



**Appendix IV**  
Proposed Surface Water  
Drainage Works





# BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS

## BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME

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

Client  

 Údarás Náisiúnta Iompair  
 National Transport Authority

Engineering Designer  

 ROUGHAN & O'DONOVAN TYPASA

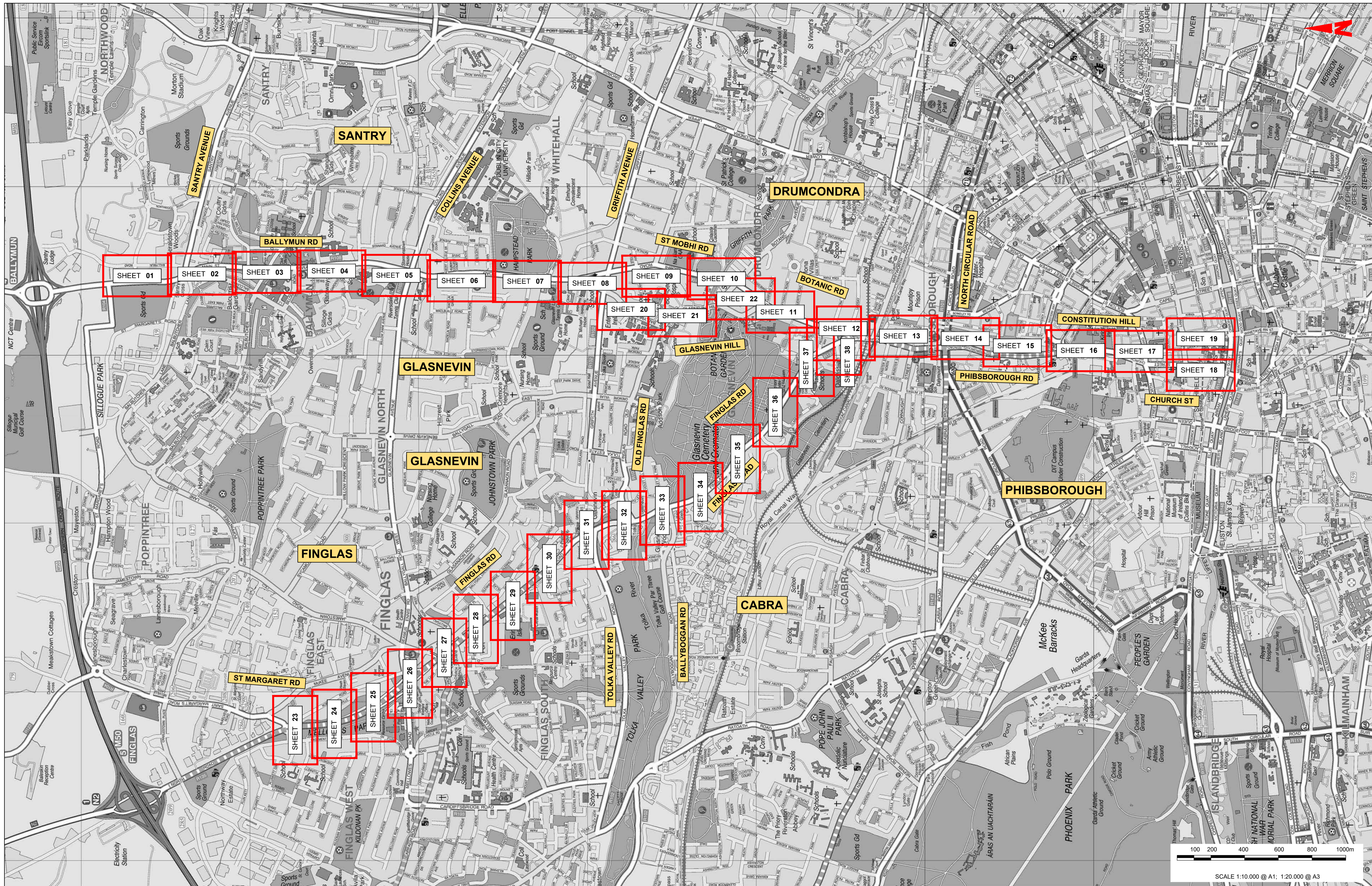
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| Date         | Scale                        | Drawn    | Checked | Approved |
| 13/05/2022   | 1:10000 @ A1<br>1:20000 @ A3 | ECD      | EFD     | SMG      |
| Project Code | Originator Code              | QMS Code |         |          |
| BCIDD        | 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. COVER SHEET

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





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

Engineering Designer: **PROD**  
 TYPSA

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:

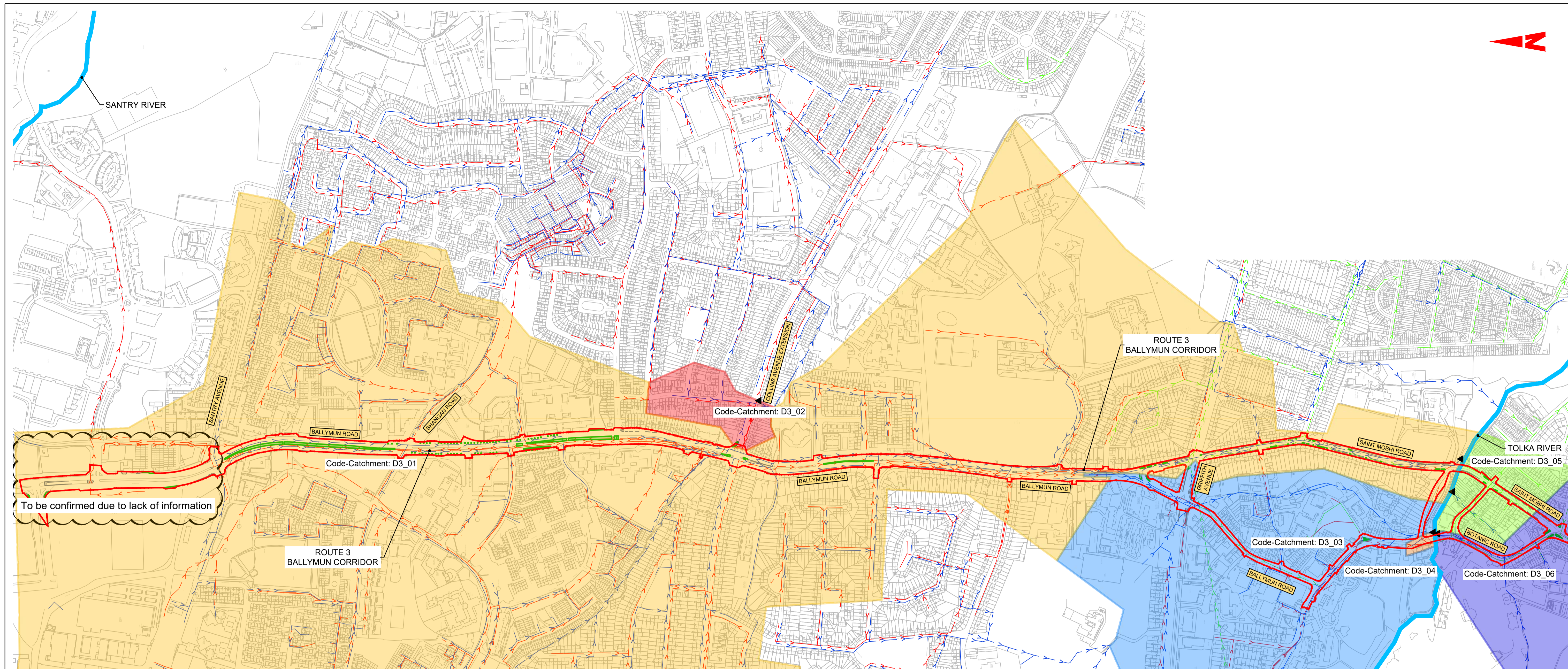
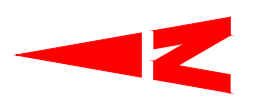
Programme Title: **BUSCONNECTS DUBLIN  
 CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

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

Drawing File Name: BCIDD-ROT-DNG\_KP-0304\_XX\_00-DR-CD-0001  
 Sheet Number: 01 of 01  
 Status: A  
 Rev: M01

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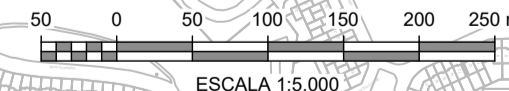


To be confirmed due to lack of information

**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

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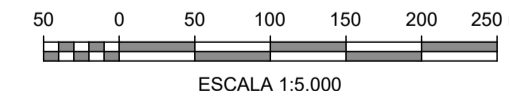
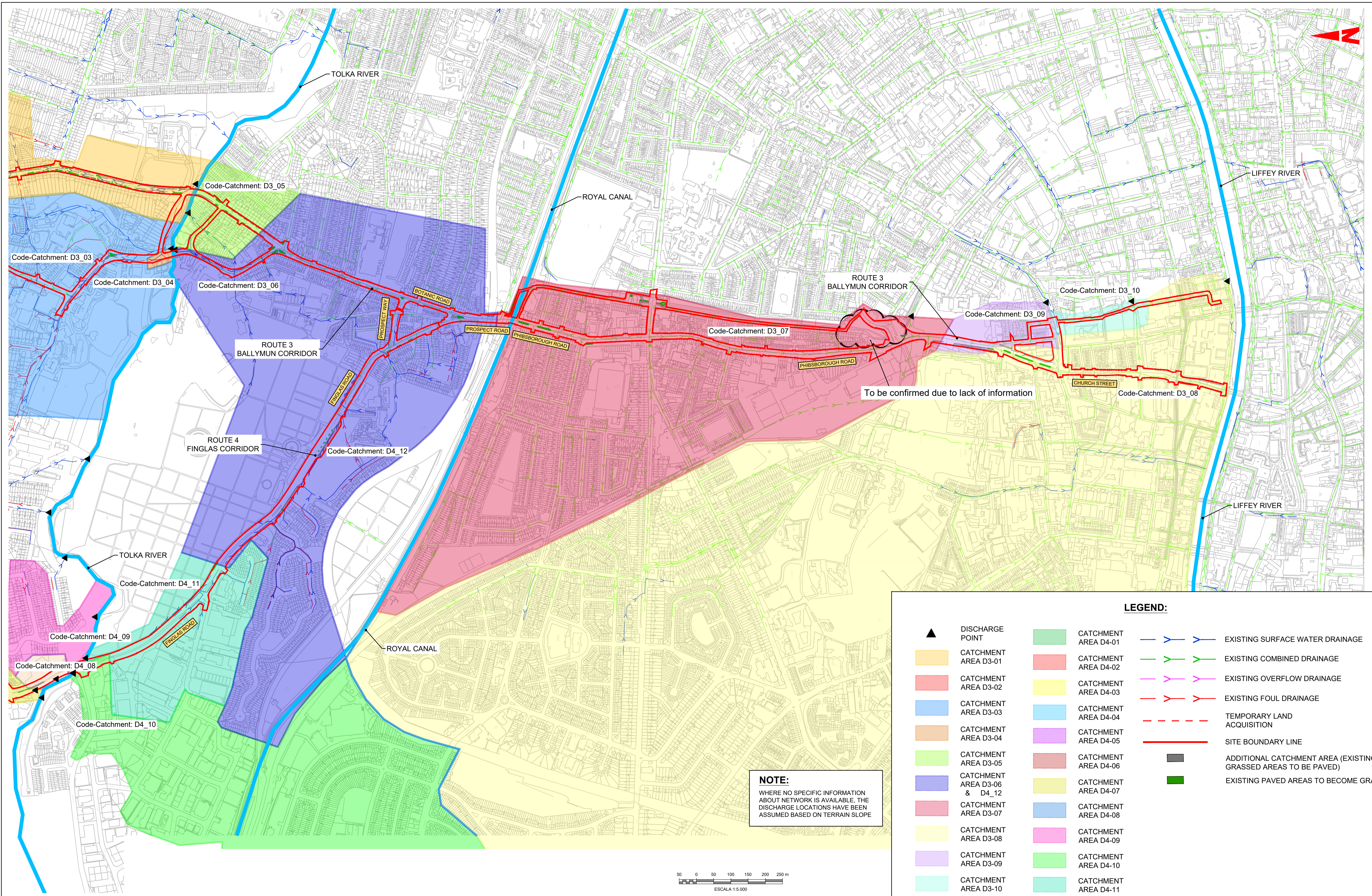
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| Date<br>13/05/2022   | Scale<br>1:5000 @ A1<br>1:10000 @ A3 | Drawn<br>ECD                                 | Checked<br>EFD | Approved<br>SMG |
| Project Code<br>BCIDD  | Originator Code<br>ROT               | QMS Code                                     |                |                 |

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

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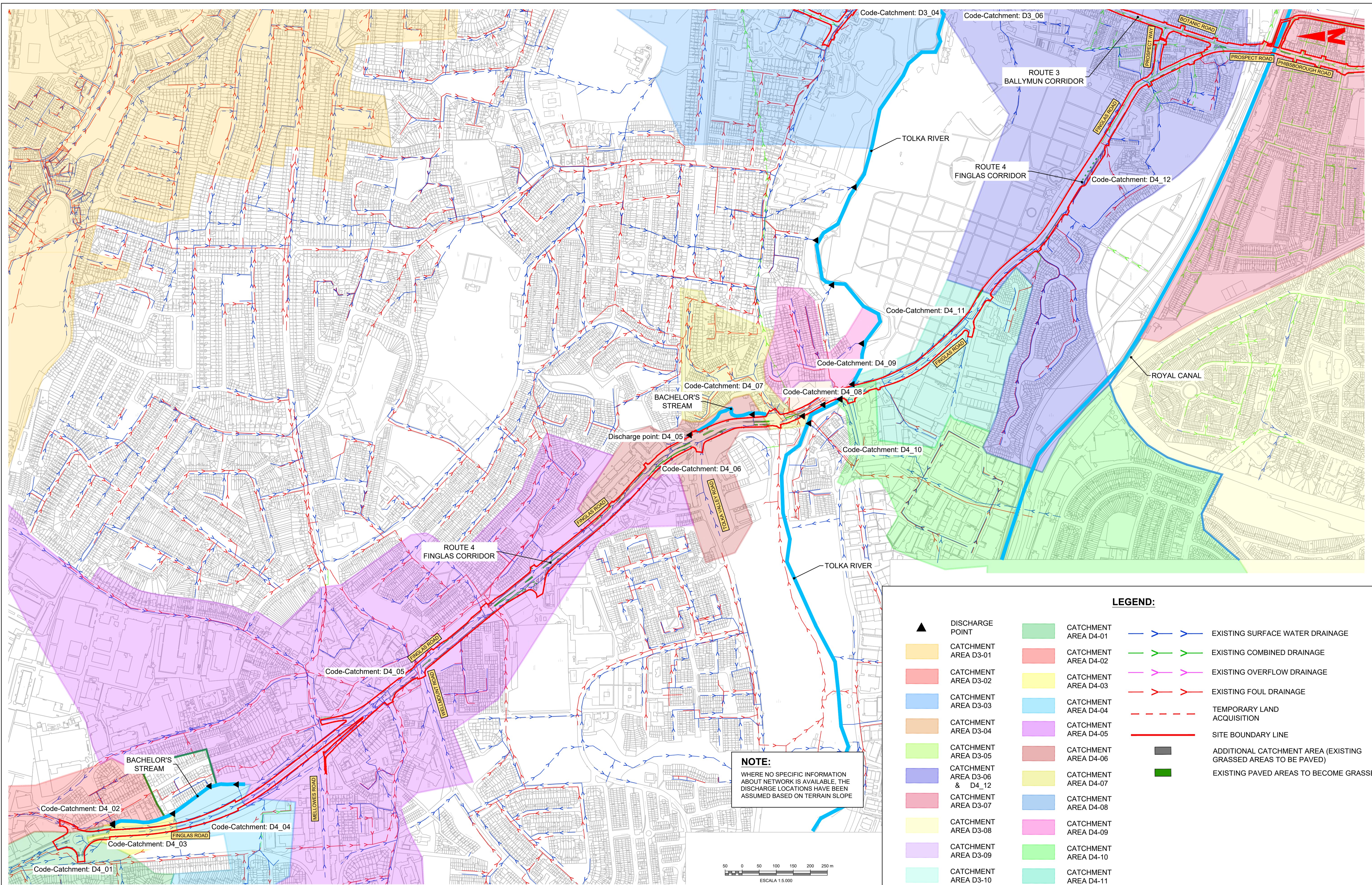
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|                       |                                      | <b>Engineering Designer</b><br> |                |                 |
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| <b>Programme Title</b><br><b>BUSCONNECTS DUBLIN</b><br><b>CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>         |                        |             |            |
| <b>Drawing Title</b><br>BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME<br>OVERALL CATCHMENT AREAS |                        |             |            |
| Drawing File Name<br>BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-1001   | Sheet Number<br>2 of 3 | Status<br>A | Rev<br>M01 |

