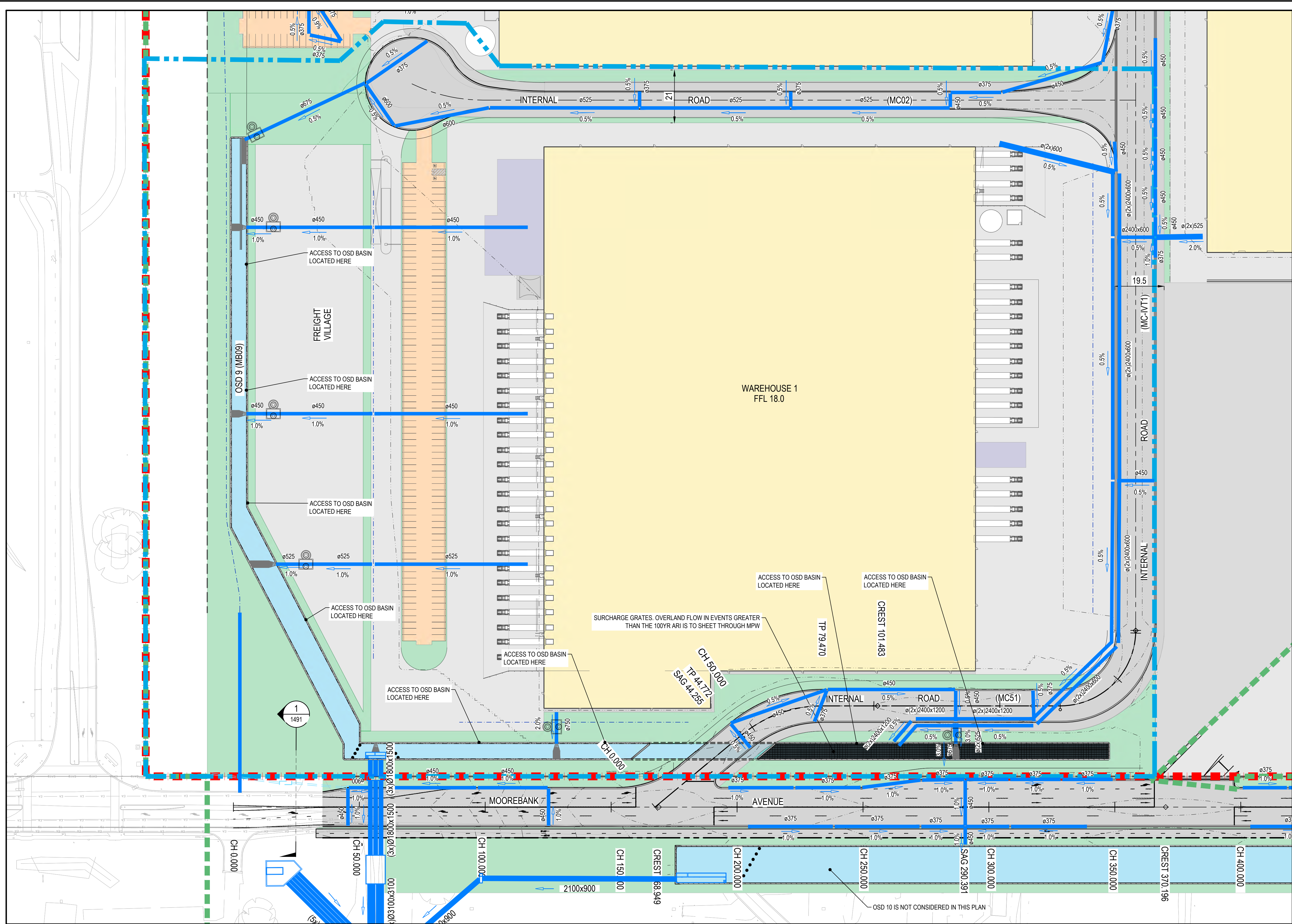




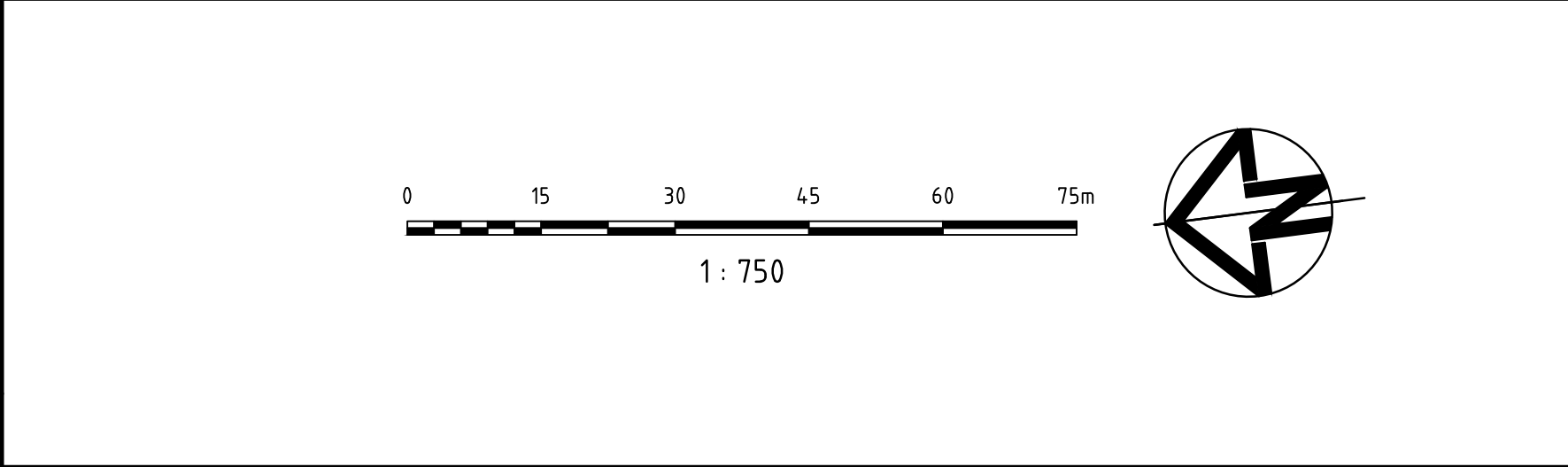
**LEGEND**

- MPE SITE BOUNDARY
- MPE STAGE 2 APPROVAL BOUNDARY
- WAREHOUSE 1 PRECINCT BOUNDARY
- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED TRUNK STORMWATER DRAINAGE NETWORK
- PROPOSED TRUNK STORMWATER DRAINAGE NETWORK (BY OTHERS)
- PROPOSED UNDERGROUND ON SITE DETENTION TANK
- GROSS POLLUTANT TRAP

**NOTES**

- REFER TO DRAWING SSS2-ARC-CV-DWG-1003 FOR TYPICAL ROAD CROSS SECTIONS.
- ONLY WORKS CONTAINED WITHIN THE WAREHOUSE 1 PRECINCT BOUNDARY ARE CONSIDERED WITHIN THE MOOREBANK PRECINCT EAST STAGE 2 - WAREHOUSE 1 PRECINCT STORMWATER MANAGEMENT PLAN.
- ROAD RESERVE TO BE USED AS CONTROLLED OVERLAND FLOW PATH. FULL ROAD RESERVE IS DEDICATED TO THIS PURPOSE IN EXTREME FLOOD EVENTS.

| Issue | Description                                                 | Date       |
|-------|-------------------------------------------------------------|------------|
| 04    | ISSUE FOR STORMWATER MANAGEMENT PLAN                        | 07/06/2019 |
| 03    | ISSUE FOR STORMWATER MANAGEMENT PLAN                        | 05/06/2019 |
| 02    | RESPONSE TO VERIFIERS COMMENTS                              | 18/06/2018 |
| 01    | ISSUE FOR STORMWATER MANAGEMENT PLAN - WAREHOUSE 1 PRECINCT | 11/05/2018 |



Client

**SIMTA** SYDNEY INTERMODAL TERMINAL ALLIANCE

**TACTICAL** GROUP

|               |                                                     |                          |
|---------------|-----------------------------------------------------|--------------------------|
| Status        | PRELIMINARY ONLY<br>NOT TO BE USED FOR CONSTRUCTION |                          |
| Scales        | 1 : 750                                             | Current Issue Signatures |
| Original Size | A1                                                  | Drawn A.ZHAO             |
| Height Datum  | AHD                                                 | Designed J.WOOD          |
| Grid          | MGA                                                 | Checked G.DUNSTAN        |
| Filename:     | SSS2-ARC-CV-DWG-1201-CivilAndStormwaterPlan.dwg     |                          |
|               |                                                     | Approved M.KEFFORD       |

Project

MOOREBANK PRECINCT EAST (MPE) STAGE 2  
WAREHOUSE 1 PRECINCT

Title

CIVIL AND STORMWATER PLAN

**ARCADIS**

Arcadis Australia Pacific Pty Limited  
Level 5, 141 Walker St  
NORTH SYDNEY NSW 2060  
ABN 76 104 485 289

