



Appendix B11
Proposed Surface Water
Drainage Works



BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS

BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME

PROPOSED SURFACE WATER DRAINAGE WORKS	
DRAWING SERIES NUMBER(S)	DRAWING SERIES DESCRIPTION
BCIDD-ROT-DNG_IX-0304_XX_00-DR-CD-0001	BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRDIR SCHEME. DNG. COVER SHEET
BCIDD-ROT-DNG_KP-0304_XX_00-DR-CD-0001	BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRDIR SCHEME. DNG. KEY PLAN
BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-1001 to 1003	BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRDIR SCHEME. DNG. CATCHMENTS
BCIDD-ROT-DNG_ZZ-0304_XX_00-DR-CD-0001 to 0038	BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRDIR SCHEME. DNG. DRAWINGS

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Transverse Mercator Grid (ITM) as defined by OSI active local GPS station.
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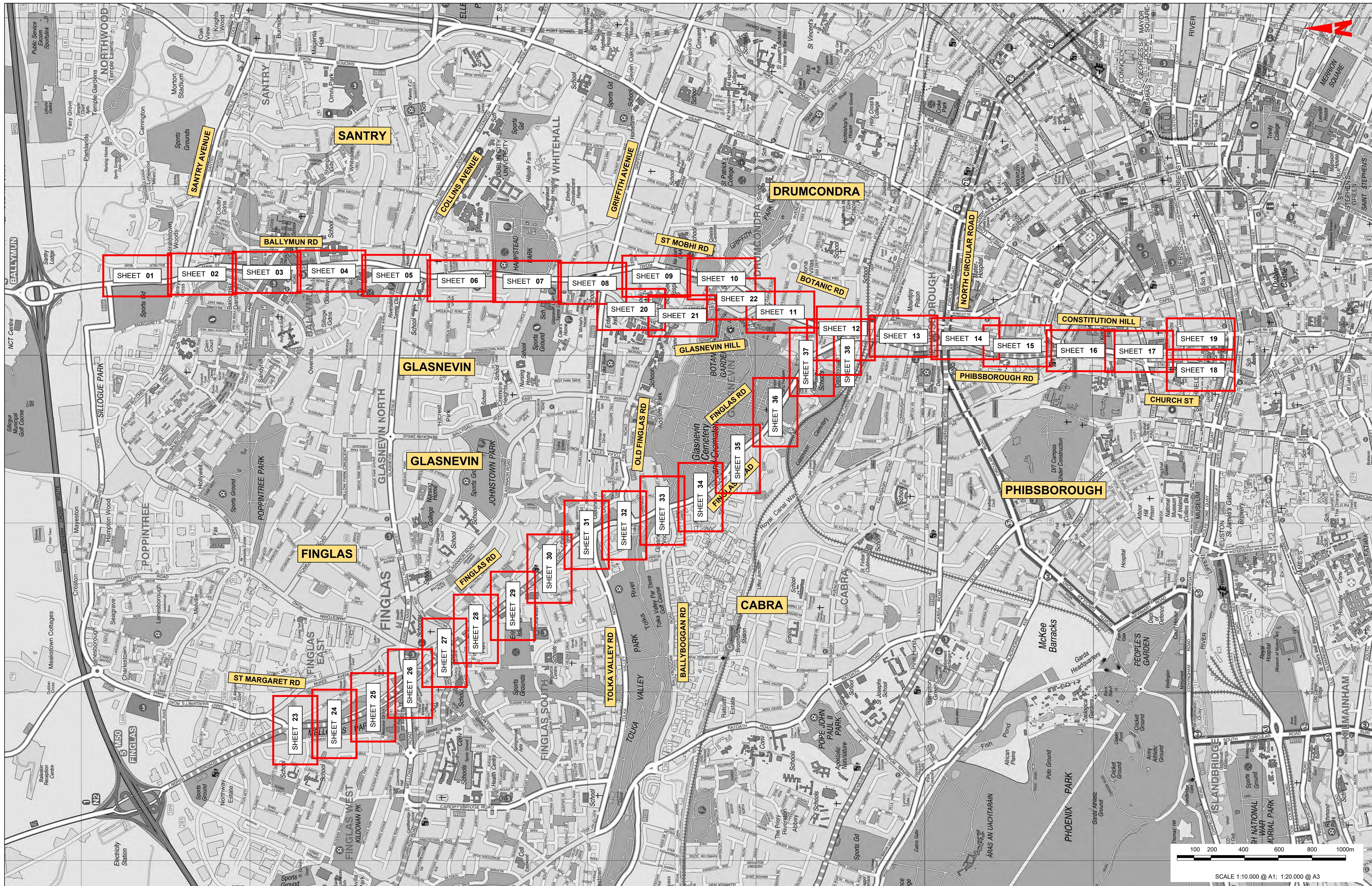
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Rev	Date	Drn	Chk'd	App'd	Description
M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

Client NTA Údarás Náisiúnta Iompair National Transport Authority		Engineering Designer ROD ROUGHAN & O'DONOVAN TYPESA		
Date 13/05/2022	Scale 1:10000 @ A1 1:20000 @ A3	Drawn ECD	Checked EFD	Approved SMG
Project Code BCIDD	Originator Code ROT	QMS Code		

Programme Title BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS. COVER SHEET			
Drawing File Name BCIDD-ROT-DNG_IX-0304_XX_00-DR-CD-0001	Sheet Number 01 of 01	Status A	Rev M01



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

Engineering Designer: **PROD**
 TYPSA

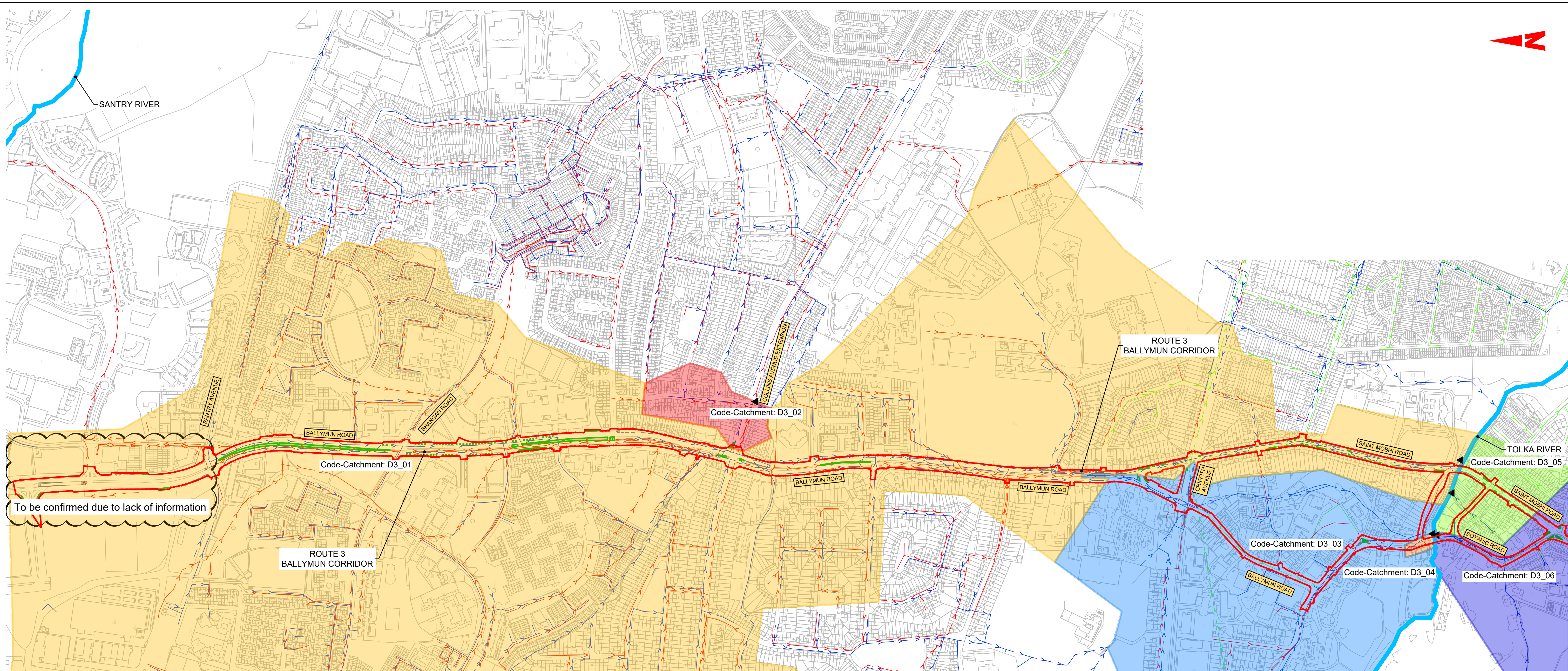
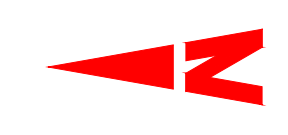
Date	Scale	Drawn	Checked	Approved
13/05/2022	1:10000 @ A1 1:20000 @ A3	ECD	EFD	SMG
Project Code	Originator Code	QMS Code		
BCIDD	ROT			

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

Drawing Title: **BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME
 PROPOSED SURFACE WATER DRAINAGE WORKS. KEYPLAN**

Drawing File Name	Sheet Number	Status	Rev
BCIDD-ROT-DNG_KP-0304_XX_00-DR-CD-0001	01 of 01	A	M01

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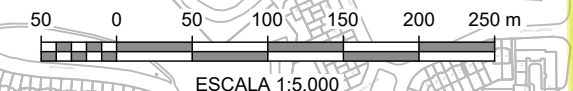


To be confirmed due to lack of information

LEGEND:

- ▲ DISCHARGE POINT
- CATCHMENT AREA D3-01
- CATCHMENT AREA D3-02
- CATCHMENT AREA D3-03
- CATCHMENT AREA D3-04
- CATCHMENT AREA D3-05
- CATCHMENT AREA D3-06 & D4_12
- CATCHMENT AREA D3-07
- CATCHMENT AREA D3-08
- CATCHMENT AREA D3-09
- CATCHMENT AREA D3-10
- CATCHMENT AREA D4-01
- CATCHMENT AREA D4-02
- CATCHMENT AREA D4-03
- CATCHMENT AREA D4-04
- CATCHMENT AREA D4-05
- CATCHMENT AREA D4-06
- CATCHMENT AREA D4-07
- CATCHMENT AREA D4-08
- CATCHMENT AREA D4-09
- CATCHMENT AREA D4-10
- CATCHMENT AREA D4-11
- 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

NOTE:
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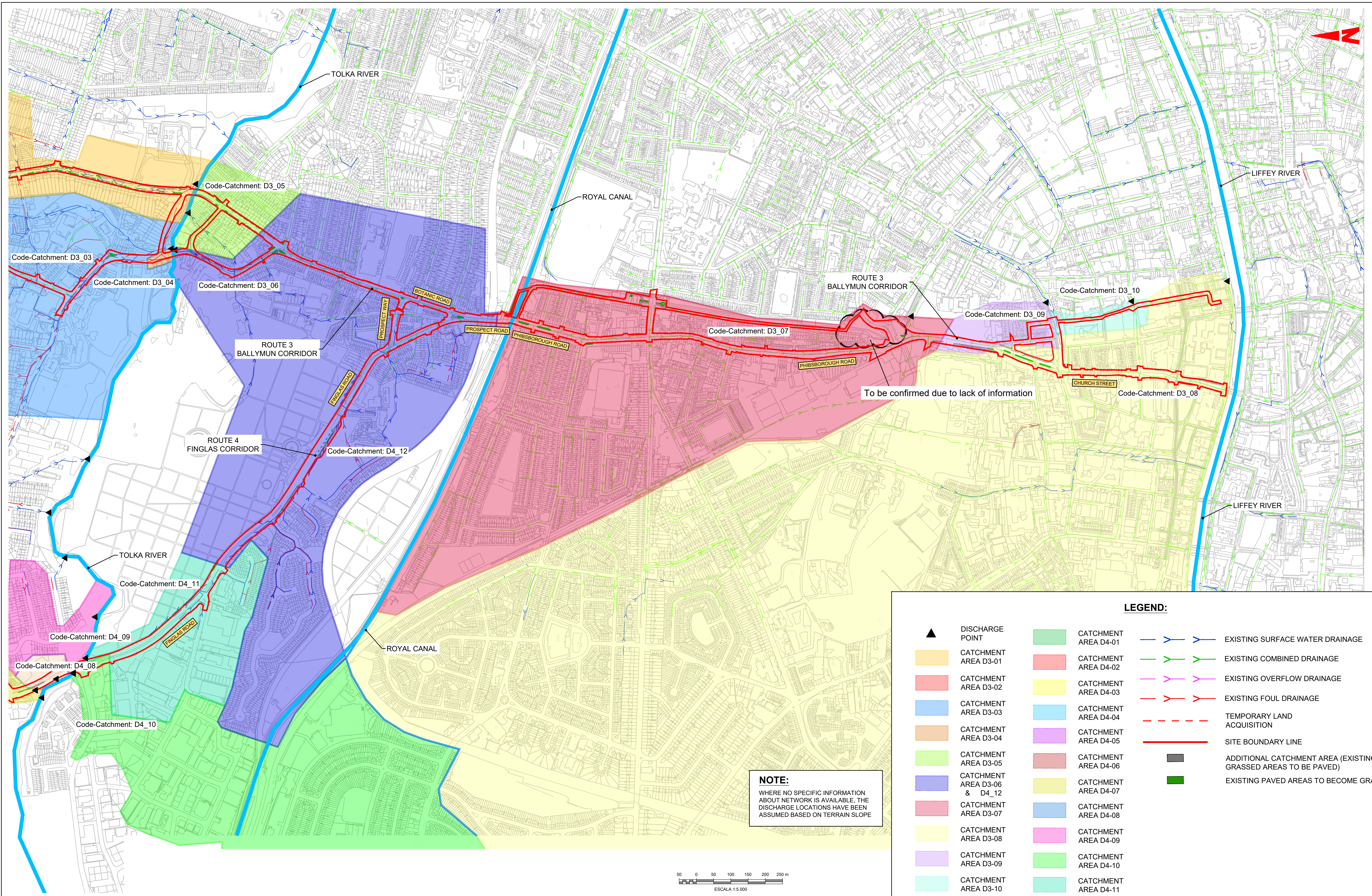


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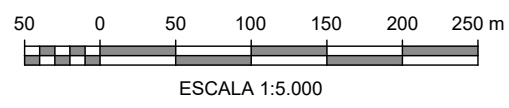
Client NTA Údarás Náisiúnta Iompair National Transport Authority		Engineering Designer PROD TYPSA		
Date 13/05/2022	Scale 1:5000 @ A1 1:10000 @ A3	Drawn ECD	Checked EFD	Approved SMG
Project Code BCIDD	Originator Code ROT	QMS Code		

Programme Title BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS				
Drawing Title BALLYMUN / FINLAGAN TO CITY CENTRE CORE BUS CORRIDOR SCHEME OVERALL CATCHMENT AREAS				
Drawing File Name BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-1001	Sheet Number 1 of 3	Status A	Rev M01	

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- CATCHMENT AREA D3-02
- CATCHMENT AREA D3-03
- CATCHMENT AREA D3-04
- CATCHMENT AREA D3-05
- CATCHMENT AREA D3-06 & D4_12
- CATCHMENT AREA D3-07
- CATCHMENT AREA D3-08
- CATCHMENT AREA D3-09
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- CATCHMENT AREA D4-07
- CATCHMENT AREA D4-08
- CATCHMENT AREA D4-09
- CATCHMENT AREA D4-10
- CATCHMENT AREA D4-11
- 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)
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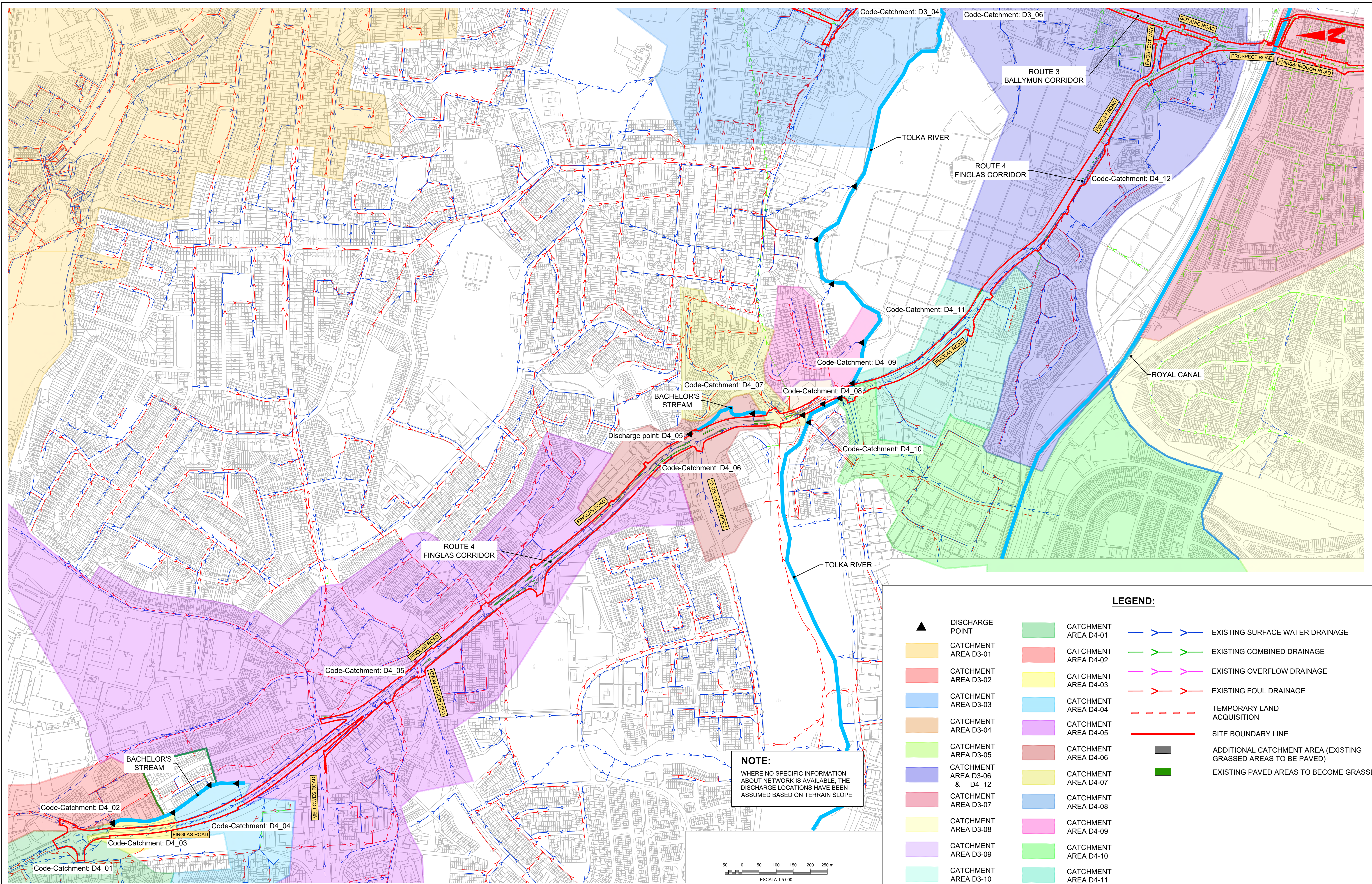
Engineering Designer
PROD
 TYPSA

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Programme Title
BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title
 BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME
 OVERALL CATCHMENT AREAS

Drawing File Name	Sheet Number	Status	Rev
BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-1001	2 of 3	A	M01



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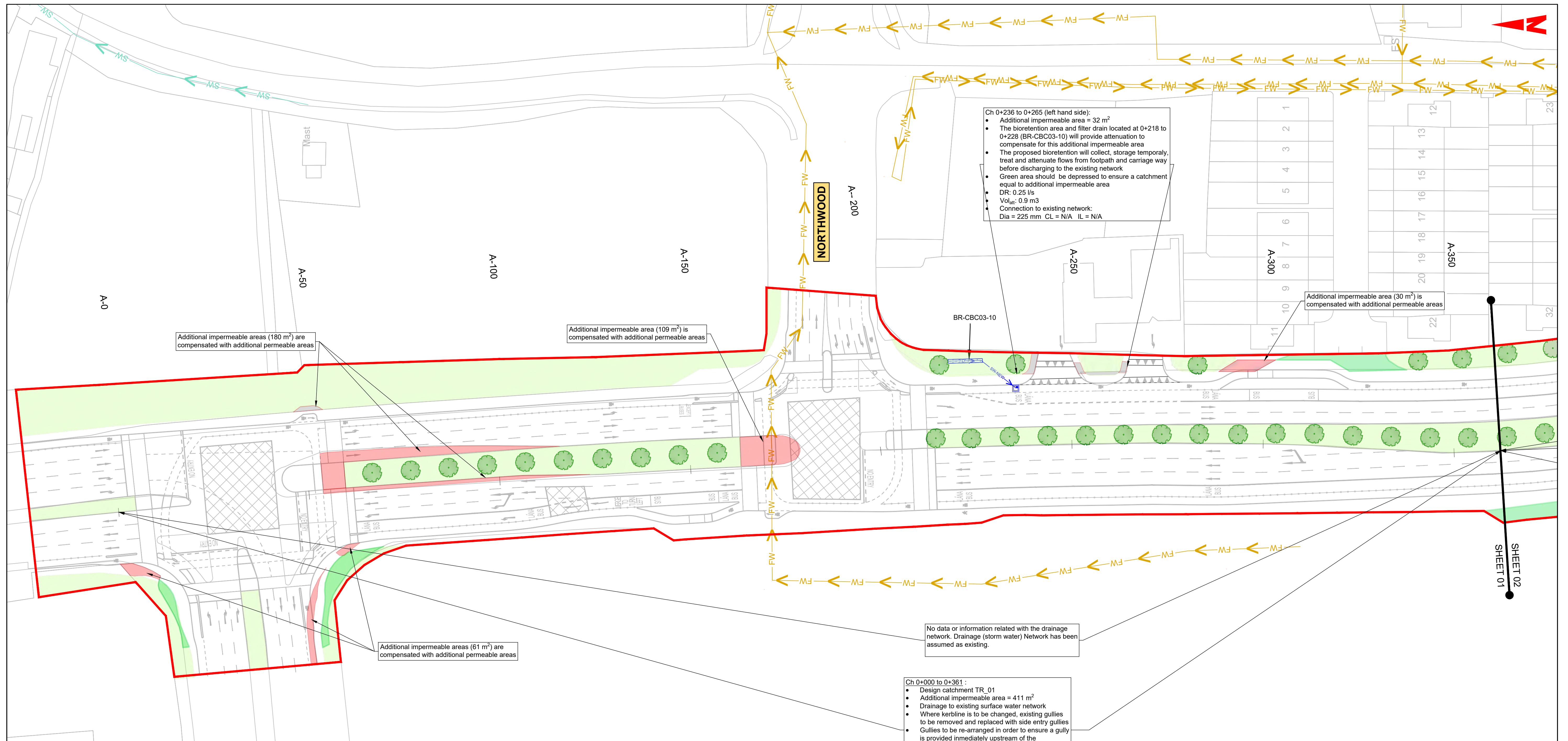


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Client NTA Údarás Náisiúnta Iompair National Transport Authority		Engineering Designer PROD TYPSA		
Date 13/05/2022	Scale 1:5000 @ A1 1:10000 @ A3	Drawn ECD	Checked EFD	Approved SMG
Project Code BCIDD	Originator Code ROT	QMS Code		

Programme Title BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS				
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Drawing File Name BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-1001	Sheet Number 3 of 3	Status A	Rev M01	

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Ch 0+236 to 0+265 (left hand side):

- Additional impermeable area = 32 m²
- The bioretention area and filter drain located at 0+218 to 0+228 (BR-CBC03-10) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- Green area should be depressed to ensure a catchment equal to additional impermeable area
- DR: 0.25 l/s
- Vol_{att}: 0.9 m³
- Connection to existing network: Dia = 225 mm CL = N/A IL = N/A

Additional impermeable areas (180 m²) are compensated with additional permeable areas

Additional impermeable area (109 m²) is compensated with additional permeable areas

Additional impermeable area (30 m²) is compensated with additional permeable areas

Additional impermeable areas (61 m²) are compensated with additional permeable areas

No data or information related with the drainage network. Drainage (storm water) Network has been assumed as existing.

Ch 0+000 to 0+361 :

- Design catchment TR_01
- Additional impermeable area = 411 m²
- Drainage to existing surface water network
- Where kerbline is to be changed, existing gullies to be removed and replaced with side entry gullies
- Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)
- No data of existing water network. Need to be confirmed

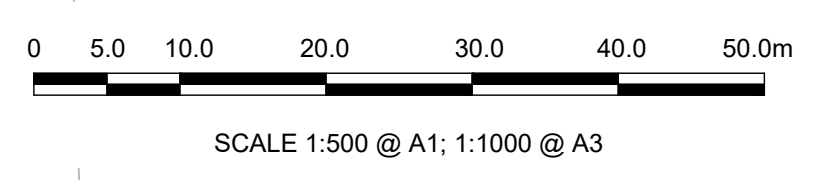
- NOTES:**
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 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS AND REPORTS.
 3. STORMWATER DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH THE GREATER DUBLIN REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS AND/OR THE DRAINAGE DESIGN BASIS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

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

LEGEND:

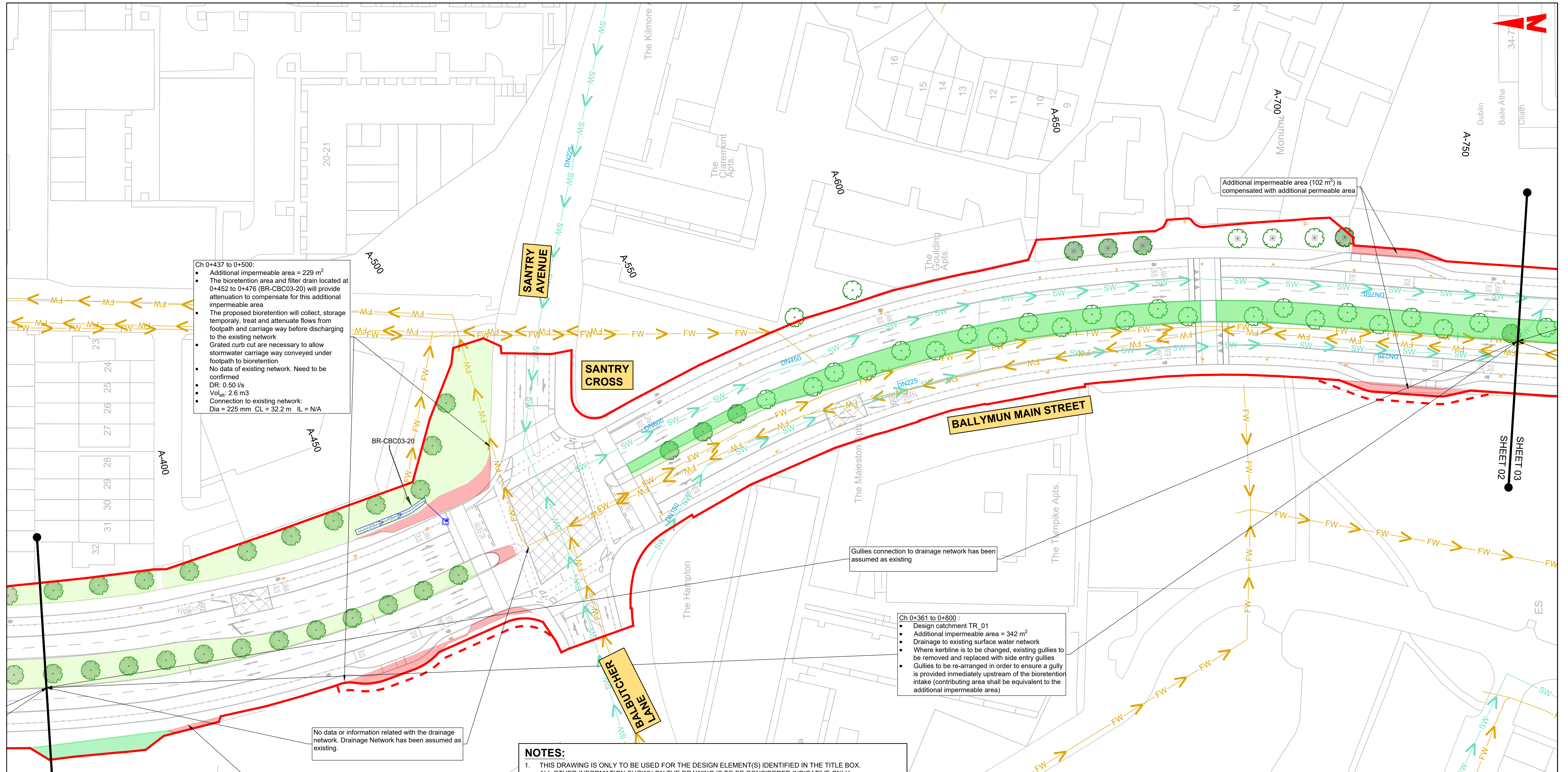
	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE 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 = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.