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**LEGEND:**

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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
- CATCHMENT AREA D3-10
- CATCHMENT AREA D4-01
- CATCHMENT AREA D4-02
- CATCHMENT AREA D4-03
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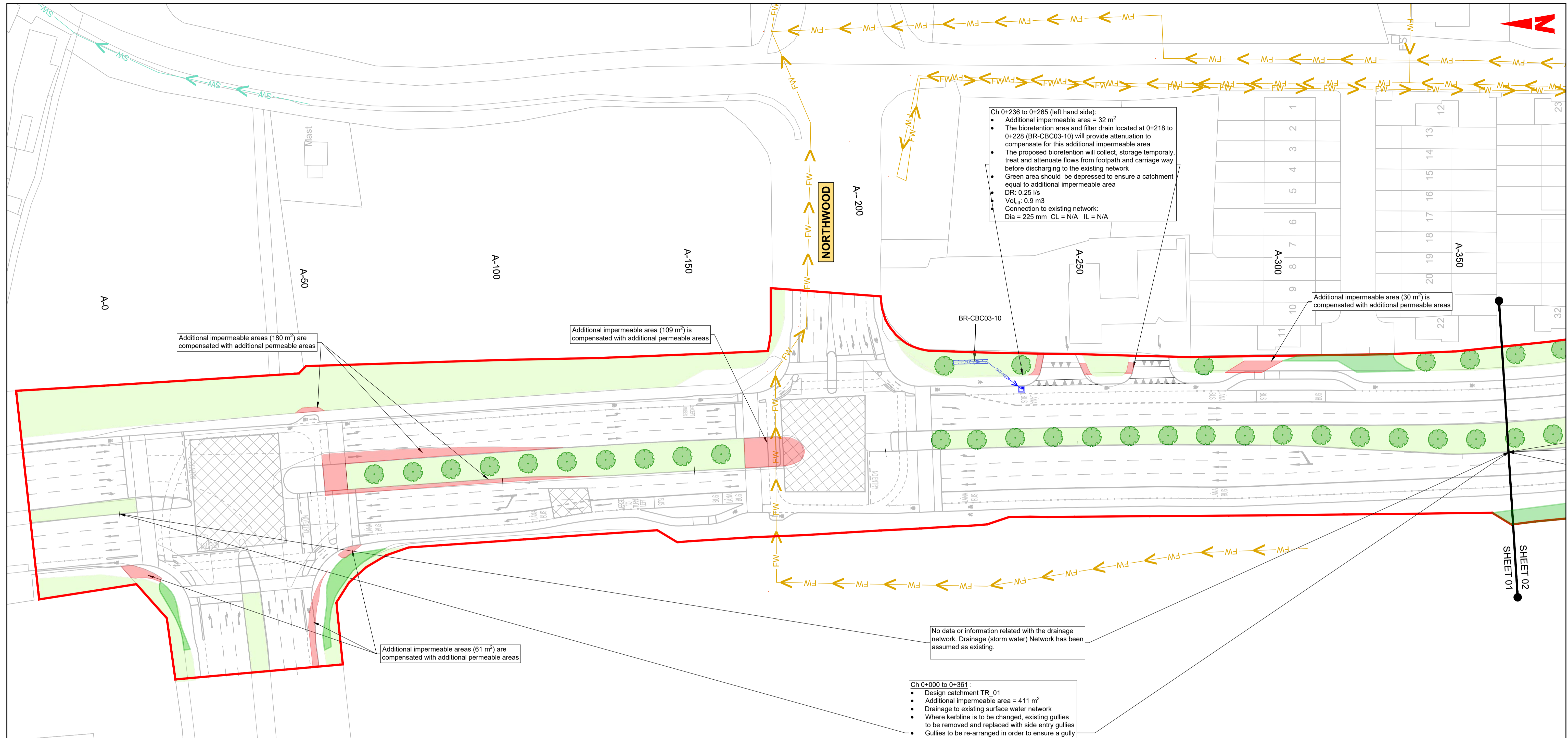
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| Project Code<br>BCIDD  | Originator Code<br>ROT               | QMS Code                                     |                |                 |

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

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Additional impermeable areas (180 m<sup>2</sup>) are compensated with additional permeable areas

Additional impermeable area (109 m<sup>2</sup>) is compensated with additional permeable areas

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

- Additional impermeable area = 32 m<sup>2</sup>
- 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<sub>att</sub>: 0.9 m<sup>3</sup>
- Connection to existing network:
- Dia = 225 mm CL = N/A IL = N/A

Additional impermeable area (30 m<sup>2</sup>) is compensated with additional permeable areas

Additional impermeable areas (61 m<sup>2</sup>) 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 m<sup>2</sup>
- 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)
- No data of existing water network. Need to be confirmed

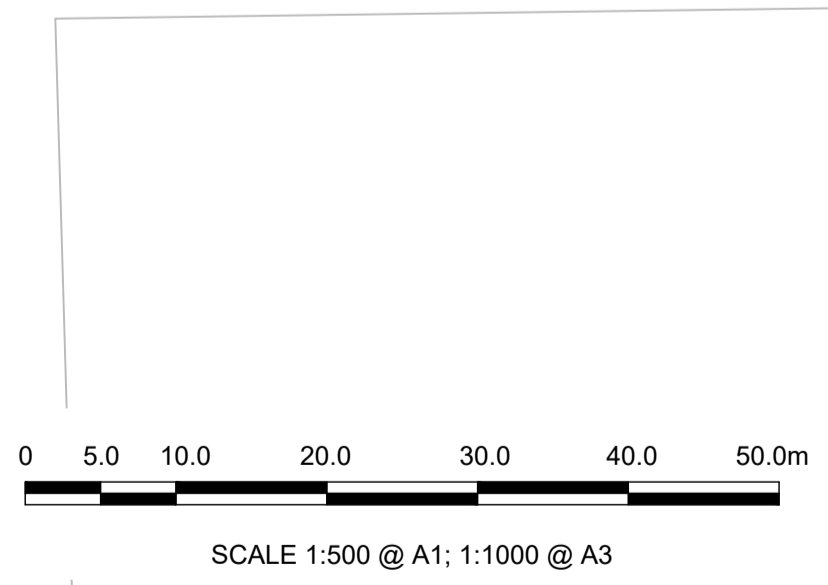
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  2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS AND REPORTS.
  3. STORMWATER DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH THE GREATER DUBLIN REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS AND/OR THE DRAINAGE DESIGN BASIS REPORT 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<sub>att</sub>: 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 = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.



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**Project Ireland 2040**  
 Building Ireland's Future

| Rev | Date       | Drn | Chk'd | App'd | Description                 |
|-----|------------|-----|-------|-------|-----------------------------|
| M01 | 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

QMS Code: [ ]  
 Drawn: ECD  
 Checked: EFD  
 Approved: SMG

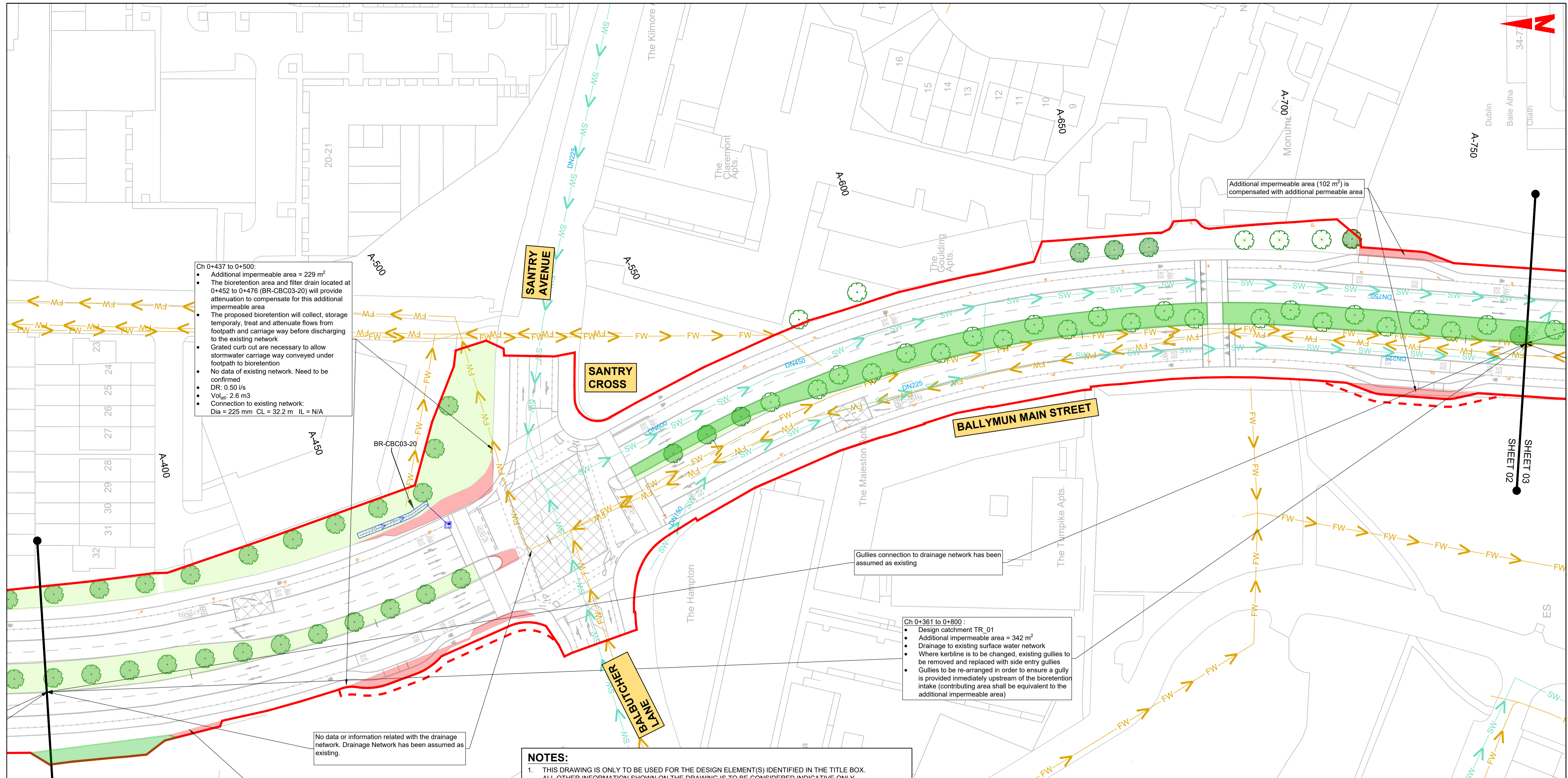
Programme Title: **BUSCONNECTS DUBLIN**  
**CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

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: 01 of 38  
 Status: A  
 Rev: M01

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Ch 0+437 to 0+500:

- Additional impermeable area = 229 m<sup>2</sup>
- 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, 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
- No data of existing network. Need to be confirmed
- DR: 0.50 l/s
- Vol<sub>att</sub>: 2.6 m<sup>3</sup>
- 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 m<sup>2</sup>
- 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)

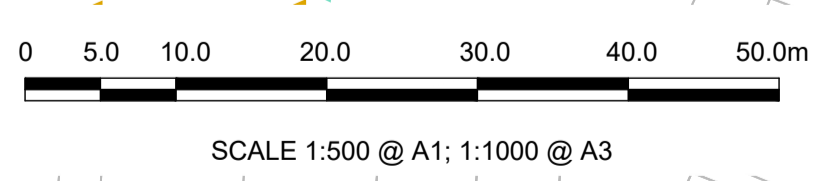
No data or information related with the drainage network. Drainage Network has been assumed as existing.

Additional impermeable area (11 m<sup>2</sup>) is compensated with additional permeable areas

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4. ALL LEVELS ARE IN METRES ABOVE ORDANCE 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<sub>att</sub>: VOLUME OF ATTENUATION



**LEGEND:**

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

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

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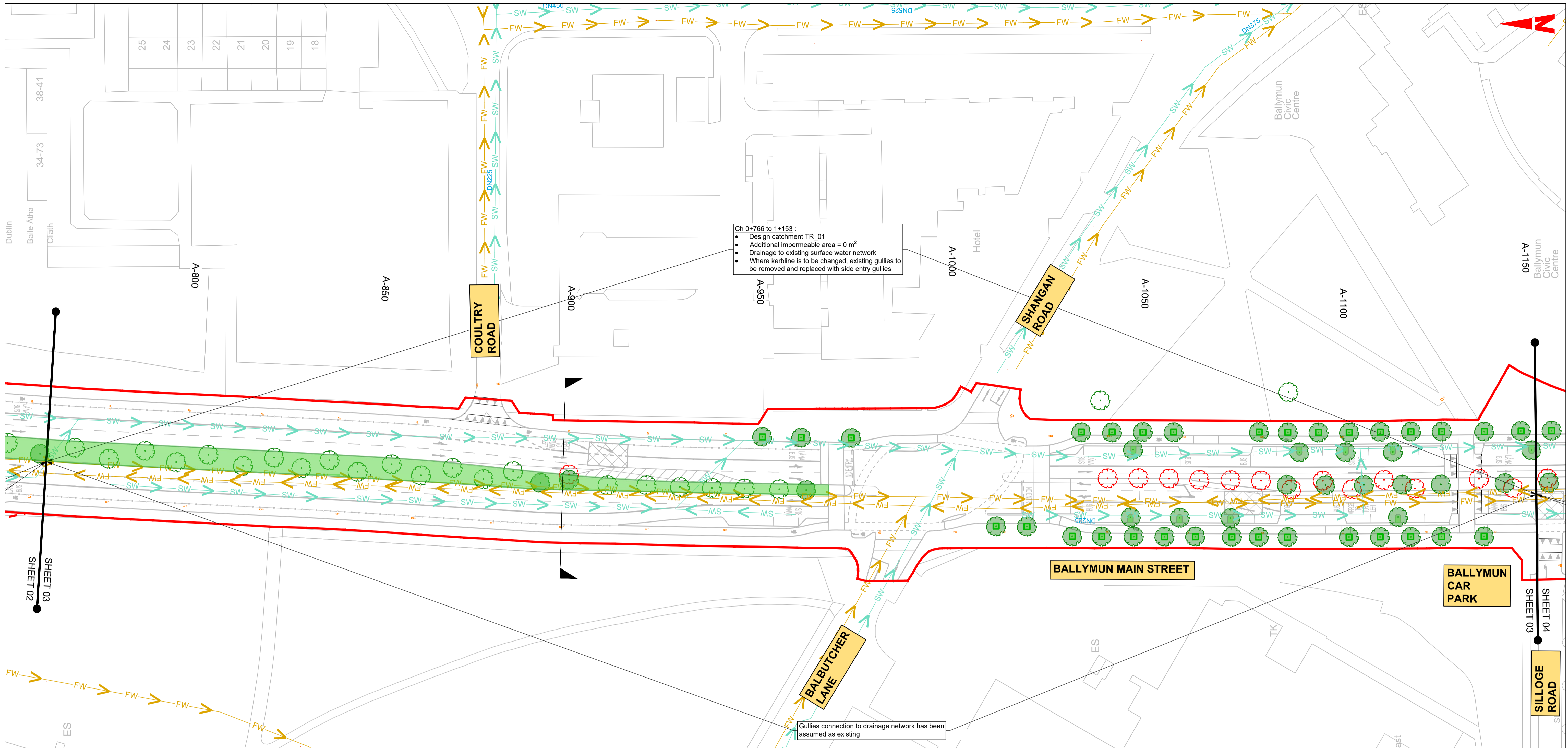
| Rev | Date       | Drn | Chk'd | App'd | Description                 |
|-----|------------|-----|-------|-------|-----------------------------|
| M01 | 13/05/2022 | ECD | EFD   | SMG   | ISSUE FOR PHASE 4: PLANNING |

|  |                                    |   |                |                 |
|--|------------------------------------|---|----------------|-----------------|
| Client<br><b>NTA</b><br>Údarás Náisiúnta Iompair<br>National Transport Authority |                                    | Engineering Designer<br><b>IJROD</b><br>TYPSA |                |                 |
| Date<br>13/05/2022   | Scale<br>1:500 @ A1<br>1:1000 @ A3 | Drawn<br>ECD                                  | Checked<br>EFD | Approved<br>SMG |
| Project Code<br>BCIDD  | Originator Code<br>ROT             | QMS Code                                      |                |                 |

|   |             |            |  |
|---|-------------|------------|--|
| Programme Title<br><b>BUSCONNECTS DUBLIN</b>                    |             |            |  |
| Drawing Title<br><b>CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b> |             |            |  |
| Drawing File Name<br>BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0002     |             |            |  |
| Sheet Number<br>02 of 38  | Status<br>A | Rev<br>M01 |  |