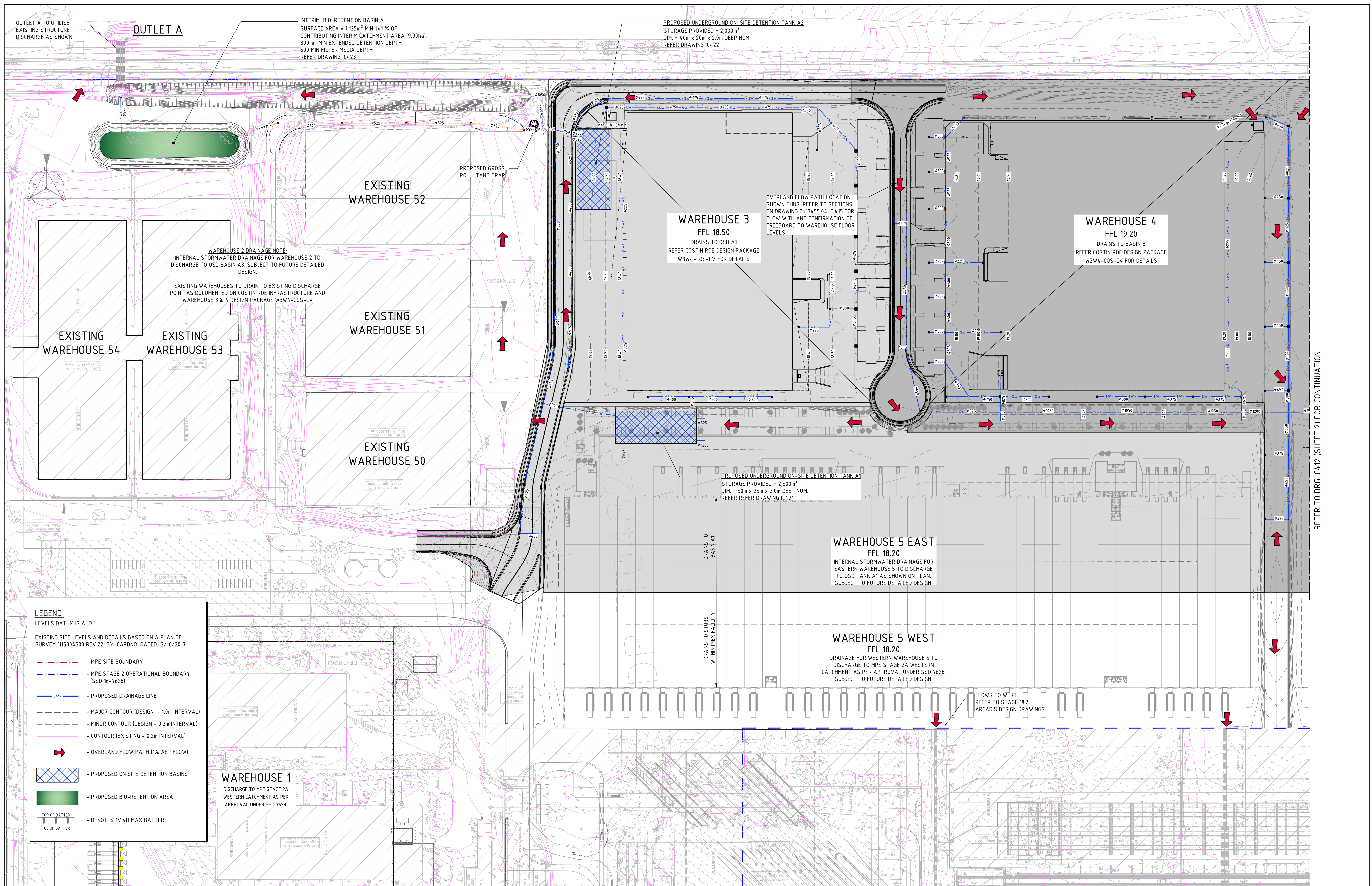
Tel No: +61 2 8907 9000  
Fax No: +61 2 8907 9001  
arcadis.com

Project No.  
AA009335

Drawing No.  
SSS2-ARC-CV-DWG-1201- 04

Issue





- LEGEND:**  
LEVELS DATUM IS AHD.
- EXISTING SITE LEVELS AND DETAILS BASED ON A PLAN OF SURVEY '115804500 REV.22' BY 'CARDNO' DATED 12/10/2017.
- MPE SITE BOUNDARY
  - MPE STAGE 2 OPERATIONAL BOUNDARY (SSD 16-7628)
  - PROPOSED DRAINAGE LINE
  - MAJOR CONTOUR (DESIGN - 1.0m INTERVAL)
  - MINOR CONTOUR (DESIGN - 0.2m INTERVAL)
  - CONTOUR (EXISTING - 0.2m INTERVAL)
  - OVERLAND FLOW PATH (1% AEP FLOW)
  - PROPOSED ON SITE DETENTION BASINS
  - PROPOSED BIO-RETENTION AREA
  - TOP OF BATTER
  - TOE OF BATTER
  - DENOTES 1V:4H MAX BATTER

**WAREHOUSE 1**  
DISCHARGE TO MPE STAGE 2A  
WESTERN CATCHMENT AS PER  
APPROVAL UNDER SSD 7628.

**INTERIM BIO-RETENTION BASIN A**  
SURFACE AREA = 1,125m<sup>2</sup> MIN. [+1% OF  
CONTRIBUTING INTERIM CATCHMENT AREA (9.90ha).  
300mm MIN EXTENDED DETENTION DEPTH  
500 MIN FILTER MEDIA DEPTH  
REFER DRAWING IC423

**PROPOSED UNDERGROUND ON-SITE DETENTION TANK A2**  
STORAGE PROVIDED = 2,000m<sup>3</sup>  
DIM. = 40m x 20m x 2.0m DEEP NOM.  
REFER DRAWING IC422

**WAREHOUSE 3**  
FFL 18.50  
DRAINS TO OSD A1  
REFER COSTIN ROE DESIGN PACKAGE  
W3W4-COS-CV FOR DETAILS

**WAREHOUSE 4**  
FFL 19.20  
DRAINS TO BASIN B  
REFER COSTIN ROE DESIGN PACKAGE  
W3W4-COS-CV FOR DETAILS

**PROPOSED UNDERGROUND ON-SITE DETENTION TANK A1**  
STORAGE PROVIDED = 2,500m<sup>3</sup>  
DIM. = 50m x 25m x 2.0m DEEP NOM.  
REFER DRAWING IC421

**WAREHOUSE 5 EAST**  
FFL 18.20  
INTERNAL STORMWATER DRAINAGE FOR  
EASTERN WAREHOUSE 5 TO DISCHARGE  
TO OSD TANK A1 AS SHOWN ON PLAN.  
SUBJECT TO FUTURE DETAILED DESIGN.

**WAREHOUSE 5 WEST**  
FFL 18.20  
DRAINAGE FOR WESTERN WAREHOUSE 5 TO  
DISCHARGE TO MPE STAGE 2A WESTERN  
CATCHMENT AS PER APPROVAL UNDER SSD 7628.  
SUBJECT TO FUTURE DETAILED DESIGN.

**STORMWATER DRAINAGE PLAN - SHEET 1**  
1:750 SCALE

6m 0 15 30 45 60 75m  
1:750 SCALE AT A0 SHEET SIZE

**FOR APPROVAL**

|                             |          |       |
|-----------------------------|----------|-------|
| ISSUED FOR APPROVAL         | 05.07.19 | E     |
| REVISED FOR CLIENT COMMENTS | 26.06.19 | D     |
| REVISED FOR CLIENT COMMENTS | 24.06.19 | C     |
| REVISED FOR CLIENT COMMENTS | 12.06.19 | B     |
| PRELIMINARY ISSUE ONLY      | 27.05.19 | A     |
| AMENDMENTS                  | DATE     | ISSUE |

|                 |                       |
|-----------------|-----------------------|
| CLIENT          | <b>MOOREBANK</b>      |
| ARCHITECT       | <b>REIDCAMPBELL</b>   |
| PROJECT MANAGER | <b>TACTICAL GROUP</b> |

|                 |                       |
|-----------------|-----------------------|
| ARCHITECT       | <b>REIDCAMPBELL</b>   |
| PROJECT MANAGER | <b>TACTICAL GROUP</b> |

|              |                                    |
|--------------|------------------------------------|
| PROJECT      | <b>MOOREBANK PRECINCT EAST</b>     |
| INTERIM SWMP | <b>MOOREBANK AVENUE, MOOREBANK</b> |