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Date 13/05/2022	Scale 1:500 @ A1 1:1000 @ A3	Drawn ECD	Checked EFD	Approved SMG	Drawing File Name BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0001	Sheet Number 01 of 38	Status A	Rev M01					

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Ch 0+437 to 0+500:

- Additional impermeable area = 229 m²
- The bioretention area and filter drain located at 0+452 to 0+476 (BR-CBC03-20) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- Grated curb cut are necessary to allow stormwater carriage way conveyed under footpath to bioretention
- No data of existing network. Need to be confirmed
- DR: 0.50 l/s
- Vol_{att}: 2.6 m³
- Connection to existing network: Dia = 225 mm CL = 32.2 m IL = N/A

Ch 0+361 to 0+800:

- Design catchment TR_01
- Additional impermeable area = 342 m²
- Drainage to existing surface water network
- Where kerbline is to be changed, existing gullies to be removed and replaced with side entry gullies
- Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)

No data or information related with the drainage network. Drainage Network has been assumed as existing.

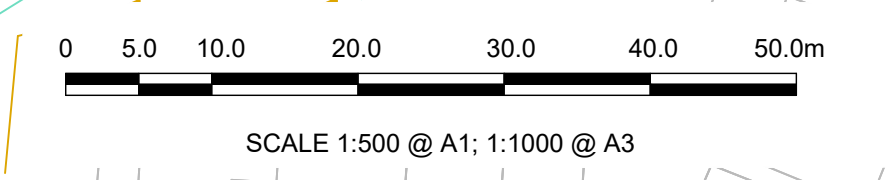
Additional impermeable area (11 m²) is compensated with additional permeable areas

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 - EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS SHALL 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.
 - 2NO. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
 - ALL SUDS FEATURES SHALL 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
	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		EG = EGG SHAPED, AH= ARCH.



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Rev	Date	Drn	Chk'd	App'd	Description
M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

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

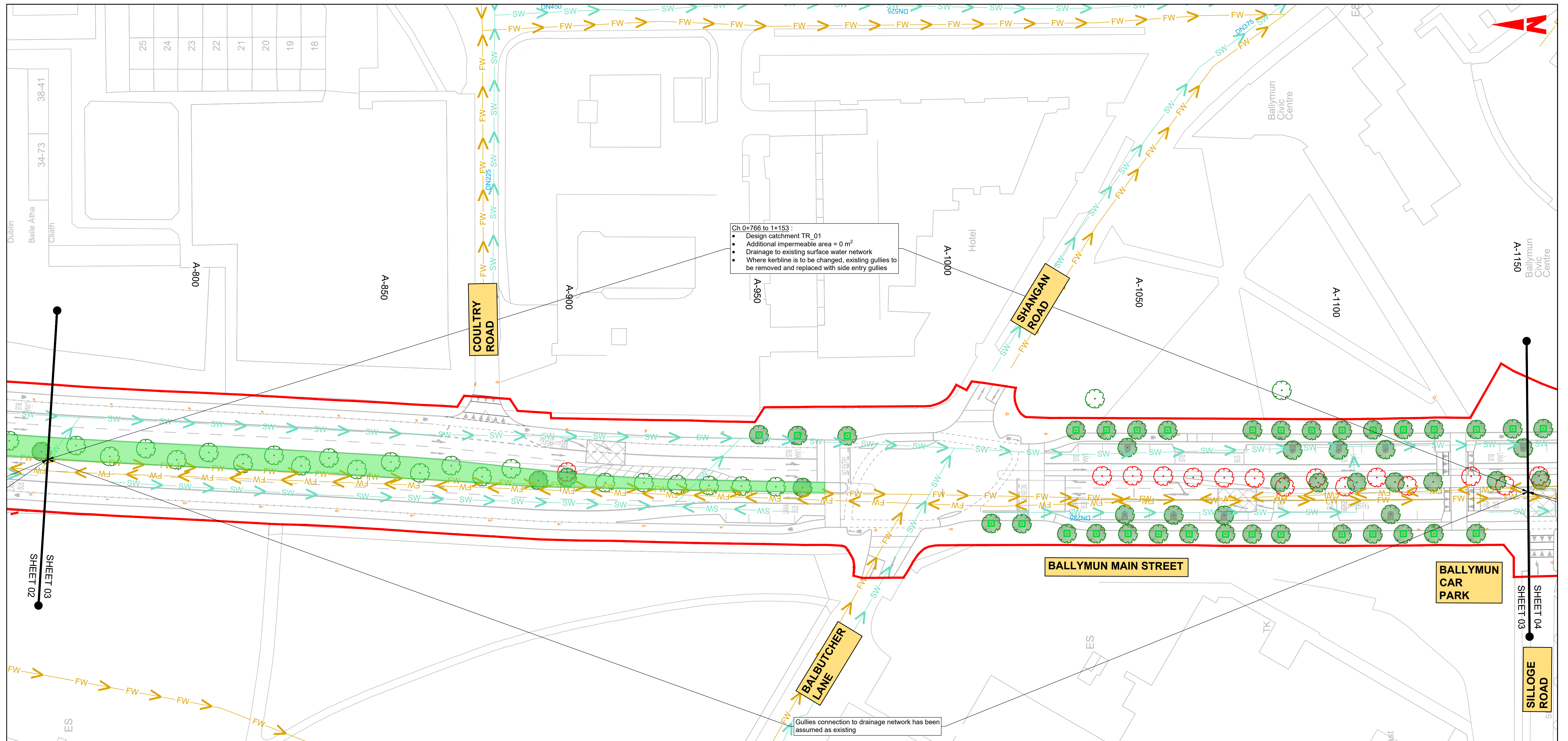
Engineering Designer: **J. ROD**
 TPSPA

Date: 13/05/2022 Scale: 1:500 @ A1, 1:1000 @ A3
 Drawn: ECD Checked: EFD Approved: SMG

Project Code: BCIDD Originator Code: ROT QMS Code:

Programme Title: BUSCONNECTS DUBLIN			
Drawing Title: CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing File Name: Ballymun / Infglas to City Centre Core Bus Corridor Scheme			
Proposed Surface Water Drainage Works			
Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0002	Sheet Number: 02 of 38	Status: A	Rev: M01

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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
	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 = CIRCUULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.



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Rev	Date	Drn	Chk'd	App'd	Description
M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

Client

NTA
Udarás Náisiúnta Iompair
National Transport Authority

Engineering Designer

JROD
TYPSA

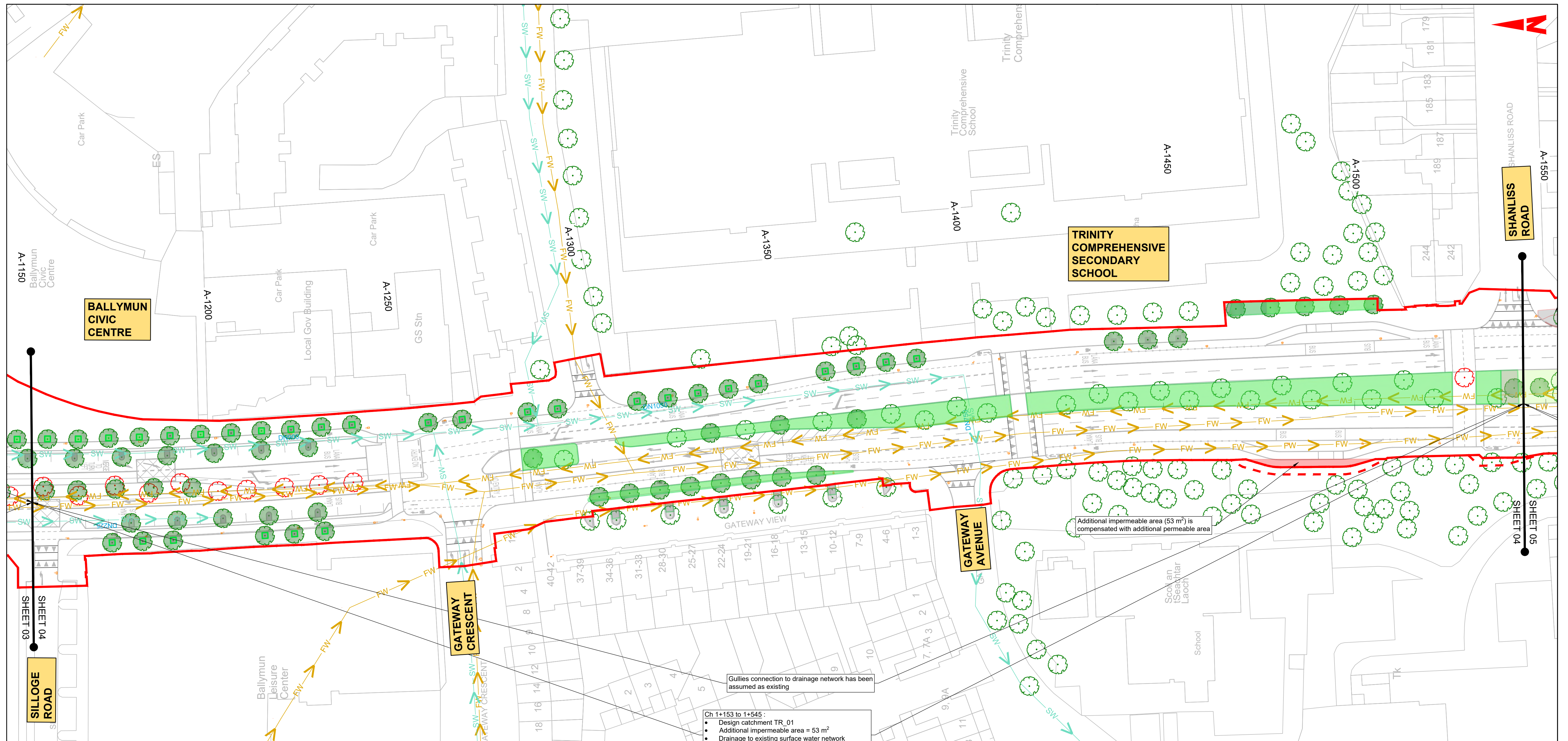
Date: 13/05/2022
Scale: 1:500 @ A1
1:1000 @ A3

Drawn: ECD
Checked: EFD
Approved: SMG

Project Code: BCIDD
Originator Code: ROT

Programme Title BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0003	Sheet Number 03 of 38	Status A	Rev M01

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

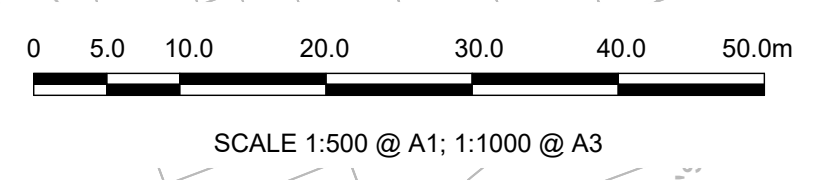
Gullies connection to drainage network has been assumed as existing

Ch 1+153 to 1+545:
 • Design catchment TR_01
 • Additional impermeable area = 53 m²
 • Drainage to existing surface water network
 • Where kerbline is to be changed, existing gullies to be removed and replaced with side entry gullies

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
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	SURFACE WATER PIPE - UNDER CONSTRUCTION		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
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	PROPOSED OVERSIZED PIPE		SITE BOUNDARY LINE
	PROPOSED FILTER DRAIN/PERFORATED PIPE		TEMPORARY LAND ACQUISITION
	PROPOSED PERMEABLE PAVING		TEMPORARY LAND ACQUISITION

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Client

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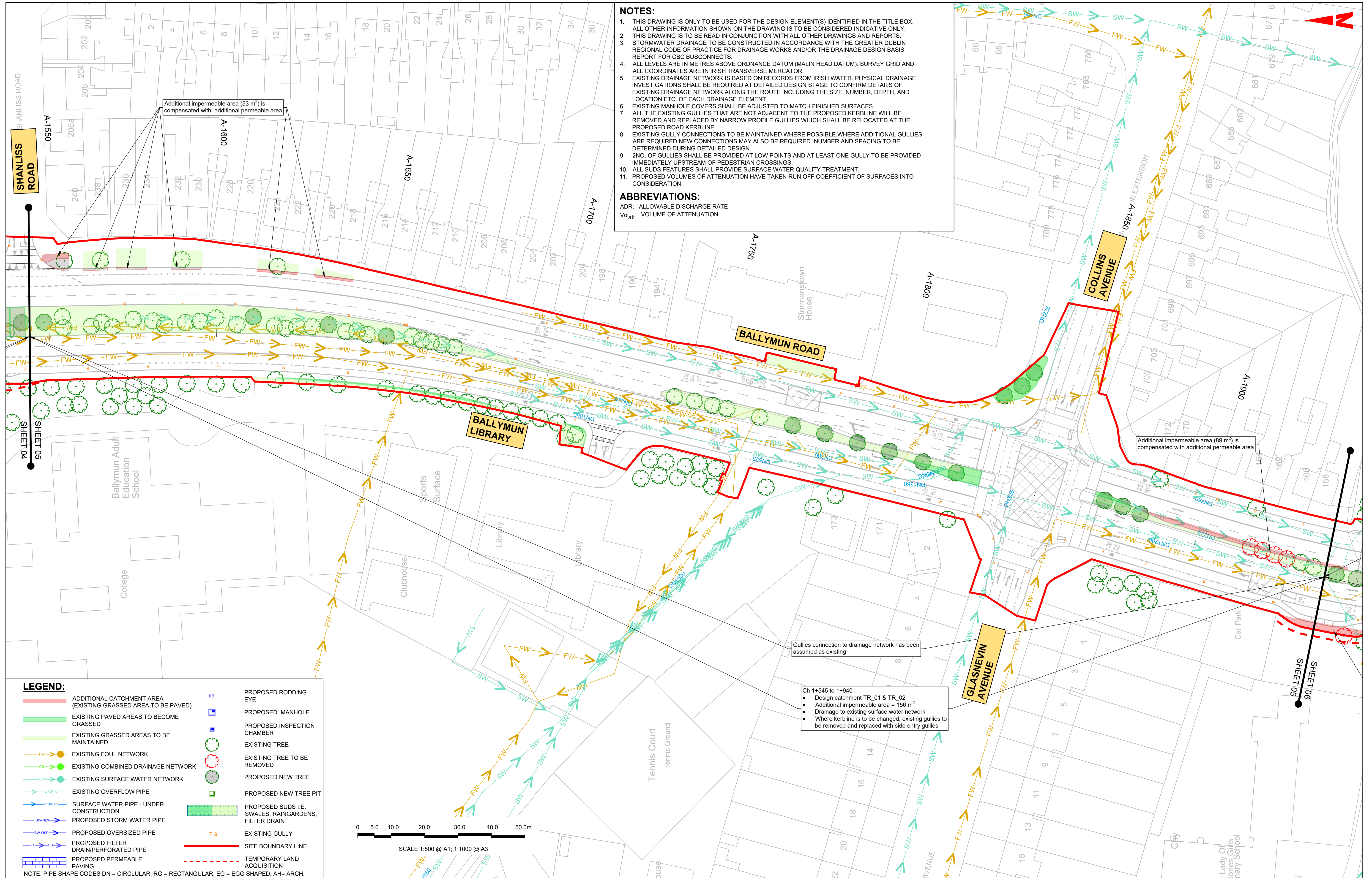
Engineering Designer

 JROD
 TPSPA

Date	Scale	Drawn	Checked	Approved
13/05/2022	1:500 @ A1 1:1000 @ A3	ECD	EFD	SMG
Project Code	Originator Code	GMS Code		
BCIDD	ROT			

Programme Title BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title BALLYMUN / INGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name	Sheet Number	Status	Rev
BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0004	04 of 38	A	M01

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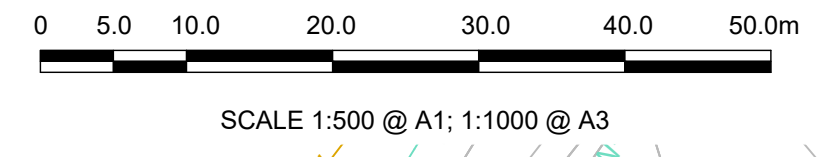
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ABBREVIATIONS:
 ADR: ALLOWABLE DISCHARGE RATE
 VolAtt: VOLUME OF ATTENUATION

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
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	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.



Gullies connection to drainage network has been assumed as existing

Ch 1+545 to 1+940:
 • Design catchment TR_01 & TR_02
 • Additional impermeable area = 156 m²
 • Drainage to existing surface water network
 • Where kerblines are to be changed, existing gullies to be removed and replaced with side entry gullies

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NTA
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 National Transport Authority

Date: 13/05/2022
 Scale: 1:500 @ A1, 1:1000 @ A3
 Project Code: BCIDD
 Originator Code: ROT

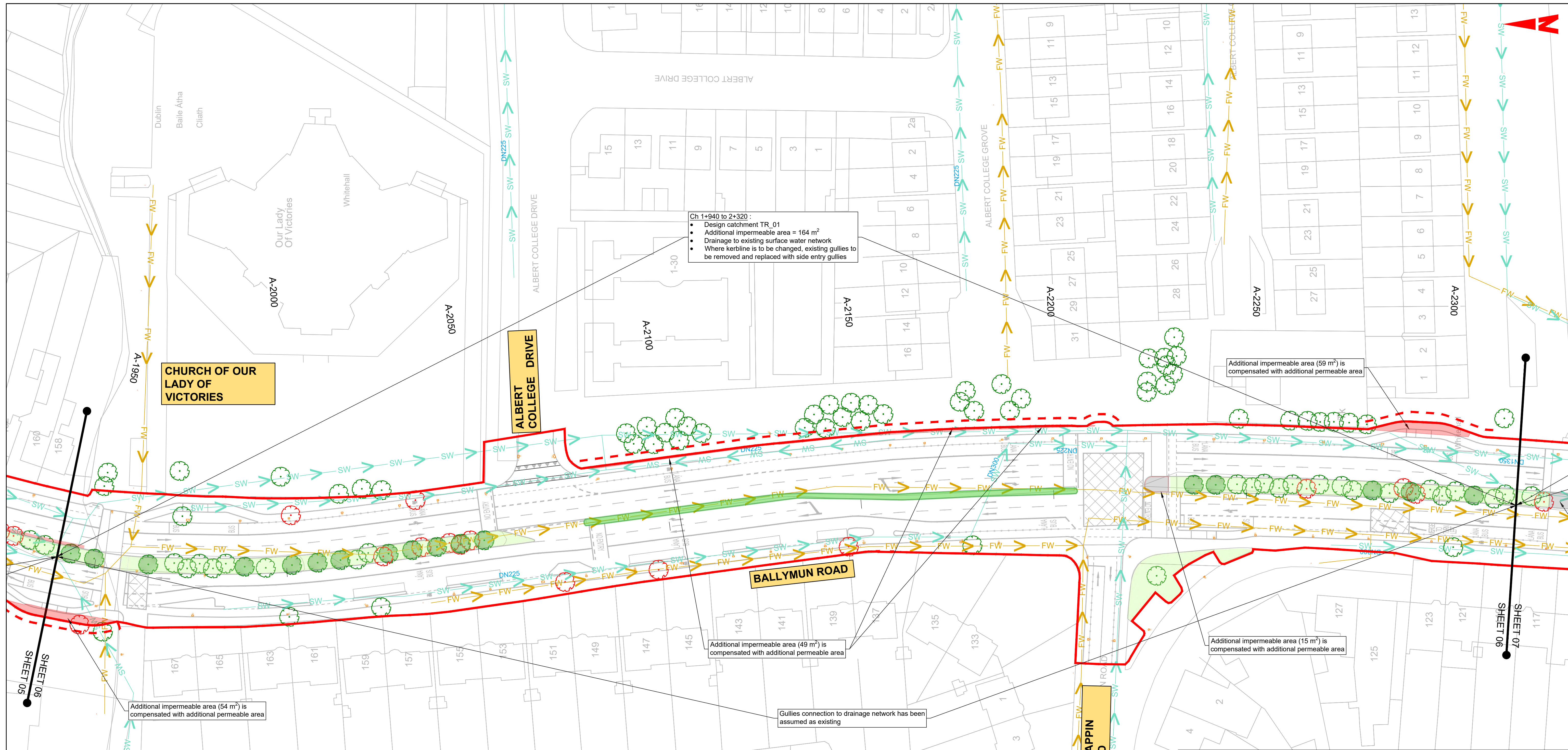
Engineering Designer

J.ROD
 PROGRAM & O'DOHOVAIN
 TYPISA

Drawn: ECD
 Checked: EFD
 Approved: SMG

Programme Title BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0005	Sheet Number 05 of 38	Status A	Rev M01

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Ch 1+940 to 2+320:

- Design catchment TR_01
- Additional impermeable area = 164 m²
- Drainage to existing surface water network
- Where kerbline is to be changed, existing gullies to be removed and replaced with side entry gullies

Additional impermeable area (59 m²) is compensated with additional permeable area

Additional impermeable area (49 m²) is compensated with additional permeable area

Additional impermeable area (15 m²) is compensated with additional permeable area

Additional impermeable area (54 m²) is compensated with additional permeable area

Gullies connection to drainage network has been assumed as existing

LEGEND:

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSSED		PROPOSED MANHOLE
	EXISTING GRASSSED 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
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6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
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10. ALL SUDS FEATURES SHALL 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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Project Ireland 2040
Building Ireland's Future

Rev	Date	Drn	Chk'd	App'd	Description
M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **PROD**
TYPSA

Date: 13/05/2022
Scale: 1:500 @ A1
1:1000 @ A3

Project Code: BCIDD
Originator Code: ROT

Drawn: ECD
Checked: EFD
Approved: SMG

QMS Code

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

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

Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0006
Sheet Number: 06 of 38
Status: A
Rev: M01

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ABBREVIATIONS:

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

Ch 2+320 to 2+700:

- Design catchment TR_01
- Additional impermeable area = 183 m²
- Drainage to existing surface water network
- Where kerbline is to be changed, existing gullies to be removed and replaced with side entry gullies
- Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)

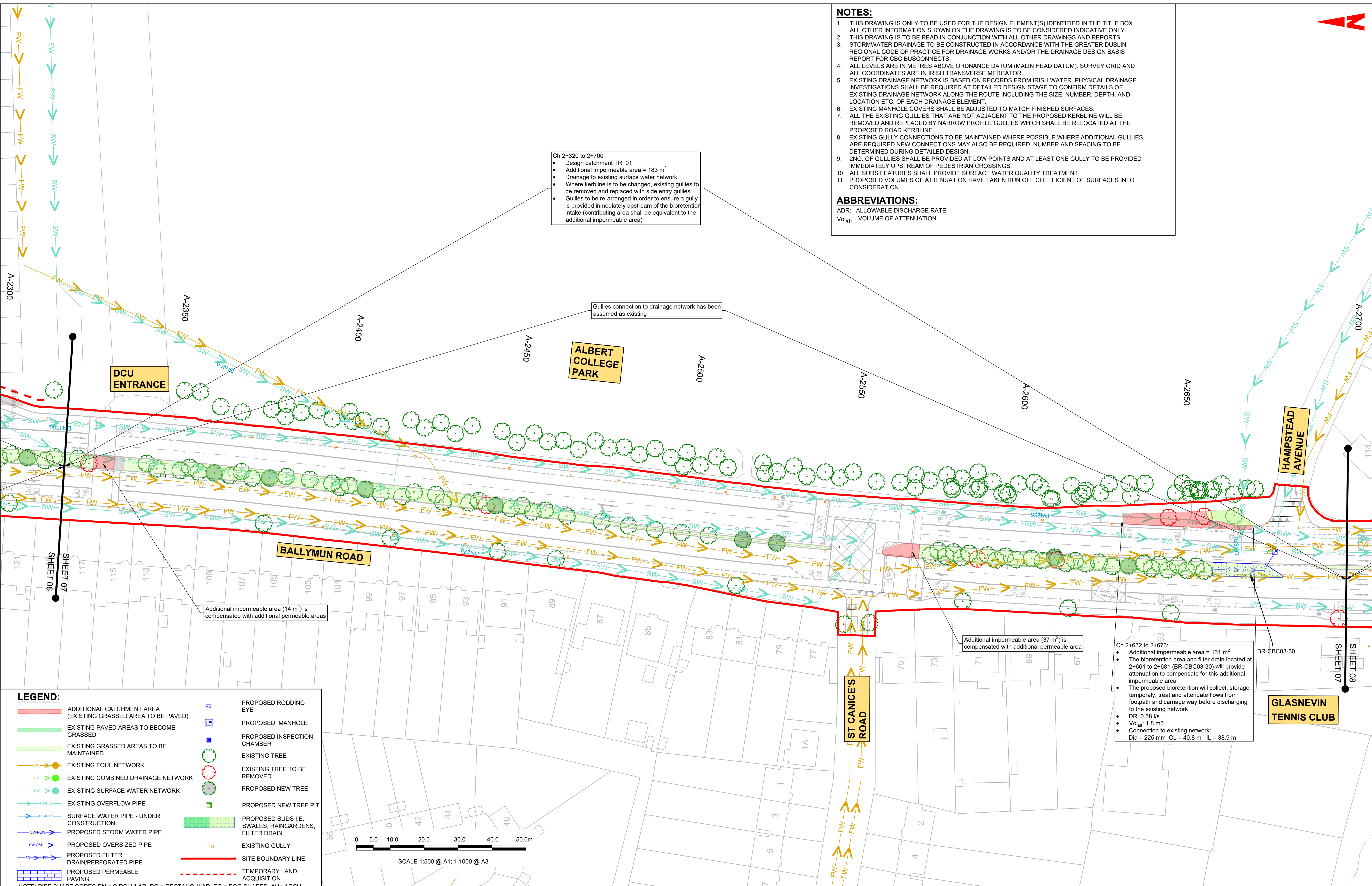
Gullies connection to drainage network has been assumed as existing

Additional impermeable area (14 m²) is compensated with additional permeable areas

Additional impermeable area (37 m²) is compensated with additional permeable area

Ch 2+632 to 2+673:

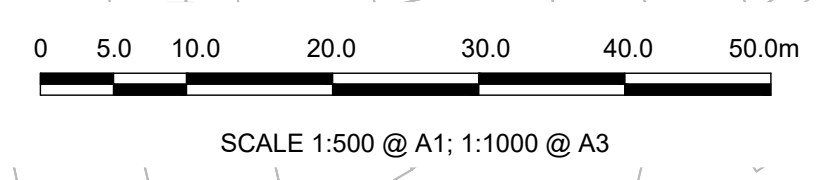
- Additional impermeable area = 131 m²
- The bioretention area and filter drain located at 2+661 to 2+681 (BR-CBC03-30) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.68 l/s
- Vol_{att}: 1.8 m³
- Connection to existing network: Dia = 225 mm CL = 40.8 m IL = 38.9 m



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	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **J. ROD**
TPSA