DO NOT SCALE USE FIGURED DIMENSIONS ONLY





Ch 0+766 to 1+153 :  
 • Design catchment TR\_01  
 • Additional impermeable area = 0 m<sup>2</sup>  
 • 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

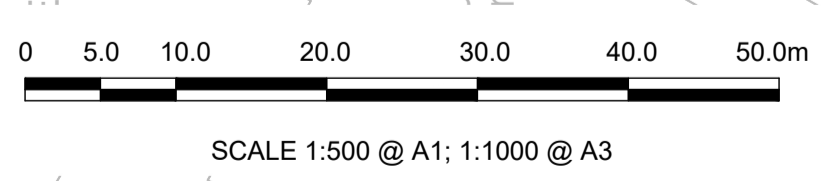
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  - EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
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  - ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
  - PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF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

**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
 Vol<sub>att</sub>: 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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| 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: **JROD** TYPSA

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

Project Code: BCDD Originator Code: ROT

QMS Code: ECD Checked: EFD Approved: SMG

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

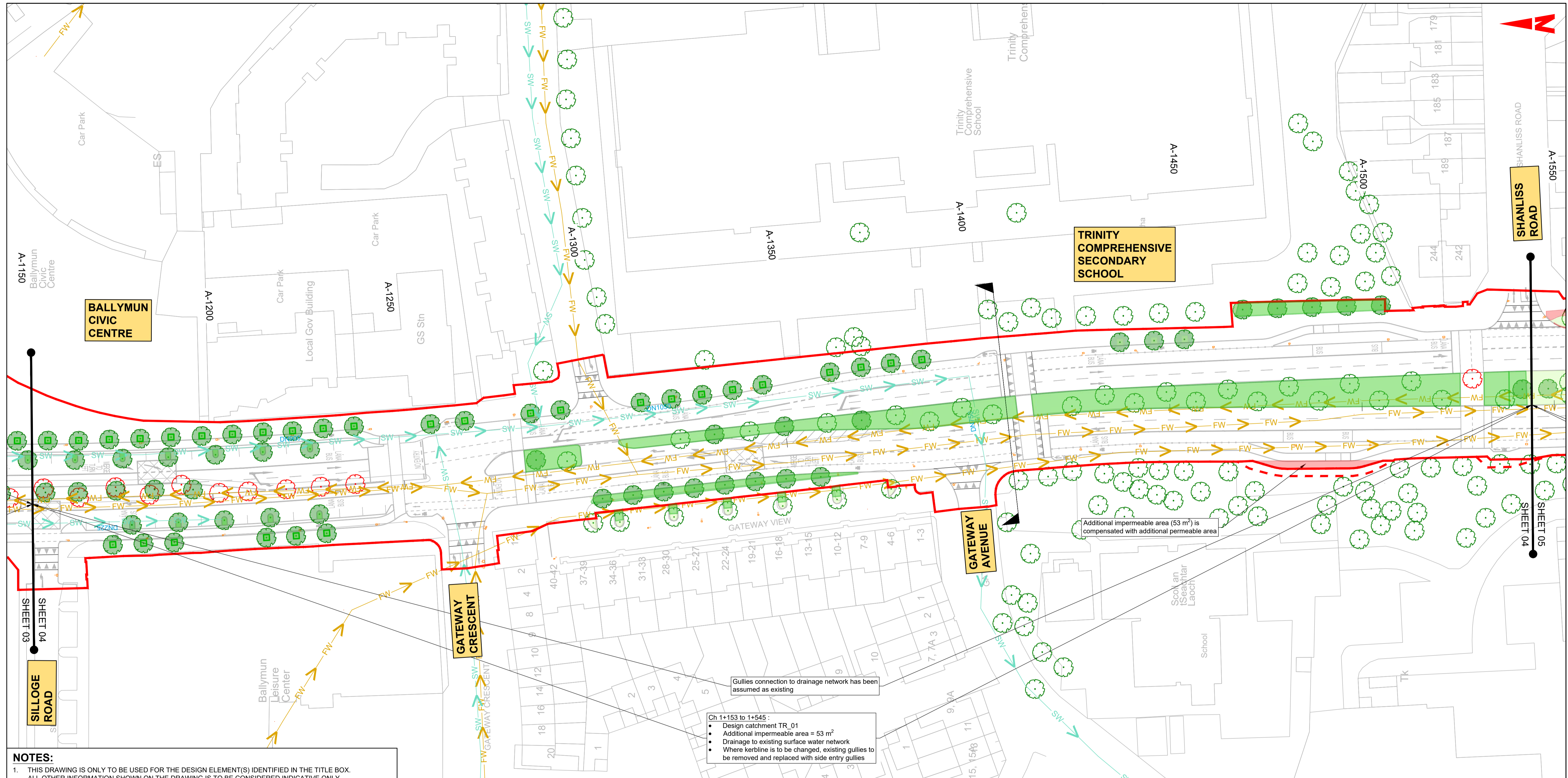
Drawing Title: **BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS**

Drawing File Name: BCIDD-ROT-DNG\_RD-0304\_XX\_00-DR-CD-0003

Sheet Number: 03 of 38 Status: A Rev: M01

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**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
 Vol<sub>att</sub>: VOLUME OF ATTENUATION

Ch 1+153 to 1+545:  
 • Design catchment TR\_01  
 • Additional impermeable area = 53 m<sup>2</sup>  
 • Drainage to existing surface water network  
 • Where kerblines to be changed, existing gullies to be removed and replaced with side entry gullies

Additional impermeable area (53 m<sup>2</sup>) is compensated with additional permeable 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                 |
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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  
 QMS Code:

Drawn: ECD  
 Checked: EFD  
 Approved: SMG

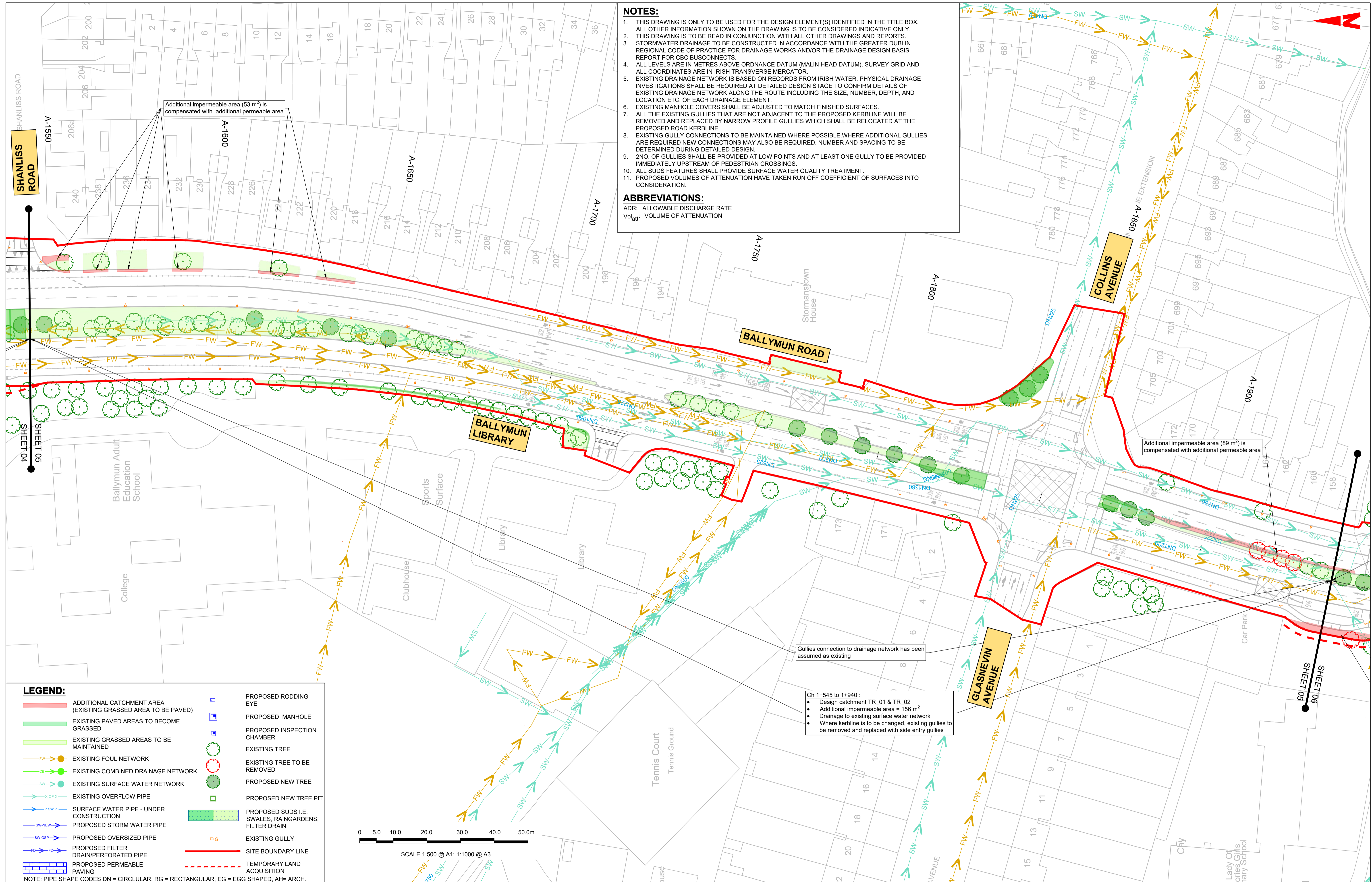
**Programme Title:** BUSCONNECTS DUBLIN  
**CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

**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-0004  
 Sheet Number: 04 of 38  
 Status: A  
 Rev: M01

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**ABBREVIATIONS:**  
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 Vol<sub>att</sub>: VOLUME OF ATTENUATION

Additional impermeable area (53 m<sup>2</sup>) is compensated with additional permeable area

Additional impermeable area (89 m<sup>2</sup>) is compensated with additional permeable area

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 m<sup>2</sup>  
 • Drainage to existing surface water 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                                     |  |  |

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**  
 Údarás Náisiúnta Iompair  
 National Transport Authority

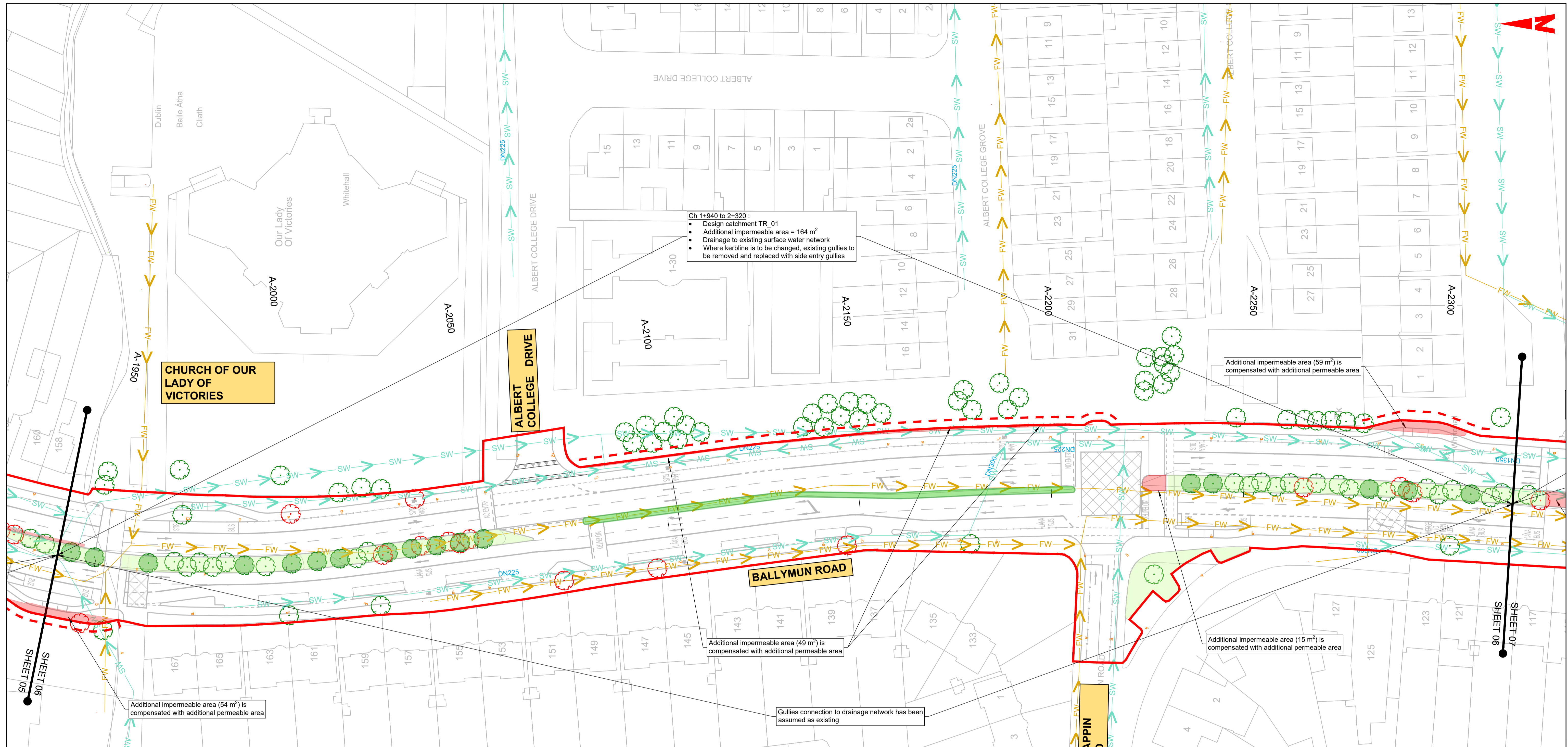
Engineering Designer: **IJROD**  
 TYPSA

|              |                           |          |         |          |
|--------------|---------------------------|----------|---------|----------|
| Date         | Scale                     | Drawn    | Checked | Approved |
| 13/05/2022   | 1:500 @ A1<br>1:1000 @ A3 | ECD      | EFD     | SMG      |
| Project Code | Originator Code           | QMS Code |         |          |
| BCDD         | ROT                       |          |         |          |

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

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**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                           |
|  | PROPOSED PERMEABLE PAVING                                      |  |  |

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

**ABBREVIATIONS:**

ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: 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**  
Údarás Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **IJROD**  
TYPSA

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

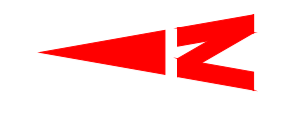
Project Code: BCDD  
Originator Code: ROT

Drawn: ECD  
Checked: EFD  
Approved: SMG

|   |                        |           |          |
|---|------------------------|-----------|----------|
| Programme Title: <b>BUSCONNECTS DUBLIN</b>  |                        |           |          |
| CORE BUS CORRIDORS INFRASTRUCTURE WORKS   |                        |           |          |
| Drawing Title: <b>BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME</b><br>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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6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
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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.
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<sub>att</sub>: VOLUME OF ATTENUATION