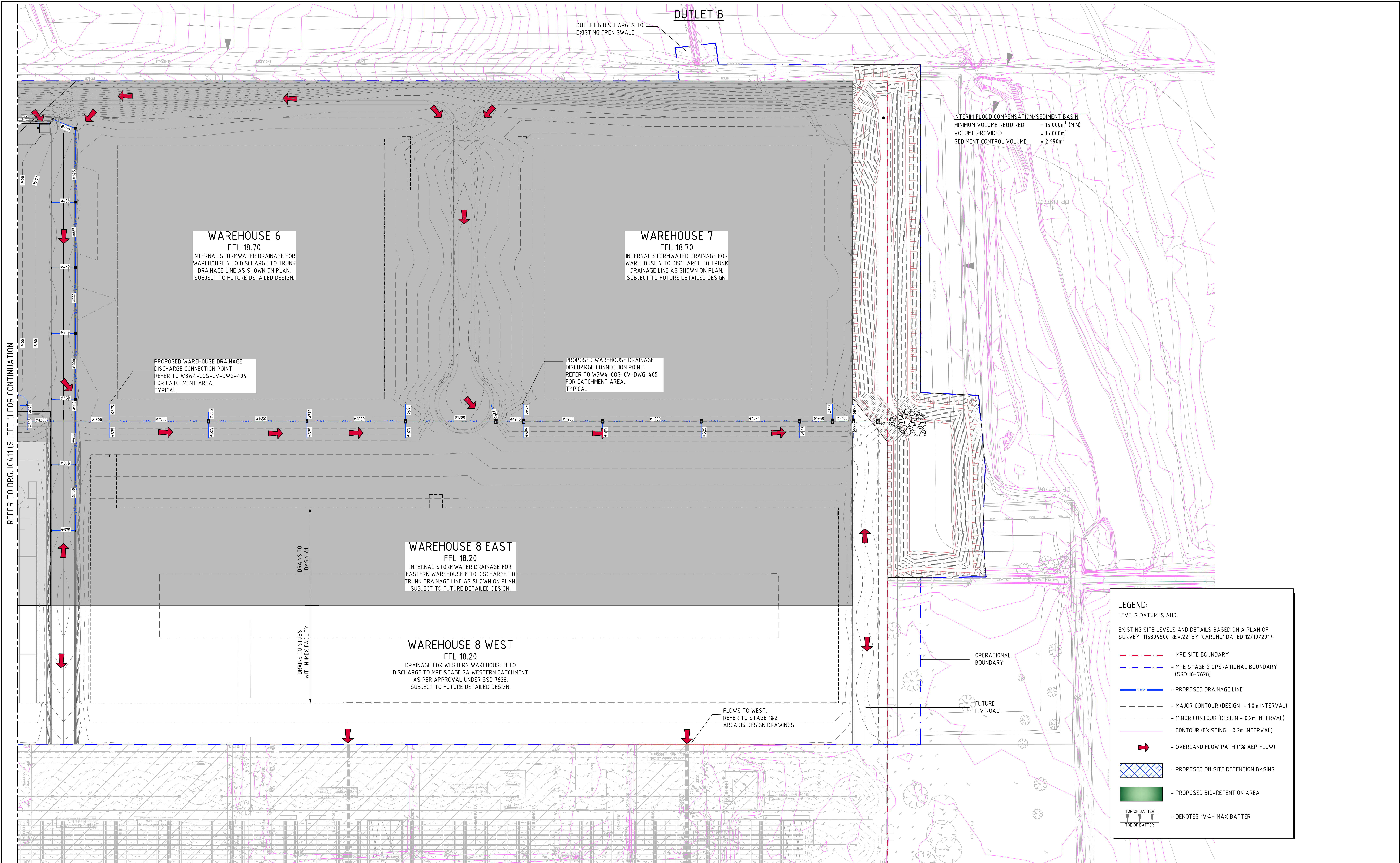
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|----------|--------|---------|------|-------|----------|----------|----------------|
| DESIGNED | DATE   | CHECKED | DATE | SCALE | AS SHOWN | CAD REF: | CH3455.04-IC41 |
| D.S.     | MAY 19 | P.W.    |      | A0    |          |          |                |

|                                         |                                 |
|-----------------------------------------|---------------------------------|
| COSTIN ROE CONSULTING PTY LTD.          | Costin Roe Consulting Engineers |
| Level 1, 8 Windmill Street              | Wah Bay, Sydney NSW 2000        |
| Tel: (02) 9251-7899 Fax: (02) 9241-3721 | email: mail@costinroe.com.au    |

|                              |                                            |
|------------------------------|--------------------------------------------|
| <b>Costin Roe Consulting</b> | PRECISION   COMMUNICATION   ACCOUNTABILITY |
|------------------------------|--------------------------------------------|

|               |                                                                        |
|---------------|------------------------------------------------------------------------|
| DRAWING TITLE | <b>MPE STAGE 2 - BALANCE OF SITE INTERIM SW MANGEMENT PLAN SHEET 1</b> |
| DRAWING No.   | <b>Co13455.04-IC411</b>                                                |

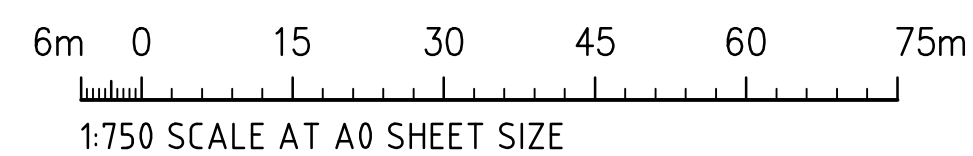




REFER TO DRG IC411 (SHEET 1) FOR CONTINUATION



STORMWATER DRAINAGE PLAN - SHEET 2  
1:1000 SCALE



FOR APPROVAL

|                             |          |       |
|-----------------------------|----------|-------|
| ISSUED FOR APPROVAL         | 05.07.19 | E     |
| REVISED FOR CLIENT COMMENTS | 26.06.19 | D     |
| REVISED FOR CLIENT COMMENTS | 26.06.19 | C     |
| REVISED FOR CLIENT COMMENTS | 12.06.19 | B     |
| PRELIMINARY ISSUE ONLY      | 27.05.19 | A     |
| AMENDMENTS                  | DATE     | ISSUE |

CLIENT



ARCHITECT



PROJECT MANAGER



PROJECT

MOOREBANK PRECINCT EAST  
INTERIM SWMP  
MOOREBANK AVENUE, MOOREBANK



Costin Roe Consulting Pty Ltd.  
Consulting Engineers  
Level 1, 8 Windmill Street  
Wahia Bay, Sydney NSW 2000  
Tel: (02) 9251-7899 Fax: (02) 9241-3721  
email: mail@costinroe.com.au



PRECISION | COMMUNICATION | ACCOUNTABILITY

|               |                                                                       |
|---------------|-----------------------------------------------------------------------|
| DRAWING TITLE | MPE STAGE 2 - BALANCE OF SITE<br>INTERIM SW MANGEMENT PLAN<br>SHEET 2 |
| DRAWING No.   | Co13455.04-IC412                                                      |
| ISSUE         | E                                                                     |



SEDIMENTATION BASIN NOTE:

FOR SEDIMENT & EROSION CONTROL NOTES REFER TO DRAWING C013455.04-C110.

FOR SEDIMENT & EROSION CONTROL DETAILS REFER TO DRAWING C013455.04-C250.

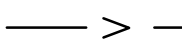
SEDIMENTATION BASIN SIZING BASED ON RECOMMENDATIONS OF 'SOILS AND CONSTRUCTION, MANAGING URBAN STORMWATER-THE BLUE BOOK', CAPACITY BASED UPON 5 DAY RAINFALL DEPTH AT 85th PERCENTILE INTENSITY (32.2mm).

FOR SEDIMENT & EROSION CONTROL CALCULATIONS REFER TO DRAWING C013455.04-C210.

NOTES:

1. ASSUME TYPE D SOIL (CLAY/SILTY CLAY)
2. ASSUME GROUP D SOIL (HIGH PLASTICITY AND SHRINK/SWELL PROPERTIES)

LEGEND:

-  OVERLAND FLOW PATH
-  DIVERSION DRAIN
-  SILT FENCING

WH3 SEDIMENT BASIN:

CATCHMENT AREA = 3.41 ha  
DISTURBED AREA = 3.41 ha  
REQUIRED SETTLING ZONE = 671m<sup>3</sup>  
REQUIRED STORAGE ZONE = 671m<sup>3</sup>  
REQUIRED BASIN VOLUME = 1,342m<sup>3</sup>  
BASE DIMENSIONS (L X B) = 18m x 36m  
TOP DIMENSIONS (L X B) = 27m x 45m  
MAX SIDE SLOPE = 1V:3H  
DEPTH = 15m  
PROVIDED BASIN VOLUME = 1,375m<sup>3</sup>  
REFER TO SD 6-4.

WH6 SEDIMENT BASIN:

CATCHMENT AREA = 4.06 ha  
DISTURBED AREA = 4.06 ha  
REQUIRED SETTLING ZONE = 799m<sup>3</sup>  
REQUIRED STORAGE ZONE = 799m<sup>3</sup>  
REQUIRED BASIN VOLUME = 1,597m<sup>3</sup>  
BASE DIMENSIONS (L X B) = 22m x 38m  
TOP DIMENSIONS (L X B) = 31m x 47m  
MAX SIDE SLOPE = 1V:3H  
DEPTH = 15m  
PROVIDED BASIN VOLUME = 1,698m<sup>3</sup>  
REFER TO SD 6-4.

WH5 SEDIMENT BASIN:

CATCHMENT AREA = 8.82 ha  
DISTURBED AREA = 8.82 ha  
REQUIRED SETTLING ZONE = 1,735m<sup>3</sup>  
REQUIRED STORAGE ZONE = 1,735m<sup>3</sup>  
REQUIRED BASIN VOLUME = 3,470m<sup>3</sup>  
BASE DIMENSIONS (L X B) = 32m x 60m  
TOP DIMENSIONS (L X B) = 41m x 69m  
MAX SIDE SLOPE = 1V:3H  
DEPTH = 15m  
PROVIDED BASIN VOLUME = 3,540m<sup>3</sup>  
REFER TO SD 6-4.

COMBINED SEDIMENT/FLOOD STORAGE BASIN B:

CATCHMENT AREA = 20.80 ha  
DISTURBED AREA = 20.80 ha  
REQUIRED BASIN VOLUME = 2,694m<sup>3</sup>  
MAX SIDE SLOPE = 1V:4H  
DEPTH = 2.0m  
PROVIDED BASIN VOLUME = 15,000m<sup>3</sup>  
REFER TO SD 6-4.