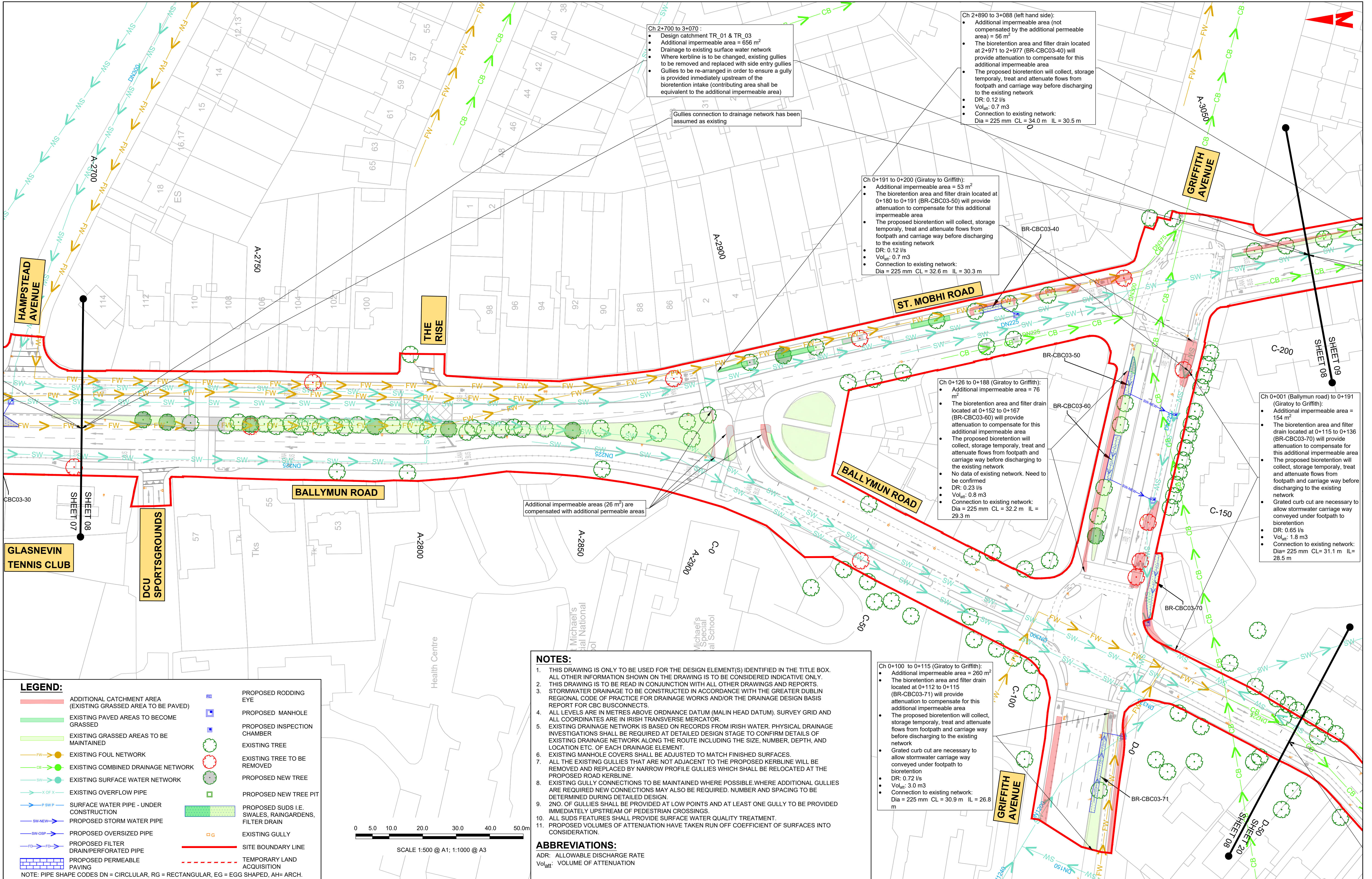
Date: 13/05/2022 Scale: 1:500 @ A1
1:1000 @ A3

Drawn: ECD Checked: EFD Approved: SMG

Project Code: BCIDD Originator Code: ROT

Programme Title: BUSCONNECTS DUBLIN			
CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: BALLYMUN / INGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0007	Sheet Number: 07 of 38	Status: A	Rev: M01

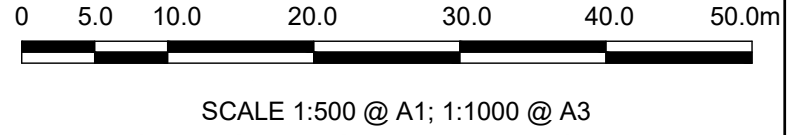
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LEGEND:

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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
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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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M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

Client: NTA
 Údarás Náisiúnta Iompair
 National Transport Authority

Engineering Designer: JROD
 JROD
 TPSPA

Date: 13/05/2022 Scale: 1:500 @ A1, 1:1000 @ A3
 Drawn: ECD Checked: EFD Approved: SMG

Project Code: BCIDD Originator Code: ROT QMS Code:

Programme Title: BUSCONNECTS DUBLIN
CORE BUS CORRIDORS INFRASTRUCTURE WORKS

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

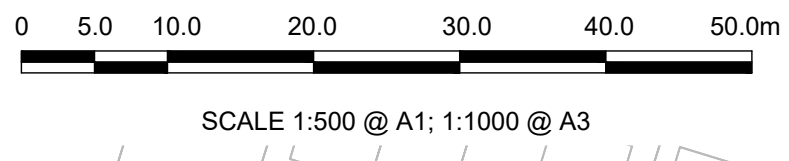
Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0008	Sheet Number: 08 of 38	Status: A	Rev: M01
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LEGEND:

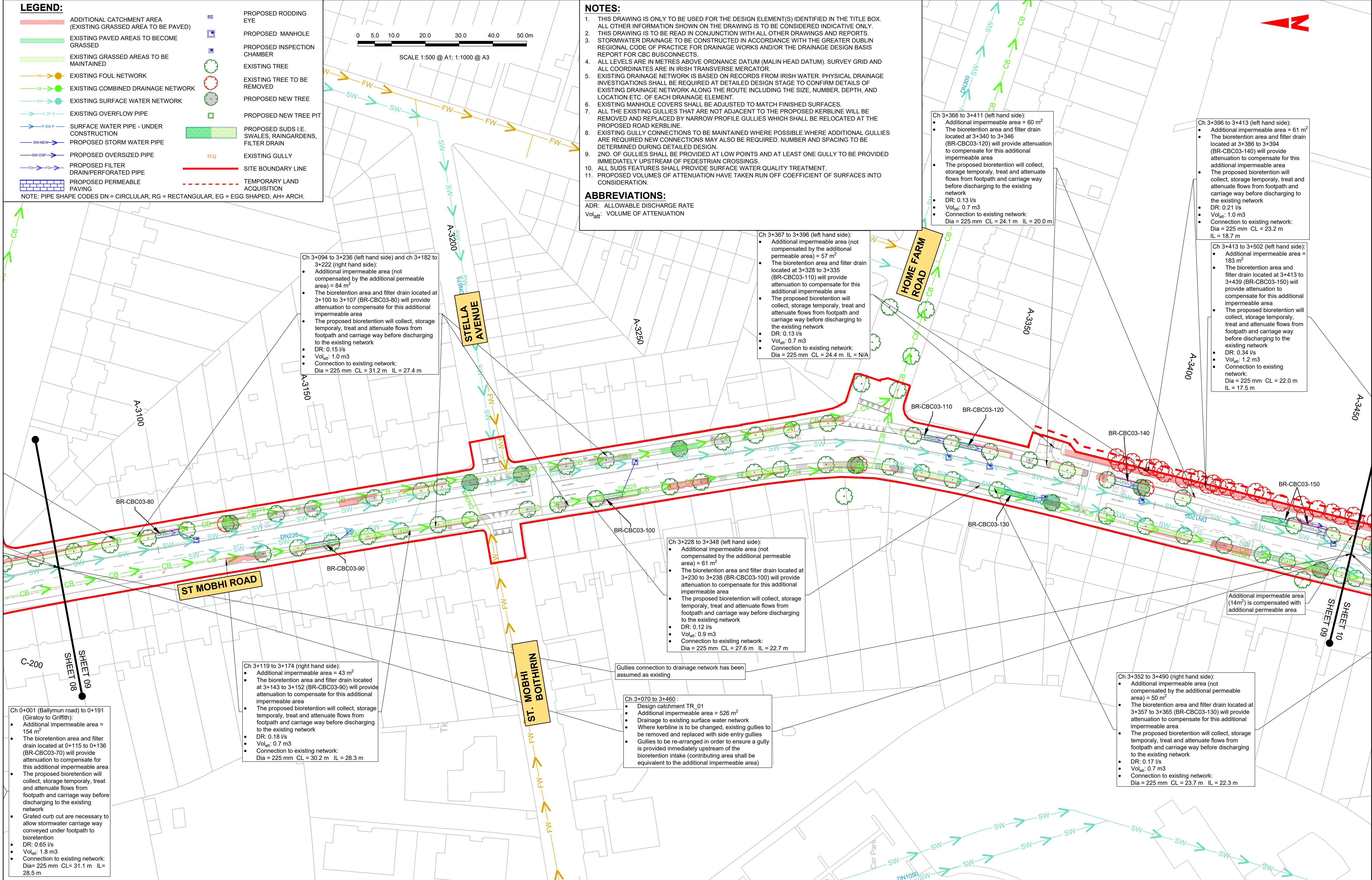
	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
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Ch 3+094 to 3+236 (left hand side) and ch 3+182 to 3+222 (right hand side):

- Additional impermeable area (not compensated by the additional permeable area) = 84 m²
- The bioretention area and filter drain located at 3+100 to 3+107 (BR-CBC03-80) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.15 l/s
- Vol_{att}: 1.0 m³
- Connection to existing network: Dia = 225 mm CL = 31.2 m IL = 27.4 m

Ch 3+367 to 3+396 (left hand side):

- Additional impermeable area (not compensated by the additional permeable area) = 57 m²
- The bioretention area and filter drain located at 3+328 to 3+335 (BR-CBC03-110) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.13 l/s
- Vol_{att}: 0.7 m³
- Connection to existing network: Dia = 225 mm CL = 24.4 m IL = N/A

Ch 3+366 to 3+411 (left hand side):

- Additional impermeable area = 60 m²
- The bioretention area and filter drain located at 3+340 to 3+346 (BR-CBC03-120) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.13 l/s
- Vol_{att}: 0.7 m³
- Connection to existing network: Dia = 225 mm CL = 24.1 m IL = 20.0 m

Ch 3+396 to 3+413 (left hand side):

- Additional impermeable area = 61 m²
- The bioretention area and filter drain located at 3+386 to 3+394 (BR-CBC03-140) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.21 l/s
- Vol_{att}: 1.0 m³
- Connection to existing network: Dia = 225 mm CL = 23.2 m IL = 18.7 m

Ch 3+413 to 3+502 (left hand side):

- Additional impermeable area = 183 m²
- The bioretention area and filter drain located at 3+413 to 3+439 (BR-CBC03-150) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.34 l/s
- Vol_{att}: 1.2 m³
- Connection to existing network: Dia = 225 mm CL = 22.0 m IL = 17.5 m

Ch 3+228 to 3+348 (left hand side):

- Additional impermeable area (not compensated by the additional permeable area) = 61 m²
- The bioretention area and filter drain located at 3+230 to 3+238 (BR-CBC03-100) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.12 l/s
- Vol_{att}: 0.9 m³
- Connection to existing network: Dia = 225 mm CL = 27.6 m IL = 22.7 m

Gullies connection to drainage network has been assumed as existing

Ch 3+070 to 3+460:

- Design catchment TR_01
- Additional impermeable area = 526 m²
- Drainage to existing surface water network
- Where kerbline is to be changed, existing gullies to be removed and replaced with side entry gullies
- Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)

Ch 3+119 to 3+174 (right hand side):

- Additional impermeable area = 43 m²
- The bioretention area and filter drain located at 3+143 to 3+152 (BR-CBC03-90) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.18 l/s
- Vol_{att}: 0.7 m³
- Connection to existing network: Dia = 225 mm CL = 30.2 m IL = 28.3 m

Ch 0+001 (Ballymun road) to 0+191 (Giratoy to Griffith):

- Additional impermeable area = 154 m²
- The bioretention area and filter drain located at 0+115 to 0+136 (BR-CBC03-70) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- Grated curb cut are necessary to allow stormwater carriage way conveyed under footpath to bioretention
- DR: 0.65 l/s
- Vol_{att}: 1.8 m³
- Connection to existing network: Dia = 225 mm CL = 31.1 m IL = 28.5 m

Ch 3+352 to 3+490 (right hand side):

- Additional impermeable area (not compensated by the additional permeable area) = 50 m²
- The bioretention area and filter drain located at 3+357 to 3+365 (BR-CBC03-130) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.17 l/s
- Vol_{att}: 0.7 m³
- Connection to existing network: Dia = 225 mm CL = 23.7 m IL = 22.3 m

Additional impermeable area (14m²) is compensated with additional permeable area

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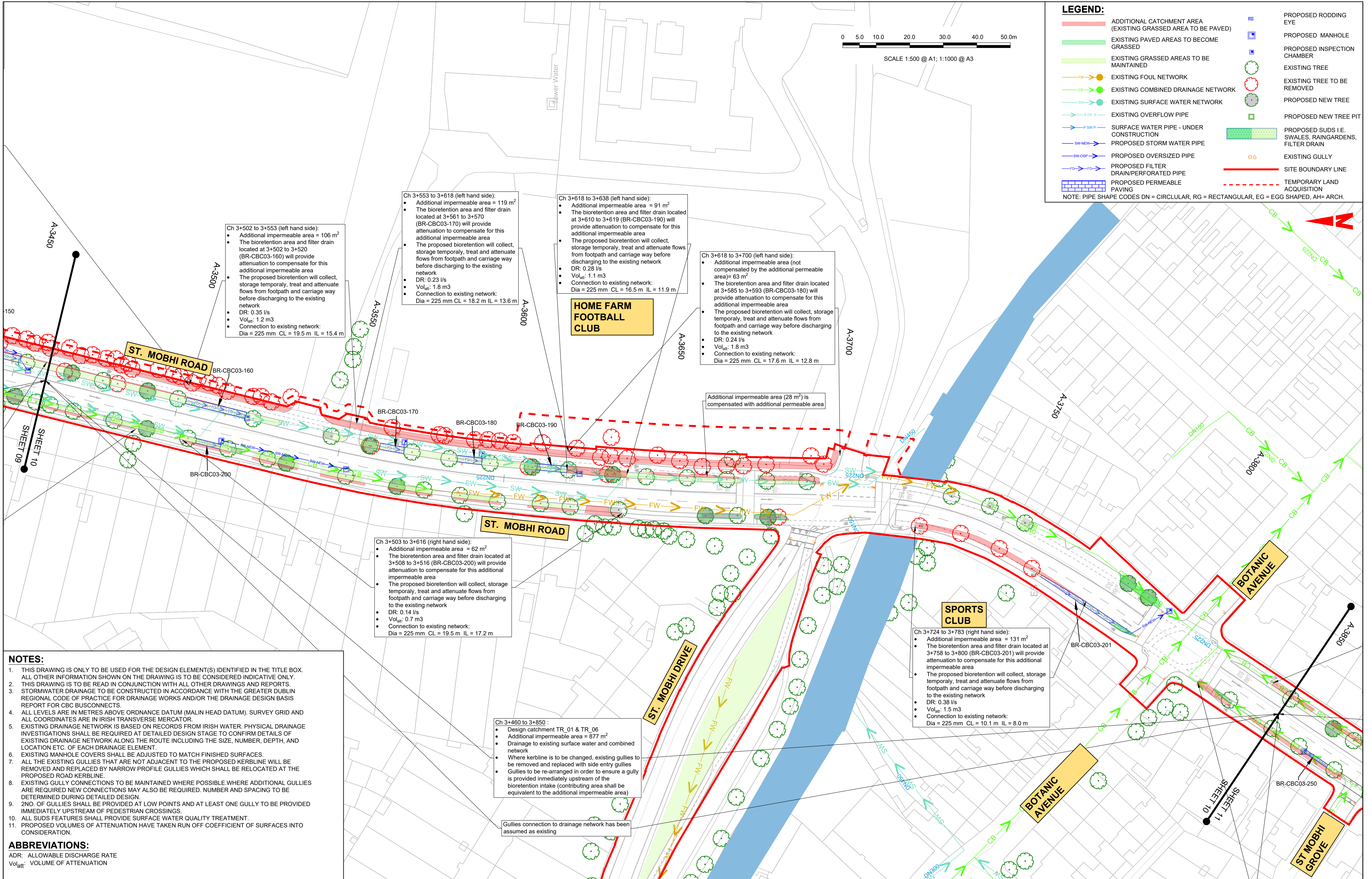
Rev	Date	Drn	Chk'd	App'd	Description
M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **J. IROD**
 TPSPA

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS	
Drawing Title: BALLYMUN / INGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS	
Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0009	Sheet Number: 09 of 38
Status: A	Rev: M01

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

Engineering Designer: **JROD**
 TYPISA

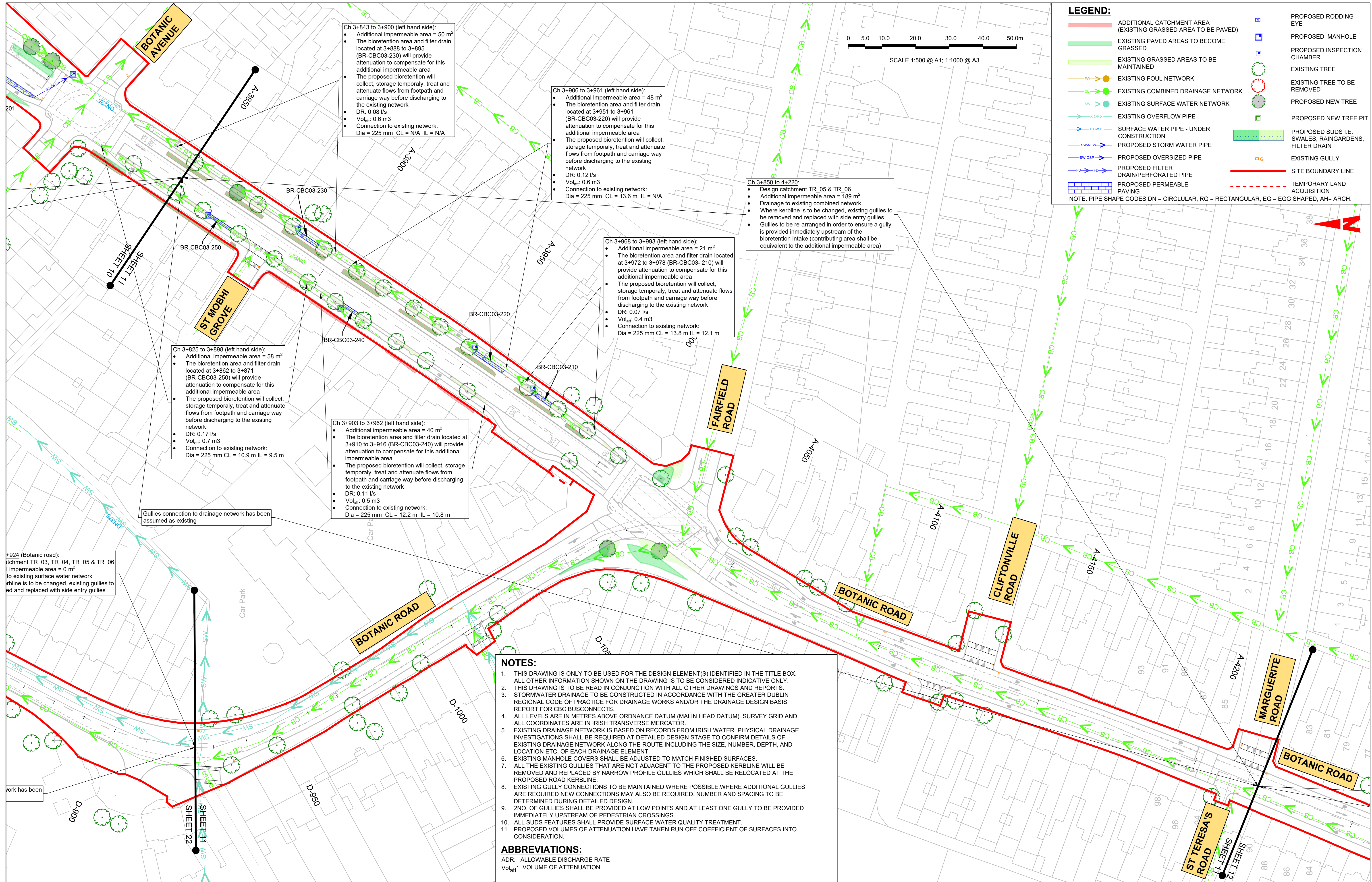
Date: 13/05/2022 Scale: 1:500 @ A1, 1:1000 @ A3

Drawn: ECD Checked: EFD Approved: SMG

Project Code: BCIDD Originator Code: ROT

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: BALLYMUN / INGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0010	Sheet Number: 10 of 38	Status: A	Rev: M01

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Ch 3+843 to 3+900 (left hand side):

- Additional impermeable area = 50 m²
- The bioretention area and filter drain located at 3+888 to 3+895 (BR-CBC03-230) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.08 l/s
- Vol_{att}: 0.6 m³
- Connection to existing network: Dia = 225 mm CL = N/A IL = N/A

Ch 3+906 to 3+961 (left hand side):

- Additional impermeable area = 48 m²
- The bioretention area and filter drain located at 3+951 to 3+961 (BR-CBC03-220) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.12 l/s
- Vol_{att}: 0.6 m³
- Connection to existing network: Dia = 225 mm CL = 13.6 m IL = N/A

Ch 3+850 to 4+220:

- Design catchment TR_05 & TR_06
- Additional impermeable area = 189 m²
- Drainage to existing combined network
- Where kerblines is to be changed, existing gullies to be removed and replaced with side entry gullies
- Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)

Ch 3+968 to 3+993 (left hand side):

- Additional impermeable area = 21 m²
- The bioretention area and filter drain located at 3+972 to 3+978 (BR-CBC03-210) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.07 l/s
- Vol_{att}: 0.4 m³
- Connection to existing network: Dia = 225 mm CL = 13.8 m IL = 12.1 m

Ch 3+903 to 3+962 (left hand side):

- Additional impermeable area = 40 m²
- The bioretention area and filter drain located at 3+910 to 3+916 (BR-CBC03-240) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.11 l/s
- Vol_{att}: 0.5 m³
- Connection to existing network: Dia = 225 mm CL = 12.2 m IL = 10.8 m

Ch 3+825 to 3+898 (left hand side):

- Additional impermeable area = 58 m²
- The bioretention area and filter drain located at 3+862 to 3+871 (BR-CBC03-250) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.17 l/s
- Vol_{att}: 0.7 m³
- Connection to existing network: Dia = 225 mm CL = 10.9 m IL = 9.5 m

Gullies connection to drainage network has been assumed as existing

+924 (Botanic road):

- Attachment TR_03, TR_04, TR_05 & TR_06
- Impermeable area = 0 m²
- to existing surface water network
- Where kerblines is to be changed, existing gullies to be removed and replaced with side entry gullies

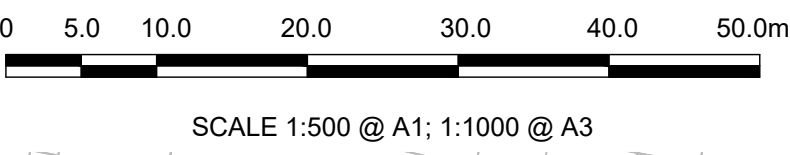
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ABBREVIATIONS:
 ADR: ALLOWABLE DISCHARGE RATE
 Vol_{att}: VOLUME OF ATTENUATION

LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE - UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- 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 = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.



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M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **JROD**
 TYPSA

Date: 13/05/2022
 Scale: 1:500 @ A1
 1:1000 @ A3

Project Code: BCIDD
 Originator Code: ROT

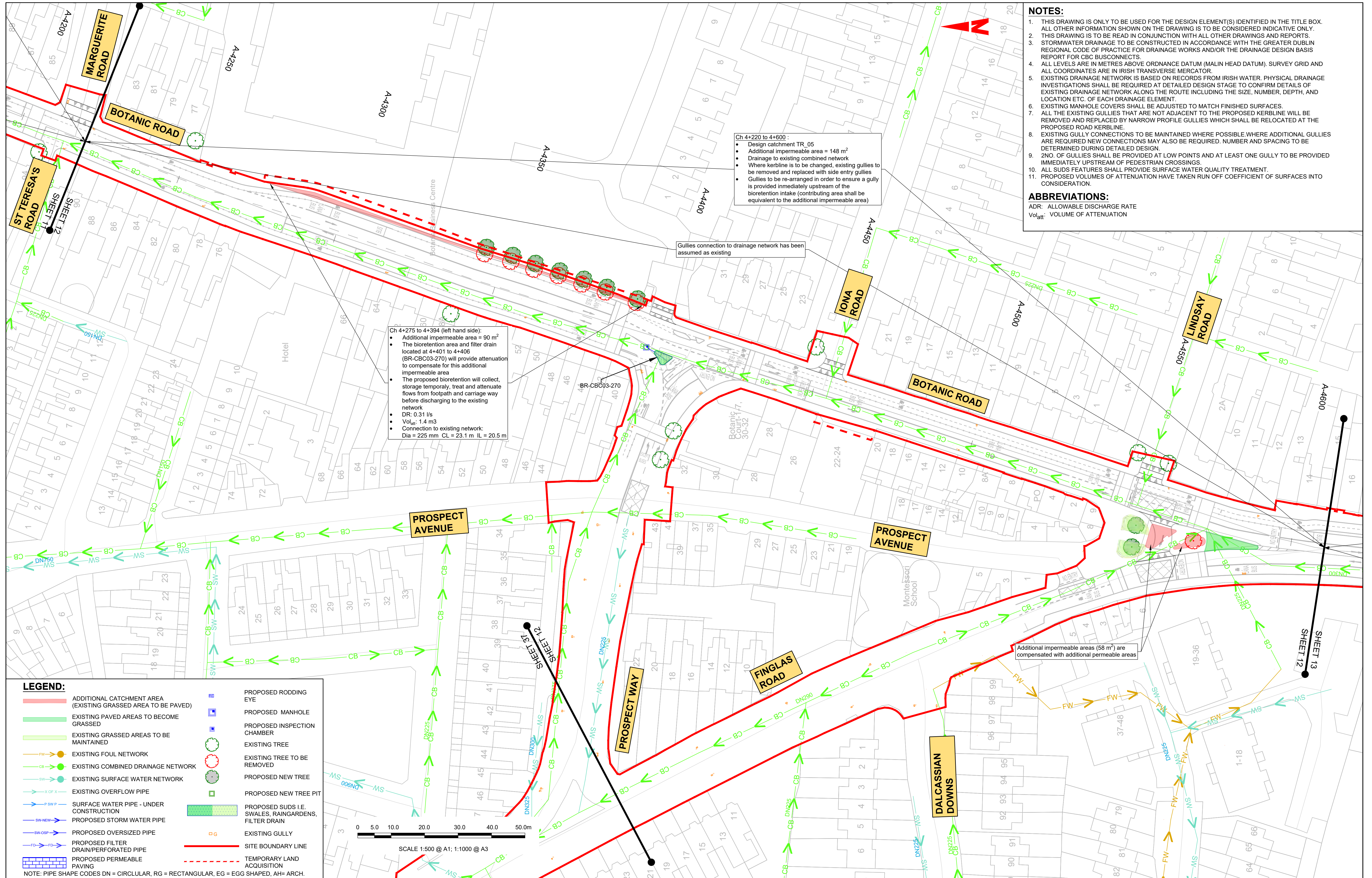
Drawn: ECD
 Checked: EFD
 Approved: SMG

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

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

Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0011
 Sheet Number: 11 of 38
 Status: A
 Rev: M01

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ABBREVIATIONS:

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

Ch 4+220 to 4+600 :

- Design catchment TR_05
- Additional impermeable area = 148 m²
- Drainage to existing combined network
- Where kerblines is to be changed, existing gullies to be removed and replaced with side entry gullies
- Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)

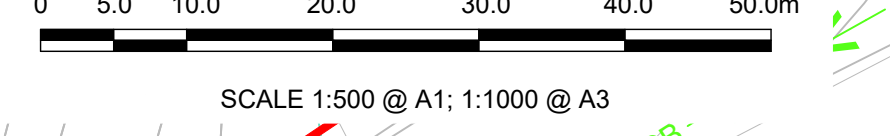
Ch 4+275 to 4+394 (left hand side):

- Additional impermeable area = 90 m²
- The bioretention area and filter drain located at 4+401 to 4+406 (BR-CBC03-270) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.31 l/s
- Vol_{att}: 1.4 m³
- Connection to existing network: Dia = 225 mm CL = 23.1 m IL = 20.5 m

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
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	PROPOSED PERMEABLE PAVING		

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M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **J. ROD**
TPSA