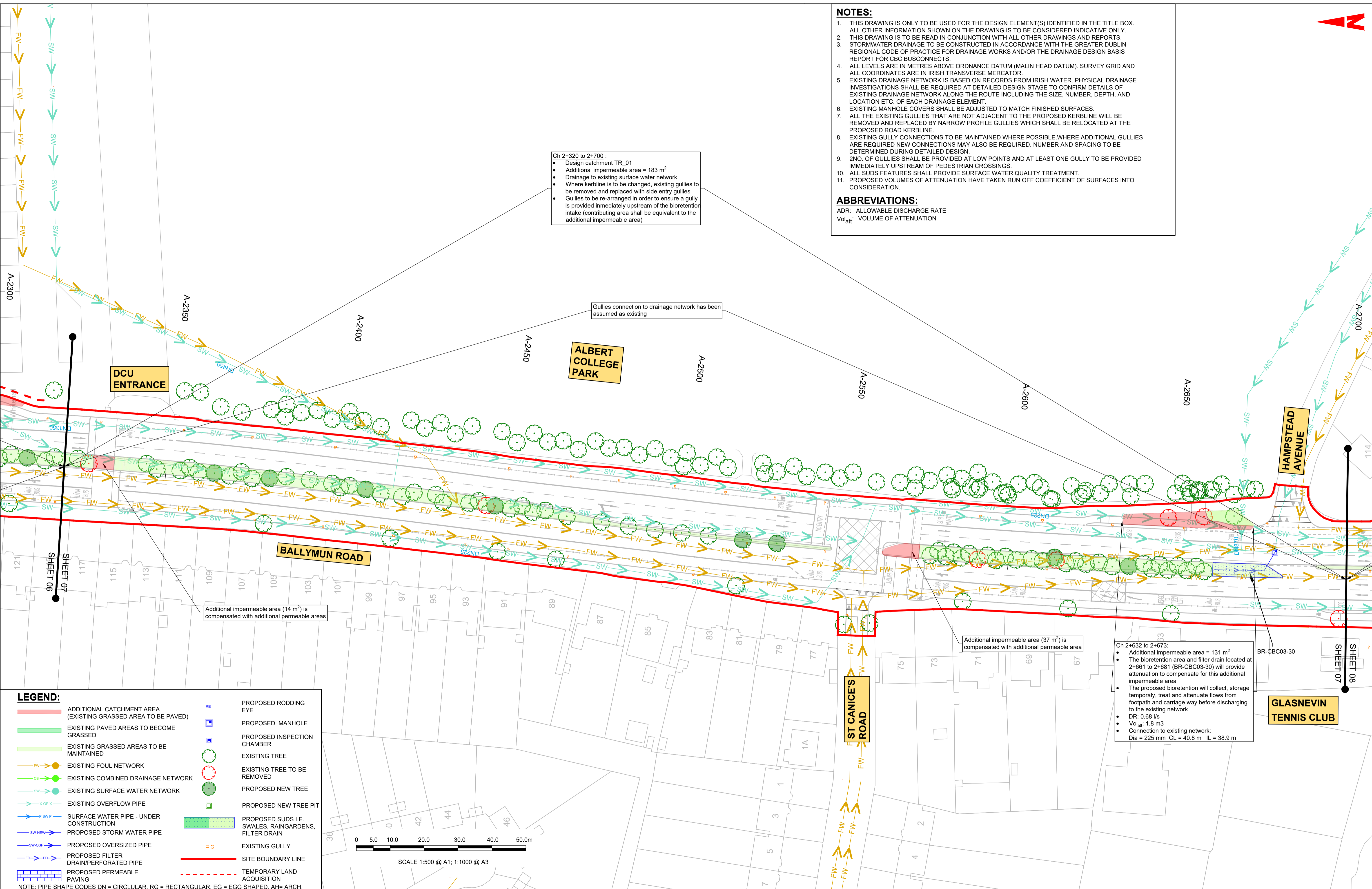
Ch 2+320 to 2+700 :  
 • Design catchment TR\_01  
 • Additional impermeable area = 183 m<sup>2</sup>  
 • Drainage to existing surface water network  
 • Where kerbline is to be changed, existing gullies to be removed and replaced with side entry gullies  
 • Gullies to be re-arranged in order to ensure 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 m<sup>2</sup>) is compensated with additional permeable areas

Additional impermeable area (37 m<sup>2</sup>) is compensated with additional permeable area

Ch 2+632 to 2+673:  
 • Additional impermeable area = 131 m<sup>2</sup>  
 • 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, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network  
 • DR: 0.68 l/s  
 • Vol<sub>att</sub>: 1.8 m<sup>3</sup>  
 • 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)
  - EXISTING PAVED AREAS TO BECOME GRASSED
  - EXISTING GRASSED AREAS TO BE MAINTAINED
  - EXISTING FOUL NETWORK
  - EXISTING COMBINED DRAINAGE NETWORK
  - EXISTING SURFACE WATER NETWORK
  - EXISTING OVERFLOW PIPE
  - SURFACE WATER PIPE - UNDER CONSTRUCTION
  - PROPOSED STORM WATER PIPE
  - PROPOSED OVERSIZED PIPE
  - PROPOSED FILTER DRAIN/PERFORATED PIPE
  - PROPOSED PERMEABLE PAVING
  - PROPOSED RODDING EYE
  - PROPOSED MANHOLE
  - PROPOSED INSPECTION CHAMBER
  - EXISTING TREE
  - EXISTING TREE TO BE REMOVED
  - PROPOSED NEW TREE
  - PROPOSED NEW TREE PIT
  - PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
  - EXISTING GULLY
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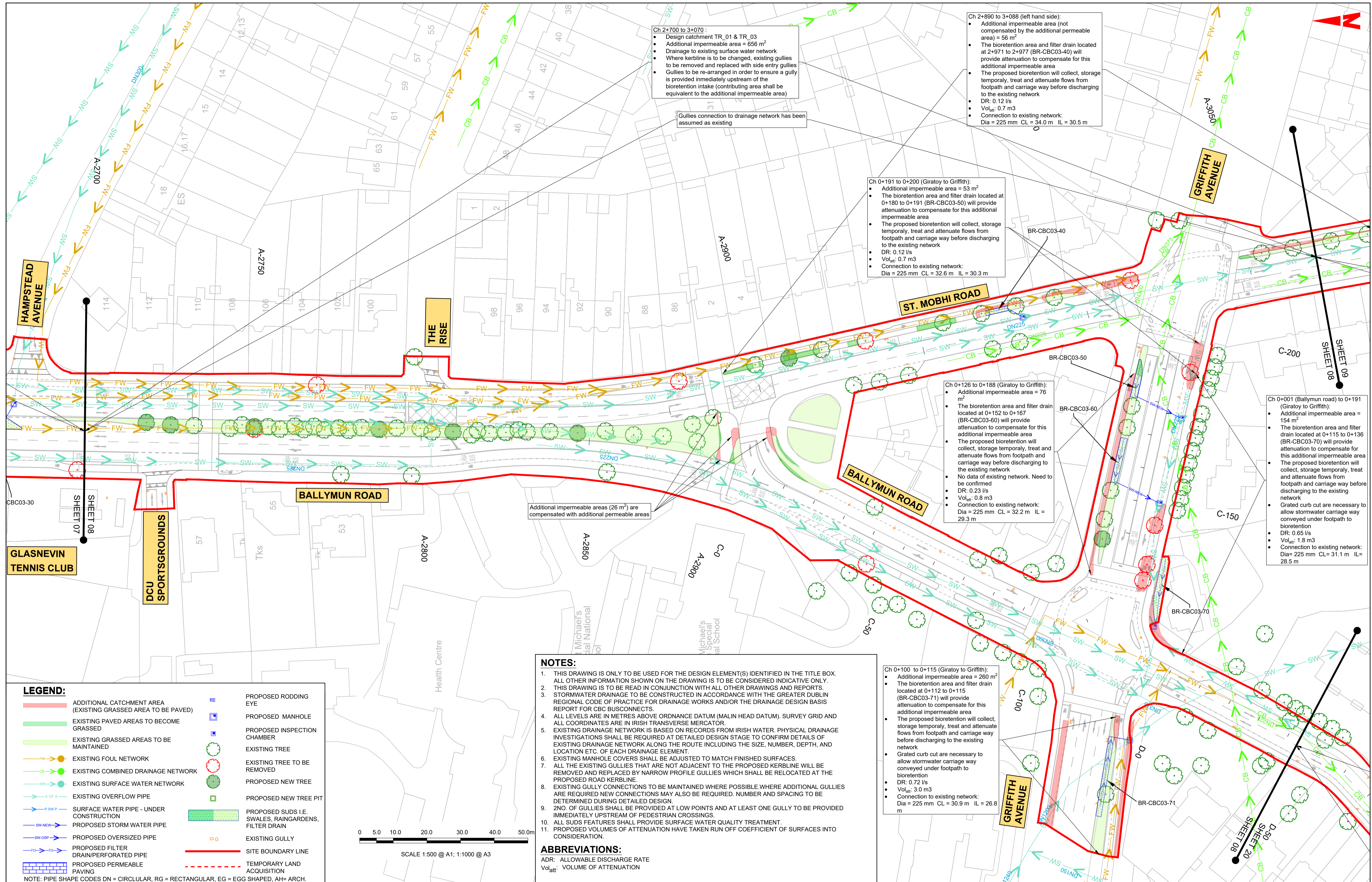
| Rev | Date       | Drn | Chk'd | App'd | Description                 |
|-----|------------|-----|-------|-------|-----------------------------|
| M01 | 13/05/2022 | ECD | EFD   | SMG   | ISSUE FOR PHASE 4: PLANNING |

|   |                                    |   |                |                 |
|---|------------------------------------|---|----------------|-----------------|
| Client<br><b>NTA</b><br>Údaráis Náisiúnta Iompair<br>National Transport Authority |                                    | Engineering Designer<br><b>IJROD</b><br>TYPSA |                |                 |
| Date<br>13/05/2022  | Scale<br>1:500 @ A1<br>1:1000 @ A3 | Drawn<br>ECD                                  | Checked<br>EFD | Approved<br>SMG |
| Project Code<br>BCIDD   | Originator Code<br>ROT             | QMS Code                                      |                |                 |

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

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**LEGEND:**

|  |   |  |  |
|--|---|--|--|
|  | ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED) |  | PROPOSED RODDING EYE                                 |
|  | EXISTING PAVED AREAS TO BECOME GRASSED                        |  | PROPOSED MANHOLE                                     |
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| Rev | Date       | Drn | Chkd | App'd | Description                 |
|-----|------------|-----|------|-------|-----------------------------|
| M01 | 13/05/2022 | ECD | EFD  | SMG   | ISSUE FOR PHASE 4: PLANNING |

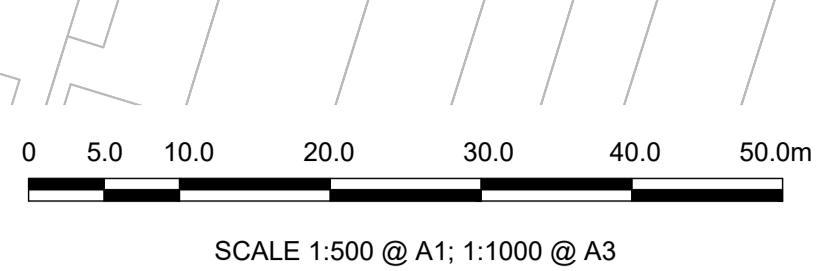
|  |                                    |  |                |
|--|------------------------------------|--|----------------|
| Client<br><b>NTA</b><br>Údarás Náisiúnta Iompair<br>National Transport Authority |                                    | Engineering Designer<br><b>JROD</b><br>TYPSA |                |
| Date<br>13/05/2022   | Scale<br>1:500 @ A1<br>1:1000 @ A3 | Drawn<br>ECD                                 | Checked<br>EFD |
| Project Code<br>BCIDD  | Originator Code<br>ROT             | Approved<br>SMG                              |                |

|  |                          |             |            |
|--|--------------------------|-------------|------------|
| Programme Title<br><b>BUSCONNECTS DUBLIN</b>   |                          |             |            |
| CORE BUS CORRIDORS INFRASTRUCTURE WORKS  |                          |             |            |
| Drawing Title<br>BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME<br>PROPOSED SURFACE WATER DRAINAGE WORKS |                          |             |            |
| Drawing File Name<br>BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0008  | Sheet Number<br>08 of 38 | Status<br>A | Rev<br>M01 |

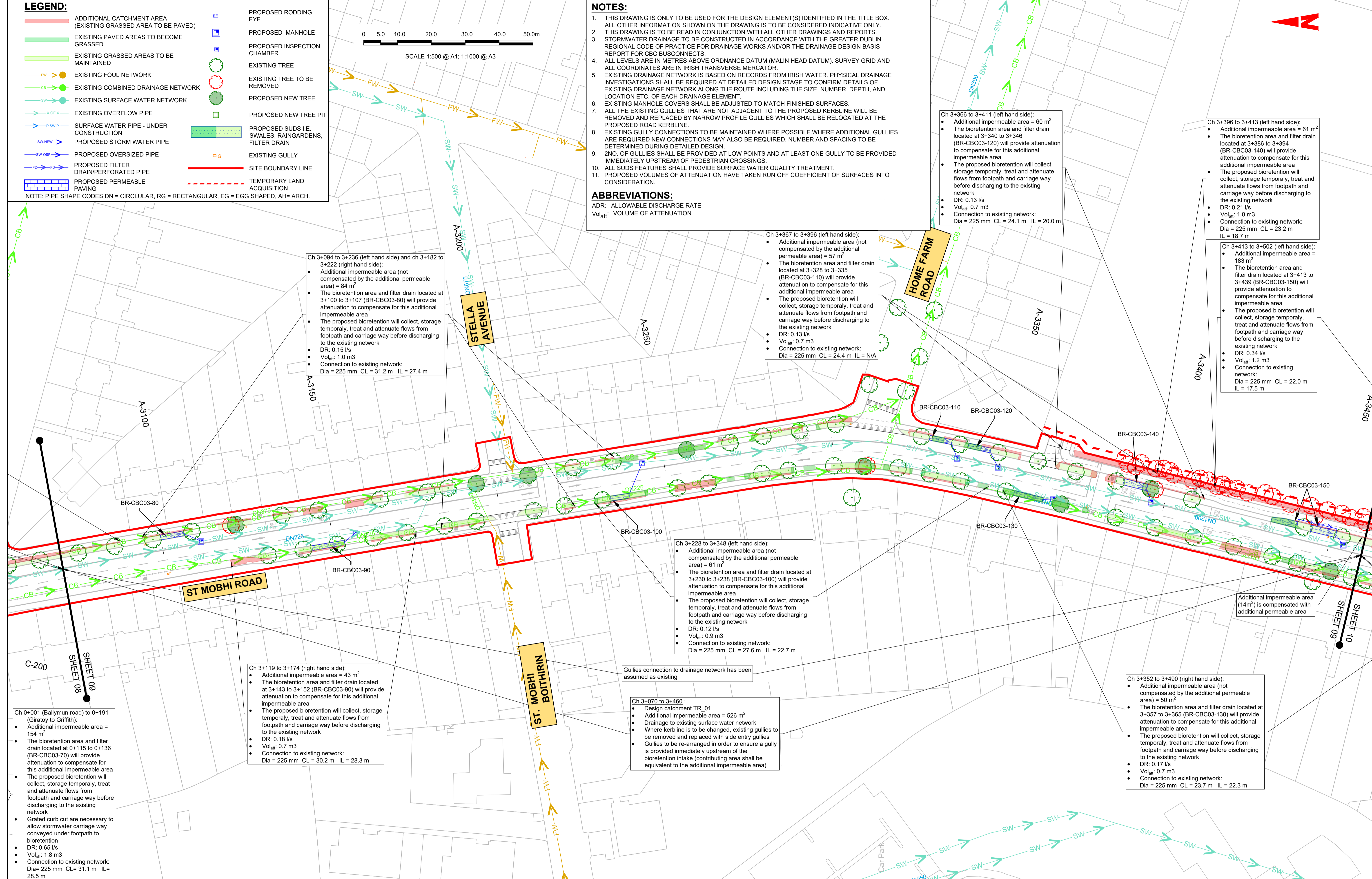
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- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
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  - PROPOSED STORM WATER PIPE
  - PROPOSED OVERSIZED PIPE
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  - PROPOSED PERMEABLE PAVING
  - PROPOSED RODDING EYE
  - PROPOSED MANHOLE
  - PROPOSED INSPECTION CHAMBER
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  - EXISTING TREE TO BE REMOVED
  - PROPOSED NEW TREE
  - PROPOSED NEW TREE PIT
  - PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
  - EXISTING GULLY
  - SITE BOUNDARY LINE
  - TEMPORARY LAND ACQUISITION
- NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.