EROSION AND SEDIMENT CONTROL PLAN  
1:2000 SCALE

20m 0 50 100 150 200m  
1:2000 SCALE AT A0 SHEET SIZE

FOR APPROVAL

| AMENDMENTS             | DATE     | ISSUE | AMENDMENTS | DATE | ISSUE |
|------------------------|----------|-------|------------|------|-------|
| ISSUED FOR APPROVAL    | 05.07.19 | B     |            |      |       |
| ISSUED FOR INFORMATION | 26.06.19 | A     |            |      |       |

|        |                                                                                                                                                                          |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CLIENT |   |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|           |                                                                                                                                                                                                                                                                                                                     |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ARCHITECT | <br>Architects, Interiors, Project Management<br>Level 15, 124 Waterloo Street<br>North Sydney NSW 2060 Australia<br>Tel: 61 (0) 2 9554 0211 Email: info@reidcampbell.com<br>Fax: 61 (0) 2 9554 0268 Web: www.reidcampbell.com |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                 |                                                                                                         |
|-----------------|---------------------------------------------------------------------------------------------------------|
| PROJECT MANAGER | <br>TACTICAL GROUP |
|-----------------|---------------------------------------------------------------------------------------------------------|

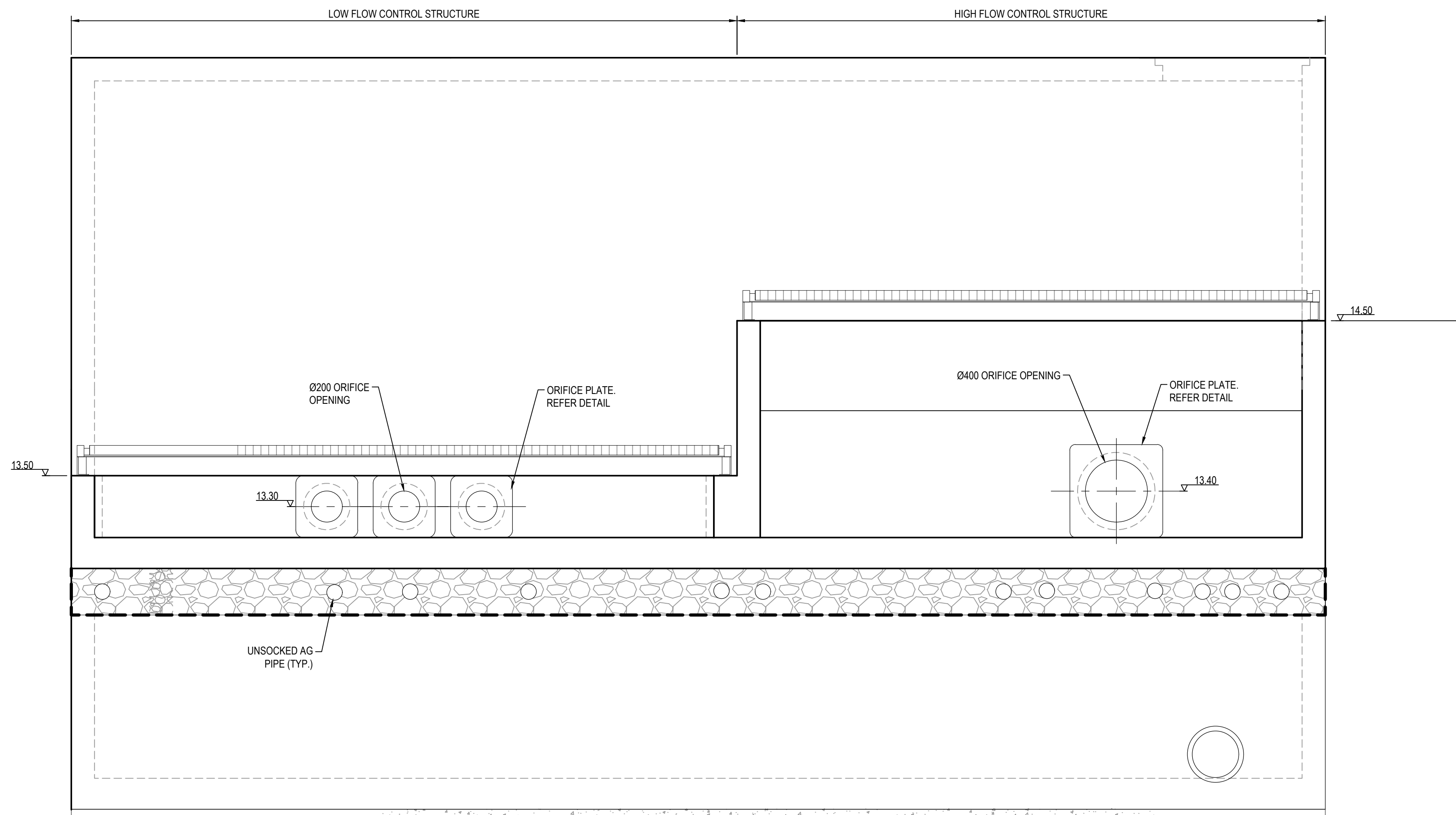
|          |                                                                        |
|----------|------------------------------------------------------------------------|
| PROJECT  | MOOREBANK PRECINCT EAST<br>INTERIM SWMP<br>MOOREBANK AVENUE, MOOREBANK |
| DESIGNED | D.S.                                                                   |
| DRAWN    | D.S.                                                                   |
| DATE     | MAY 19                                                                 |
| CHECKED  | M.W.                                                                   |
| SIZE     | A0                                                                     |
| SCALE    | AS SHOWN                                                               |
| CAD REF: | C013455.04-C 200                                                       |

|                                                                                                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>Costin Roe Consulting Pty Ltd.<br>Consulting Engineers<br>Level 1, 8 Windmill Street<br>Wahia Bay, Sydney NSW 2000<br>Tel: (02) 9551-7699 Fax: (02) 9541-3721<br>email: mail@costinroe.com.au |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

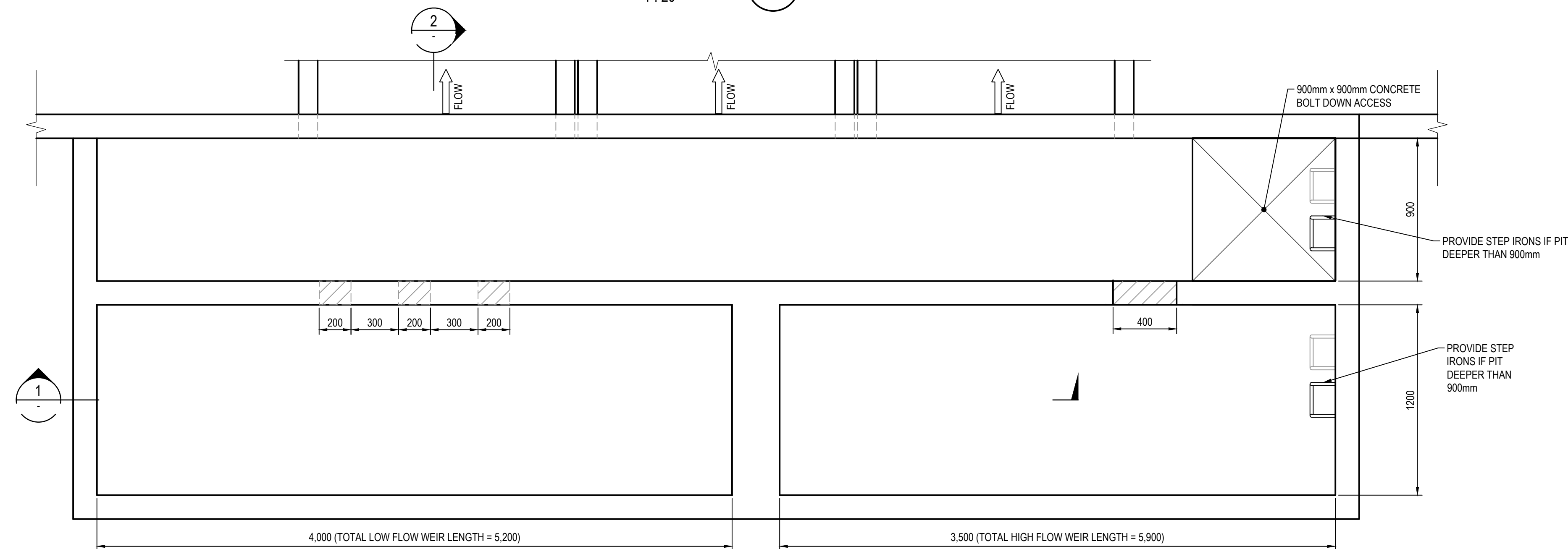
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|-------------------------------------------------------------------------------------------------------------------------------------|
| <br>PRECISION   COMMUNICATION   ACCOUNTABILITY |
|-------------------------------------------------------------------------------------------------------------------------------------|

|               |                                                      |
|---------------|------------------------------------------------------|
| DRAWING TITLE | MPE STAGE 2B<br>EROSION AND SEDIMENT<br>CONTROL PLAN |
| DRAWING No    | C013455.04-IQ200                                     |
| ISSUE         | B                                                    |