Date: 13/05/2022 Scale: 1:500 @ A1
1:1000 @ A3

Project Code: BCIDD Originator Code: ROT

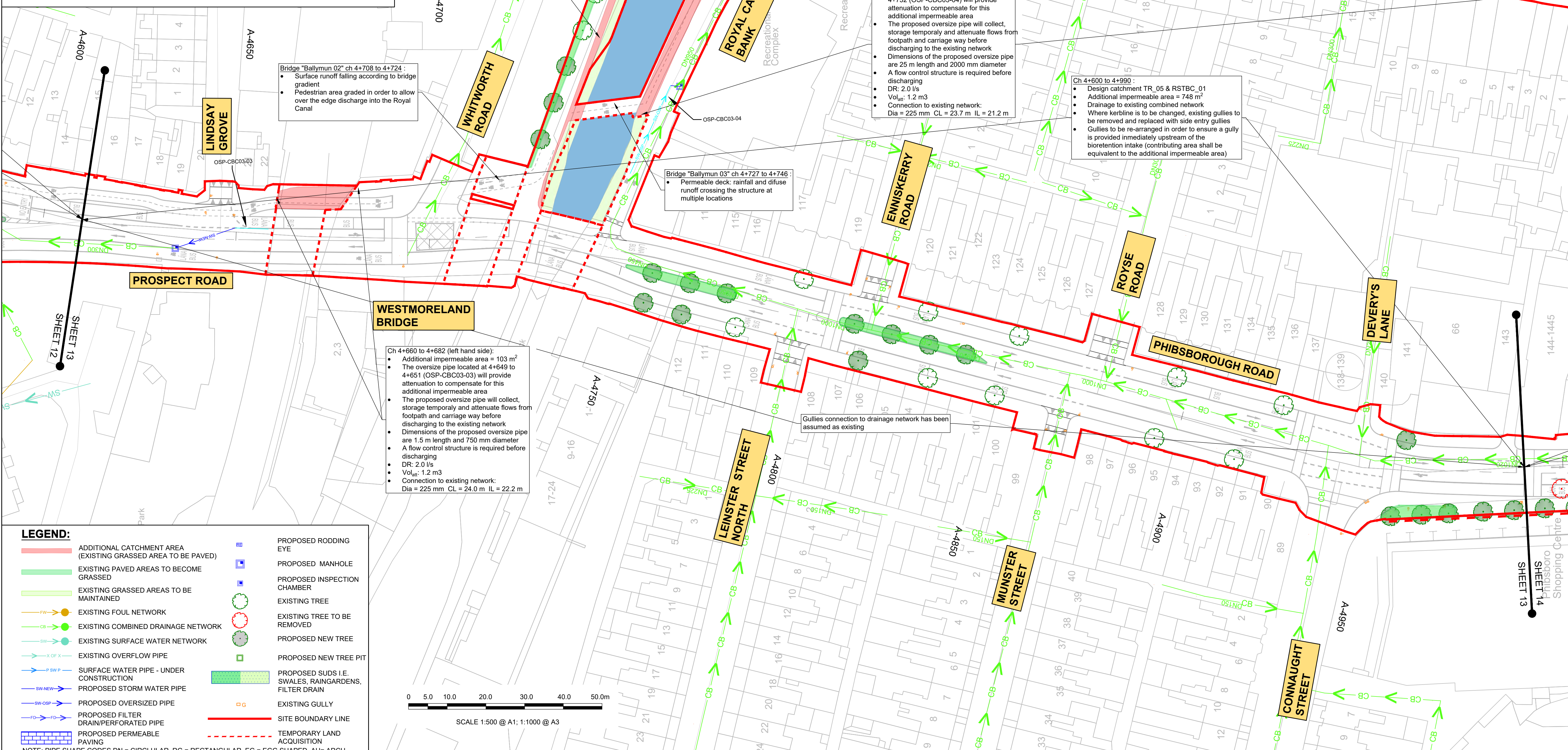
Drawn: ECD Checked: EFD Approved: SMG

Programme Title			
BUSCONNECTS DUBLIN			
CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title			
BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME			
PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name	Sheet Number	Status	Rev
BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0012	12 of 38	A	M01

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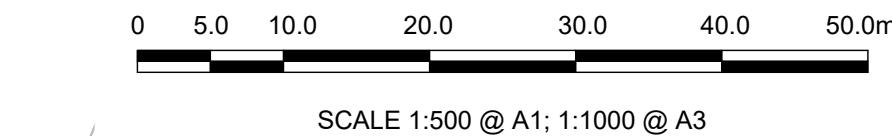
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SURFACE WATER PIPE - UNDER CONSTRUCTION	PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
PROPOSED STORM WATER PIPE	EXISTING GULLY
PROPOSED OVERSIZED PIPE	SITE BOUNDARY LINE
PROPOSED FILTER DRAIN/PERFORATED PIPE	TEMPORARY LAND ACQUISITION
PROPOSED PERMEABLE PAVING	

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



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Rev	Date	Drn	Chk'd	App'd	Description
M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

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

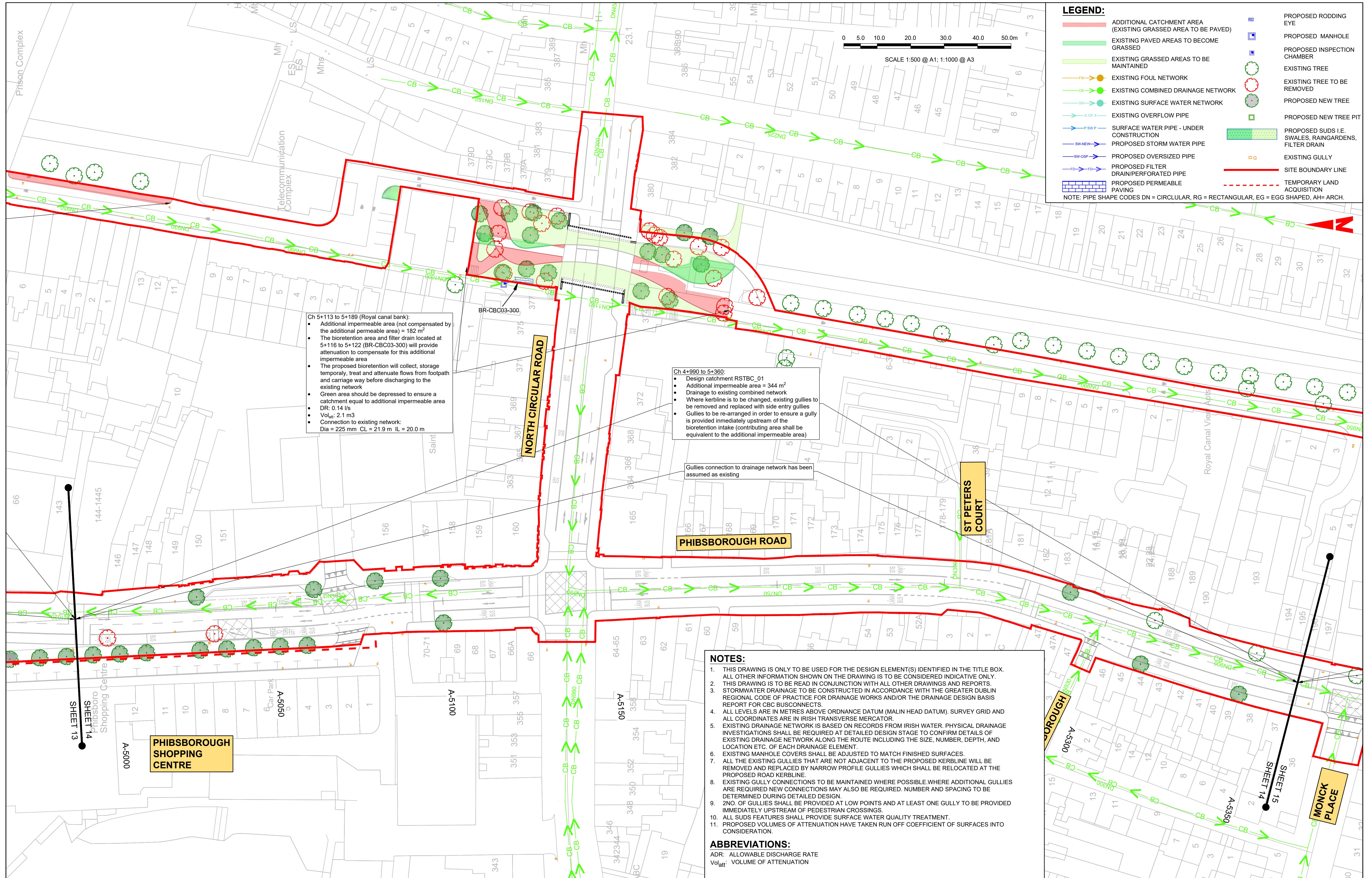
Engineering Designer: **J. ROD**
 PROGRAM & DESIGN
 TYPISA

Date: 13/05/2022 Scale: 1:500 @ A1, 1:1000 @ A3
 Drawn: ECD Checked: EFD Approved: SMG

Project Code: BCIDD Originator Code: ROT QMS Code:

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0013	Sheet Number: 13 of 38	Status: A	Rev: M01

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Ch 5+113 to 5+189 (Royal canal bank):

- Additional impermeable area (not compensated by the additional permeable area) = 182 m²
- The bioretention area and filter drain located at 5+116 to 5+122 (BR-CBC03-300) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- Green area should be depressed to ensure a catchment equal to additional impermeable area
- DR: 0.14 l/s
- Vol_{att}: 2.1 m³
- Connection to existing network: Dia = 225 mm CL = 21.9 m IL = 20.0 m

Ch 4+990 to 5+360:

- Design catchment RSTBC_01
- Additional impermeable area = 344 m²
- Drainage to existing combined network
- Where kerblines is to be changed, existing gullies to be removed and replaced with side entry gullies
- Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)

Gullies connection to drainage network has been assumed as existing

NOTES:

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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 SHALL 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.
- 2NO. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
- ALL SUDS FEATURES SHALL 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	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **JROD**
PROGRAM A G'BOBHOIRN TYPISA

Date: 13/05/2022 Scale: 1:500 @ A1, 1:1000 @ A3

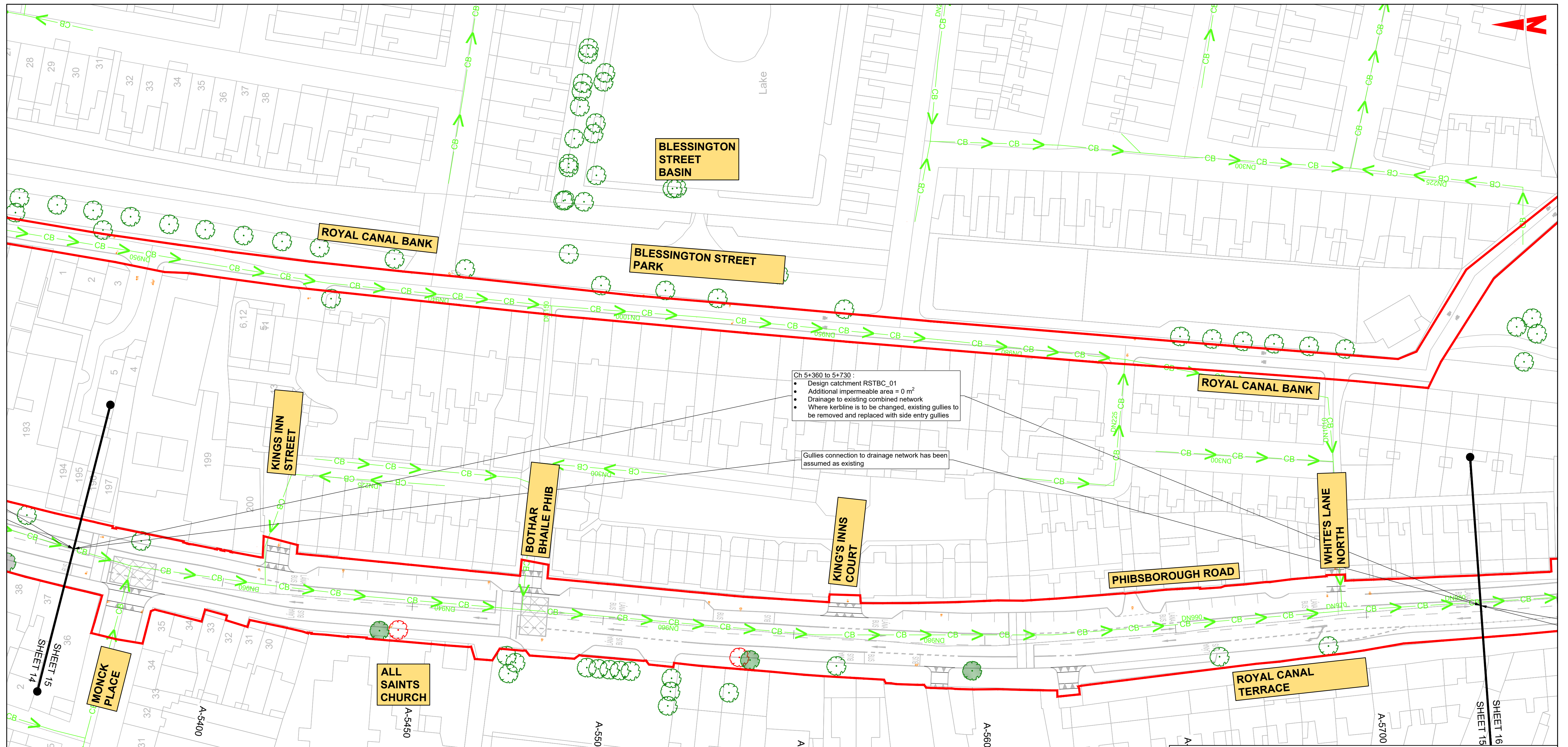
Project Code: BCIDD Originator Code: ROT

Drawn: ECD Checked: EFD Approved: SMG

QMS Code

Programme Title BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title BALLYMUN / INGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name	Sheet Number	Status	Rev
BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0014	14 of 38	A	M01

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Ch 5+360 to 5+730

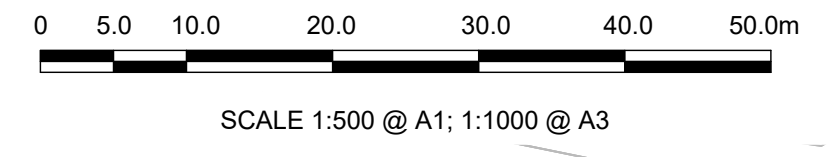
- Design catchment RSTBC_01
- Additional impermeable area = 0 m²
- Drainage to existing combined network
- Where kerbline is to be changed, existing gullies to be removed and replaced with side entry gullies

Gullies connection to drainage network has been assumed as existing

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

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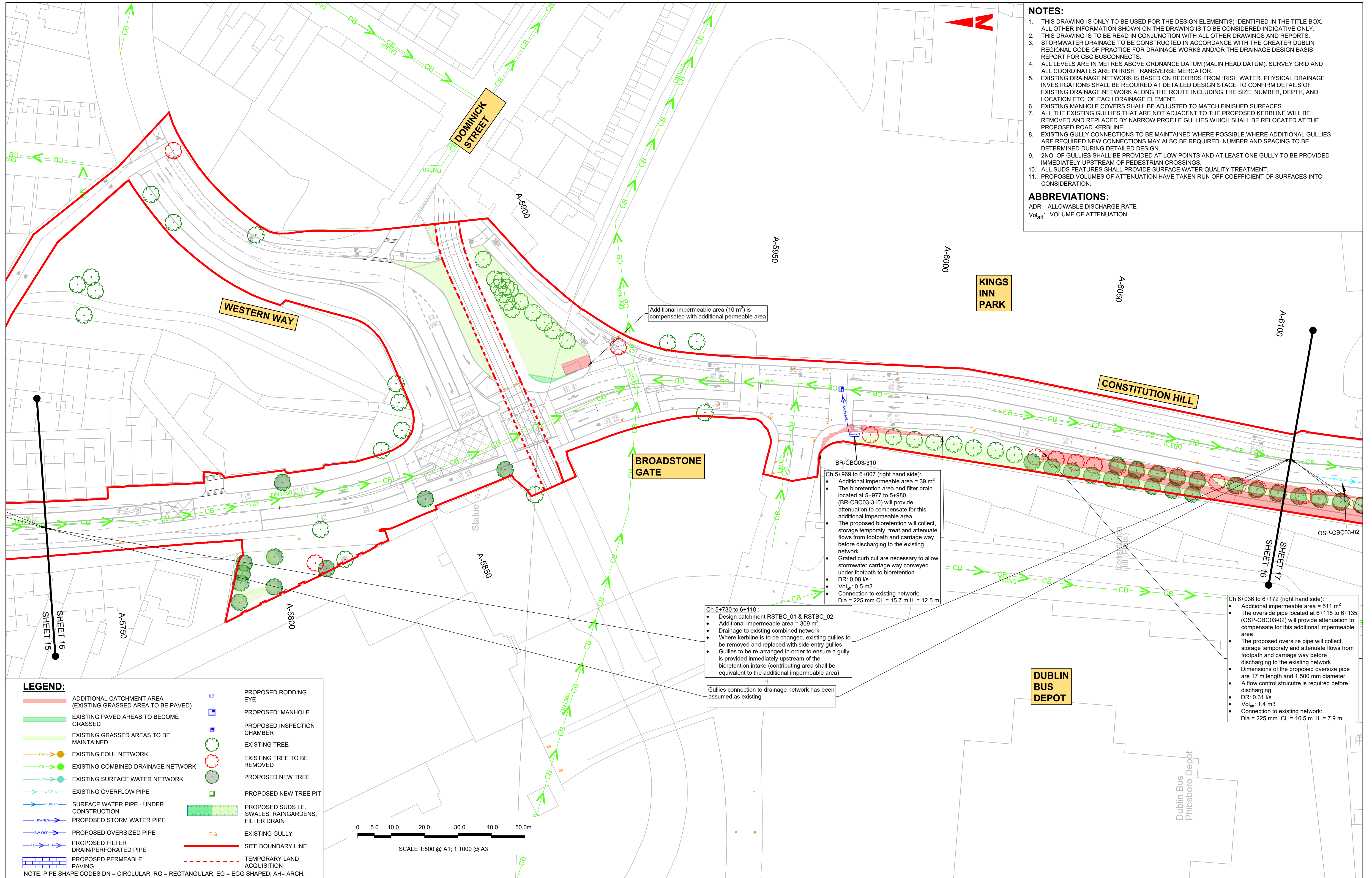
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Rev	Date	Drn	Chk'd	App'd	Description
M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

Date	Scale	Drawn	Checked	Approved
13/05/2022	1:500 @ A1 1:1000 @ A3	ECD	EFD	SMG
Project Code	Originator Code	GMS Code		
BCIDD	ROT			

BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title BALLYMUN / INGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name	Sheet Number	Status	Rev
BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0015	15 of 38	A	M01

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NOTES:

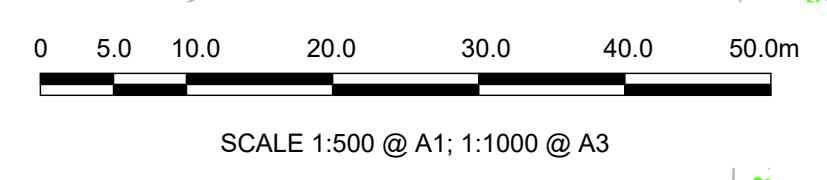
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6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
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9. 2ND. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

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

LEGEND:

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		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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BR-CBC03-310
 Ch 5+969 to 6+007 (right hand side):

- Additional impermeable area = 39 m²
- The bioretention area and filter drain located at 5+977 to 5+980 (BR-CBC03-310) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- Grated curb cut are necessary to allow stormwater carriage way conveyed under footpath to bioretention
- DR: 0.08 l/s
- Vol_{att}: 0.5 m³
- Connection to existing network: Dia = 225 mm CL = 15.7 m IL = 12.5 m

Ch 5+730 to 6+110 :

- Design catchment RSTBC_01 & RSTBC_02
- Additional impermeable area = 309 m²
- Drainage to existing combined network
- Where kerblines to be changed, existing gullies to be removed and replaced with side entry gullies
- Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)

Gullies connection to drainage network has been assumed as existing

Ch 6+036 to 6+172 (right hand side):

- Additional impermeable area = 511 m²
- The oversized pipe located at 6+118 to 6+135 (OSP-CBC03-02) will provide attenuation to compensate for this additional impermeable area
- The proposed oversized pipe will collect, store temporarily and attenuate flows from footpath and carriage way before discharging to the existing network
- Dimensions of the proposed oversized pipe are 17 m length and 1,500 mm diameter
- A flow control structure is required before discharging
- DR: 0.31 l/s
- Vol_{att}: 1.4 m³
- Connection to existing network: Dia = 225 mm CL = 10.5 m IL = 7.9 m

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Rev	Date	Drn	Chk'd	App'd	Description
M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

NTA
 Údarás Náisiúnta Iompair
 National Transport Authority

Date: 13/05/2022
 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDD
 Originator Code: ROT

Engineering Designer

J. ROD
 TYPESA

Drawn: ECD
 Checked: EFD
 Approved: SMG

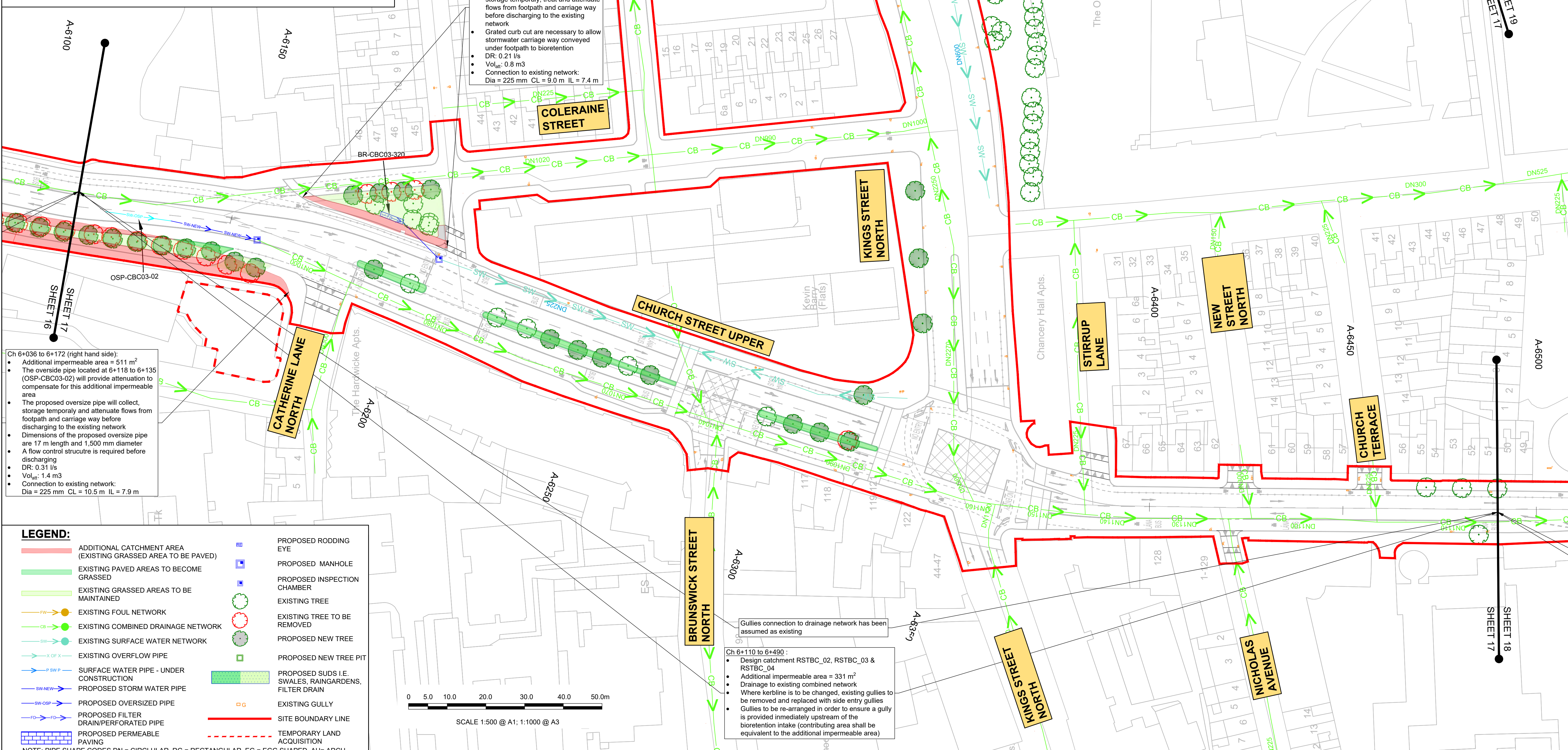
QMS Code

Programme Title			
BUSCONNECTS DUBLIN			
CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title			
BALLYMUN / INGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name	Sheet Number	Status	Rev
BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0016	16 of 38	A	M01

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



Ch 6+165 to 6+205 (left hand side):
 • Additional impermeable area = 80 m²
 • The bioretention area and filter drain located at 6+174 to 6+181 (BR-CBC03-320) will provide attenuation for this additional impermeable area
 • The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
 • Grated curb cut are necessary to allow stormwater carriage way conveyed under footpath to bioretention
 • DR: 0.21 l/s
 • Vol_{att}: 0.8 m³
 • Connection to existing network:
 Dia = 225 mm CL = 9.0 m IL = 7.4 m

Ch 6+036 to 6+172 (right hand side):
 • Additional impermeable area = 511 m²
 • The oversized pipe located at 6+118 to 6+135 (OSP-CBC03-02) will provide attenuation to compensate for this additional impermeable area
 • The proposed oversized pipe will collect, store temporarily and attenuate flows from footpath and carriage way before discharging to the existing network
 • Dimensions of the proposed oversized pipe are 17 m length and 1,500 mm diameter
 • A flow control structure is required before discharging
 • DR: 0.31 l/s
 • Vol_{att}: 1.4 m³
 • Connection to existing network:
 Dia = 225 mm CL = 10.5 m IL = 7.9 m

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
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	SURFACE WATER PIPE - UNDER CONSTRUCTION		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PROPOSED STORM WATER PIPE		EXISTING GULLY
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	PROPOSED PERMEABLE PAVING		

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

Gullies connection to drainage network has been assumed as existing

Ch 6+110 to 6+490:
 • Design catchment RSTBC_02, RSTBC_03 & RSTBC_04
 • Additional impermeable area = 331 m²
 • Drainage to existing combined network
 • Where kerblines is to be changed, existing gullies to be removed and replaced with side entry gullies
 • Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)

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Rev	Date	Drn	Chk'd	App'd	Description
M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

NTA
 Udarás Náisiúnta Iompair
 National Transport Authority

Date: 13/05/2022
 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDD
 Originator Code: ROT

Engineering Designer

J. ROD
 TYPESA

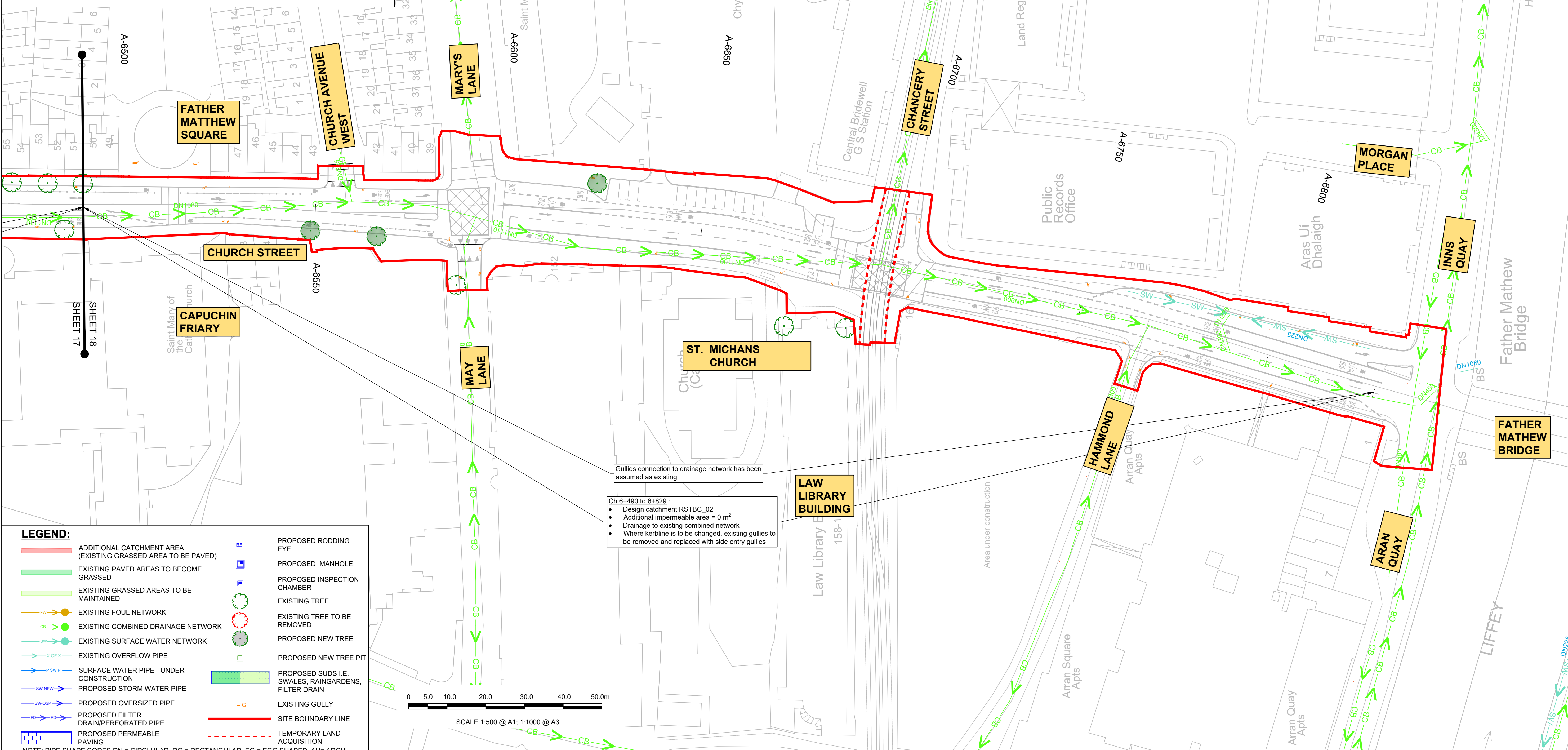
Drawn: ECD
 Checked: EFD
 Approved: SMG

Programme Title	BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS		
Drawing Title	BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS		
Drawing File Name	BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0017	Sheet Number	17 of 38
Status	A	Rev	M01