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 ADR: ALLOWABLE DISCHARGE RATE  
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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**  
Údarás Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **IJROD**  
TYPSA

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-0009

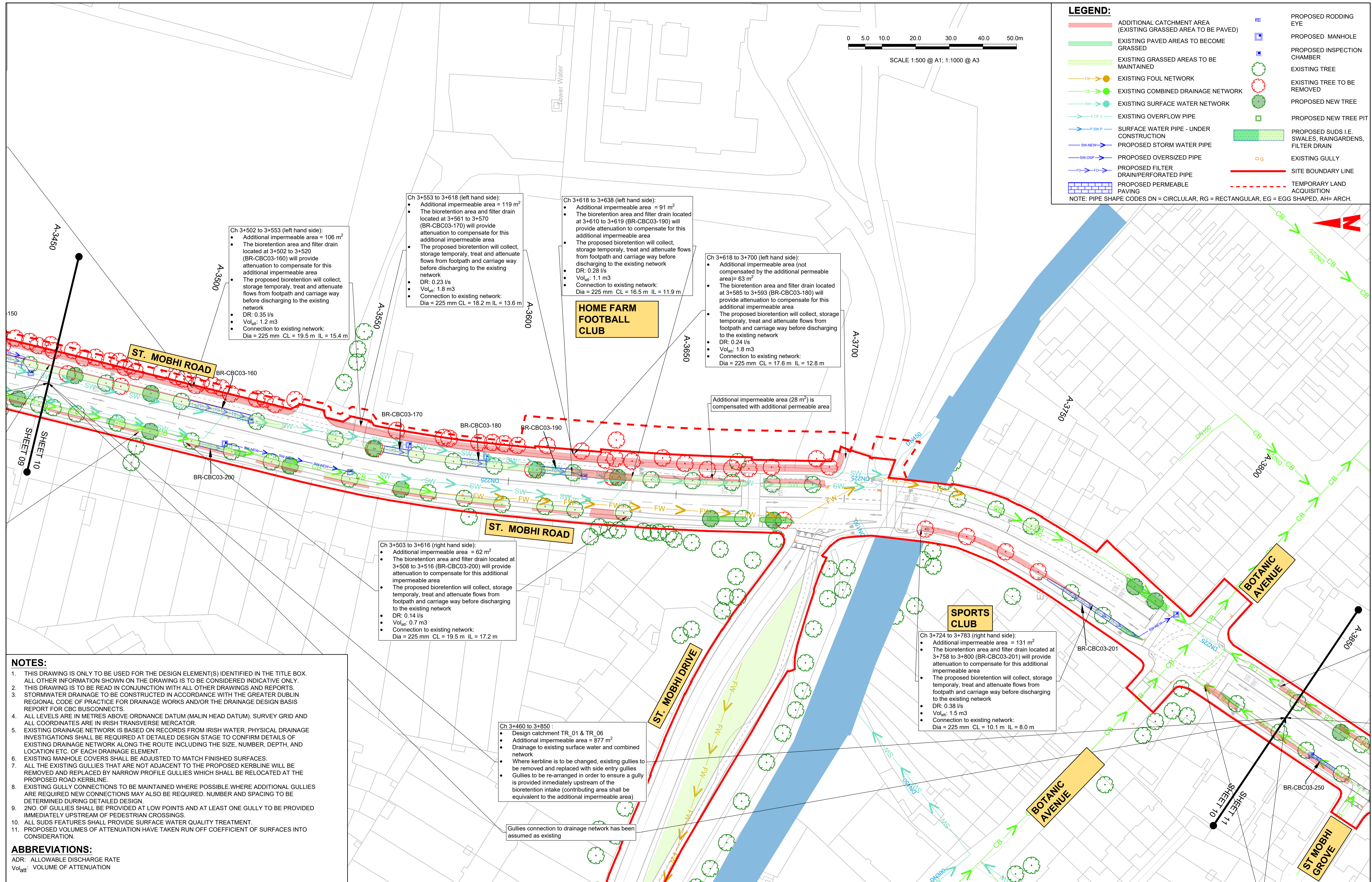
Sheet Number: 09 of 38

Status: A

Rev: M01

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**LEGEND:**

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
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- Ch 3+502 to 3+553 (left hand side):**
  - Additional impermeable area = 106 m<sup>2</sup>
  - The bioretention area and filter drain located at 3+502 to 3+520 (BR-CBC03-160) 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: 0.35 l/s
  - Vol<sub>att</sub>: 1.2 m<sup>3</sup>
  - Connection to existing network: Dia = 225 mm CL = 19.5 m IL = 15.4 m
- Ch 3+553 to 3+618 (left hand side):**
  - Additional impermeable area = 119 m<sup>2</sup>
  - The bioretention area and filter drain located at 3+561 to 3+570 (BR-CBC03-170) 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: 0.23 l/s
  - Vol<sub>att</sub>: 1.8 m<sup>3</sup>
  - Connection to existing network: Dia = 225 mm CL = 18.2 m IL = 13.6 m
- Ch 3+618 to 3+638 (left hand side):**
  - Additional impermeable area = 91 m<sup>2</sup>
  - The bioretention area and filter drain located at 3+610 to 3+619 (BR-CBC03-190) 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: 0.28 l/s
  - Vol<sub>att</sub>: 1.1 m<sup>3</sup>
  - Connection to existing network: Dia = 225 mm CL = 16.5 m IL = 11.9 m
- Ch 3+618 to 3+700 (left hand side):**
  - Additional impermeable area (not compensated by the additional permeable area) = 63 m<sup>2</sup>
  - The bioretention area and filter drain located at 3+585 to 3+593 (BR-CBC03-180) 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<sub>att</sub>: 1.8 m<sup>3</sup>
  - Connection to existing network: Dia = 225 mm CL = 17.6 m IL = 12.8 m
- Additional impermeable area (28 m<sup>2</sup>) is compensated with additional permeable area**
- Ch 3+503 to 3+616 (right hand side):**
  - Additional impermeable area = 62 m<sup>2</sup>
  - The bioretention area and filter drain located at 3+508 to 3+516 (BR-CBC03-200) 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: 0.14 l/s
  - Vol<sub>att</sub>: 0.7 m<sup>3</sup>
  - Connection to existing network: Dia = 225 mm CL = 19.5 m IL = 17.2 m
- Ch 3+724 to 3+783 (right hand side):**
  - Additional impermeable area = 131 m<sup>2</sup>
  - 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, store temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
  - DR: 0.38 l/s
  - Vol<sub>att</sub>: 1.5 m<sup>3</sup>
  - Connection to existing network: Dia = 225 mm CL = 10.1 m IL = 8.0 m

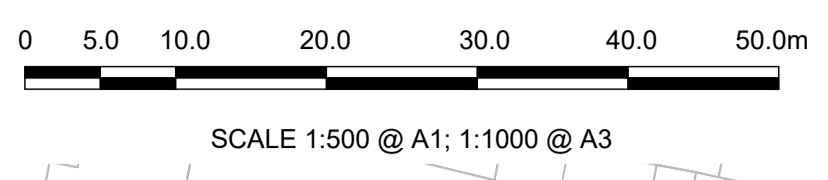
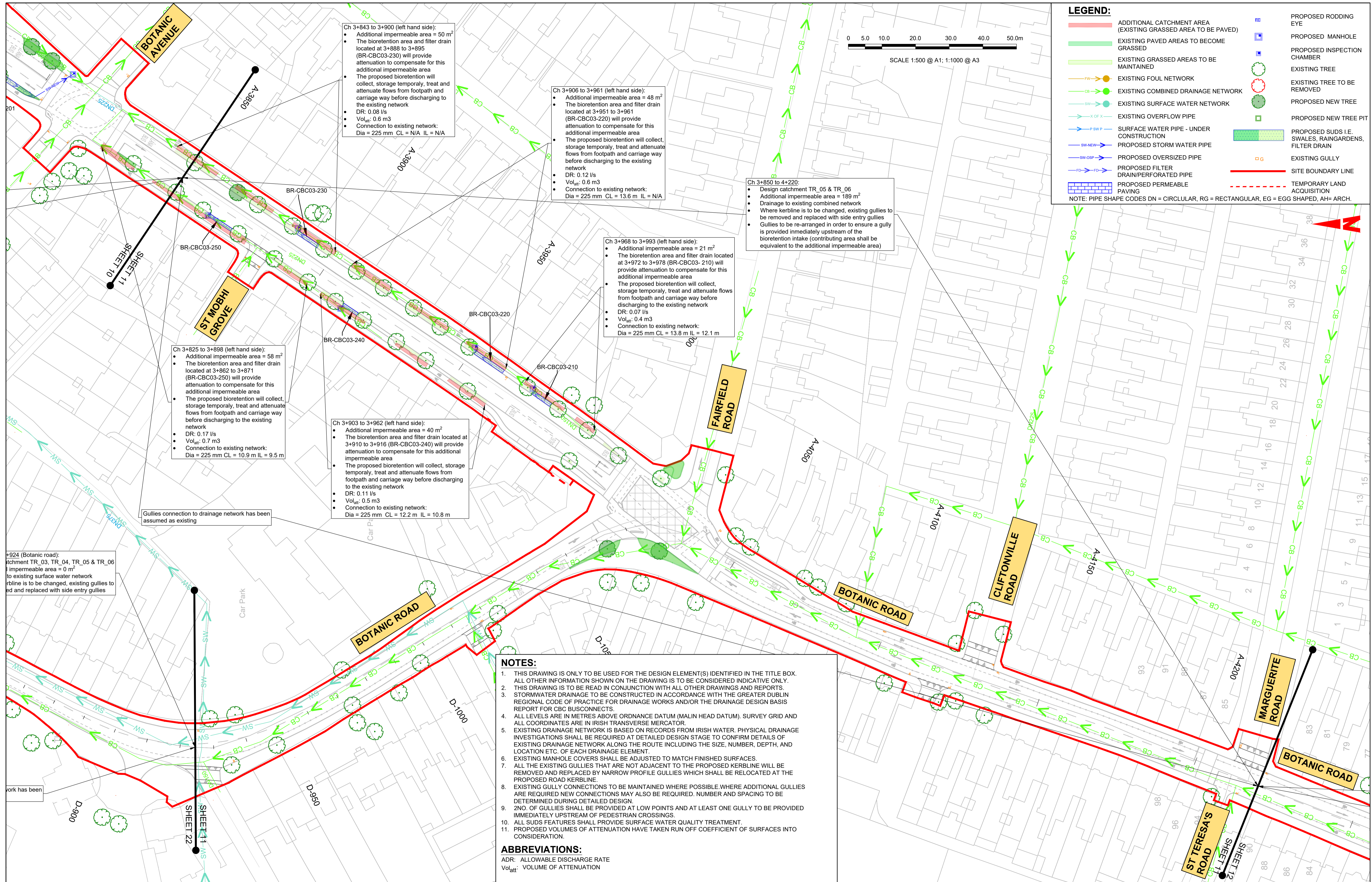
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|---|--|---|--|--|-------------------------------------|------------------------|-----------------------|-------------|-----|------------|-----|-----|-----|-----------------------------|---|---|---|
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| M01   | 13/05/2022   | ECD   | EFD  | SMG  | ISSUE FOR PHASE 4: PLANNING         |                        |                       |             |     |            |     |     |     |                             |   |   |   |
| <p>Date</p> <p>13/05/2022</p> <p>Project Code</p> <p>BCIDD</p>  | <p>Scale</p> <p>1:500 @ A1<br/>1:1000 @ A3</p> <p>Originator Code</p> <p>ROT</p> | <p>Drawn</p> <p>ECD</p> <p>Checked</p> <p>EFD</p> <p>Approved</p> <p>SMG</p>  | <p>Drawing Title</p> <p>BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME<br/>PROPOSED SURFACE WATER DRAINAGE WORKS</p> | <p>Drawing File Name</p> <p>BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0010</p> | <p>Sheet Number</p> <p>10 of 38</p> | <p>Status</p> <p>A</p> | <p>Rev</p> <p>M01</p> |             |     |            |     |     |     |                             |   |   |   |

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

- Additional impermeable area = 50 m<sup>2</sup>
- 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<sub>att</sub>: 0.6 m<sup>3</sup>
- 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 m<sup>2</sup>
- 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<sub>att</sub>: 0.6 m<sup>3</sup>
- 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 m<sup>2</sup>
- 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 m<sup>2</sup>
- 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<sub>att</sub>: 0.4 m<sup>3</sup>
- 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 m<sup>2</sup>
- 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<sub>att</sub>: 0.5 m<sup>3</sup>
- 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 m<sup>2</sup>
- 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<sub>att</sub>: 0.7 m<sup>3</sup>
- 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 m<sup>2</sup> to existing surface water network kerblines to be changed, existing gullies to be removed and replaced with side entry gullies

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Client: **NTA**  
 Údarás 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

QMS Code

Programme Title: **BUSCONNECTS DUBLIN**  
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Drawing File Name: BCIDD-ROT-DNG\_RD-0304\_XX\_00-DR-CD-0011

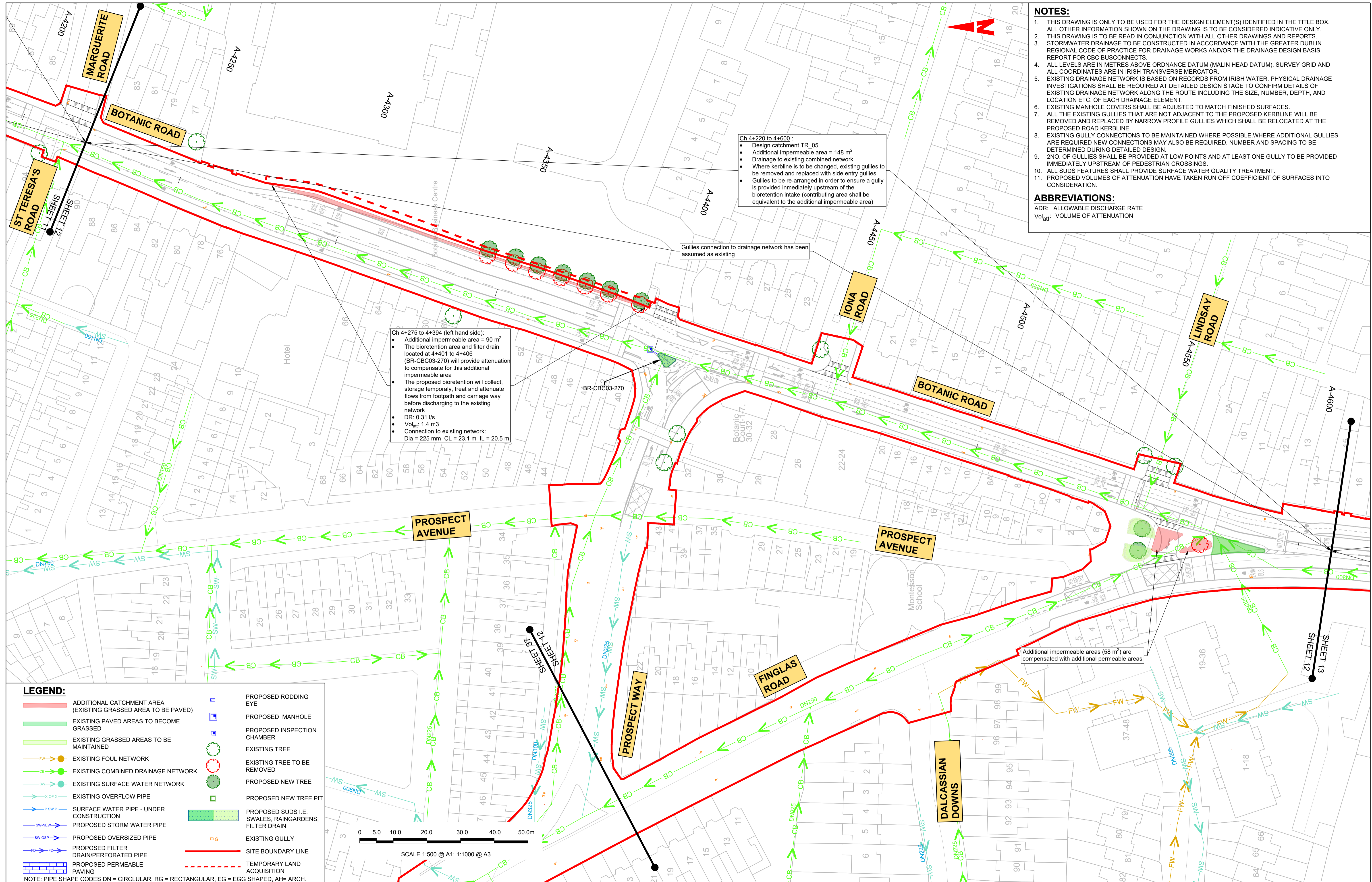
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**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
 Vol<sub>att</sub>: VOLUME OF ATTENUATION