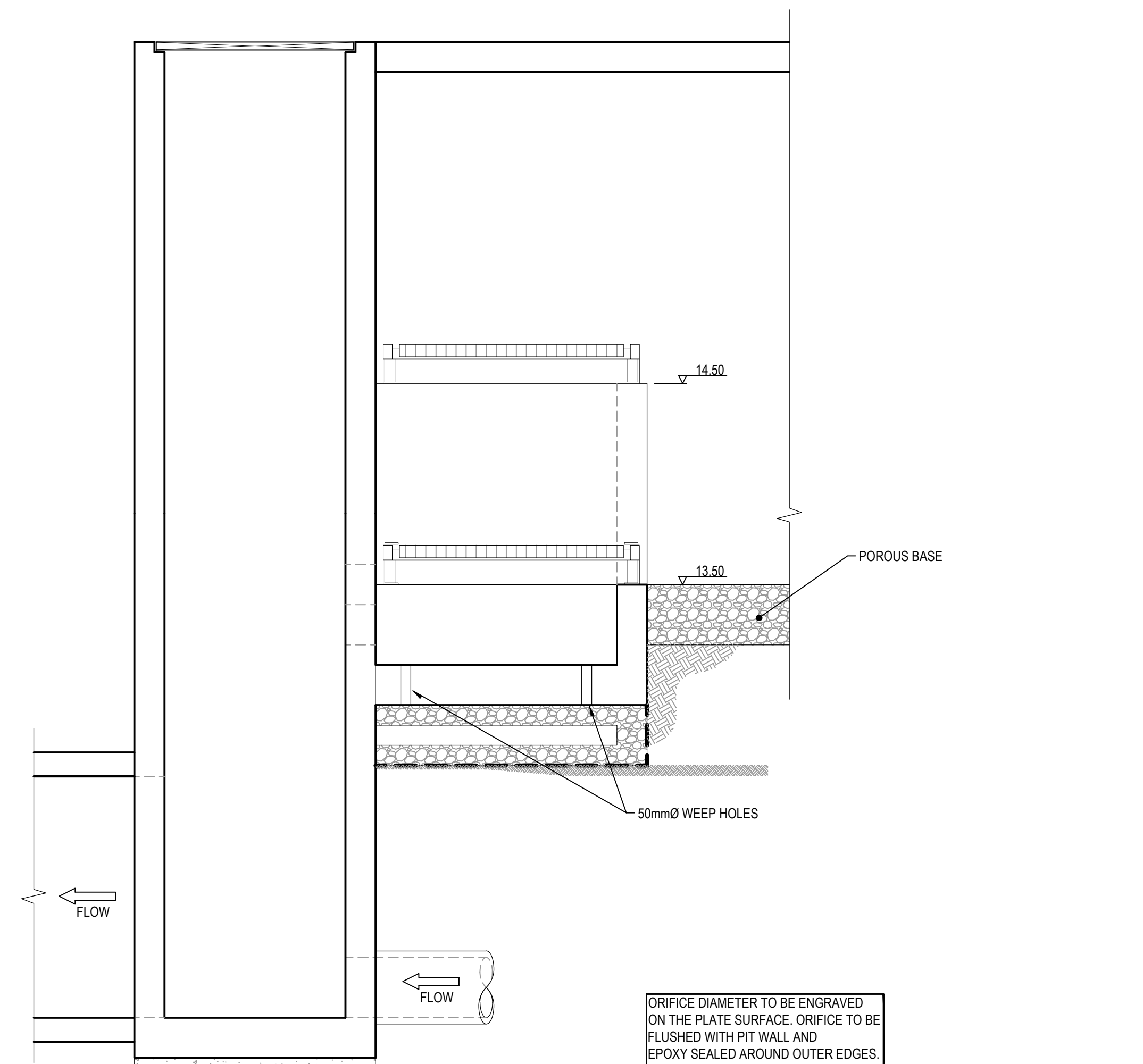


SECTION 1  
1 : 20



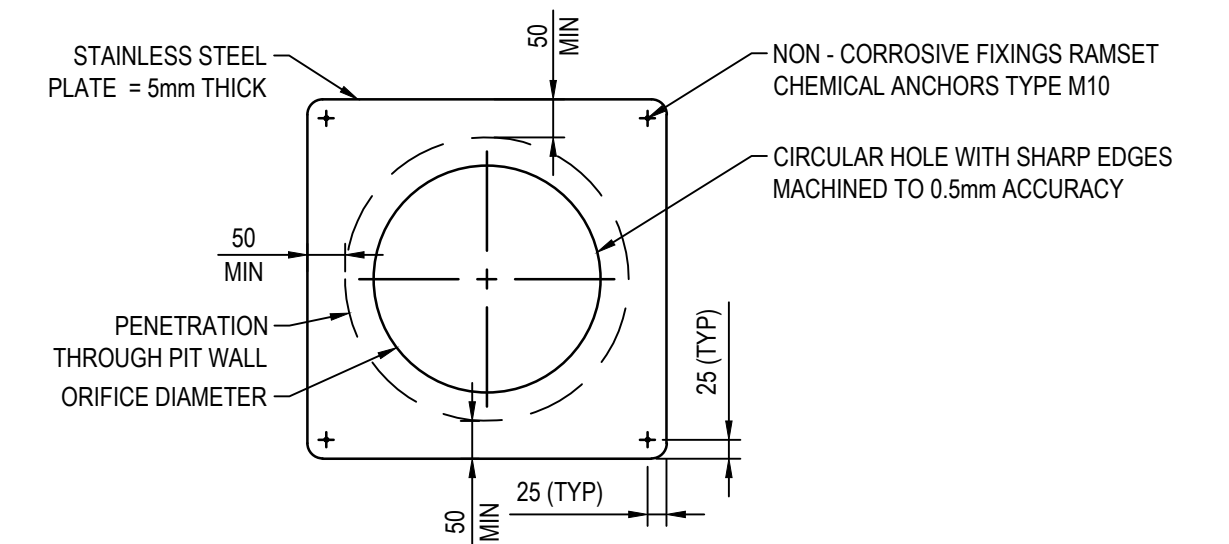
OSD BASIN OUTLET 9 PLAN - DETENTION CONTROL PIT

SCALE 1 : 20



SECTION 2  
1 : 20

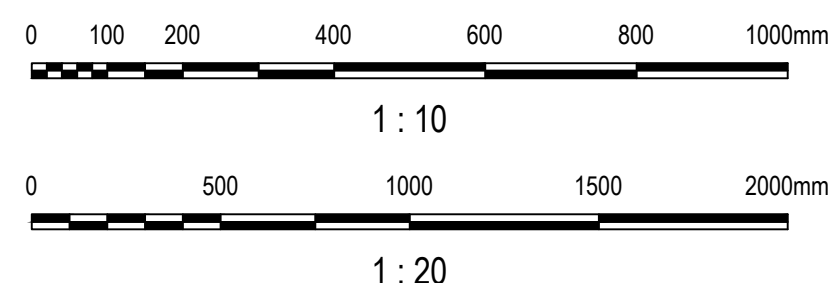
NOTES:  
TRASH SCREENS TO BE PROVIDED.



TYPICAL CIRCULAR ORIFICE PLATE DETAIL

SCALE 1 : 10

|       |                                                             |            |
|-------|-------------------------------------------------------------|------------|
| 02    | ISSUE FOR STORMWATER MANAGEMENT PLAN                        | 05/06/2019 |
| 01    | ISSUE FOR STORMWATER MANAGEMENT PLAN - WAREHOUSE 1 PRECINCT | 11/05/2018 |
| Issue | Description                                                 | Date       |



|               |                                                        |                          |           |
|---------------|--------------------------------------------------------|--------------------------|-----------|
| Status        | PRELIMINARY ONLY<br>NOT TO BE USED FOR CONSTRUCTION    |                          |           |
| Scales        | AS SHOWN                                               | Current Issue Signatures |           |
| Original Size | A1                                                     | Drawn                    | A.ZHAO    |
| Height Datum  | AHD                                                    | Designed                 | J.KO      |
| Grid          | MGA                                                    | Checked                  | G.DUNSTAN |
| Filename      | SSS2-ARC-CV-DWG-1411-StormwaterDrainageOSDOutlet09.dwg |                          |           |
| Approved      | M.KEFFORD                                              |                          |           |

|         |                                                               |  |
|---------|---------------------------------------------------------------|--|
| Project | MOOREBANK PRECINCT EAST (MPE) STAGE 2<br>WAREHOUSE 1 PRECINCT |  |
| Title   | STORMWATER DRAINAGE<br>OSD OUTLET 09                          |  |