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 6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
 7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
 8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
 9. ZNO OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
 10. ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
 11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

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



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

Engineering Designer
 J. ROD
 TPSPA

Date: 13/05/2022
 Scale: 1:500 @ A1, 1:1000 @ A3
 Project Code: BCIDD
 Originator Code: ROT

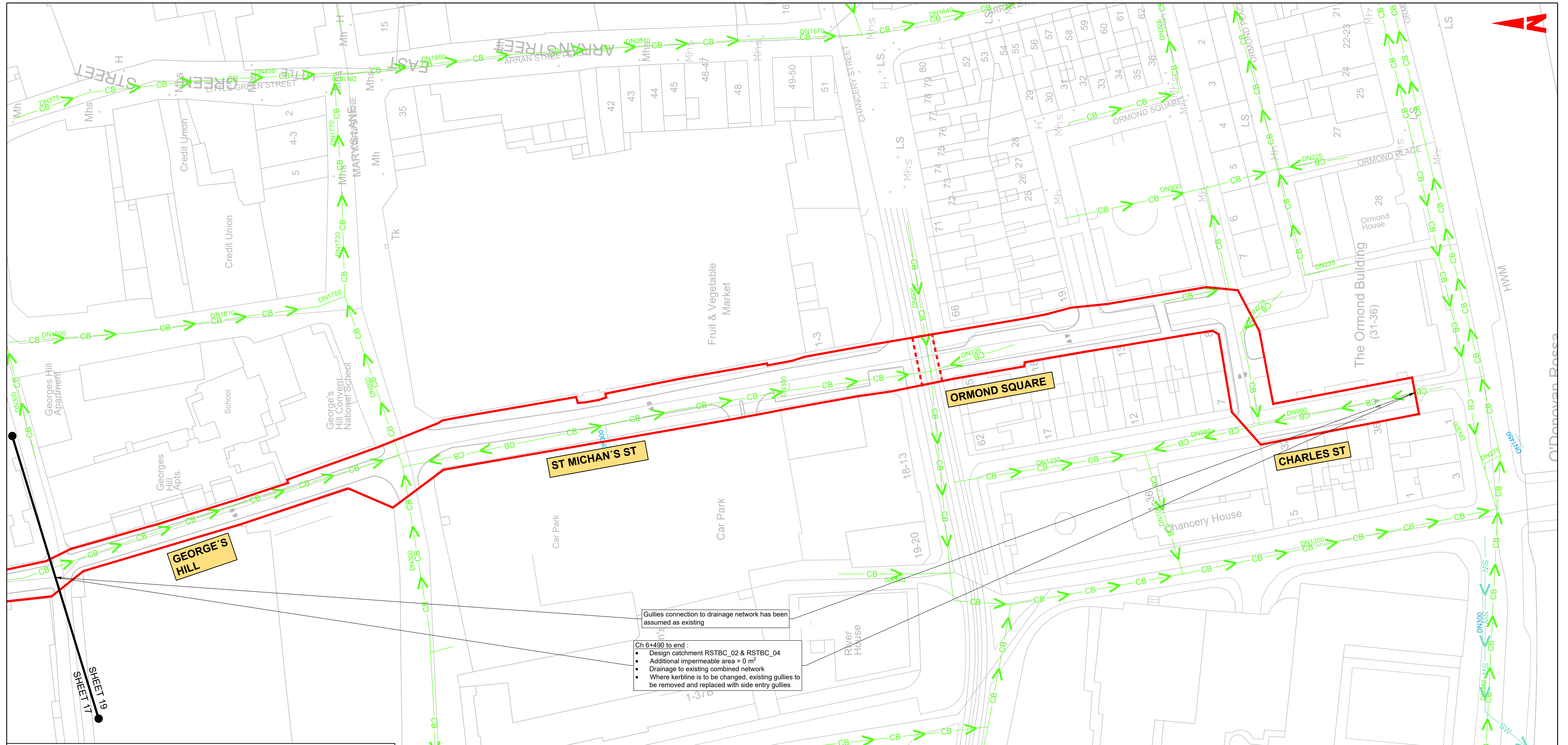
Drawn: ECD
 Checked: EFD
 Approved: SMG

Programme Title
 BUSCONNECTS DUBLIN
 CORE BUS CORRIDORS INFRASTRUCTURE WORKS

Drawing Title
 BALLYMUN / INGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME
 PROPOSED SURFACE WATER DRAINAGE WORKS

Drawing File Name	BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0018	Sheet Number	18 of 38	Status	A	Rev	M01
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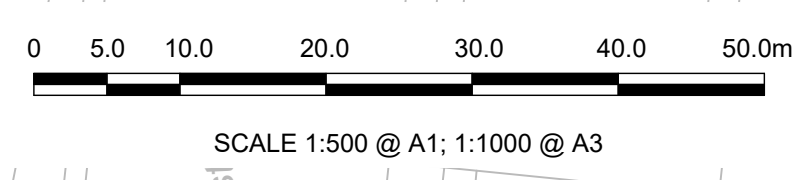


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ABBREVIATIONS:
 ADR: ALLOWABLE DISCHARGE RATE
 Vol_{att}: VOLUME OF ATTENUATION

Gullies connection to drainage network has been assumed as existing

Ch 6+490 to end :
 • Design catchment RSTBC_02 & RSTBC_04
 • Additional impermeable area = 0 m²
 • Drainage to existing combined network
 • Where kerblines is to be changed, existing gullies to be removed and replaced with side entry gullies



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	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **J. ROD**
 TYPISA

Date: 13/05/2022 Scale: 1:500 @ A1
 1:1000 @ A3

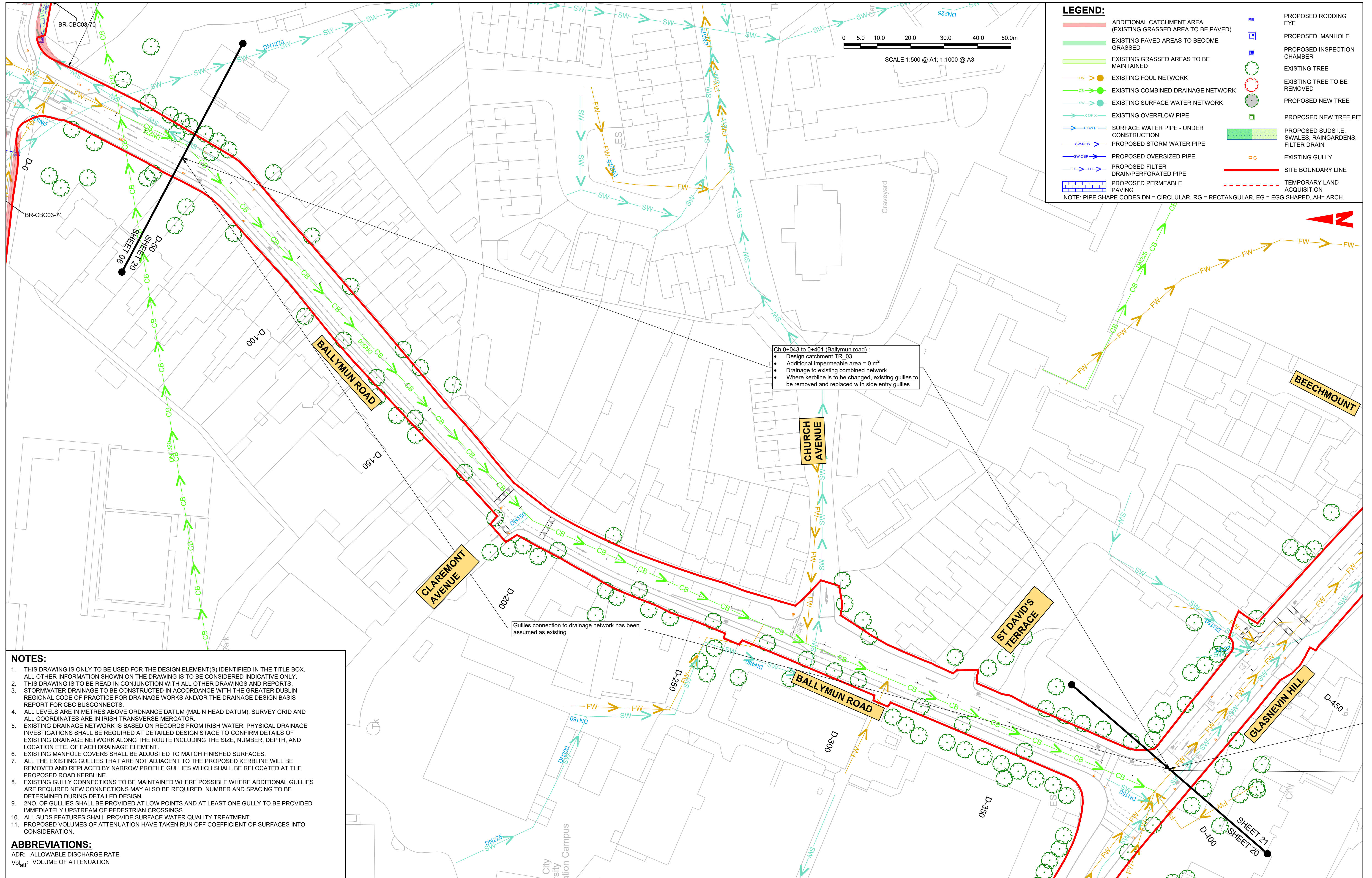
Project Code: BCIDD Originator Code: ROT

Drawn: ECD Checked: EFD Approved: SMG

QMS Code

Programme Title	BUSCONNECTS DUBLIN		
Drawing Title	CORE BUS CORRIDORS INFRASTRUCTURE WORKS		
Drawing File Name	BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0019	Sheet Number	19 of 38
Status	A	Rev	M01

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LEGEND:

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Ch 0+043 to 0+401 (Ballymun road):

- Design catchment TR_03
- Additional impermeable area = 0 m²
- Drainage to existing combined network
- Where kerblines is to be changed, existing gullies to be removed and replaced with side entry gullies

Gullies connection to drainage network has been assumed as existing

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ABBREVIATIONS:

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

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

Engineering Designer: **JROD**
TYPSA

Date: 13/05/2022
Scale: 1:500 @ A1
1:1000 @ A3

Project Code: BCIDD
Originator Code: ROT

Drawn: ECD
Checked: EFD
Approved: SMG

QMS Code

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

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

Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0020
Sheet Number: 20 of 38
Status: A
Rev: M01

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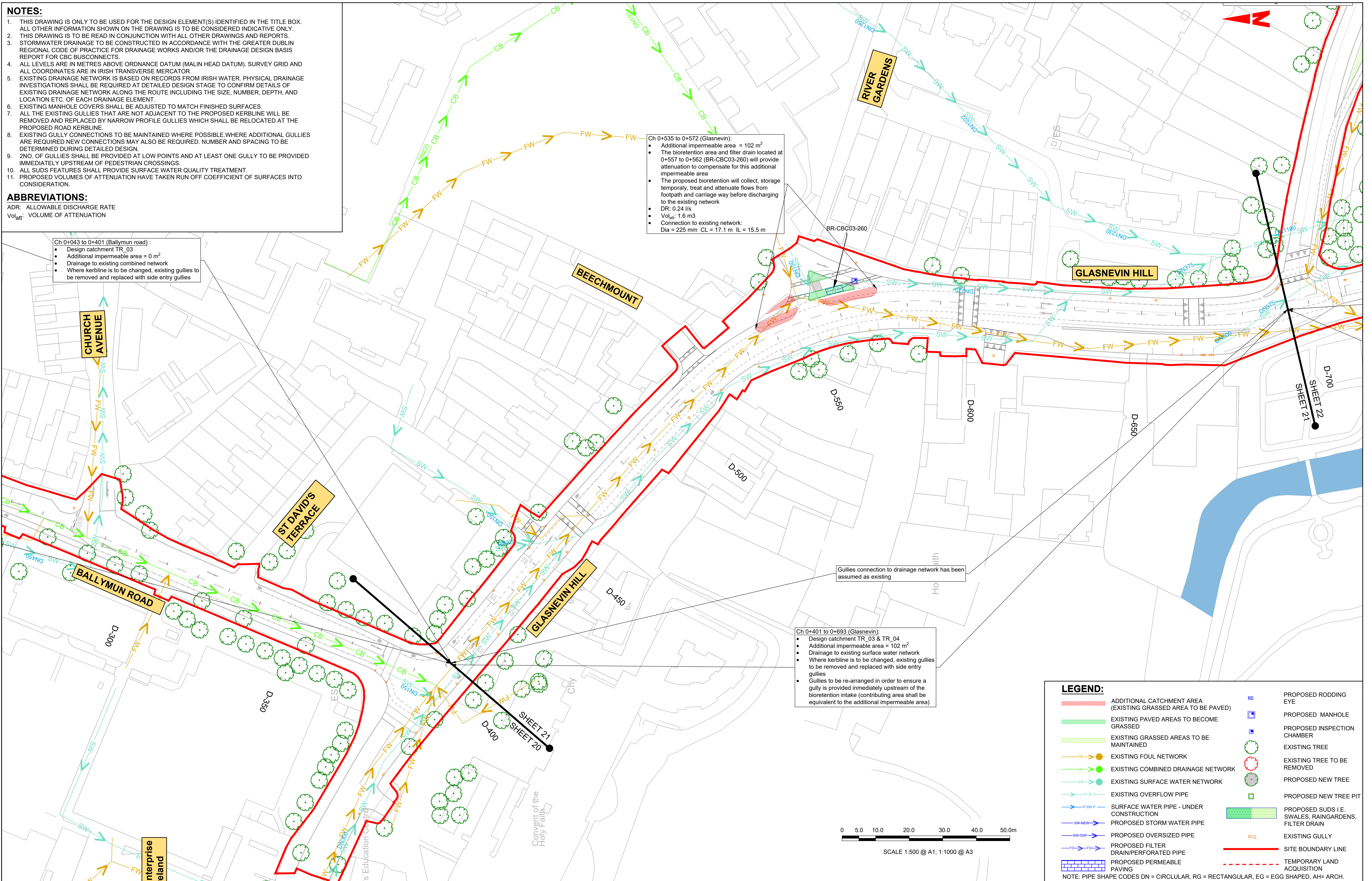
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ABBREVIATIONS:
 ADR: ALLOWABLE DISCHARGE RATE
 Vol_{att}: VOLUME OF ATTENUATION

Ch 0+043 to 0+401 (Ballymun road):
 • Design catchment TR_03
 • Additional impermeable area = 0 m²
 • Drainage to existing combined network
 • Where kerblines is to be changed, existing gullies to be removed and replaced with side entry gullies

Ch 0+535 to 0+572 (Glasnevin):
 • Additional impermeable area = 102 m²
 • The bioretention area and filter drain located at 0+557 to 0+562 (BR-CBC03-260) will provide attenuation to compensate for this additional impermeable area
 • The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
 • DR: 0.24 l/s
 • Vol_{att}: 1.6 m³
 • Connection to existing network:
 Dia = 225 mm CL = 17.1 m IL = 15.5 m

Ch 0+401 to 0+693 (Glasnevin):
 • Design catchment TR_03 & TR_04
 • Additional impermeable area = 102 m²
 • Drainage to existing surface water network
 • Where kerblines is to be changed, existing gullies to be removed and replaced with side entry gullies
 • Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)



LEGEND:

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
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	EXISTING FOUL NETWORK		EXISTING TREE
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	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
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	PROPOSED PERMEABLE PAVING		EGG SHAPED, AH= ARCH.

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Rev	Date	Drn	Chk'd	App'd	Description
M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **JROD**
 PROGRAM & DESIGN
 TYPISA

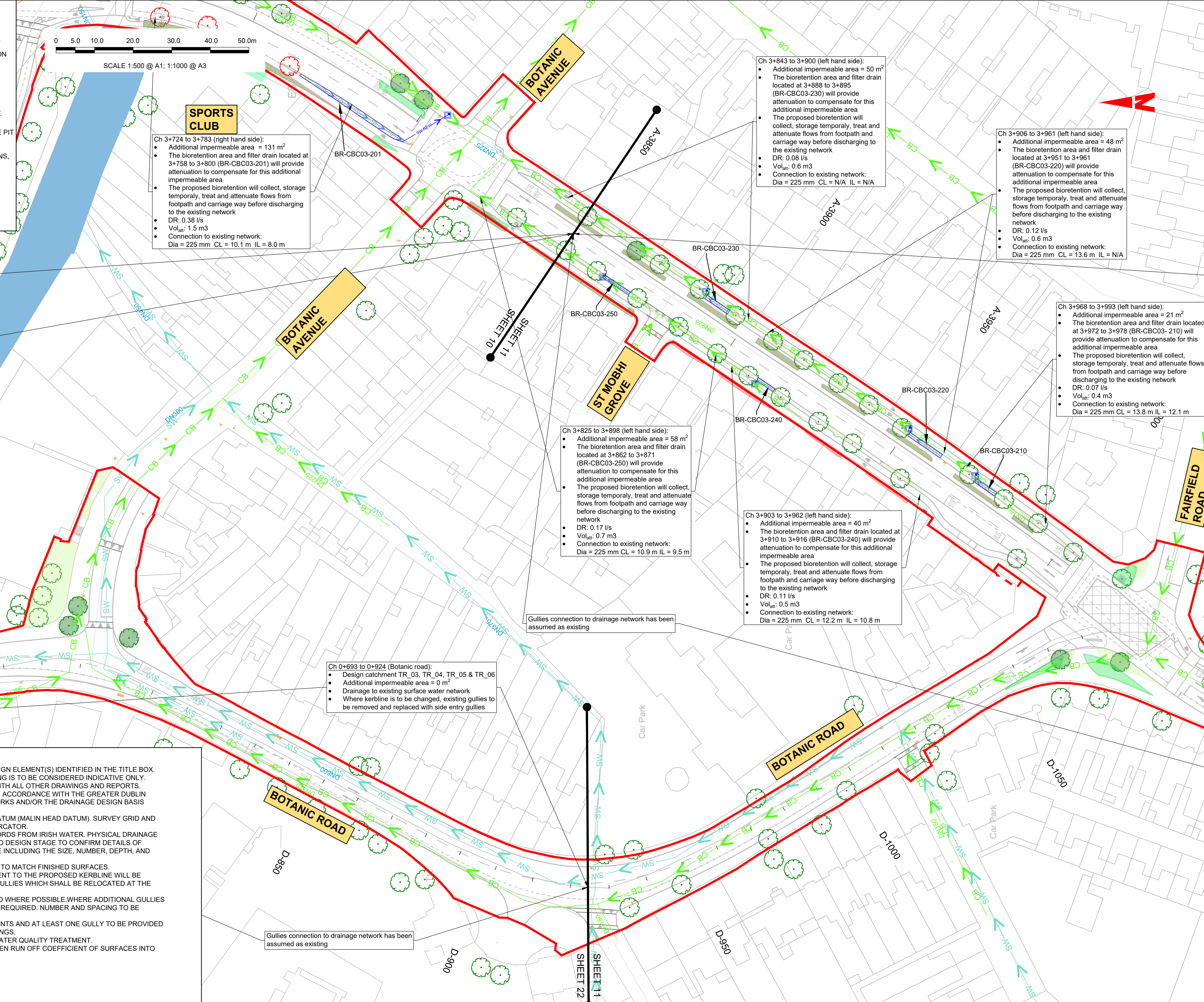
Date: 13/05/2022 Scale: 1:500 @ A1, 1:1000 @ A3
 Drawn: ECD Checked: EFD Approved: SMG

Project Code: BCIDD Originator Code: ROT QMS Code:

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: BALLYMUN / INGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0021	Sheet Number: 21 of 38	Status: A	Rev: 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 = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.



Ch 3+460 to 3+850 :

- Design catchment TR_01 & TR_06
- Additional impermeable area = 877 m²
- Drainage to existing surface water and combined network
- Where kerblines is to be changed, existing gullies to be removed and replaced with side entry gullies
- Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)

Gullies connection to drainage network has been assumed as existing

SPORTS CLUB

Ch 3+724 to 3+783 (right hand side):

- Additional impermeable area = 131 m²
- The bioretention area and filter drain located at 3+758 to 3+800 (BR-CBC03-201) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.38 l/s
- Vol_{att}: 1.5 m³
- Connection to existing network: Dia = 225 mm CL = 10.1 m IL = 8.0 m

Ch 3+843 to 3+900 (left hand side):

- Additional impermeable area = 50 m²
- The bioretention area and filter drain located at 3+888 to 3+895 (BR-CBC03-230) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.08 l/s
- Vol_{att}: 0.6 m³
- Connection to existing network: Dia = 225 mm CL = N/A IL = N/A

Ch 3+906 to 3+961 (left hand side):

- Additional impermeable area = 48 m²
- The bioretention area and filter drain located at 3+951 to 3+961 (BR-CBC03-220) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.12 l/s
- Vol_{att}: 0.6 m³
- Connection to existing network: Dia = 225 mm CL = 13.6 m IL = N/A

Ch 3+968 to 3+993 (left hand side):

- Additional impermeable area = 21 m²
- The bioretention area and filter drain located at 3+972 to 3+978 (BR-CBC03-210) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.07 l/s
- Vol_{att}: 0.4 m³
- Connection to existing network: Dia = 225 mm CL = 13.8 m IL = 12.1 m

Ch 3+825 to 3+898 (left hand side):

- Additional impermeable area = 58 m²
- The bioretention area and filter drain located at 3+862 to 3+871 (BR-CBC03-250) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.17 l/s
- Vol_{att}: 0.7 m³
- Connection to existing network: Dia = 225 mm CL = 10.9 m IL = 9.5 m

Ch 3+903 to 3+962 (left hand side):

- Additional impermeable area = 40 m²
- The bioretention area and filter drain located at 3+910 to 3+916 (BR-CBC03-240) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.11 l/s
- Vol_{att}: 0.5 m³
- Connection to existing network: Dia = 225 mm CL = 12.2 m IL = 10.8 m

Ch 0+693 to 0+924 (Botanic road):

- Design catchment TR_03, TR_04, TR_05 & TR_06
- Additional impermeable area = 0 m²
- Drainage to existing surface water network
- Where kerblines is to be changed, existing gullies to be removed and replaced with side entry gullies

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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.
 - 2NO. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
 - ALL SUDS FEATURES SHALL 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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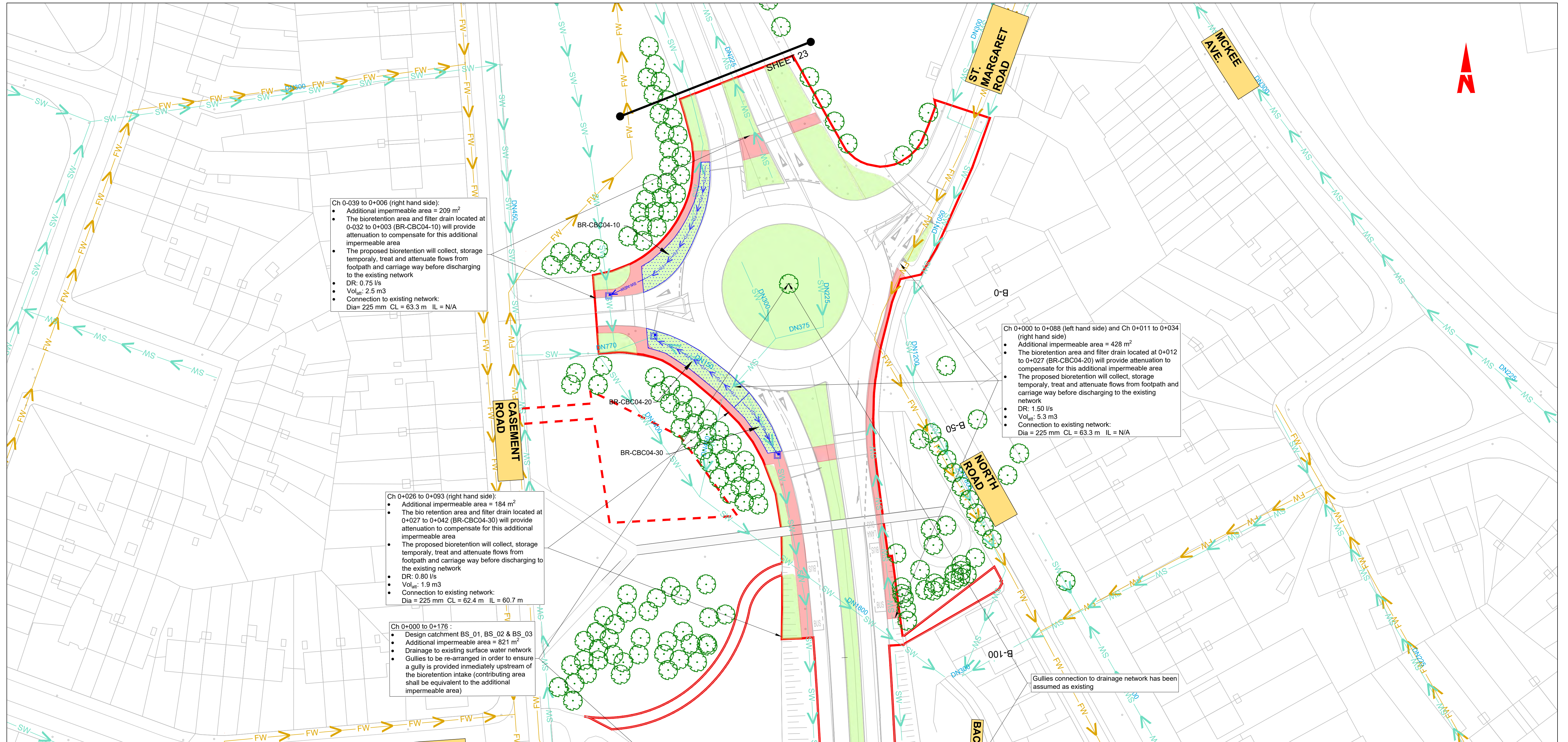


Rev	Date	Drn	Chk'd	App'd	Description
M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

Client NTA Údaráis Náisiúnta Iompair National Transport Authority		Engineering Designer IJROD RESPONSIBLE & CONTROLLED TVPSA		
Date 13/05/2022	Scale 1:500 @ A1 1:1000 @ A3	Drawn ECD	Checked EFD	Approved SMG
Project Code BCDD	Originator Code ROT	QMS Code		

Programme Title BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS				
Drawing Title BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS				
Drawing File Name BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0022	Sheet Number 22 of 38	Status A	Rev M01	

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Ch 0+039 to 0+006 (right hand side):

- Additional impermeable area = 209 m²
- The bioretention area and filter drain located at 0+032 to 0+003 (BR-CBC04-10) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.75 l/s
- Vol_{att}: 2.5 m³
- Connection to existing network: Dia = 225 mm CL = 63.3 m IL = N/A

Ch 0+000 to 0+088 (left hand side) and Ch 0+011 to 0+034 (right hand side):

- Additional impermeable area = 428 m²
- The bioretention area and filter drain located at 0+012 to 0+027 (BR-CBC04-20) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 1.50 l/s
- Vol_{att}: 5.3 m³
- Connection to existing network: Dia = 225 mm CL = 63.3 m IL = N/A

Ch 0+026 to 0+093 (right hand side):

- Additional impermeable area = 184 m²
- The bio retention area and filter drain located at 0+027 to 0+042 (BR-CBC04-30) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.80 l/s
- Vol_{att}: 1.9 m³
- Connection to existing network: Dia = 225 mm CL = 62.4 m IL = 60.7 m