**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                                     |  |  |

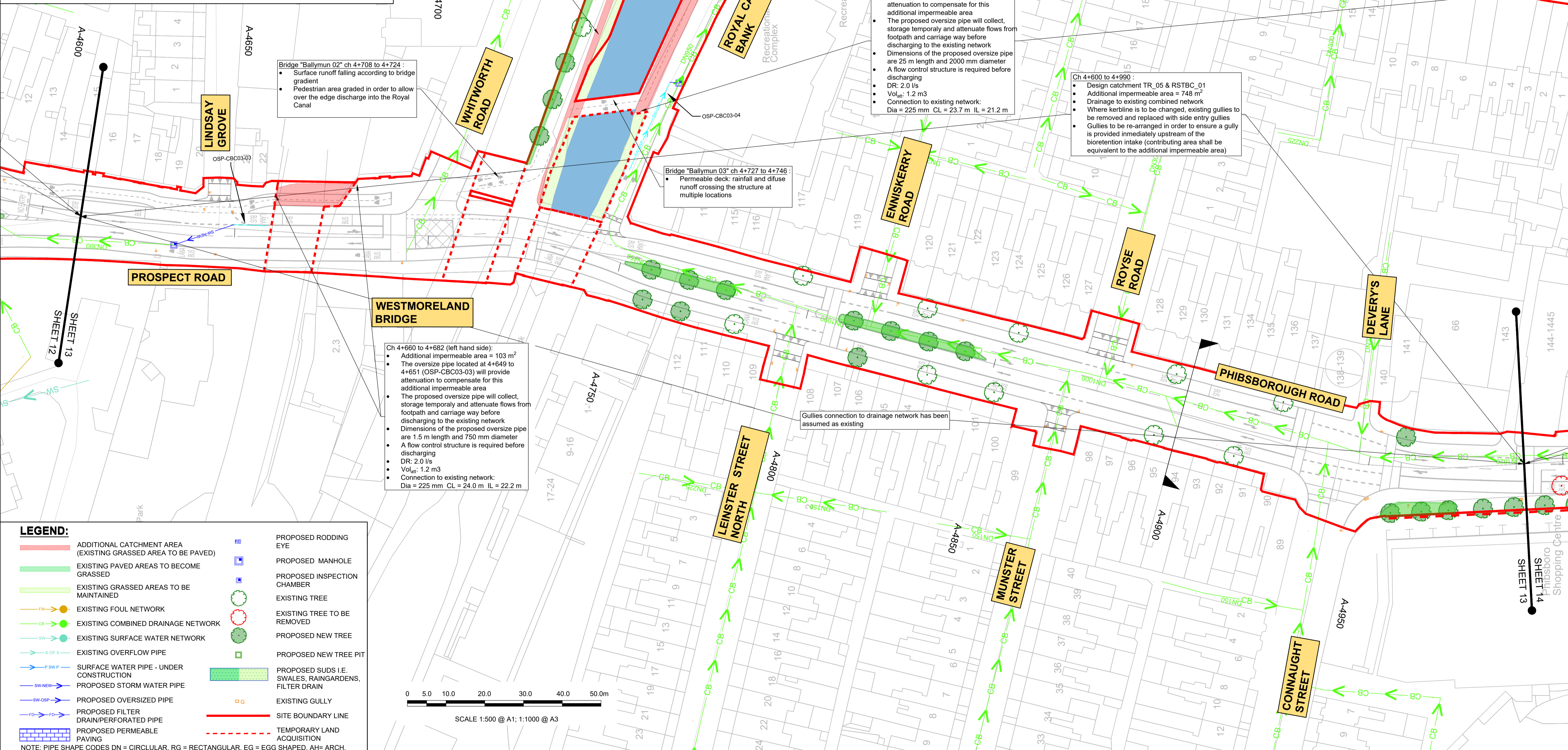
NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

|   |  |  |  |   |  |  |  |  |  |   |  |
|---|--|--|--|---|--|--|--|--|--|---|--|
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| <p>Project Ireland 2040<br/>Building Ireland's Future</p>   |  |  |  | <p>Drawing File Name: BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0012</p> <p>Sheet Number: 12 of 38   Status: A   Rev: M01</p>         |  | <p>DO NOT SCALE USE FIGURED DIMENSIONS ONLY</p>  |  |  |  |   |  |



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**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
 Vol<sub>att</sub>: VOLUME OF ATTENUATION



**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  |
|  | 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: **IJROD**  
 IJROD  
 TYPSA

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**

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

Project Code: BCIDD  
 Originator Code: ROT

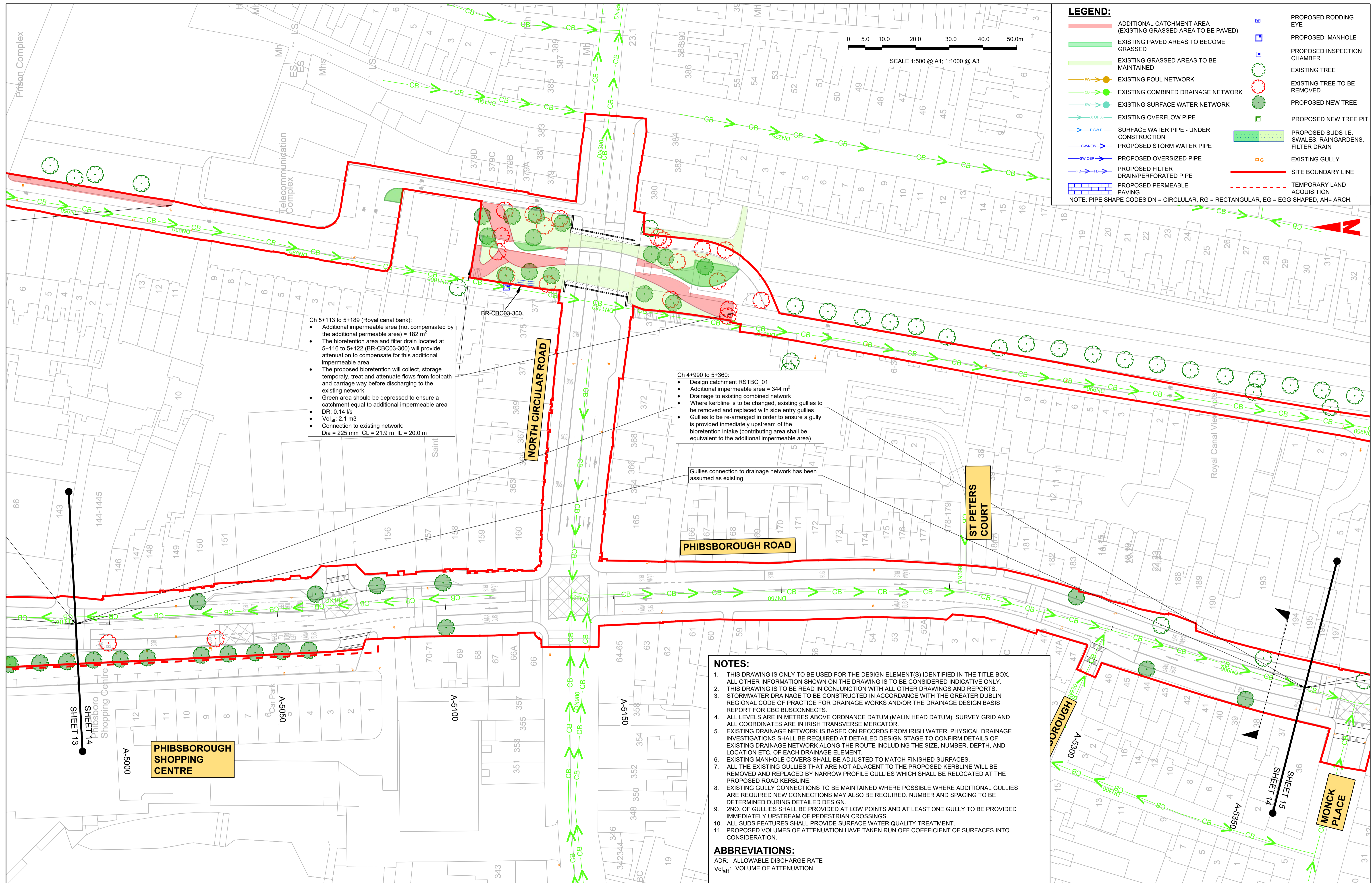
QMS Code: ECD  
 Checked: EFD  
 Approved: SMG

Drawing File Name: BCIDD-ROT-DNG\_RD-0304\_XX\_00-DR-CD-0013  
 Sheet Number: 13 of 38  
 Status: A  
 Rev: M01

Project Ireland 2040  
 Building Ireland's Future

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**LEGEND:**

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE - UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
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- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
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- TEMPORARY LAND ACQUISITION

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

- Additional impermeable area (not compensated by the additional permeable area) = 182 m<sup>2</sup>
- 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<sub>att</sub>: 2.1 m<sup>3</sup>
- 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 m<sup>2</sup>
- 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

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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

QMS Code

Drawn: ECD  
 Checked: EFD  
 Approved: SMG

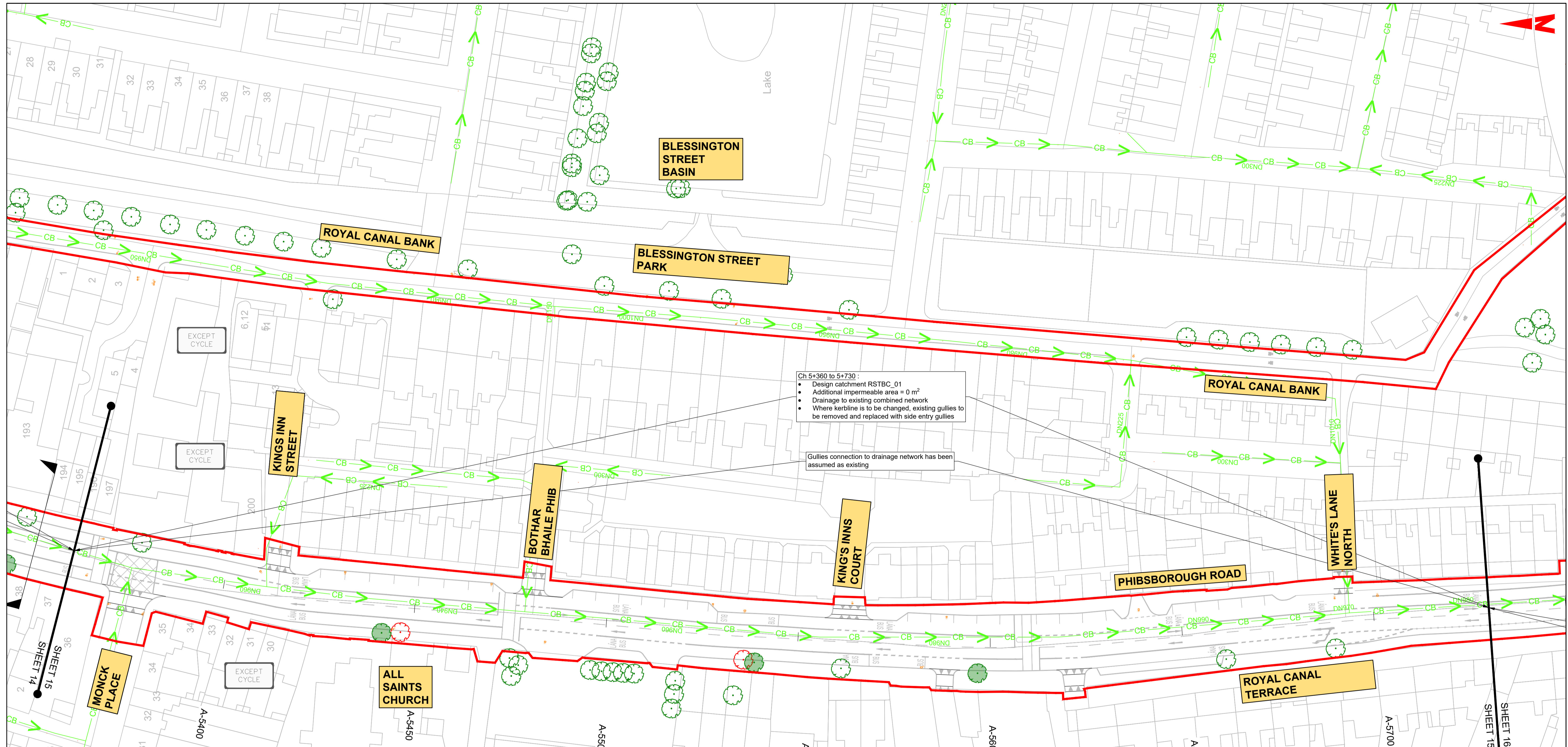
Programme Title: **BUSCONNECTS DUBLIN**  
**CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

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-0014  
 Sheet Number: 14 of 38  
 Status: A  
 Rev: M01

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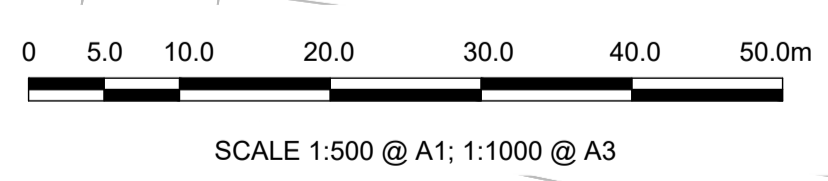
Ch 5+360 to 5+730 :  
 • Design catchment RSTBC\_01  
 • Additional impermeable area = 0 m<sup>2</sup>  
 • Drainage to existing combined network  
 • Where kerblines is to be changed, existing gullies to be removed and replaced with side entry gullies

Gullies connection to drainage network has been assumed as existing

**LEGEND:**

|   |  |
|---|--|
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| EXISTING FOUL NETWORK   | EXISTING TREE  |
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|-----|------------|-----|-------|-------|-----------------------------|
| M01 | 13/05/2022 | ECD | EFD   | SMG   | ISSUE FOR PHASE 4: PLANNING |