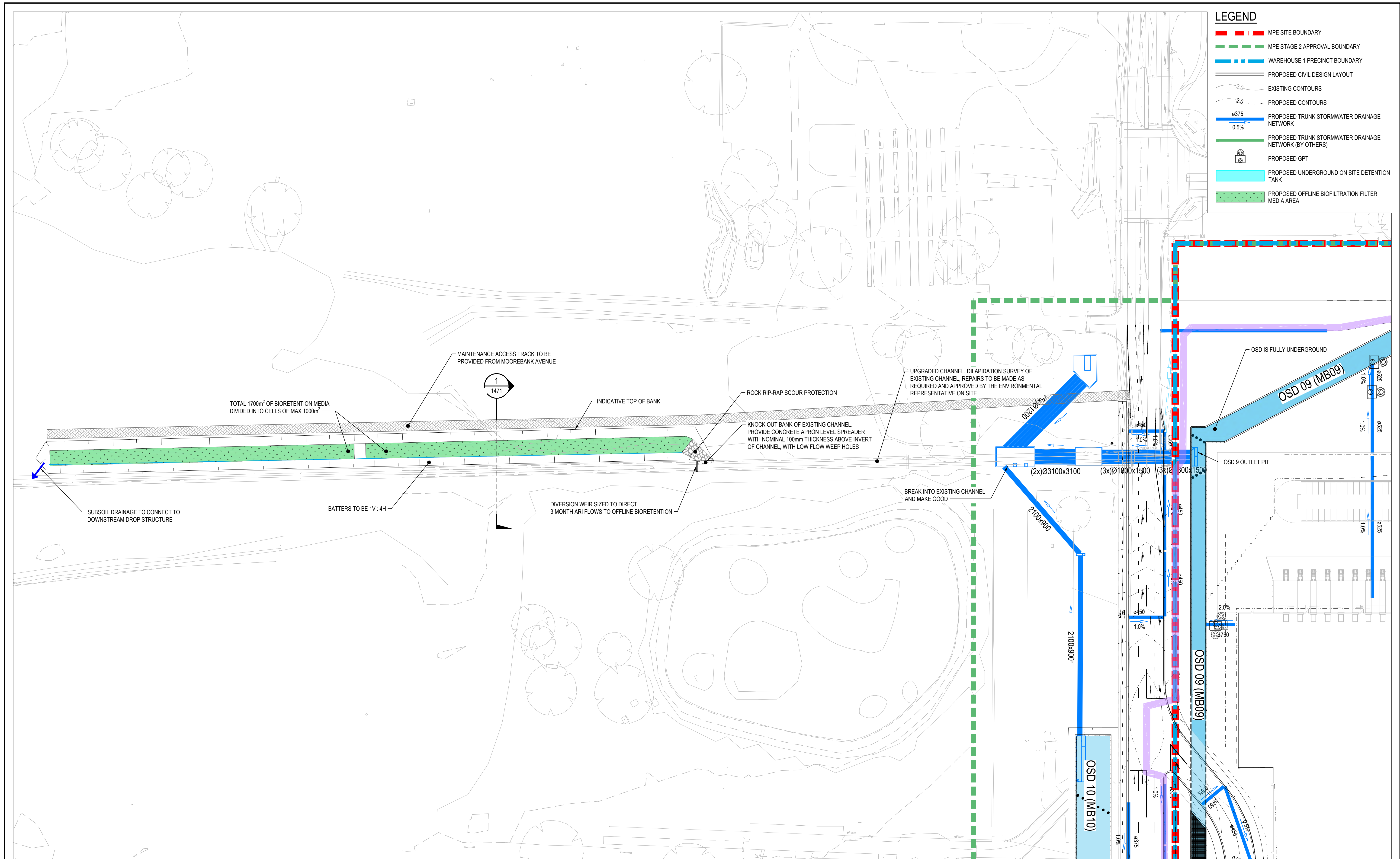
Arcadis Australia Pacific Pty Limited  
Level 5, 141 Walker St  
NORTH SYDNEY NSW 2060  
ABN 76 104 485 289  
Tel No: +61 2 8907 9000  
Fax No: +61 2 8907 9001  
arcadis.com

Project No.  
AA009335

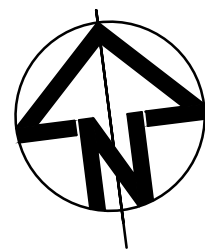
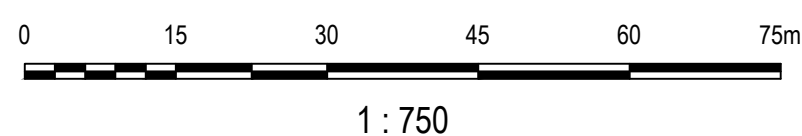
Drawing No.  
SSS2-ARC-CV-DWG-1411-

Issue  
02





|       |                                                             |            |
|-------|-------------------------------------------------------------|------------|
|       |                                                             |            |
|       |                                                             |            |
|       |                                                             |            |
|       |                                                             |            |
|       |                                                             |            |
| 02    | ISSUE FOR STORMWATER MANAGEMENT PLAN                        | 06/06/2019 |
| 01    | ISSUE FOR STORMWATER MANAGEMENT PLAN - WAREHOUSE 1 PRECINCT | 11/05/2018 |
| Issue | Description                                                 | Date       |



Client



SYDNEY  
INTERMODAL  
TERMINAL  
ALLIANCE



TACTICAL  
GROUP

|                                                                         |                                                     |                          |  |
|-------------------------------------------------------------------------|-----------------------------------------------------|--------------------------|--|
| Status                                                                  | PRELIMINARY ONLY<br>NOT TO BE USED FOR CONSTRUCTION |                          |  |
| Scales                                                                  | 1 : 750                                             | Current Issue Signatures |  |
|                                                                         |                                                     | Drawn<br>A.ZHAO          |  |
| Original Size                                                           | A1                                                  | Designed<br>J.KO         |  |
| Height Datum                                                            | AHD                                                 | Checked<br>G.DUNSTAN     |  |
| Grid                                                                    | MGA                                                 | Approved<br>M.GOSTELOW   |  |
| Filer: SSS2-ARC-CV-DWG-1451-StormwaterDrainageWaterQualityPlanOSD09.dwg |                                                     |                          |  |

|         |                                                                  |  |
|---------|------------------------------------------------------------------|--|
| Project | MOOREBANK PRECINCT EAST<br>(MPE) STAGE 2<br>WAREHOUSE 1 PRECINCT |  |
| Title   | STORMWATER DRAINAGE<br>WATER QUALITY PLAN<br>OSD 09              |  |



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Level 5, 141 Walker St  
NORTH SYDNEY NSW 2060  
ABN 76 104 485 289  
Tel No: +61 2 8907 9000  
Fax No: +61 2 8907 9001  
arcadis.com