Ch 0+000 to 0+176 :

- Design catchment BS_01, BS_02 & BS_03
- Additional impermeable area = 821 m²
- Drainage to existing surface water network
- Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)

Gullies connection to drainage network has been assumed as existing

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 = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

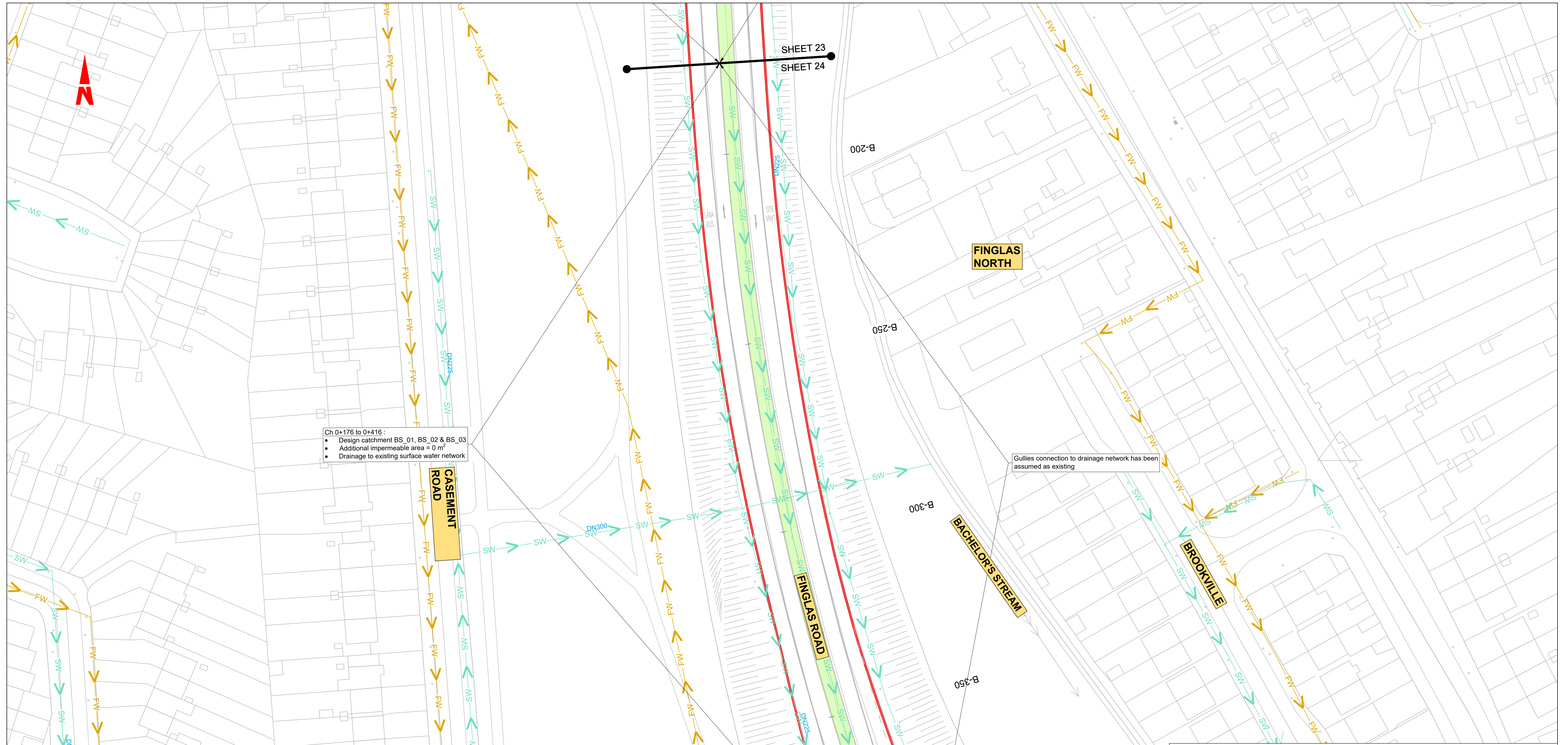
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6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
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ABBREVIATIONS:
 ADR: ALLOWABLE DISCHARGE RATE
 Vol_{att}: VOLUME OF ATTENUATION

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<p>Date 13/05/2022 Scale 1:500 @ A1 1:1000 @ A3</p>		<p>Drawn ECD Checked EFD Approved SMG</p>		<p>Drawing File Name BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0001</p>		<p>Sheet Number 23 of 38 Status A Rev M01</p>	

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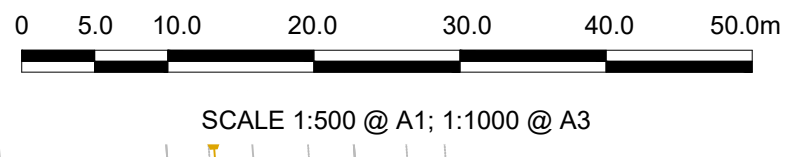
Ch 0+176 to 0+416 :
 • Design catchment BS_01, BS_02 & BS_03
 • Additional impermeable area = 0 m²
 • Drainage to existing surface water network

Gullies connection to drainage network has been assumed as existing

LEGEND:

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
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	EXISTING FOUL NETWORK		EXISTING TREE
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	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
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	SURFACE WATER PIPE - UNDER CONSTRUCTION		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
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Rev	Date	Drn	Chk'd	App'd	Description
M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

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

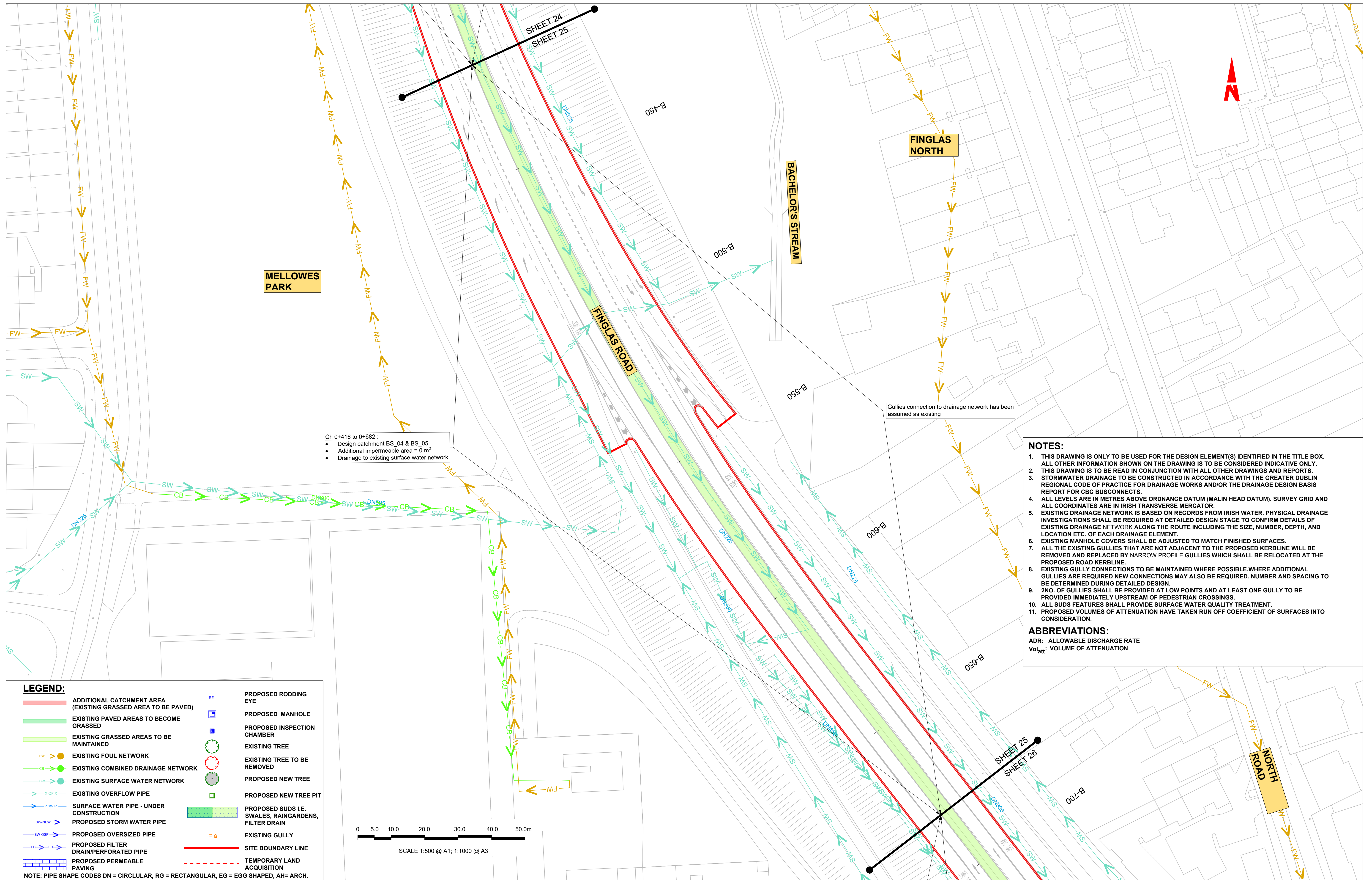
Engineering Designer: **FIROD**
 TYPSPA

Date: 13/05/2022 Scale: 1:500 @ A1, 1:1000 @ A3
 Drawn: ECD, Checked: EFD, Approved: SMG

Project Code: BCIDD, Originator Code: ROT, QMS Code: [blank]

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0001	Sheet Number: 24 of 38	Status: A	Rev: M01

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Ch 0+416 to 0+692:
 • Design catchment BS_04 & BS_05
 • Additional impermeable area = 0 m²
 • Drainage to existing surface water network

Gullies connection to drainage network has been assumed as existing

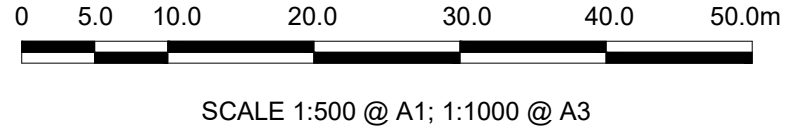
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 - ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
 - EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. 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 SHALL 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
	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 = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.



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e. The information contained herein does not purport to be comprehensive or final as the apparatus is subject to being altered and/or superseded. Recipients should not rely on this information. Any liabilities are hereby expressly disclaimed.

		Rev	Date	Drn	Chk'd	App'd	Description
		M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **FIROD**
 TYPSPA

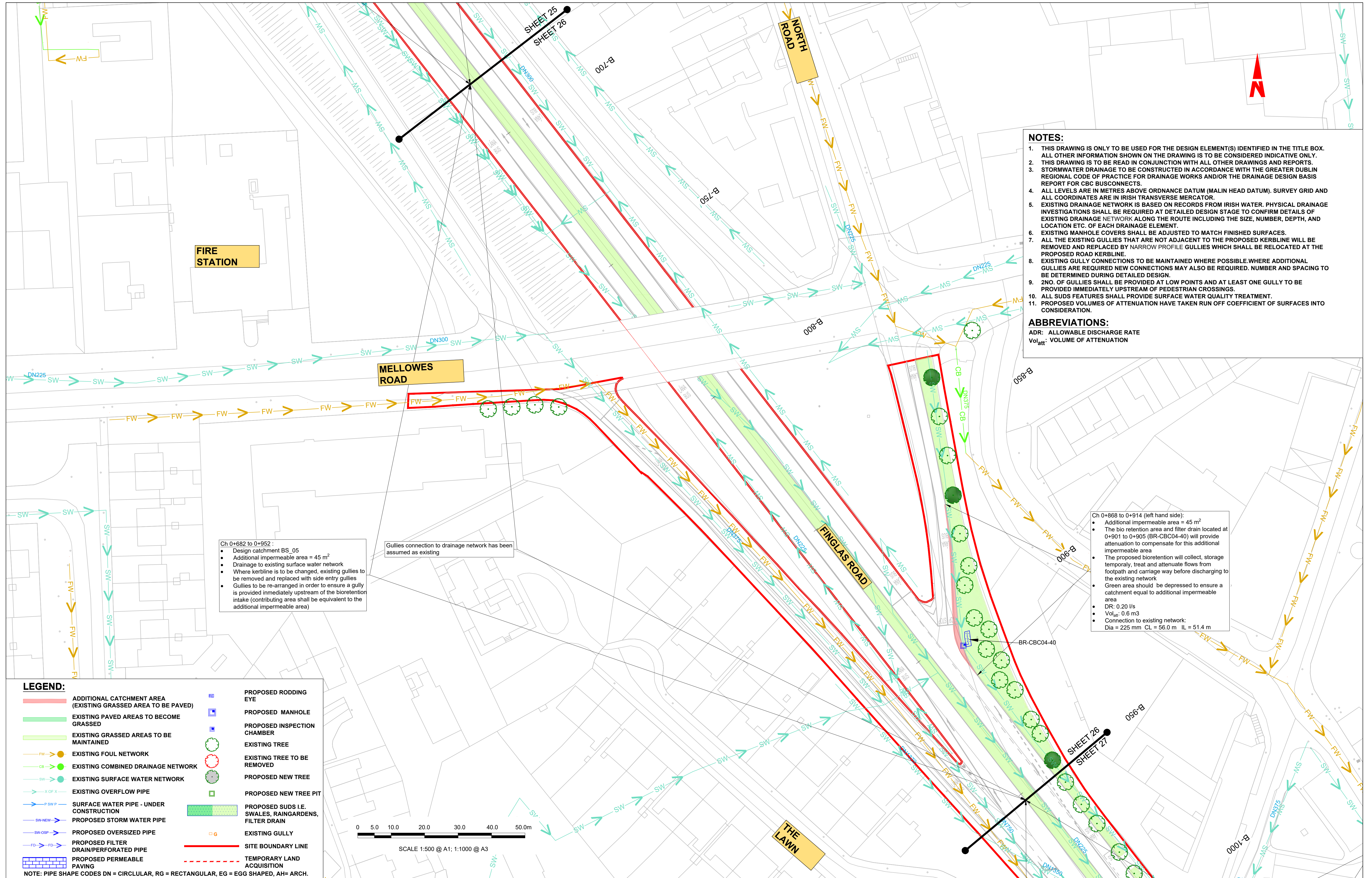
Date: 13/05/2022
 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDD
 Originator Code: ROT

Drawn: ECD
 Checked: EFD
 Approved: SMG

BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name	Sheet Number	Status	Rev
BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0001	25 of 38	A	M01

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 6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
 7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
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 10. ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
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ABBREVIATIONS:
 ADR: ALLOWABLE DISCHARGE RATE
 Vol_{att}: VOLUME OF ATTENUATION

Ch 0+682 to 0+952:
 • Design catchment BS. 05
 • Additional impermeable area = 45 m²
 • Drainage to existing surface water network
 • Where kerblines are to be changed, existing gullies to be removed and replaced with side entry gullies
 • Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)

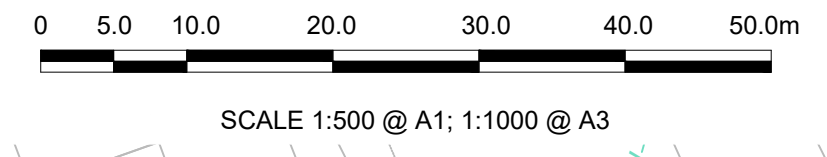
Gullies connection to drainage network has been assumed as existing

Ch 0+868 to 0+914 (left hand side):
 • Additional impermeable area = 45 m²
 • The bio retention area and filter drain located at 0+901 to 0+905 (BR-CBC04-40) will provide attenuation to compensate for this additional impermeable area
 • The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
 • Green area should be depressed to ensure a catchment equal to additional impermeable area
 • DR: 0.20 l/s
 • Vol_{att}: 0.6 m³
 • Connection to existing network:
 Dia = 225 mm CL = 56.0 m IL = 51.4 m

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
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	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
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Rev	Date	Drn	Chk'd	App'd	Description
M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

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

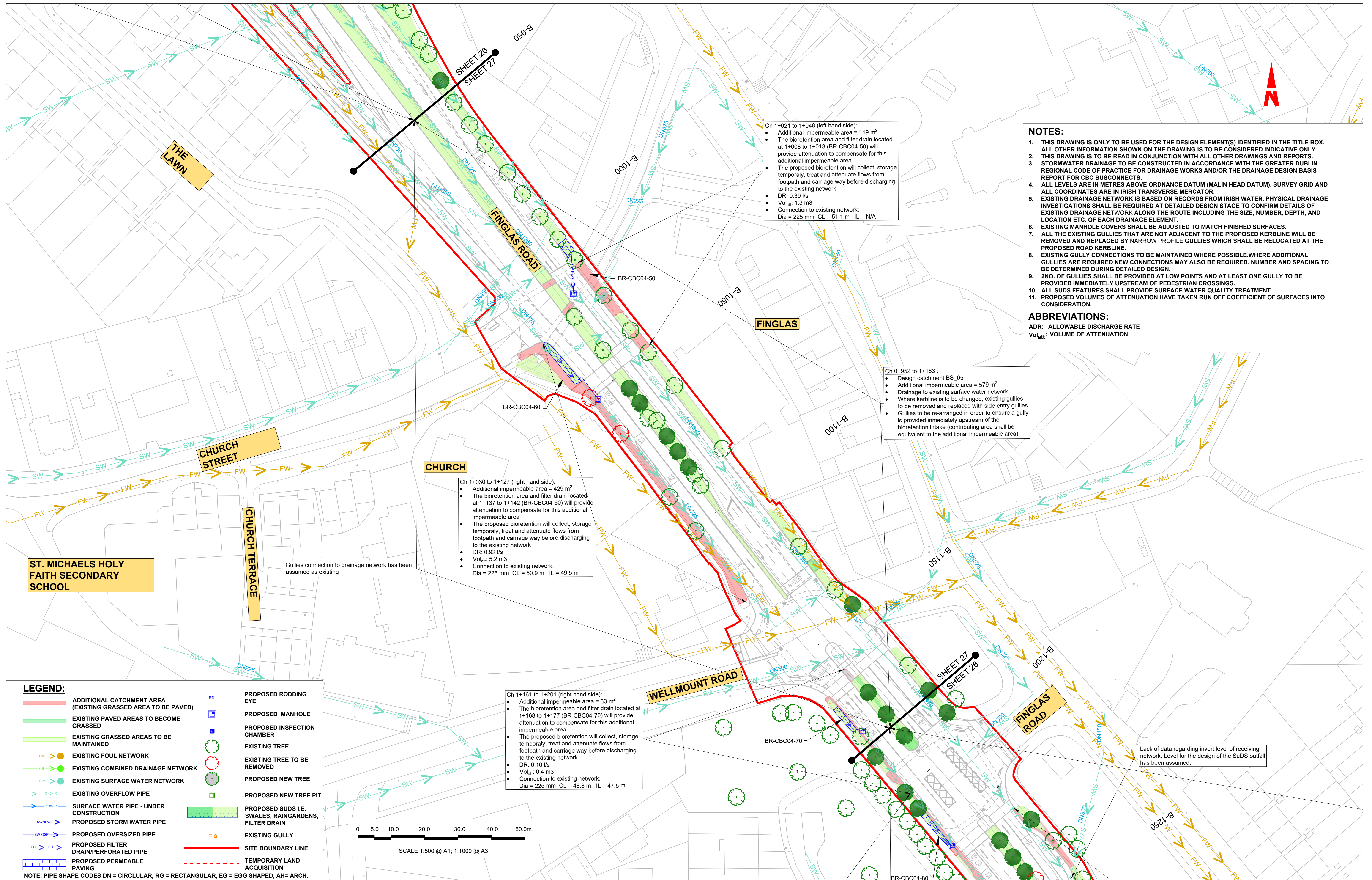
Engineering Designer: **FIROD**
 TYPSPA

Date: 13/05/2022 Scale: 1:500 @ A1, 1:1000 @ A3
 Drawn: ECD Checked: EFD Approved: SMG

Project Code: BCIDD Originator Code: ROT

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: BALLYMUN / INGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0001	Sheet Number: 26 of 38	Status: A	Rev: M01

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

Ch 1+021 to 1+048 (left hand side):

- Additional impermeable area = 119 m²
- The bioretention area and filter drain located at 1+008 to 1+013 (BR-CBC04-50) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.39 l/s
- Vol_{att}: 1.3 m³
- Connection to existing network: Dia = 225 mm CL = 51.1 m IL = N/A

Ch 0+952 to 1+183 :

- Design catchment BS_05
- Additional impermeable area = 579 m²
- Drainage to existing surface water network
- Where kerblines is to be changed, existing gullies to be removed and replaced with side entry gullies
- Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)

Ch 1+030 to 1+127 (right hand side):

- Additional impermeable area = 429 m²
- The bioretention area and filter drain located at 1+137 to 1+142 (BR-CBC04-60) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.92 l/s
- Vol_{att}: 5.2 m³
- Connection to existing network: Dia = 225 mm CL = 50.9 m IL = 49.5 m

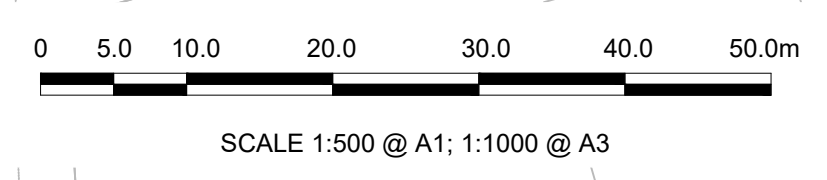
Ch 1+161 to 1+201 (right hand side):

- Additional impermeable area = 33 m²
- The bioretention area and filter drain located at 1+168 to 1+177 (BR-CBC04-70) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.10 l/s
- Vol_{att}: 0.4 m³
- Connection to existing network: Dia = 225 mm CL = 48.8 m IL = 47.5 m

LEGEND:

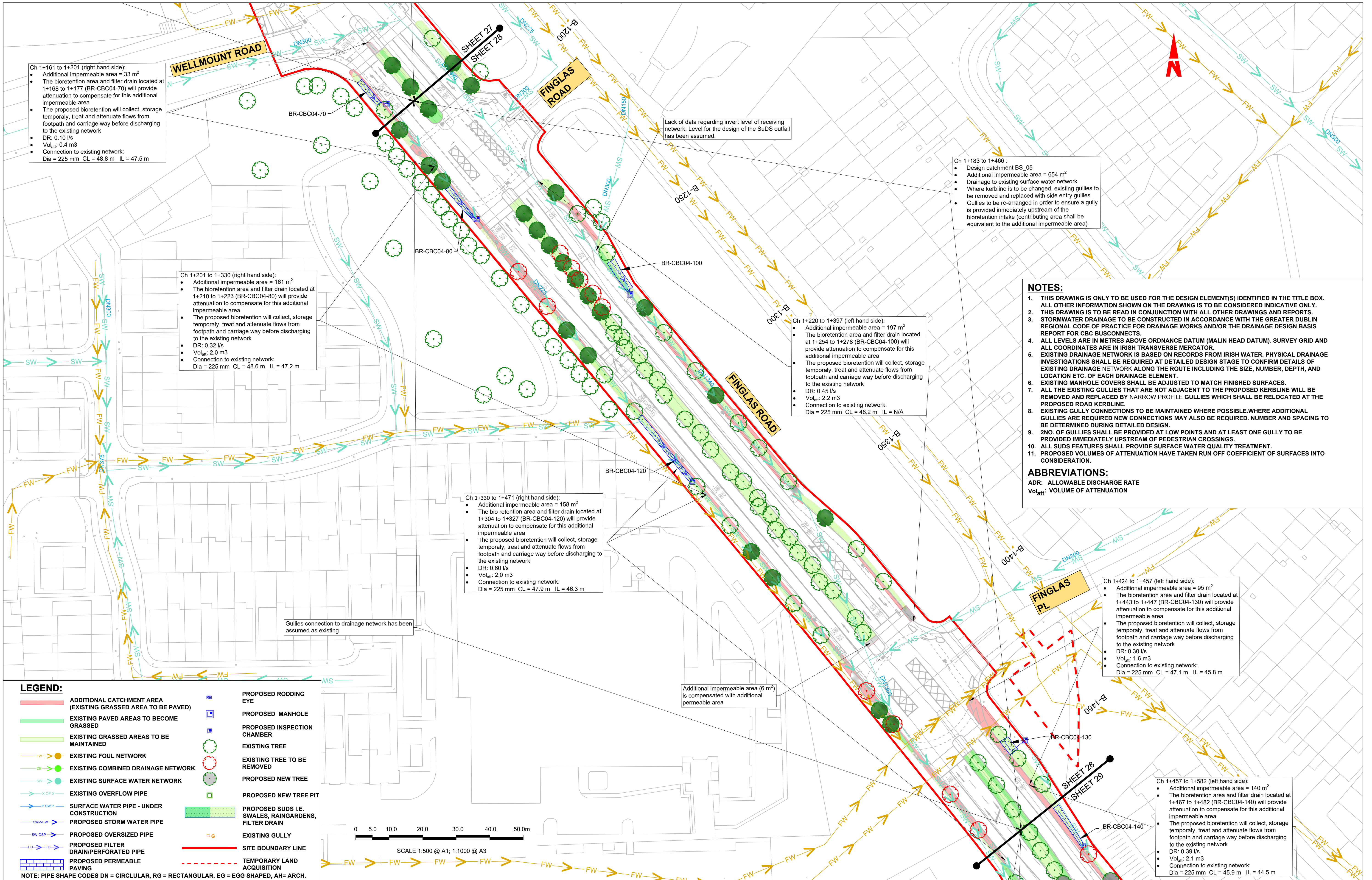
	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
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	SURFACE WATER PIPE - UNDER CONSTRUCTION		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
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Ch 1+161 to 1+201 (right hand side):

- Additional impermeable area = 33 m²
- The bioretention area and filter drain located at 1+168 to 1+177 (BR-CBC04-70) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.10 l/s
- Vol_{att}: 0.4 m³
- Connection to existing network: Dia = 225 mm CL = 48.8 m IL = 47.5 m

Ch 1+201 to 1+330 (right hand side):

- Additional impermeable area = 161 m²
- The bioretention area and filter drain located at 1+210 to 1+223 (BR-CBC04-80) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.32 l/s
- Vol_{att}: 2.0 m³
- Connection to existing network: Dia = 225 mm CL = 48.6 m IL = 47.2 m

Ch 1+330 to 1+471 (right hand side):

- Additional impermeable area = 158 m²
- The bio retention area and filter drain located at 1+304 to 1+327 (BR-CBC04-120) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.60 l/s
- Vol_{att}: 2.0 m³
- Connection to existing network: Dia = 225 mm CL = 47.9 m IL = 46.3 m

Ch 1+220 to 1+397 (left hand side):

- Additional impermeable area = 197 m²
- The bioretention area and filter drain located at 1+254 to 1+278 (BR-CBC04-100) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.45 l/s
- Vol_{att}: 2.2 m³
- Connection to existing network: Dia = 225 mm CL = 48.2 m IL = N/A

Ch 1+183 to 1+466 :

- Design catchment BS_05
- Additional impermeable area = 654 m²
- Drainage to existing surface water network
- Where kerblines to be changed, existing gullies to be removed and replaced with side entry gullies
- Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)

Ch 1+424 to 1+457 (left hand side):

- Additional impermeable area = 95 m²
- The bioretention area and filter drain located at 1+443 to 1+447 (BR-CBC04-130) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.30 l/s
- Vol_{att}: 1.6 m³
- Connection to existing network: Dia = 225 mm CL = 47.1 m IL = 45.8 m

Ch 1+457 to 1+582 (left hand side):

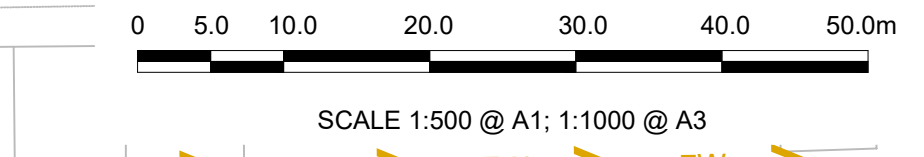
- Additional impermeable area = 140 m²
- The bioretention area and filter drain located at 1+467 to 1+482 (BR-CBC04-140) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.39 l/s
- Vol_{att}: 2.1 m³
- Connection to existing network: Dia = 225 mm CL = 45.9 m IL = 44.5 m

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LEGEND:

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	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 = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.