Client

Engineering Designer

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-0015

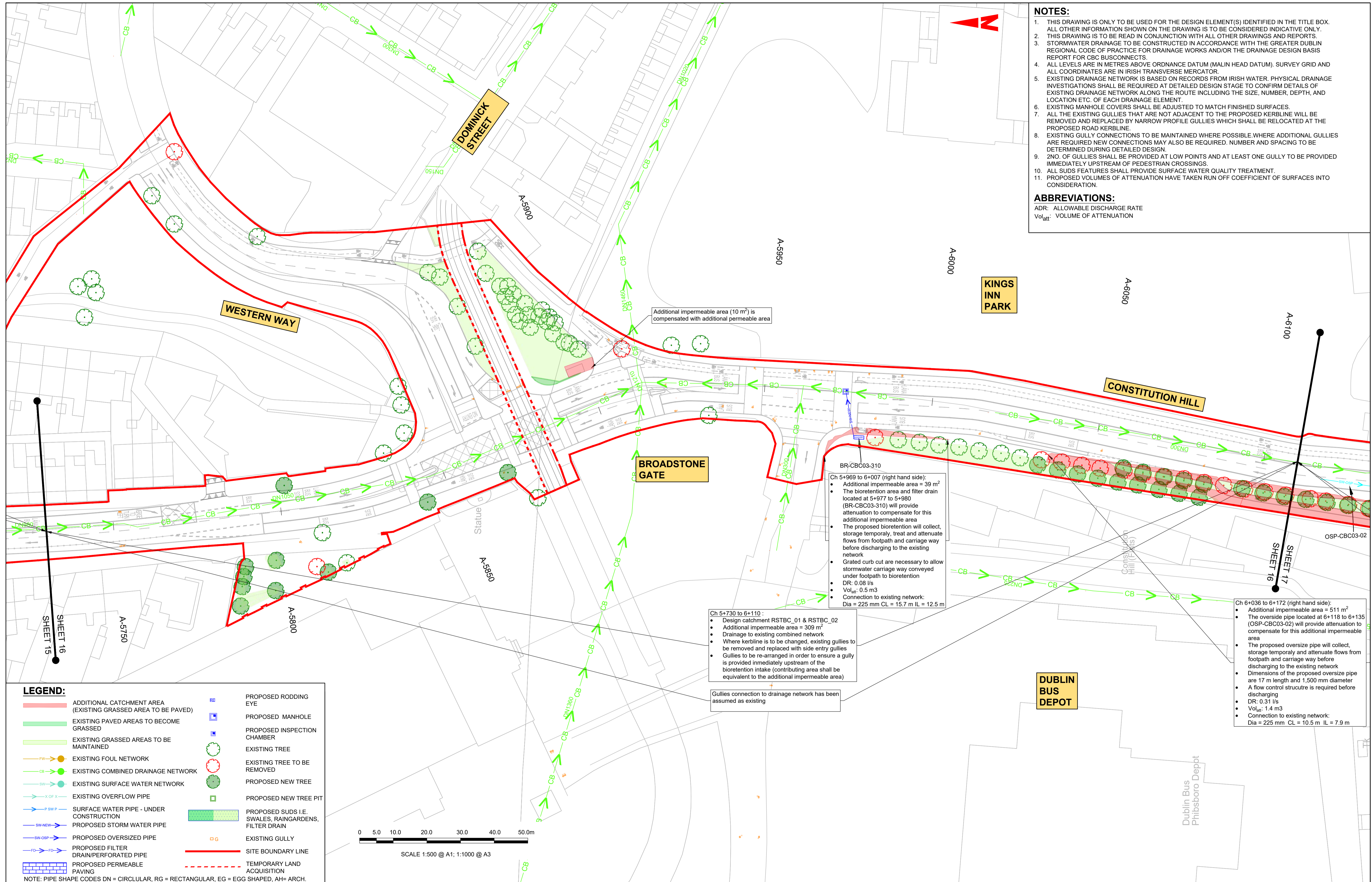
Sheet Number  
15 of 38

Status  
A

Rev  
M01

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**NOTES:**

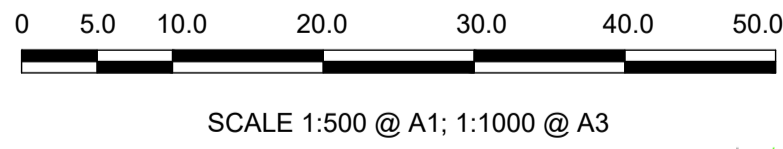
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**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
 Vol<sub>att</sub>: VOLUME OF ATTENUATION

**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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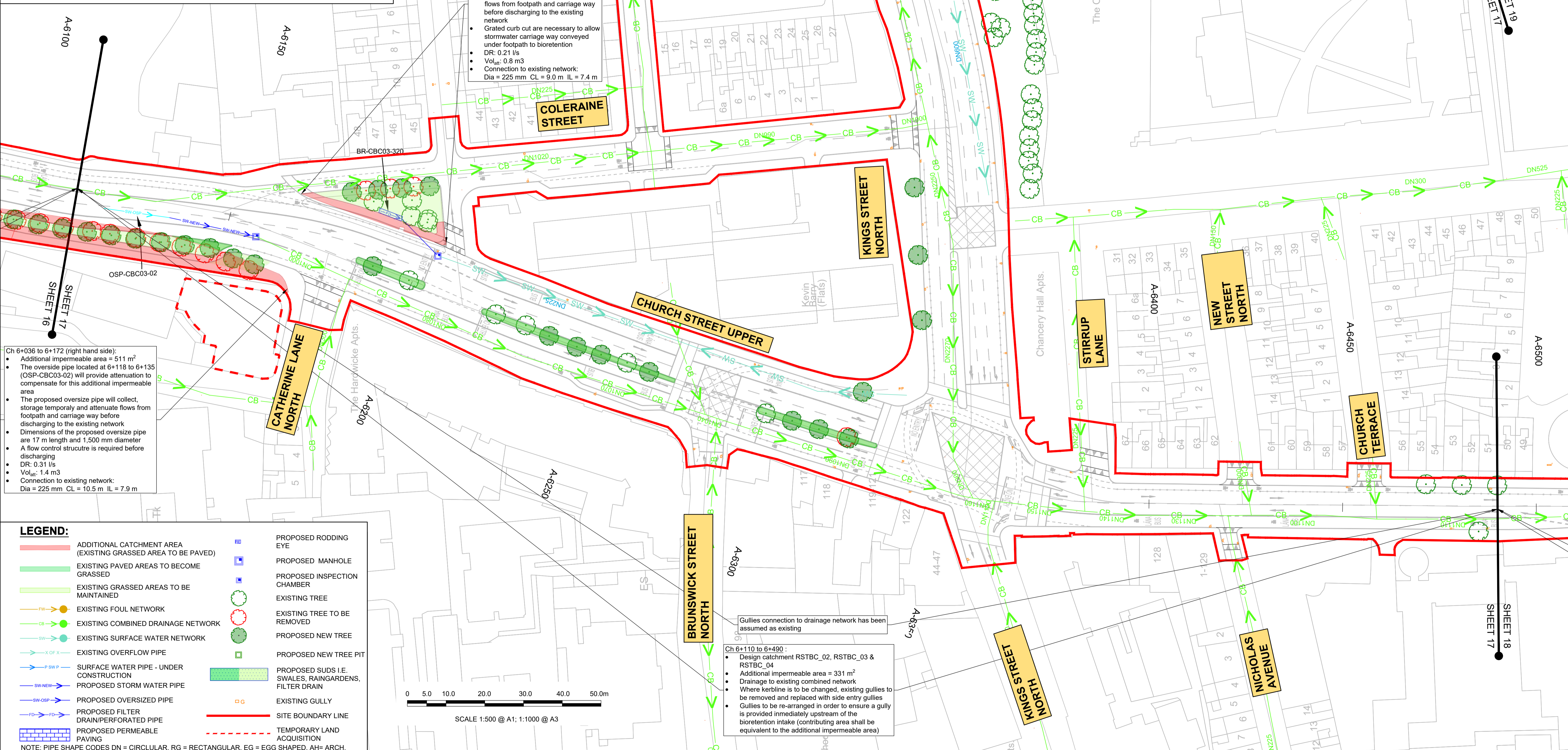
|   |  |   |  |   |  |   |  |
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| <p>Project Ireland 2040<br/>Building Ireland's Future</p>   |  | <p>Date 13/05/2022</p> <p>Scale 1:500 @ A1 1:1000 @ A3</p> <p>Project Code BCIDD</p> <p>Originator Code ROT</p>                                       |  | <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-0016</p> <p>Sheet Number 16 of 38</p> <p>Status A</p> <p>Rev M01</p>   |  |

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 Vol<sub>att</sub>: VOLUME OF ATTENUATION



Ch 6+165 to 6+205 (left hand side):

- Additional impermeable area = 80 m<sup>2</sup>
- The bioretention area and filter drain located at 6+174 to 6+181 (BR-CBC03-320) 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: 0.21 l/s
- Vol<sub>att</sub>: 0.8 m<sup>3</sup>
- 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 m<sup>2</sup>
- The oversize pipe located at 6+118 to 6+135 (OSP-CBC03-02) 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 17 m length and 1,500 mm diameter
- A flow control structure is required before discharging
- DR: 0.31 l/s
- Vol<sub>att</sub>: 1.4 m<sup>3</sup>
- Connection to existing network: Dia = 225 mm CL = 10.5 m IL = 7.9 m

**LEGEND:**

|  |   |  |  |
|--|---|--|--|
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|  | EXISTING PAVED AREAS TO BECOME GRASSED                        |  | PROPOSED MANHOLE                                     |
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|  | 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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| 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: **JROD**  
 TYPSA

|              |                           |          |         |          |
|--------------|---------------------------|----------|---------|----------|
| Date         | Scale                     | Drawn    | Checked | Approved |
| 13/05/2022   | 1:500 @ A1<br>1:1000 @ A3 | ECD      | EFD     | SMG      |
| Project Code | Originator Code           | QMS Code |         |          |
| BCDD         | ROT                       |          |         |          |

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

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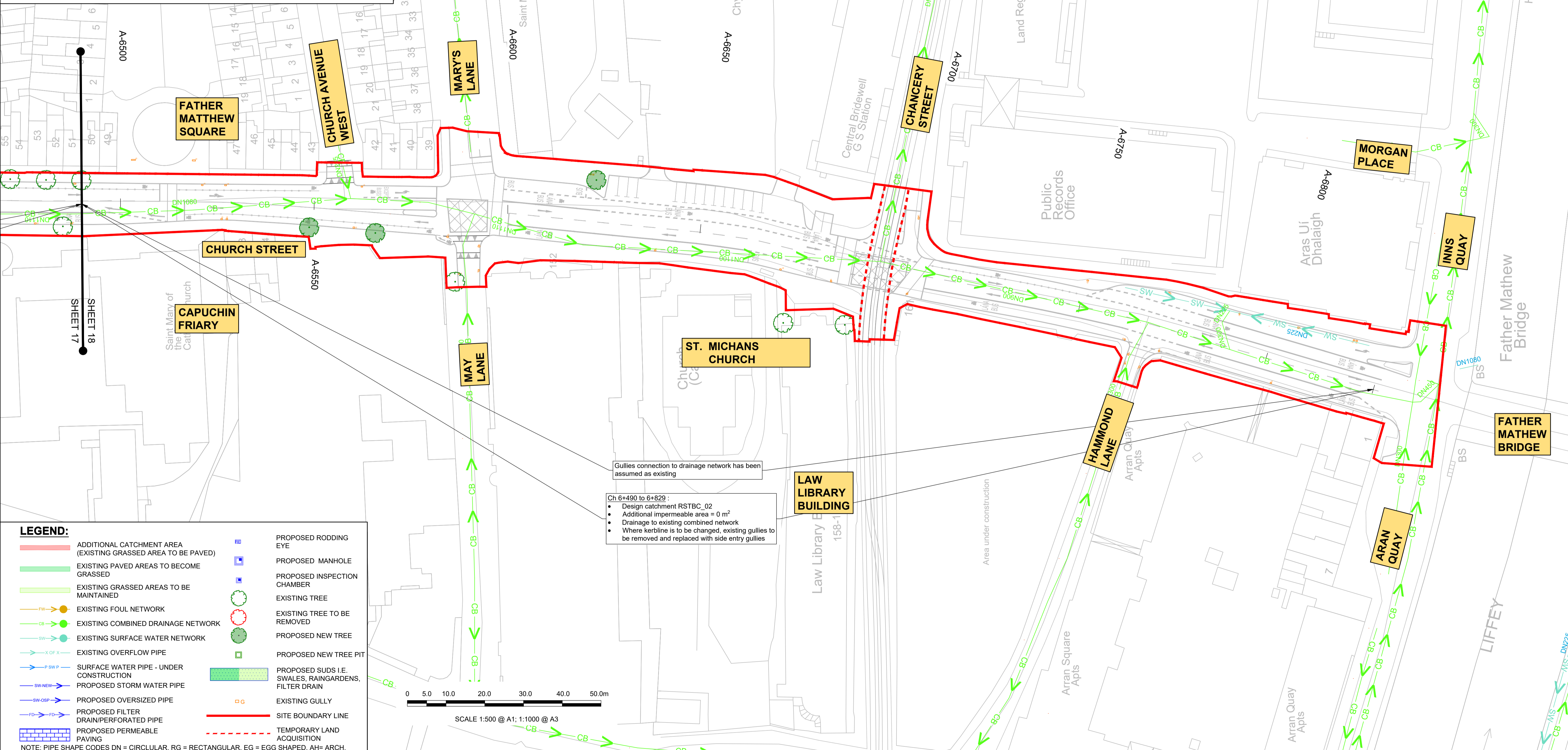


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Vol<sub>att</sub>: VOLUME OF ATTENUATION



**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                          |
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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                                   |
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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: **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

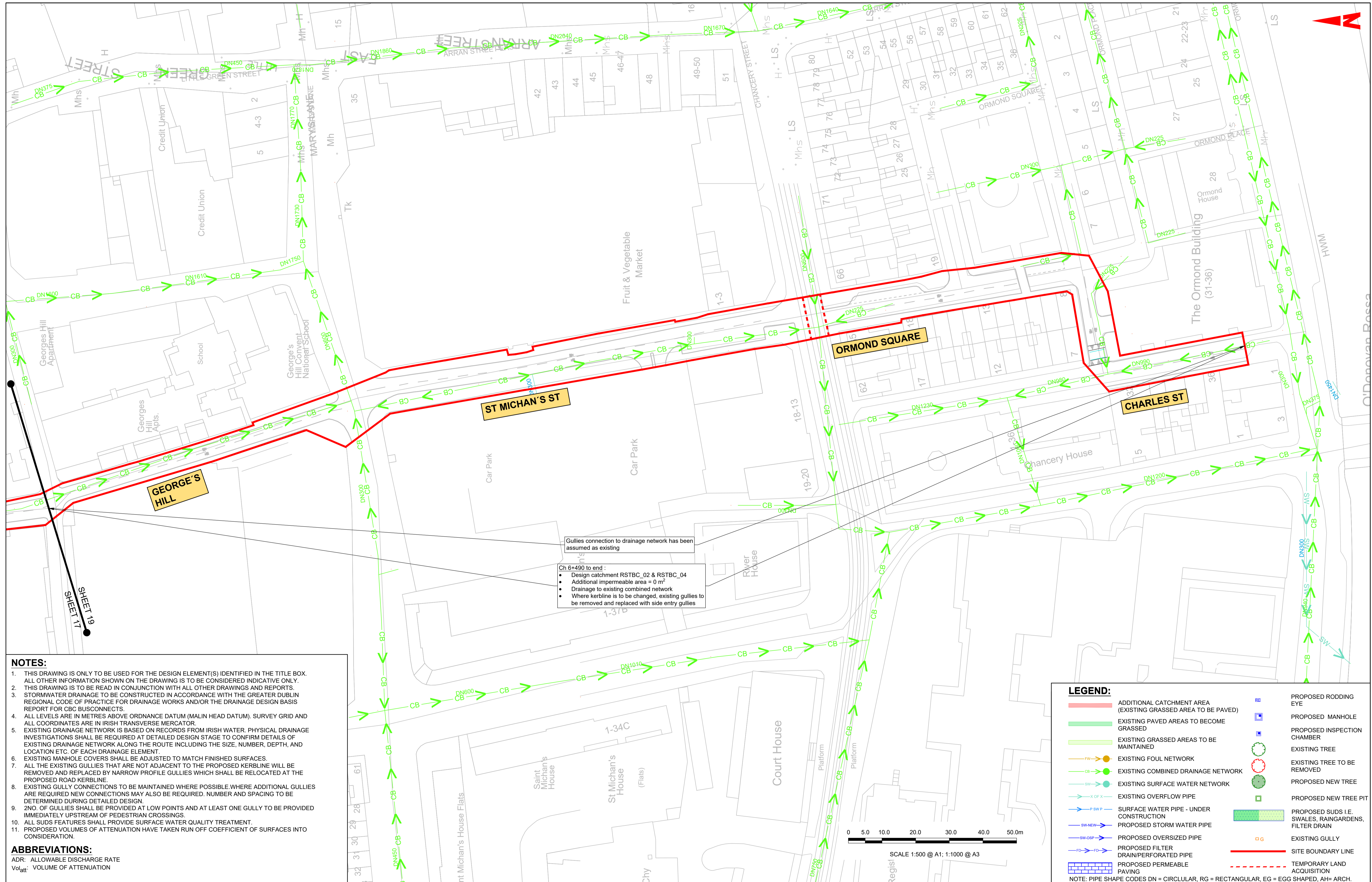
Programme Title: **BUSCONNECTS DUBLIN**  
**CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