Project No.  
AA009335

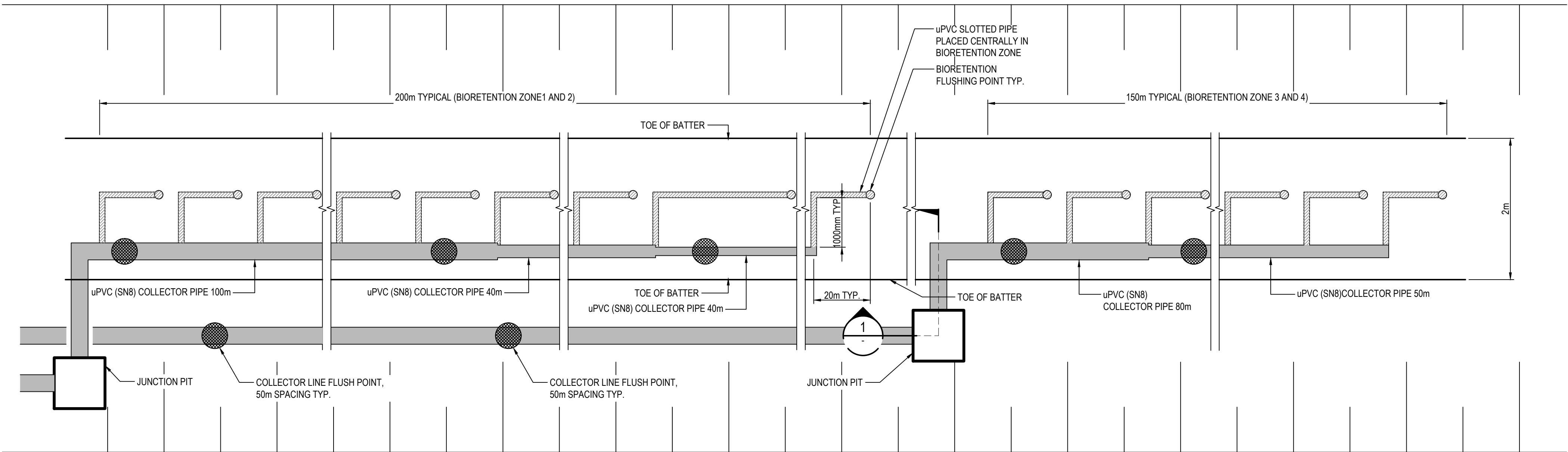
Drawing No.  
SSS2-ARC-CV-DWG-1451-

Issue  
02

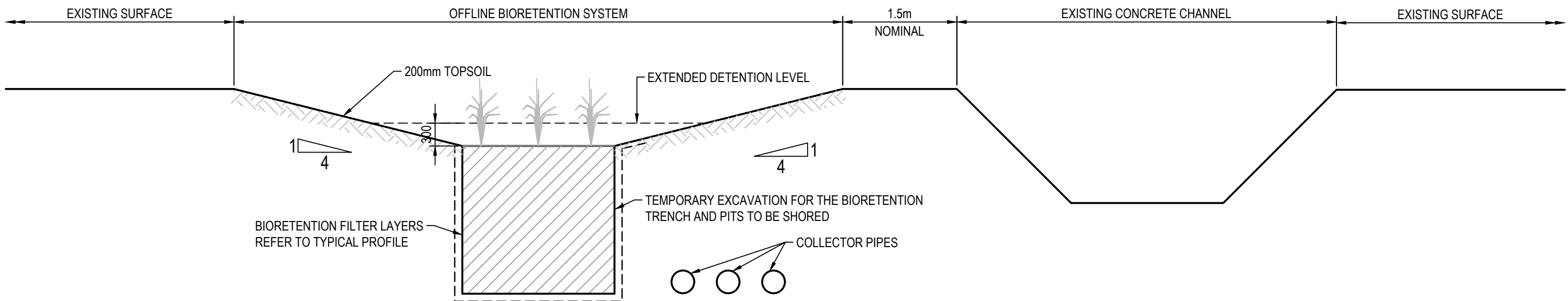


NOTES

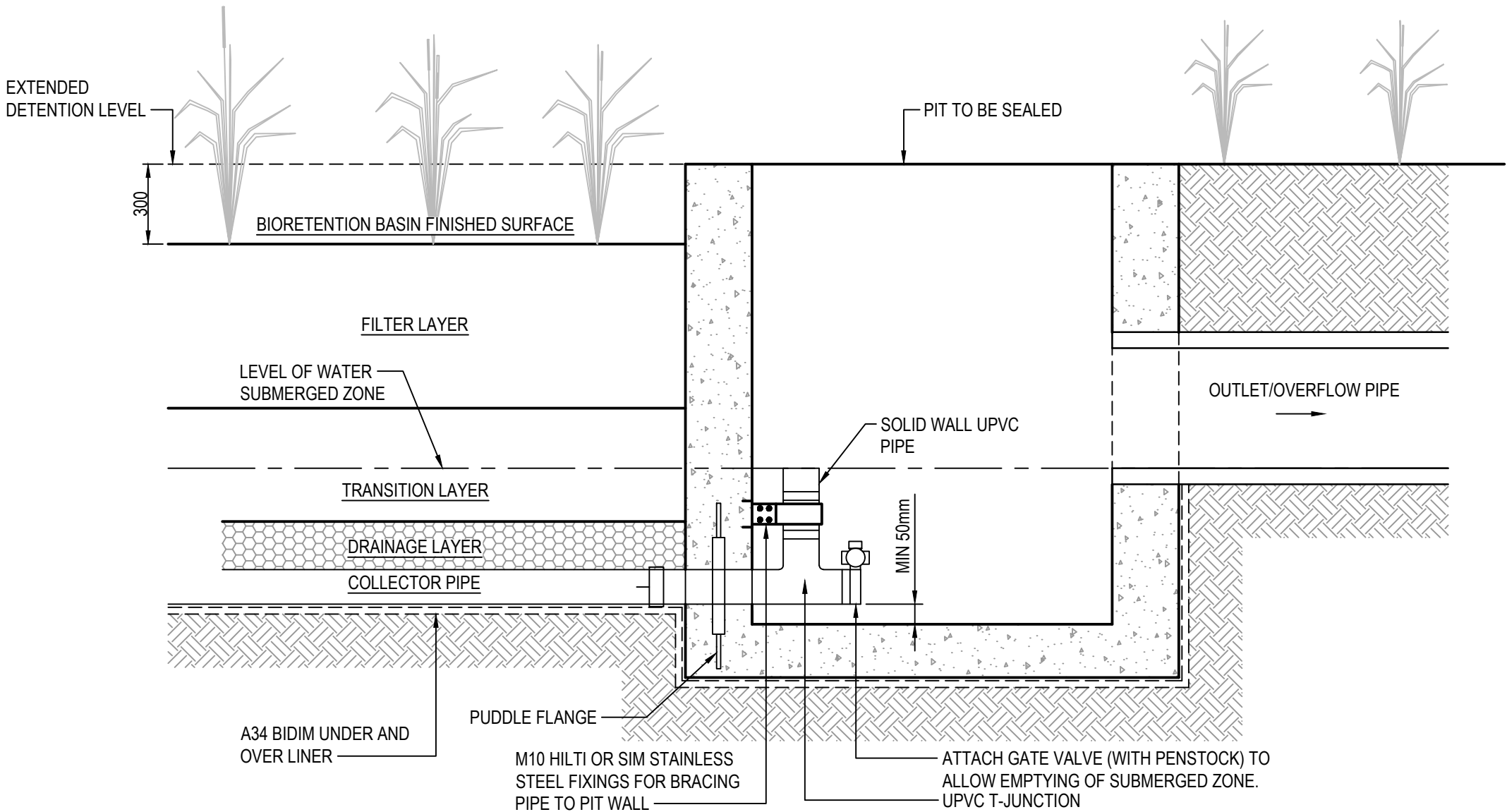
1. REFER TO THE MOOREBANK PRECINCT EAST STAGE 2 - WAREHOUSE 1 PRECINCT STORMWATER MANAGEMENT PLAN (CHAPTERS 5 AND 6) FOR FURTHER DETAILS OF THE DESIGN AND MODELLING OF WATER QUALITY TREATMENT MEASURES.
2. ALL FILTER MEDIA USED IN STORMWATER TREATMENT MEASURES MUST:
- BE LOAMY SAND WITH AN APPROXIMATELY HIGH PERMEABILITY UNDER COMPACTION AND MUST BE FREE OF RUBBISH, DELETERIOUS MATERIAL, TOXICANTS, DECLARED PLANTS AND LOCAL WEEDS AND MUST NOT BE HYDROPHOBIC.
  - HAVE A HYDRAULIC CONDUCTIVITY = 100-300mm/hr, AS MEASURED USING ASTM F1815-06 METHOD.
  - HAVE AN ORGANIC MATTER CONTENT LESS THAN 5% (w/w)



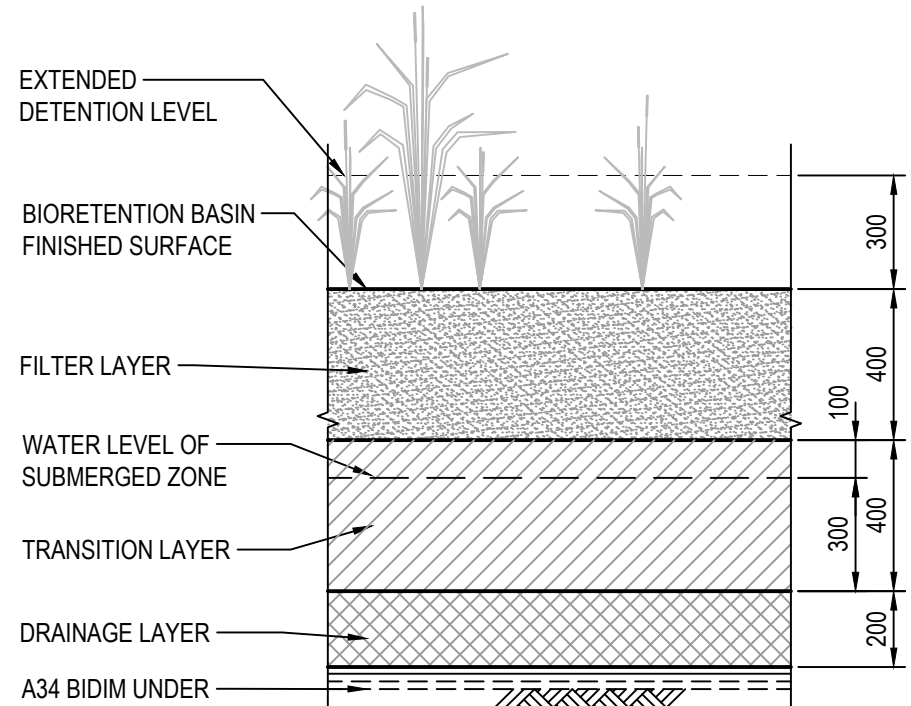
COLLECTOR PIPE CONFIGURATION PLAN  
N.T.S.



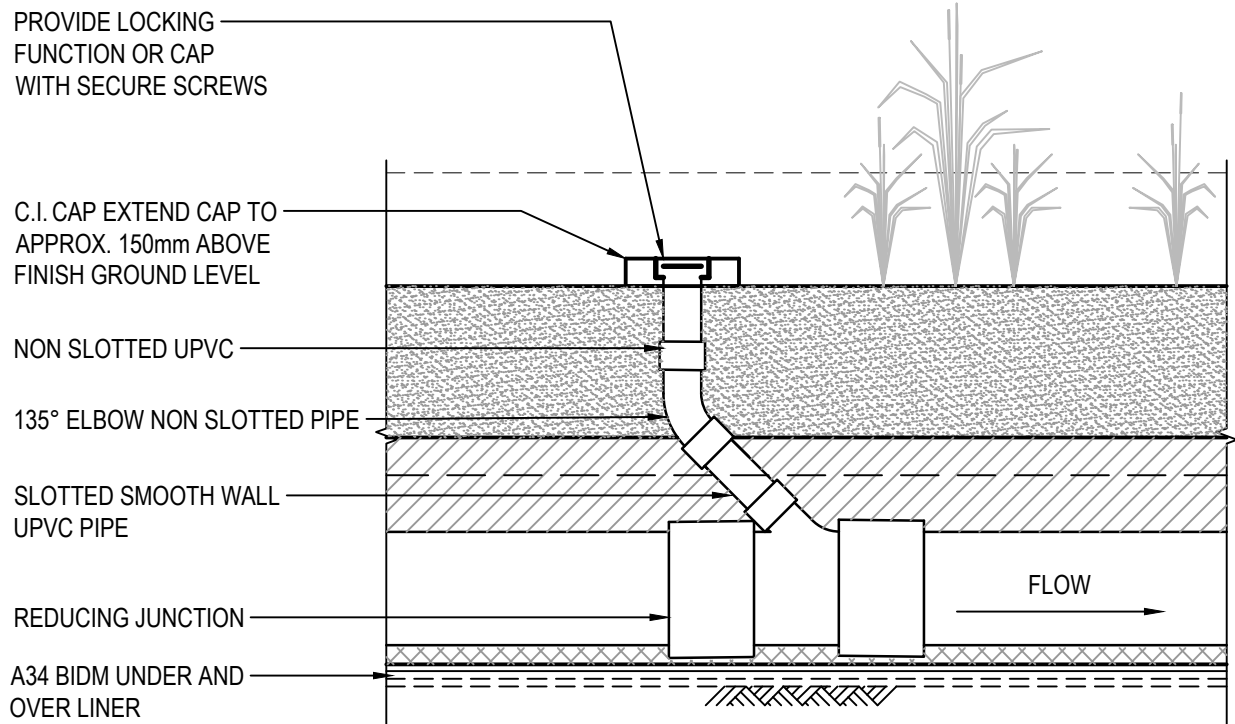
TYPICAL OFFLINE BIORETENTION SYSTEM  
SECTION 1  
N.T.S. 1451