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Rev	Date	Drn	Chk'd	App'd	Description
M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **FIROD**
TYPSPA

Date: 13/05/2022 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDD Originator Code: ROT

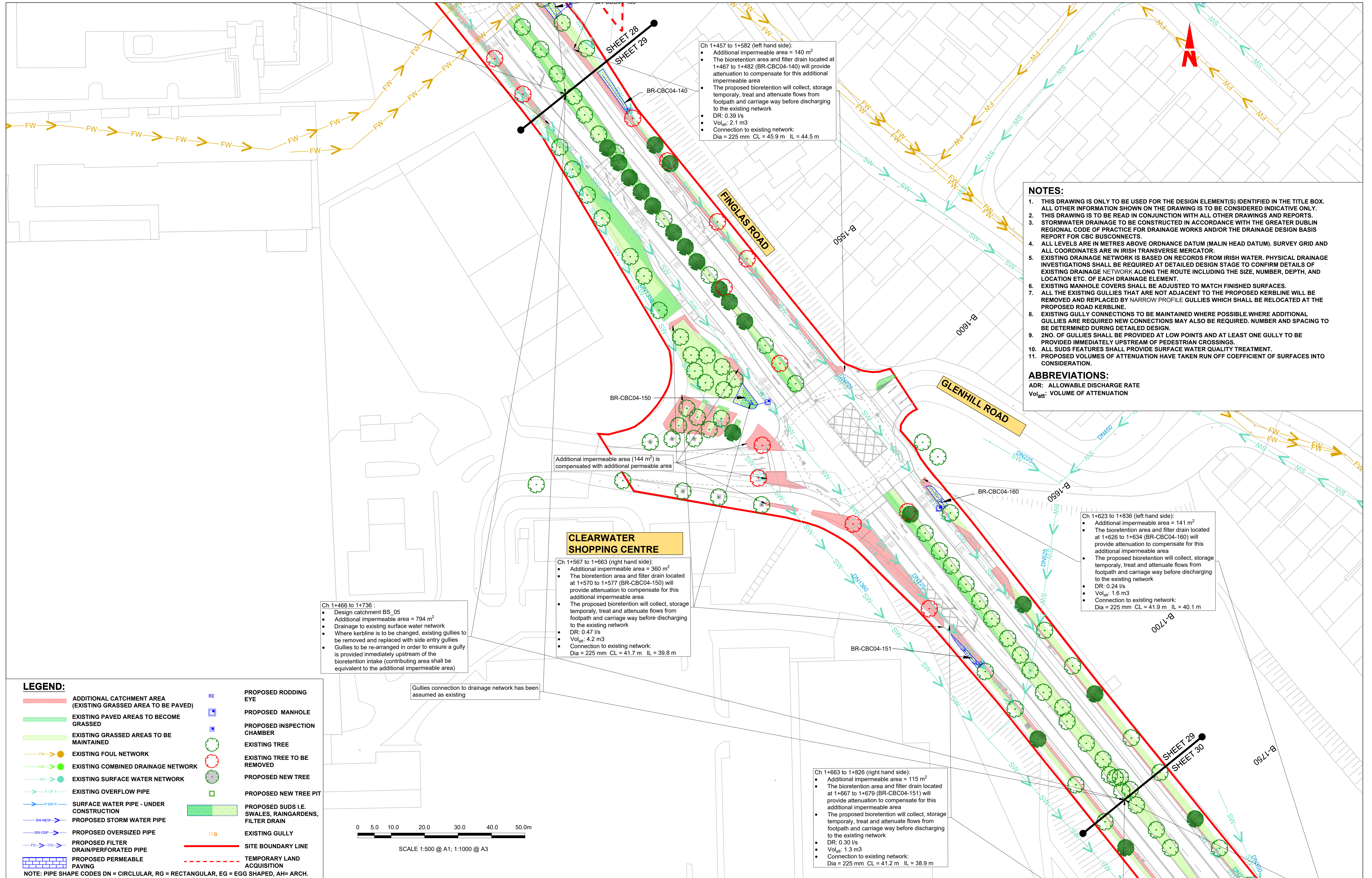
Drawn: ECD Checked: EFD Approved: SMG

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

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

Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0001	Sheet Number: 28 of 38	Status: A	Rev: M01
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DO NOT SCALE USE FIGURED DIMENSIONS ONLY



Ch 1+457 to 1+582 (left hand side):

- Additional impermeable area = 140 m²
- The bioretention area and filter drain located at 1+467 to 1+482 (BR-CBC04-140) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.39 l/s
- Vol_{att}: 2.1 m³
- Connection to existing network: Dia = 225 mm CL = 45.9 m IL = 44.5 m

CLEARWATER SHOPPING CENTRE

Ch 1+567 to 1+663 (right hand side):

- Additional impermeable area = 360 m²
- The bioretention area and filter drain located at 1+570 to 1+577 (BR-CBC04-150) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.47 l/s
- Vol_{att}: 4.2 m³
- Connection to existing network: Dia = 225 mm CL = 41.7 m IL = 39.8 m

Ch 1+466 to 1+736 :

- Design catchment BS_05
- Additional impermeable area = 794 m²
- Drainage to existing surface water network
- Where kerbline is to be changed, existing gullies to be removed and replaced with side entry gullies
- Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)

Ch 1+623 to 1+836 (left hand side):

- Additional impermeable area = 141 m²
- The bioretention area and filter drain located at 1+626 to 1+634 (BR-CBC04-160) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.24 l/s
- Vol_{att}: 1.6 m³
- Connection to existing network: Dia = 225 mm CL = 41.9 m IL = 40.1 m

Ch 1+663 to 1+826 (right hand side):

- Additional impermeable area = 115 m²
- The bioretention area and filter drain located at 1+667 to 1+679 (BR-CBC04-151) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.30 l/s
- Vol_{att}: 1.3 m³
- Connection to existing network: Dia = 225 mm CL = 41.2 m IL = 38.9 m

NOTES:

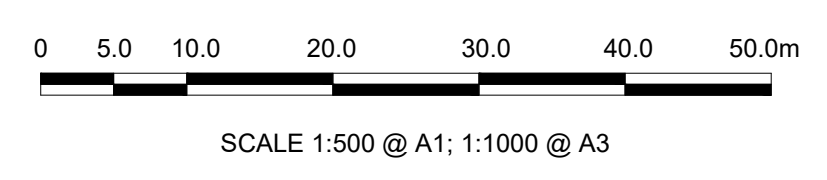
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6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD 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. ZINC OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

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

LEGEND:

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		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
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Gullies connection to drainage network has been assumed as existing

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Rev	Date	Drn	Chk'd	App'd	Description
M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **FIROD**
 TYPSPA

Date: 13/05/2022 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDD Originator Code: ROT

Drawn: ECD Checked: EFD Approved: SMG

QMS Code

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

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

Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0001	Sheet Number: 29 of 38	Status: A	Rev: M01
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DO NOT SCALE USE FIGURED DIMENSIONS ONLY

Ch 1+663 to 1+826 (right hand side):

- Additional impermeable area = 115 m²
- The bioretention area and filter drain located at 1+667 to 1+679 (BR-CBC04-151) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.30 l/s
- Vol_{att}: 1.3 m³
- Connection to existing network: Dia = 225 mm CL = 41.2 m IL = 38.9 m

Ch 1+850 to 1+896 (right hand side):

- Additional impermeable area = 74 m²
- The bioretention area and filter drain located at 1+876 to 1+888 (BR-CBC04-170) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.22 l/s
- Vol_{att}: 0.9 m³
- Connection to existing network: Dia = 225 mm CL = 35.8 m IL = 32.9 m

Ch 1+736 to 2+053:

- Design catchment BS_05 & BS_06
- Additional impermeable area = 431 m²
- Drainage to existing surface water network
- Where kerbline is to be changed, existing gullies to be removed and replaced with side entry gullies
- Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)

Ch 1+907 to 1+942 (right hand side):

- Additional impermeable area = 130 m²
- The bioretention area and filter drain located at 1+914 to 1+922 (BR-CBC04-180) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.34 l/s
- Vol_{att}: 1.8 m³
- Connection to existing network: Dia = 225 mm CL = 34.2 m IL = 32.8 m

Ch 1+953 to 2+010 (left hand side):

- Additional impermeable area = 80 m²
- The bioretention area and filter drain located at 1+967 to 1+978 (BR-CBC04-190) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- No data of existing network. Need to be confirmed
- DR: 0.16 l/s
- Vol_{att}: 1.4 m³
- Connection to existing network: Dia = 225 mm CL = 32.6 m IL = 30.8 m

Ch 2+045 to 2+106 (left hand side):

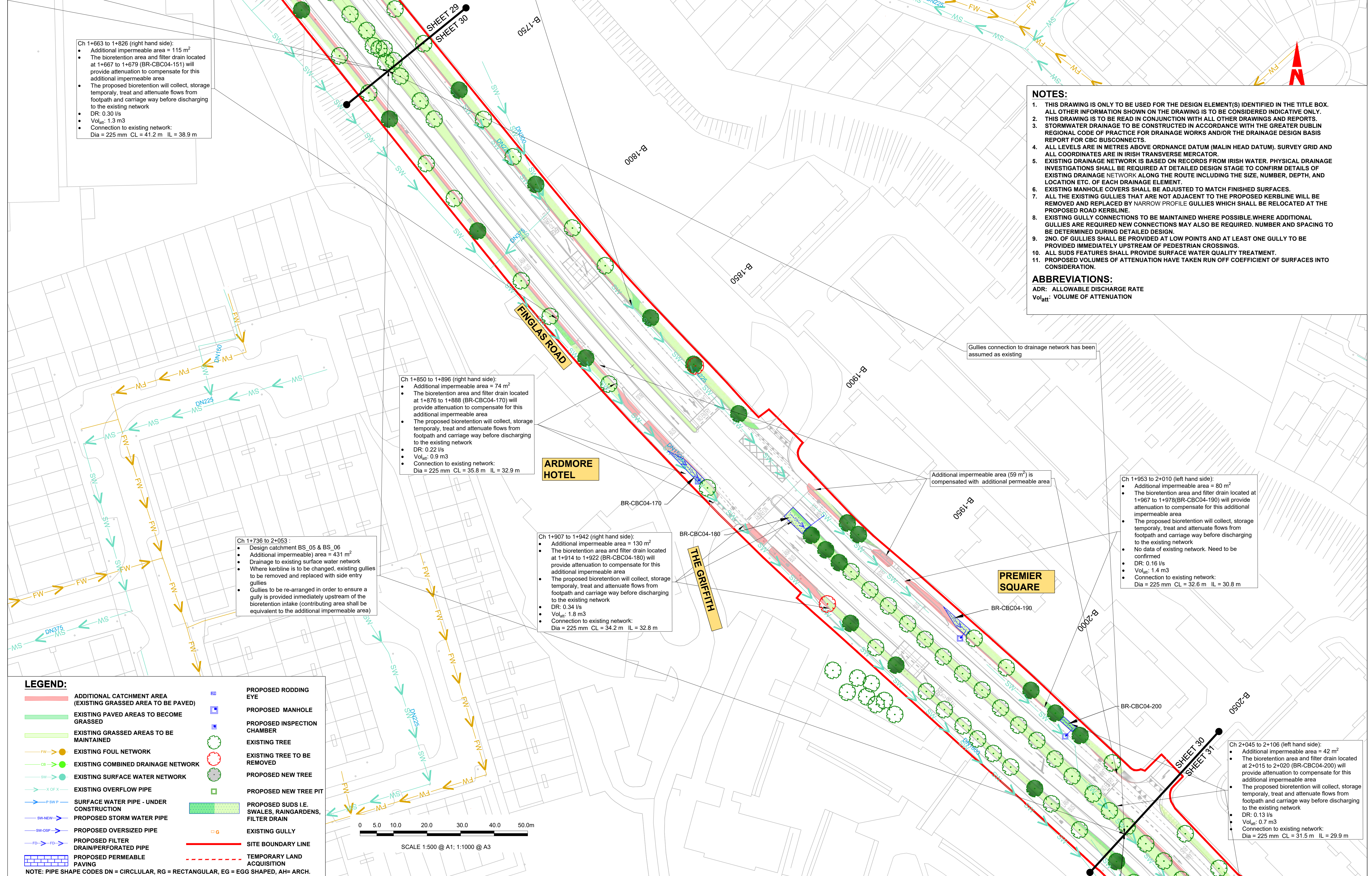
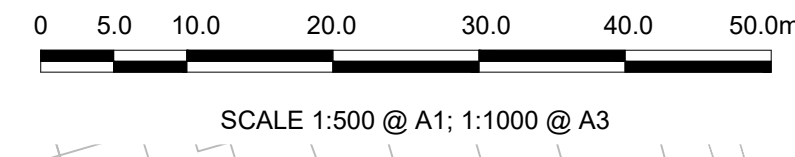
- Additional impermeable area = 42 m²
- The bioretention area and filter drain located at 2+015 to 2+020 (BR-CBC04-200) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.13 l/s
- Vol_{att}: 0.7 m³
- Connection to existing network: Dia = 225 mm CL = 31.5 m IL = 29.9 m

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 10. ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
 11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.
- ABBREVIATIONS:**
 ADR: ALLOWABLE DISCHARGE RATE
 Vol_{att}: VOLUME OF ATTENUATION

LEGEND:

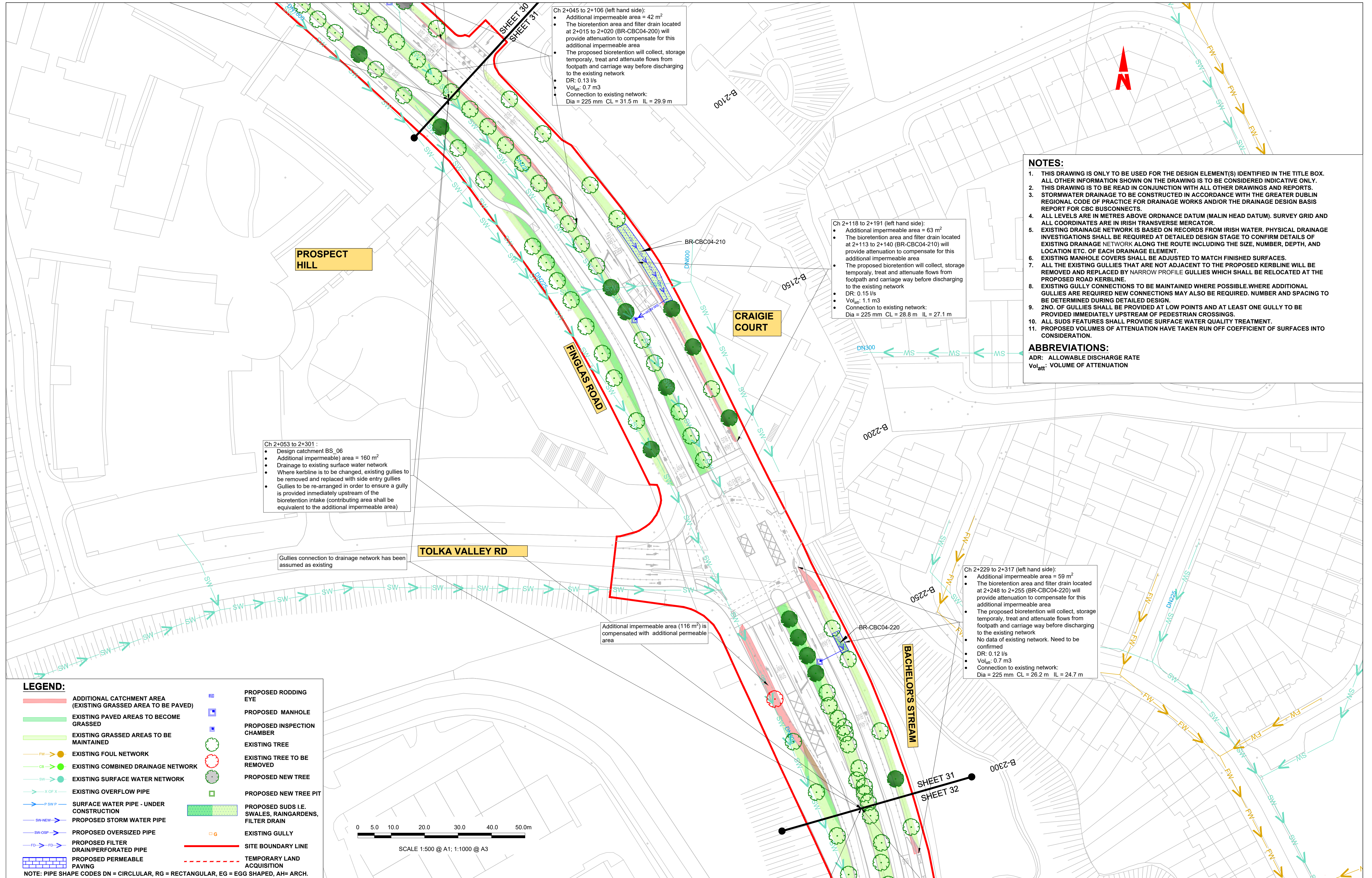
	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE TO BE REMOVED
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<p>Date 13/05/2022</p> <p>Project Code BCIDD</p> <p>Originator Code ROT</p>		<p>Scale 1:500 @ A1 1:1000 @ A3</p> <p>Drawn ECD</p> <p>Checked EFD</p> <p>Approved SMG</p>		<p>QMS Code</p> <p>Sheet Number 30 of 38</p> <p>Status A</p> <p>Rev M01</p>		<p>Drawing File Name BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0001</p>	

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Ch 2+045 to 2+106 (left hand side):

- Additional impermeable area = 42 m²
- The bioretention area and filter drain located at 2+015 to 2+020 (BR-CBC04-200) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.13 l/s
- Vol_{att}: 0.7 m³
- Connection to existing network: Dia = 225 mm CL = 31.5 m IL = 29.9 m

Ch 2+118 to 2+191 (left hand side):

- Additional impermeable area = 63 m²
- The bioretention area and filter drain located at 2+113 to 2+140 (BR-CBC04-210) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.15 l/s
- Vol_{att}: 1.1 m³
- Connection to existing network: Dia = 225 mm CL = 28.8 m IL = 27.1 m

Ch 2+053 to 2+301:

- Design catchment BS_06
- Additional impermeable area = 160 m²
- Drainage to existing surface water network
- Where kerblines is to be changed, existing gullies to be removed and replaced with side entry gullies
- Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)

Ch 2+229 to 2+317 (left hand side):

- Additional impermeable area = 59 m²
- The bioretention area and filter drain located at 2+248 to 2+255 (BR-CBC04-220) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- No data of existing network. Need to be confirmed
- DR: 0.12 l/s
- Vol_{att}: 0.7 m³
- Connection to existing network: Dia = 225 mm CL = 26.2 m IL = 24.7 m

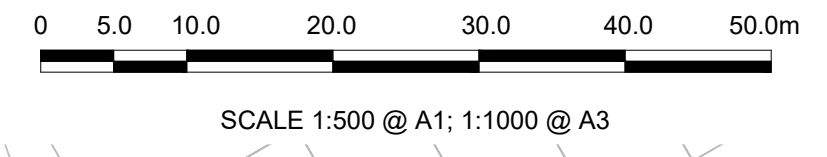
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 9. 2NO. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
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ABBREVIATIONS:
 ADR: ALLOWABLE DISCHARGE RATE
 Vol_{att}: VOLUME OF ATTENUATION

LEGEND:

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE TO BE REMOVED
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Rev	Date	Drn	Chk'd	App'd	Description
M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **FIROD**
 TYPSPA

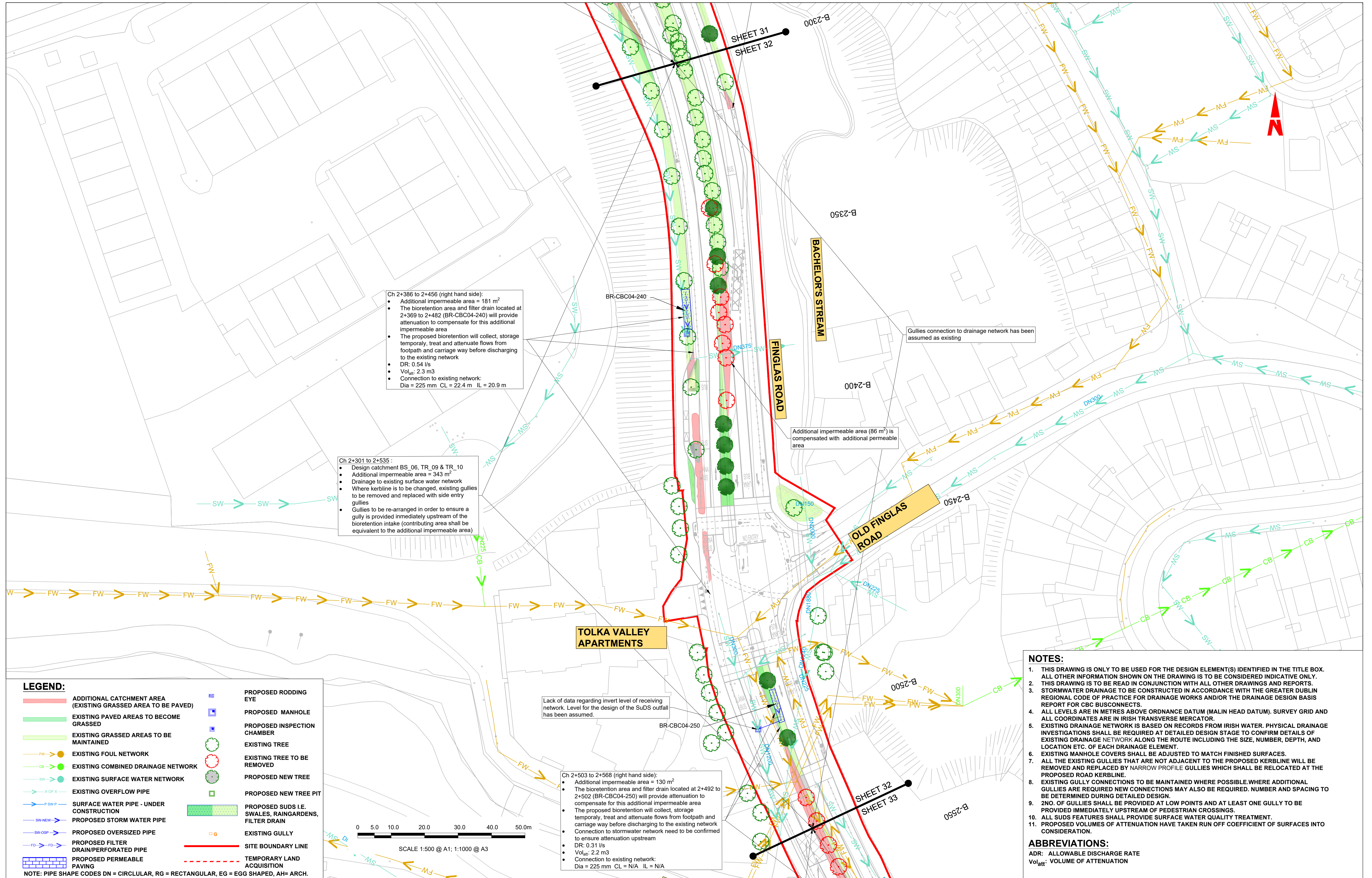
Date: 13/05/2022 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDD Originator Code: ROT

Drawn: ECD Checked: EFD Approved: SMG

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0001	Sheet Number: 31 of 38	Status: A	Rev: M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



Ch 2+386 to 2+456 (right hand side):

- Additional impermeable area = 181 m²
- The bioretention area and filter drain located at 2+369 to 2+482 (BR-CBC04-240) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.54 l/s
- Vol_{att}: 2.3 m³
- Connection to existing network: Dia = 225 mm CL = 22.4 m IL = 20.9 m

Ch 2+301 to 2+535:

- Design catchment BS_06, TR_09 & TR_10
- Additional impermeable area = 343 m²
- Drainage to existing surface water network
- Where kerbline is to be changed, existing gullies to be removed and replaced with side entry gullies
- Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)

Lack of data regarding invert level of receiving network. Level for the design of the SuDS outfall has been assumed.

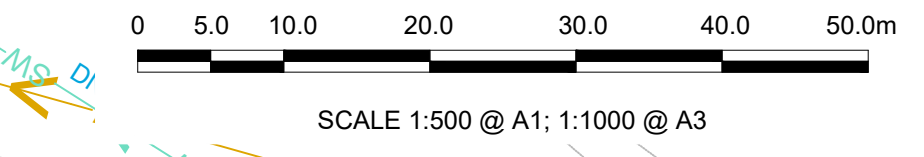
Ch 2+503 to 2+568 (right hand side):

- Additional impermeable area = 130 m²
- The bioretention area and filter drain located at 2+492 to 2+502 (BR-CBC04-250) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- Connection to stormwater network need to be confirmed to ensure attenuation upstream
- DR: 0.31 l/s
- Vol_{att}: 2.2 m³
- Connection to existing network: Dia = 225 mm CL = N/A IL = N/A

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		TEMPORARY LAND ACQUISITION
	PROPOSED FILTER DRAIN/PERFORATED PIPE		PROPOSED PERMEABLE PAVING
	PROPOSED PERMEABLE PAVING		

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



NOTES:

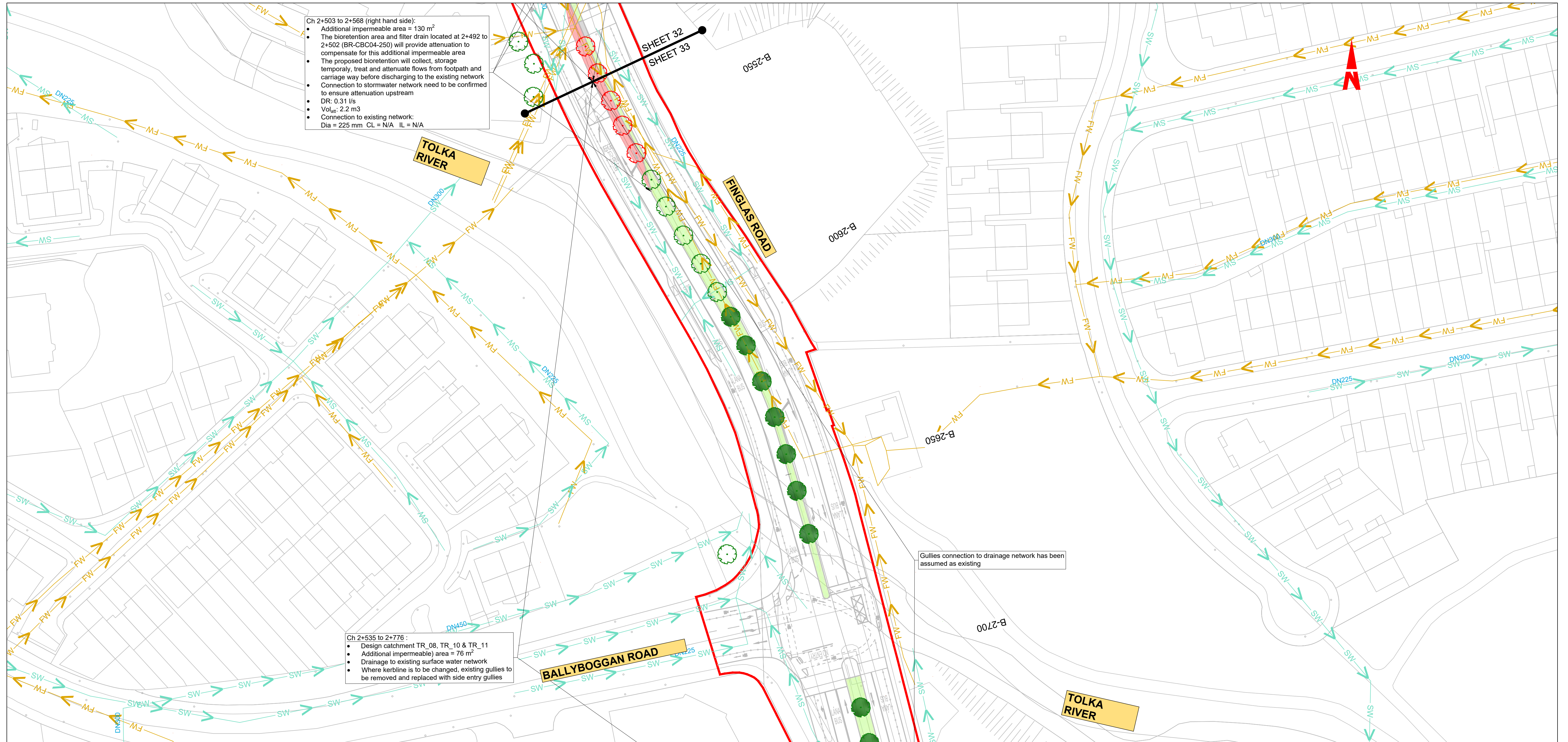
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- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (MALIN HEAD DATUM), SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
- EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS SHALL BE REQUIRED 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.
- 2NO. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
- ALL SUDS FEATURES SHALL 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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<p>Date: 13/05/2022</p> <p>Project Code: BCIDD</p>		<p>Scale: 1:500 @ A1, 1:1000 @ A3</p> <p>Originator Code: ROT</p>		<p>Drawn: ECD</p> <p>Checked: EFD</p> <p>Approved: SMG</p>		<p>Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0001</p> <p>Sheet Number: 32 of 38</p> <p>Status: A</p> <p>Rev: M01</p>					