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-0018  
 Sheet Number: 18 of 38  
 Status: A  
 Rev: M01

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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 m<sup>2</sup>
- Drainage to existing combined network
- Where kerblines is to be changed, existing gullies to be removed and replaced with side entry gullies

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**LEGEND:**

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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**  
Údaráis Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **JROD**  
TYPSA

|              |                           |          |         |          |
|--------------|---------------------------|----------|---------|----------|
| Date         | Scale                     | Drawn    | Checked | Approved |
| 13/05/2022   | 1:500 @ A1<br>1:1000 @ A3 | ECD      | EFD     | SMG      |
| Project Code | Originator Code           | QMS Code |         |          |
| BCDD         | ROT                       |          |         |          |

Programme Title: **BUSCONNECTS DUBLIN**

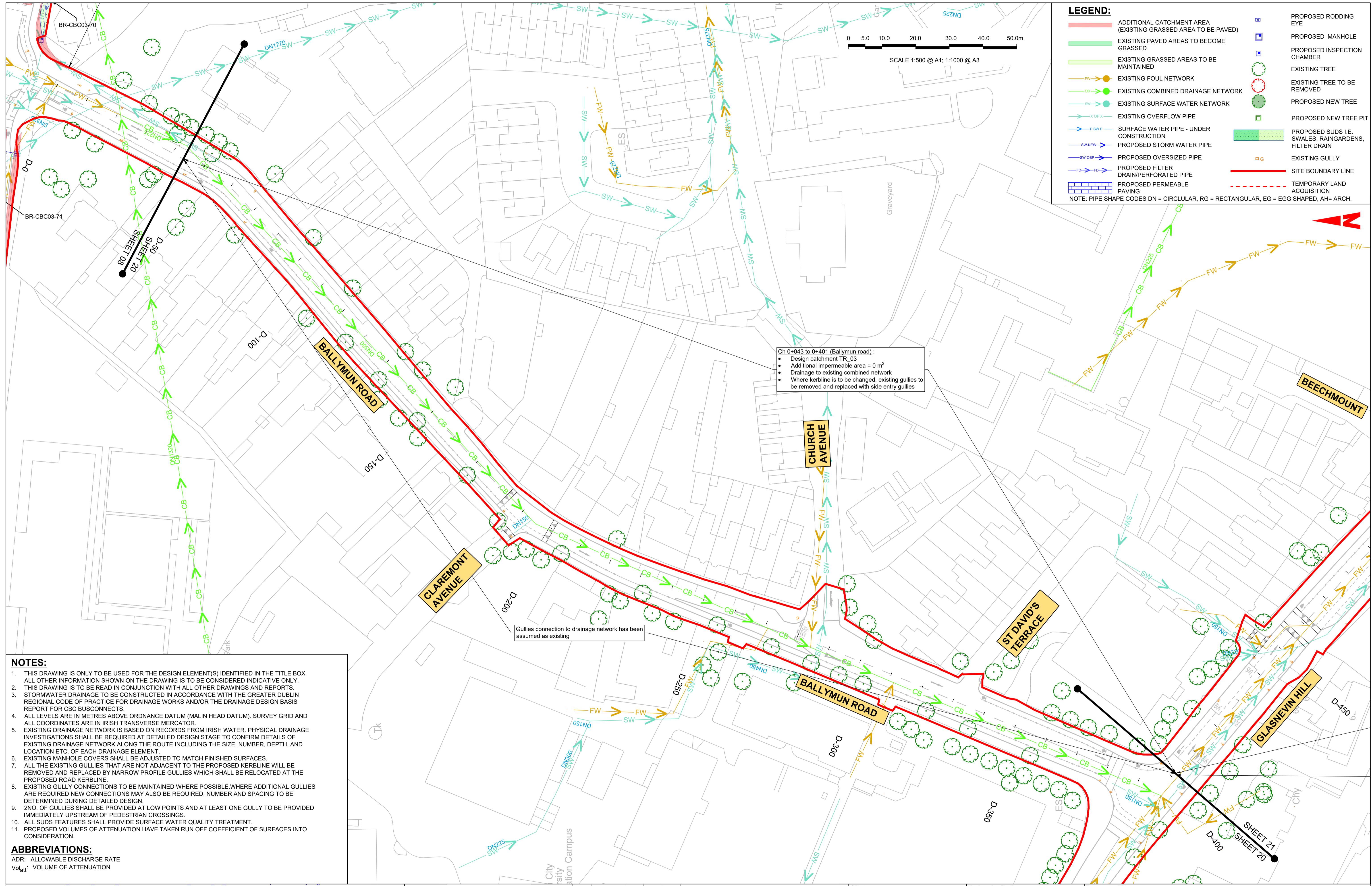
Drawing Title: **CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

Drawing File Name: BCIDD-ROT-DNG\_RD-0304\_XX\_00-DR-CD-0019

|              |        |     |
|--------------|--------|-----|
| Sheet Number | Status | Rev |
| 19 of 38     | A      | M01 |

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**LEGEND:**

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

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

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

- Design catchment TR\_03
- Additional impermeable area = 0 m<sup>2</sup>
- 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

- NOTES:**
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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<sub>att</sub>: VOLUME OF ATTENUATION

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**Project Ireland 2040**  
 Building Ireland's Future

| Rev | Date       | Drn | Chk'd | App'd | Description                 |
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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: BCDD  
 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-0020  
 Sheet Number: 20 of 38  
 Status: A  
 Rev: M01

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- 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<sub>att</sub>: VOLUME OF ATTENUATION

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

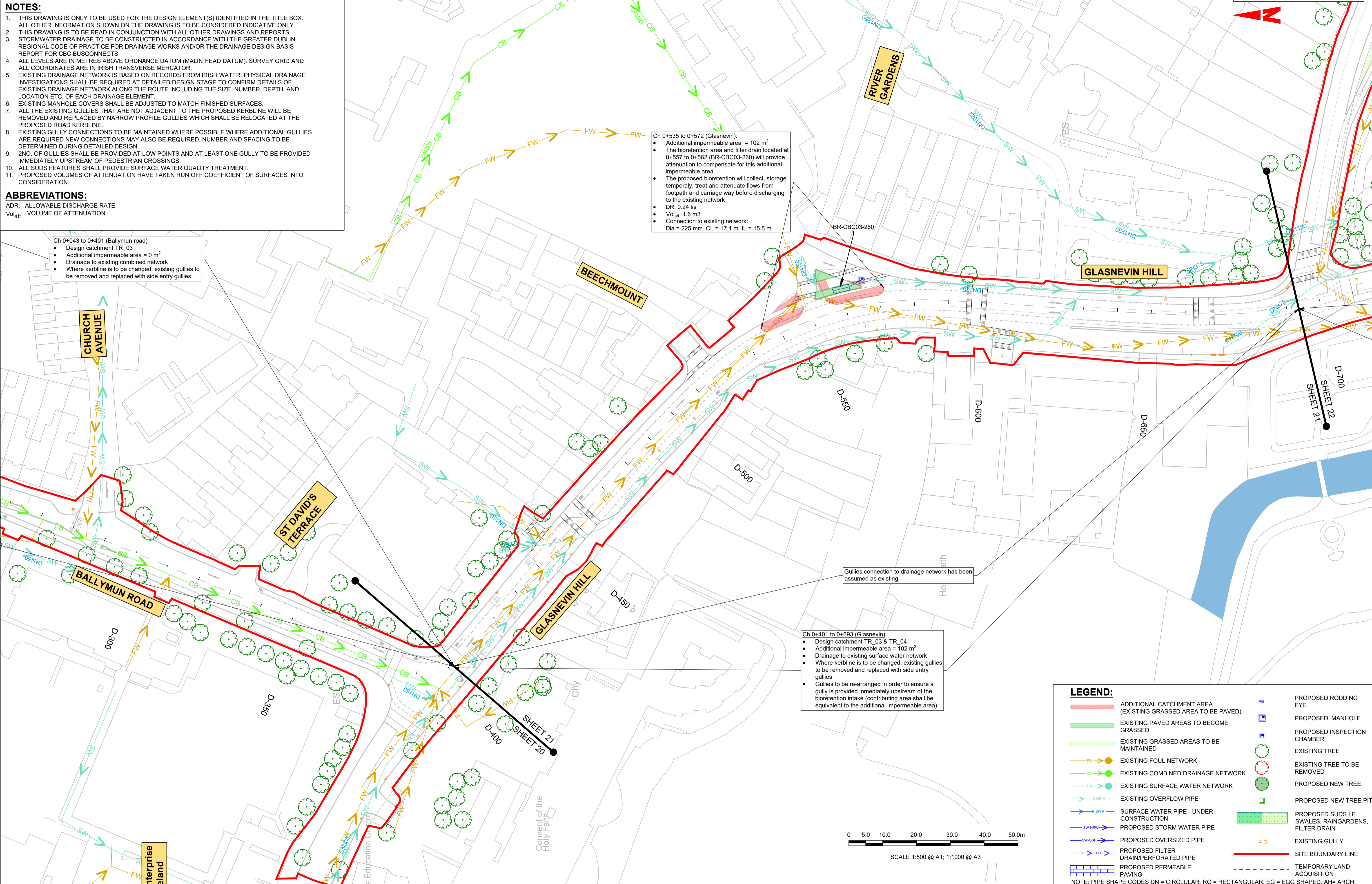
- Design catchment TR\_03
- Additional impermeable area = 0 m<sup>2</sup>
- Drainage to existing combined network
- Where kerbline is to be changed, existing gullies to be removed and replaced with side entry gullies

Ch 0+535 to 0+572 (Glasnevin):

- Additional impermeable area = 102 m<sup>2</sup>
- 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, storage temporarily, treat and attenuate flows from footpath and carriage way before discharging to the existing network
- DR: 0.24 l/s
- Vol<sub>att</sub>: 1.6 m<sup>3</sup>
- 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 m<sup>2</sup>
- 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                                     |  |  |

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, 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: **IJROD**  
 TYPSA

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

Drawn: ECD  
 Checked: EFD  
 Approved: SMG

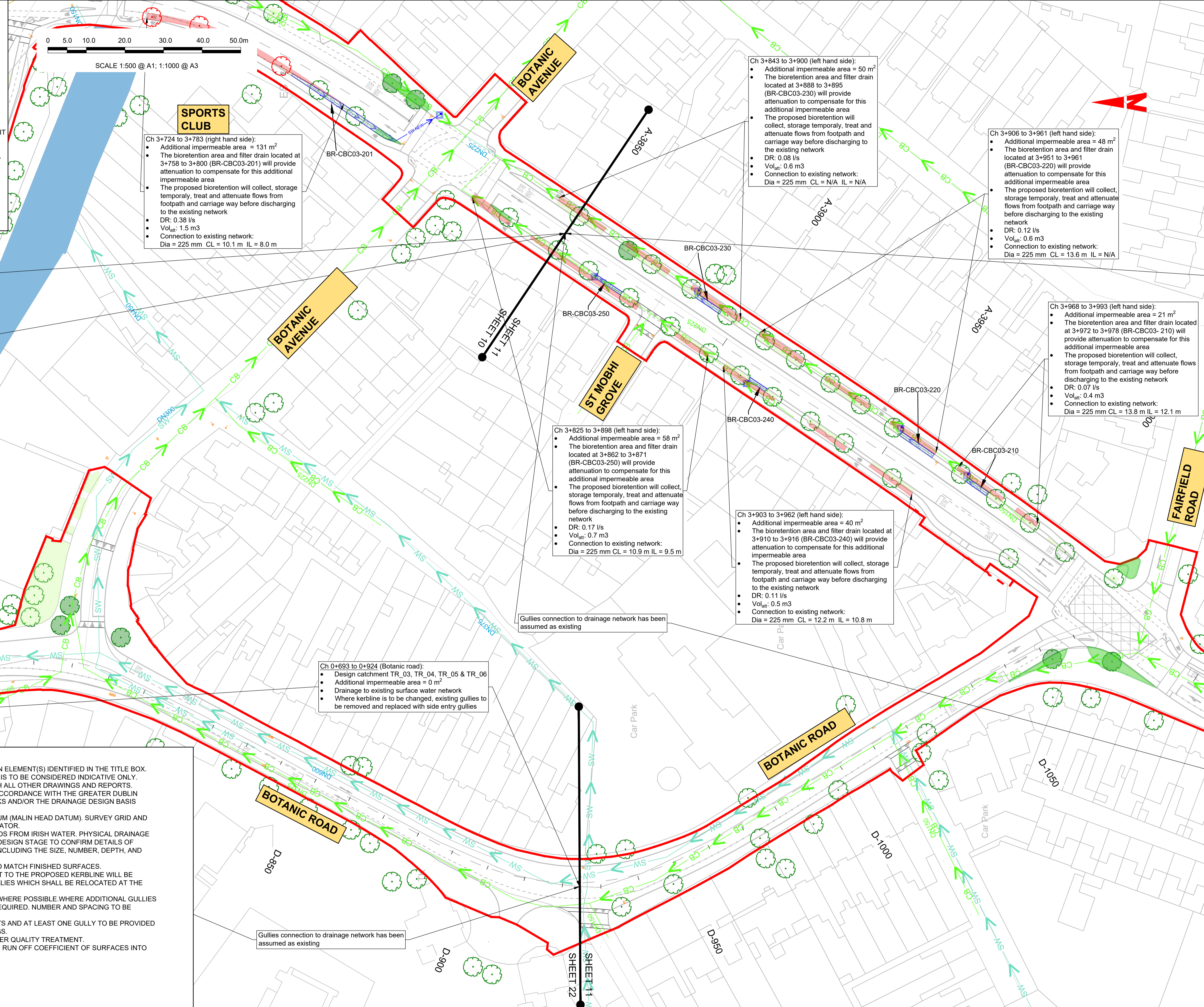
| Drawing File Name                      | Sheet Number | Status | Rev |
|--|--------------|--------|-----|
| BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0021 | 21 of 38     | A      | M01 |

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**



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



Ch 3+460 to 3+850 :

- Design catchment TR\_01 & TR\_06
- Additional impermeable area = 877 m<sup>2</sup>
- 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 m<sup>2</sup>
- 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<sub>att</sub>: 1.5 m<sup>3</sup>
- Connection to existing network: Dia = 225 mm CL = 10.1 m IL = 8.0 m

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

- Additional impermeable area = 58 m<sup>2</sup>
- 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<sub>att</sub>: 0.7 m<sup>3</sup>
- 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

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

- Design catchment TR\_03, TR\_04, TR\_05 & TR\_06
- Additional impermeable area = 0 m<sup>2</sup>
- 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

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

- Additional impermeable area = 40 m<sup>2</sup>
- 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<sub>att</sub>: 0.5 m<sup>3</sup>
- Connection to existing network: Dia = 225 mm CL = 12.2 m IL = 10.8 m

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

- Additional impermeable area = 48 m<sup>2</sup>
- 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<sub>att</sub>: 0.6 m<sup>3</sup>
- 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 m<sup>2</sup>
- 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<sub>att</sub>: 0.4 m<sup>3</sup>
- Connection to existing network: Dia = 225 mm CL = 13.8 m IL = 12.1 m

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**ABBREVIATIONS:**

ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: 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   |                           | Engineering Designer |  |          | Programme Title   |  |  |
| NTA<br>Údaráis Náisiúnta Iompair<br>National Transport Authority |                           | I/ROD<br>TYPSA       |  |          | BUSCONNECTS DUBLIN<br>CORE BUS CORRIDORS INFRASTRUCTURE WORKS                                       |  |  |
| Date   | Scale                     | Drawn                | Checked                                | Approved | Drawing Title   |  |  |
| 13/05/2022   | 1:500 @ A1<br>1:1000 @ A3 | ECD                  | EFD                                    | SMG      | BALLYMUN / FINGLAS TO CITY CENTRE CORE BUS CORRIDOR SCHEME<br>PROPOSED SURFACE WATER DRAINAGE WORKS |  |  |
| Project Code   | Originator Code           | QMS Code             | Drawing File Name                      |          |   |  |  |
| BCDD   | ROT                       |                      | BCIDD-ROT-DNG_RD-0304_XX_00-DR-CD-0022 |          |   |  |  |
| Sheet Number   |                           | Status               | Rev                                    |          |   |  |  |
| 22 of 38   |                           | A                    | M01                                    |          |   |  |  |

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