn: AF, Checked: MR, Approved: DC

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Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0037	Sheet Number: 37 of 37	Status: A	Rev: M01

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