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Ch 2+503 to 2+568 (right hand side):

- Additional impermeable area = 130 m²
- The bioretention area and filter drain located at 2+492 to 2+502 (BR-CBC04-250) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- Connection to stormwater network need to be confirmed to ensure attenuation upstream
- DR: 0.31 l/s
- Vol_{att}: 2.2 m³
- Connection to existing network:
Dia = 225 mm CL = N/A IL = N/A

Ch 2+535 to 2+776 :

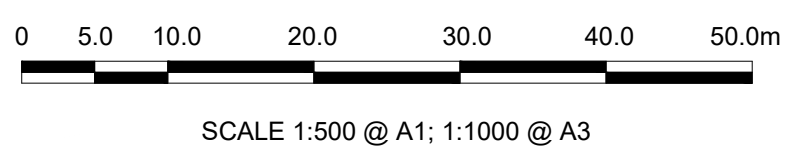
- Design catchment TR_08, TR_10 & TR_11
- Additional impermeable area = 76 m²
- Drainage to existing surface water network
- Where kerblines is to be changed, existing gullies to be removed and replaced with side entry gullies

Gullies connection to drainage network has been assumed as existing

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

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

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Rev	Date	Drn	Chk'd	App'd	Description
M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

NTA
 Udarás Náisiúnta Iompair
 National Transport Authority

Date: 13/05/2022
 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDD
 Originator Code: ROT

Engineering Designer

FIROD
 TYPSPA

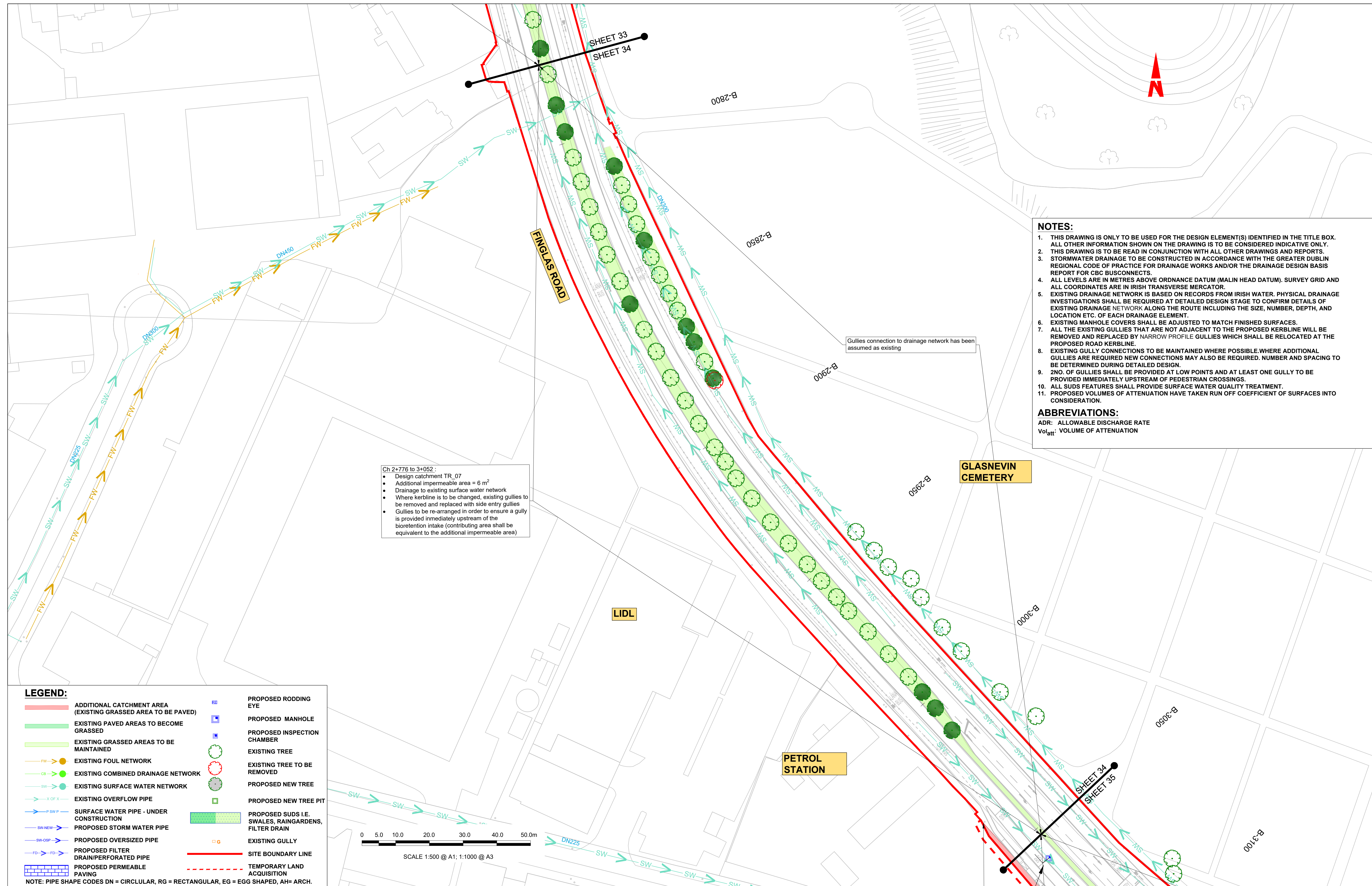
Drawn: ECD
 Checked: EFD
 Approved: SMG

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

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

Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0001
 Sheet Number: 33 of 38
 Status: A
 Rev: M01

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ABBREVIATIONS:
 ADR: ALLOWABLE DISCHARGE RATE
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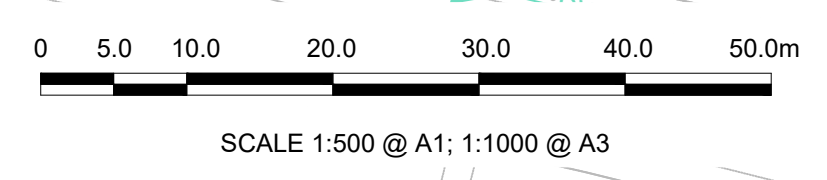
Ch 2+776 to 3+052:

- Design catchment TR_07
- Additional impermeable area = 6 m²
- Drainage to existing surface water network
- Where kerbline is to be changed, existing gullies to be removed and replaced with side entry gullies
- Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable 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 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	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **FIROD**
TYPSPA

Date: 13/05/2022 Scale: 1:500 @ A1, 1:1000 @ A3

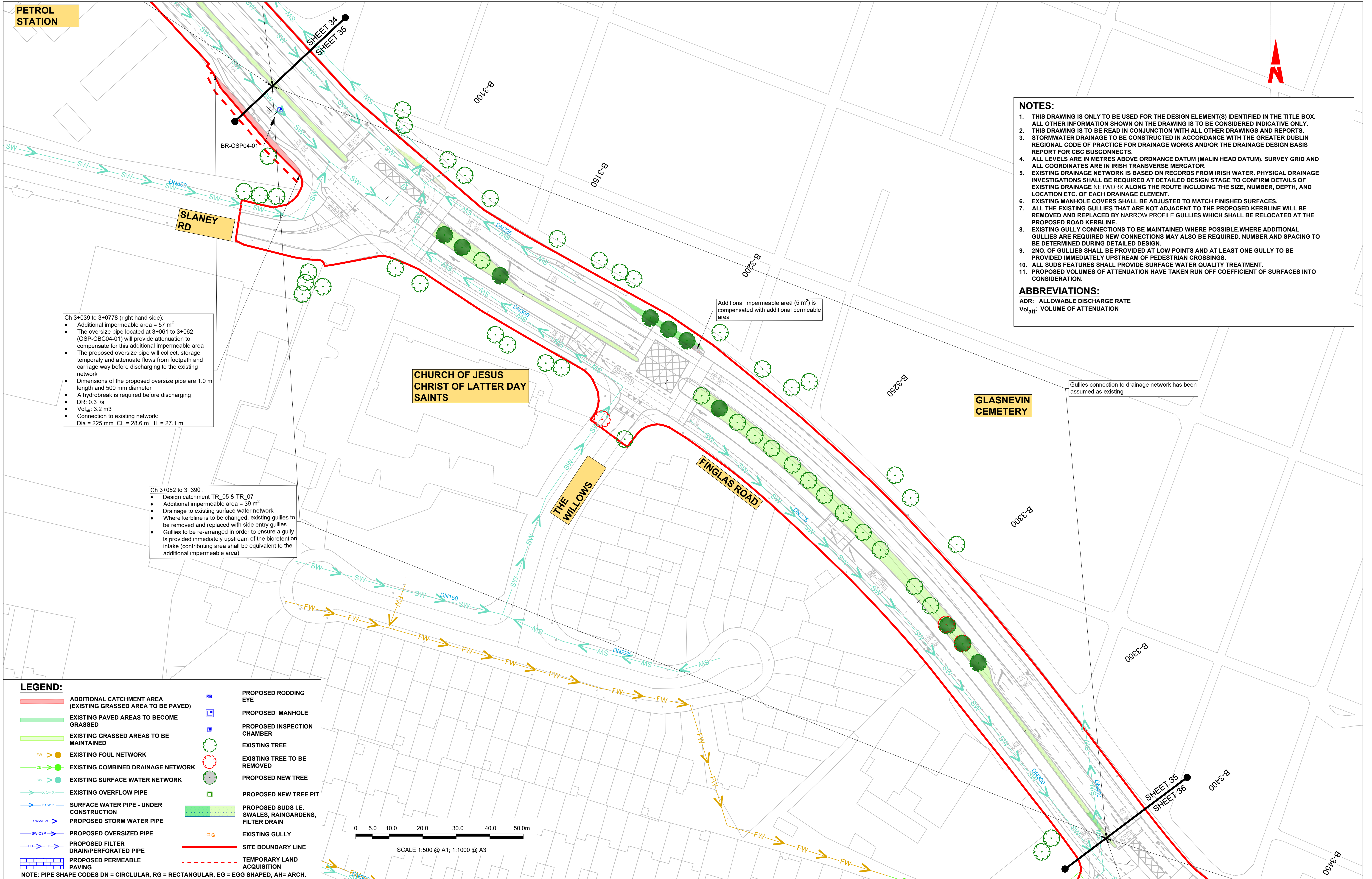
Project Code: BCIDD Originator Code: ROT

Drawn: ECD Checked: EFD Approved: SMG

GMS Code: _____

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0001	Sheet Number: 34 of 38	Status: A	Rev: M01

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

Ch 3+039 to 3+0778 (right hand side):

- Additional impermeable area = 57 m²
- The oversize pipe located at 3+061 to 3+062 (OSP-CBC04-01) will provide attenuation to compensate for this additional impermeable area
- The proposed oversize pipe will collect, store temporarily and attenuate flows from footpath and carriage way before discharging to the existing network
- Dimensions of the proposed oversize pipe are 1.0 m length and 500 mm diameter
- A hydrobreak is required before discharging
- DR: 0.3 l/s
- Vol_{att}: 3.2 m³
- Connection to existing network:
Dia = 225 mm CL = 28.6 m IL = 27.1 m

Ch 3+052 to 3+390:

- Design catchment TR_05 & TR_07
- Additional impermeable area = 39 m²
- Drainage to existing surface water network
- Where kerblines are to be changed, existing gullies to be removed and replaced with side entry gullies
- Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)

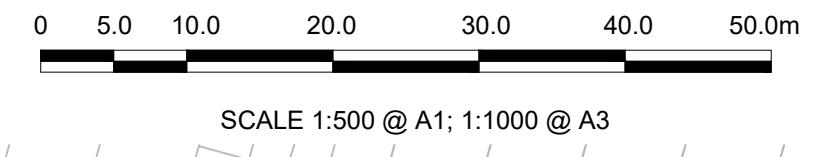
Additional impermeable area (5 m²) is compensated with additional permeable area

Gullies connection to drainage network has been assumed as existing

LEGEND:

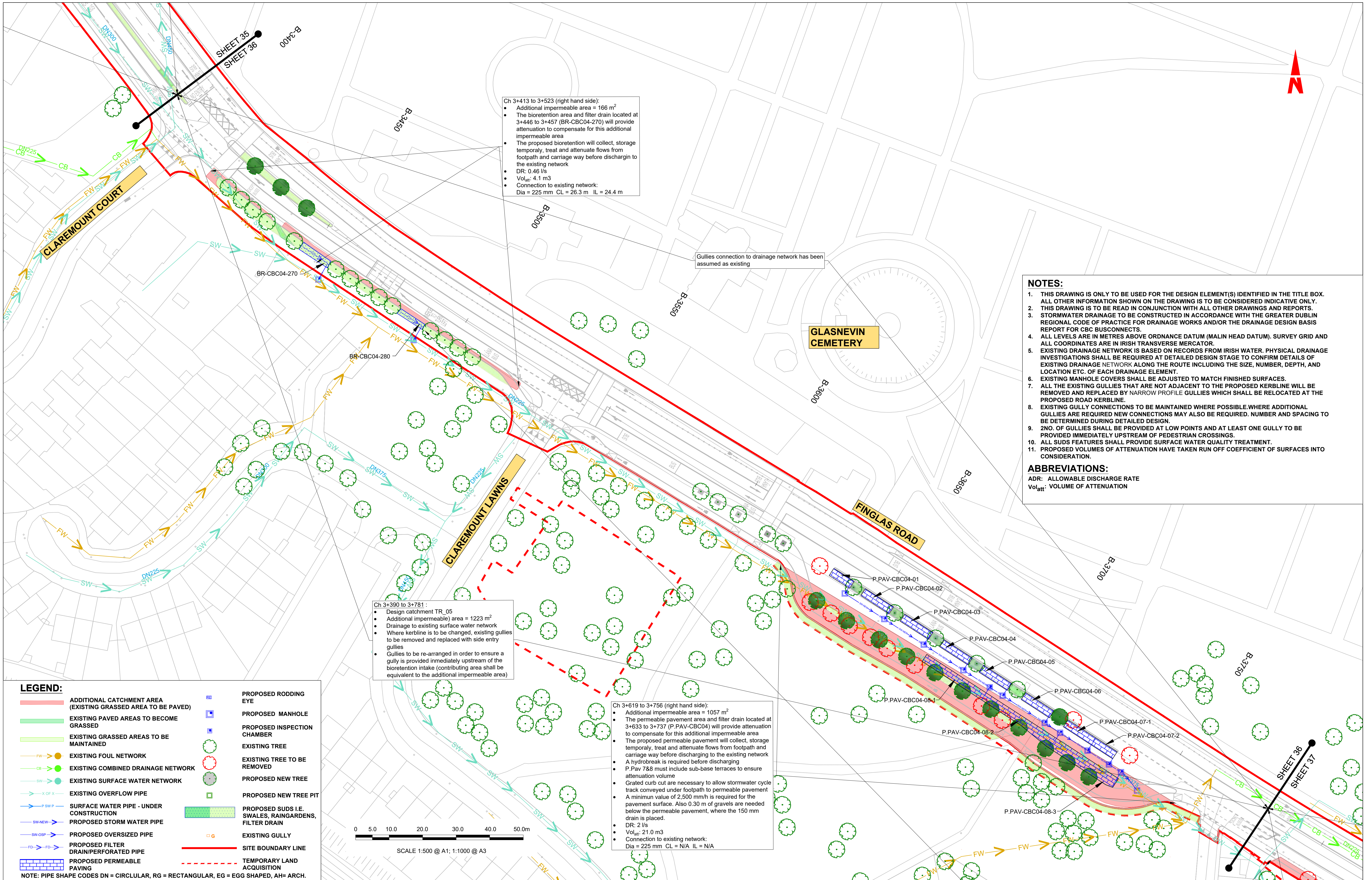
	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE 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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<p>Date 13/05/2022 Scale 1:500 @ A1 1:1000 @ A3</p>		<p>Drawn ECD Checked EFD Approved SMG</p>		<p>Project Code BCIDD Originator Code ROT</p>		<p>Drawing File Name BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0001</p>		<p>Sheet Number 35 of 38 Status A Rev M01</p>	

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Ch 3+413 to 3+523 (right hand side):

- Additional impermeable area = 166 m²
- The bioretention area and filter drain located at 3+446 to 3+457 (BR-CBC04-270) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.46 l/s
- Vol_{att}: 4.1 m³
- Connection to existing network: Dia = 225 mm CL = 26.3 m IL = 24.4 m

Gullies connection to drainage network has been assumed as existing

GLASNEVIN CEMETERY

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4. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
5. EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS SHALL BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2ND. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

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

Ch 3+390 to 3+781:

- Design catchment TR_05
- Additional impermeable area = 1223 m²
- Drainage to existing surface water network
- Where kerblines is to be changed, existing gullies to be removed and replaced with side entry gullies
- Gullies to be re-arranged in order to ensure a gully is provided immediately upstream of the bioretention intake (contributing area shall be equivalent to the additional impermeable area)

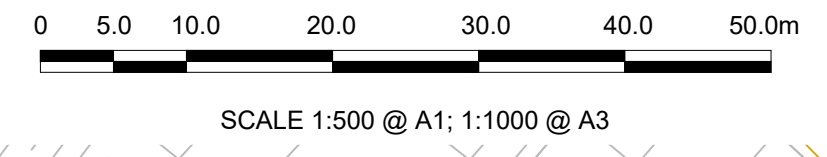
Ch 3+619 to 3+756 (right hand side):

- Additional impermeable area = 1057 m²
- The permeable pavement area and filter drain located at 3+633 to 3+737 (P.PAV-CBC04) will provide attenuation to compensate for this additional impermeable area
- The proposed permeable pavement will collect, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- A hydrobreak is required before discharging
- P.Pav 7&8 must include sub-base terraces to ensure attenuation volume
- Grated curb cut are necessary to allow stormwater cycle track conveyed under footpath to permeable pavement
- A minimum value of 2,500 mm/h is required for the pavement surface. Also 0.30 m of gravels are needed below the permeable pavement, where the 150 mm drain is placed.
- DR: 2 l/s
- Vol_{att}: 21.0 m³
- Connection to existing network: Dia = 225 mm CL = N/A IL = N/A

LEGEND:

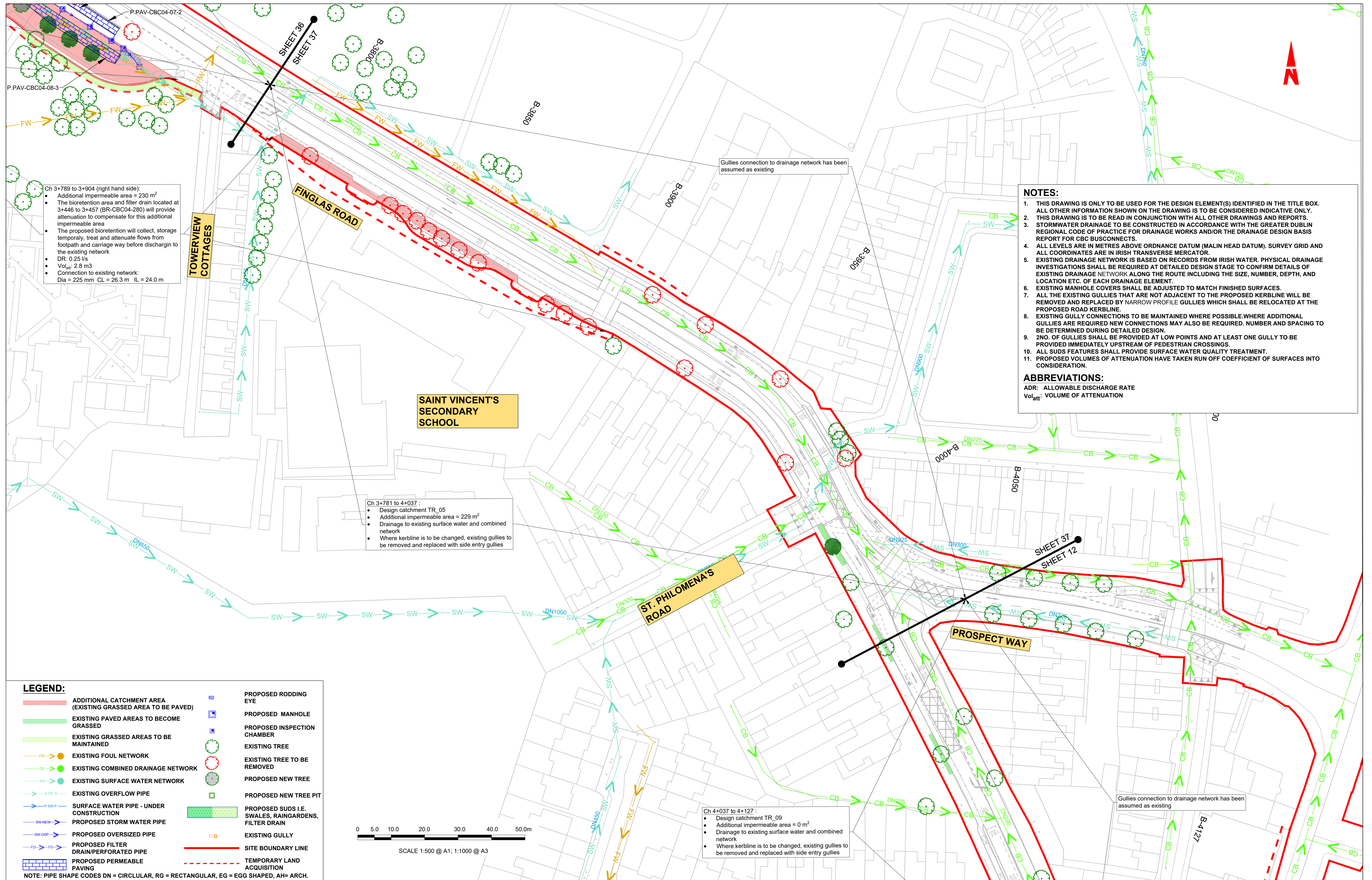
	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE 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
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Date	Scale	Drawn	Checked	Approved	Drawing File Name	Sheet Number	Status	Rev
13/05/2022	1:500 @ A1 1:1000 @ A3	ECD	EFD	SMG	BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0001	36 of 38	A	M01

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

Ch 3+789 to 3+904 (right hand side):

- Additional impermeable area = 230 m²
- The bioretention area and filter drain located at 3+446 to 3+457 (BR-CBC04-280) will provide attenuation to compensate for this additional impermeable area
- The proposed bioretention will collect, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.25 l/s
- Vol_{att}: 2.8 m³
- Connection to existing network: Dia = 225 mm CL = 26.3 m IL = 24.0 m

Ch 3+781 to 4+037 :

- Design catchment TR_05
- Additional impermeable area = 229 m²
- Drainage to existing surface water and combined network
- Where kerbline is to be changed, existing gullies to be removed and replaced with side entry gullies

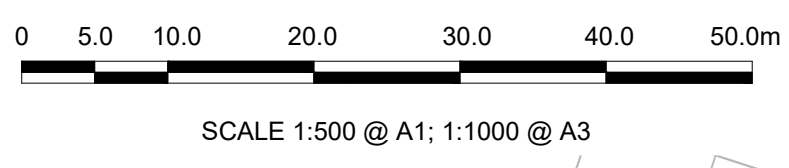
Ch 4+037 to 4+127 :

- Design catchment TR_09
- Additional impermeable area = 0 m²
- Drainage to existing surface water and combined network
- Where kerbline is to be changed, existing gullies to be removed and replaced with side entry gullies

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
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	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
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Rev	Date	Drn	Chk'd	App'd	Description
M01	13/05/2022	ECD	EFD	SMG	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **FIROD**
 TYPSPA

Date: 13/05/2022 Scale: 1:500 @ A1, 1:1000 @ A3

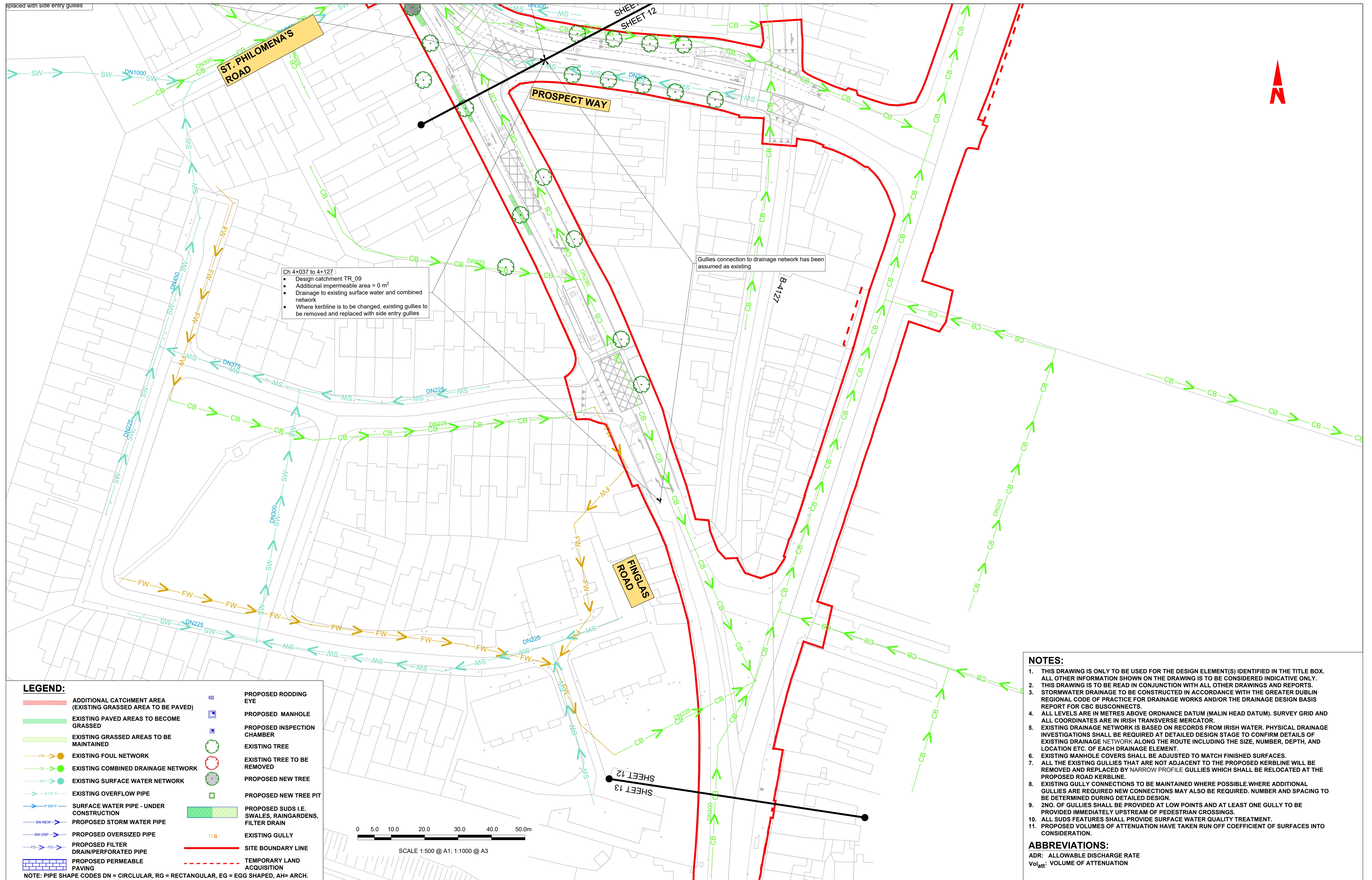
Project Code: BCIDD Originator Code: ROT

Drawn: ECD Checked: EFD Approved: SMG

QMS Code

Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title: BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0001	Sheet Number: 37 of 38	Status: A	Rev: M01

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LEGEND:

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 National Transport Authority

Engineering Designer: **FIROD**
 TYPSPA

Date: 13/05/2022 Scale: 1:500 @ A1, 1:1000 @ A3
 Project Code: BCIDD Originator Code: ROT
 Drawn: ECD Checked: EFD Approved: SMG
 QMS Code:

Programme Title		BUSCONNECTS DUBLIN	
Drawing Title		CORE BUS CORRIDORS INFRASTRUCTURE WORKS	
Drawing File Name		Sheet Number	Status
BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0001		38 of 38	A
Rev		M01	

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