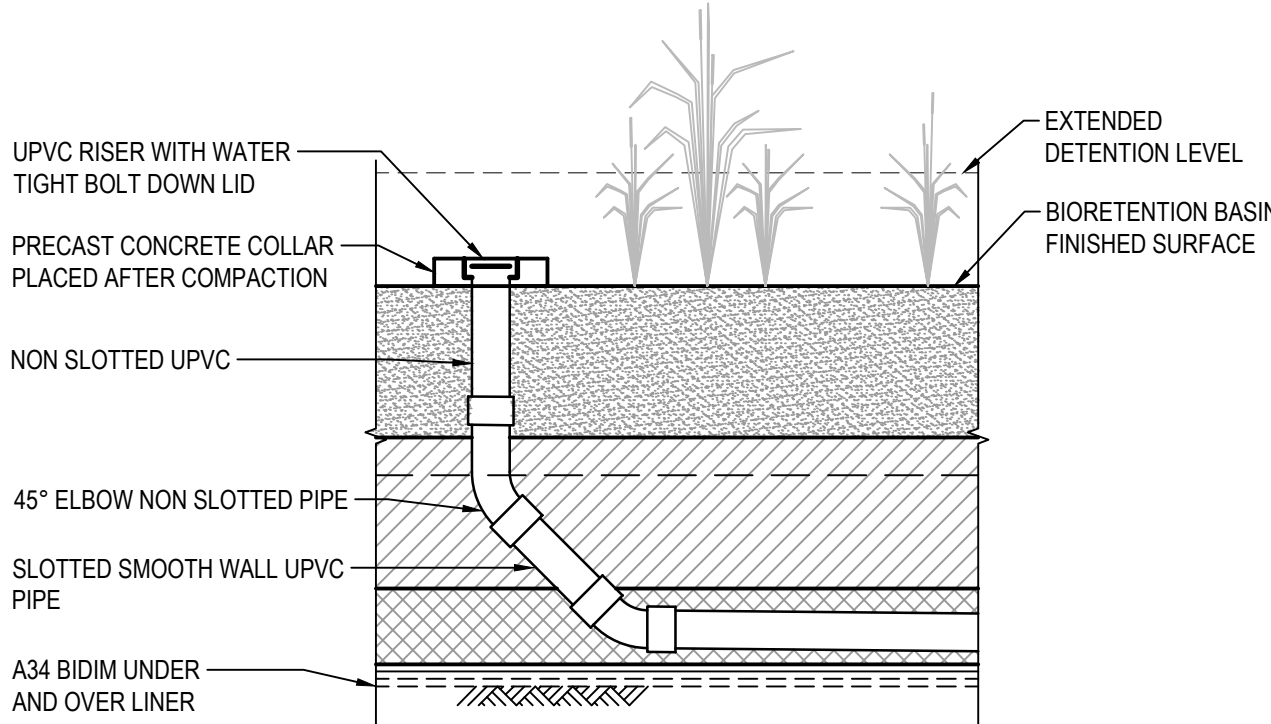
TYPICAL COLLECTOR LINE PIT  
SECTION 1  
N.T.S.



TYPICAL BIORETENTION FILTER PROFILE  
N.T.S.



COLLECTOR LINE FLUSHING POINT  
N.T.S.



BIORETENTION FLUSHING POINT  
N.T.S.

|       |                                                             |            |
|-------|-------------------------------------------------------------|------------|
|       |                                                             |            |
|       |                                                             |            |
|       |                                                             |            |
|       |                                                             |            |
|       |                                                             |            |
| 02    | RESPONSE TO VERIFIERS COMMENTS                              | 18/06/2018 |
| 01    | ISSUE FOR STORMWATER MANAGEMENT PLAN - WAREHOUSE 1 PRECINCT | 11/05/2018 |
| Issue | Description                                                 | Date       |

Client

**SIMTA** SYDNEY INTERMODAL TERMINAL ALLIANCE

**TACTICAL** GROUP

|                                                                         |                                                     |                          |            |
|-------------------------------------------------------------------------|-----------------------------------------------------|--------------------------|------------|
| Status                                                                  | PRELIMINARY ONLY<br>NOT TO BE USED FOR CONSTRUCTION |                          |            |
| Scales                                                                  | N.T.S.                                              | Current Issue Signatures |            |
| Original Size                                                           | A1                                                  | Drawn                    | A.ZHAO     |
| Height Datum                                                            | AHD                                                 | Designed                 | J.KO       |
| Grid                                                                    | MGA                                                 | Checked                  | G.DUNSTAN  |
|                                                                         |                                                     | Approved                 | M.GOSTELOW |
| Filename: SSS2-ARC-CV-DWG-1471-StormwaterBioretentionTypicalDetails.dwg |                                                     |                          |            |

Project

MOOREBANK PRECINCT EAST (MPE) STAGE 2  
WAREHOUSE 1 PRECINCT

Title

STORMWATER BIORETENTION  
TYPICAL DETAILS

**ARCADIS**

Arcadis Australia Pacific Pty Limited  
Level 5, 141 Walker St  
NORTH SYDNEY NSW 2060  
ABN 76 104 485 289

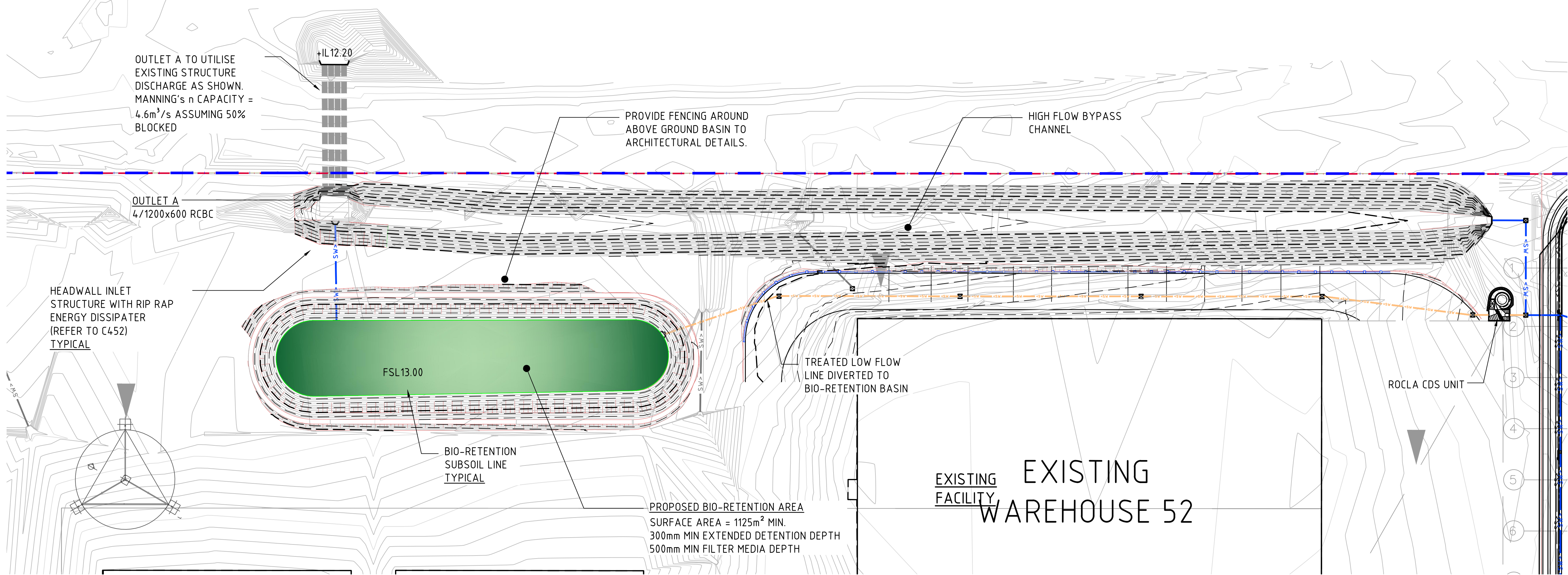
Tel No: +61 2 8907 9000  
Fax No: +61 2 8907 9001  
arcadis.com

Project No.  
AA009335

Drawing No.  
SSS2-ARC-CV-DWG-1471-

Issue  
02





BIO-RETENTION BASIN 1  
1500 SCALE

BIO-RETENTION NOTES :

FILTER MEDIA TO BE LOAMY SAND WITH A PERMEABILITY NOT LESS THAN 200mm/hr. FILTER MEDIA TO BE FREE OF RUBBISH, DELETERIOUS MATERIAL, TOXICANTS, DECLARED PLANTS AND LOCAL WEEDS, AND IS TO NOT BE HYDROPHOBIC.

FILTER MEDIA TO HAVE THE FOLLOWING COMPOSITION RANGE:

|                                     |        |
|-------------------------------------|--------|
| CLAY & SILT (<0.05mm)               | <3%    |
| VERY FINE SAND (0.05-0.15mm)        | 5-30%  |
| FINE SAND (0.15-0.25mm)             | 10-30% |
| MEDIUM TO COARSE SAND (0.25-1.00mm) | 40-60% |
| COARSE SAND (1.0-2.0mm)             | 7-10%  |
| FINE GRAVEL (2.0-3.4mm)             | <3%    |

FILTER MEDIA THAT DOES NOT MEET THE FOLLOWING CRITERIA SHALL BE REJECTED:

- ORGANIC MATTER CONTENT TO BE IDEALLY WITHIN 1% TO 3% (W/W) AND TO BE NO GREATER THAN 5%(W/W).
- PH TO BE BETWEEN 5.5 AND 7.5
- PHOSPHOROUS CONTENT TO BE NO GREATER THAN 35mg/kg

FILTER MEDIA TO BE ASSESSED BY QUALIFIED HORTICULTURALIST TO ENSURE CAPABILITY OF SUPPORTING PLANT LIFE.

DRAINAGE LAYER TO BE CLEAN GRAVEL 5-7mm.

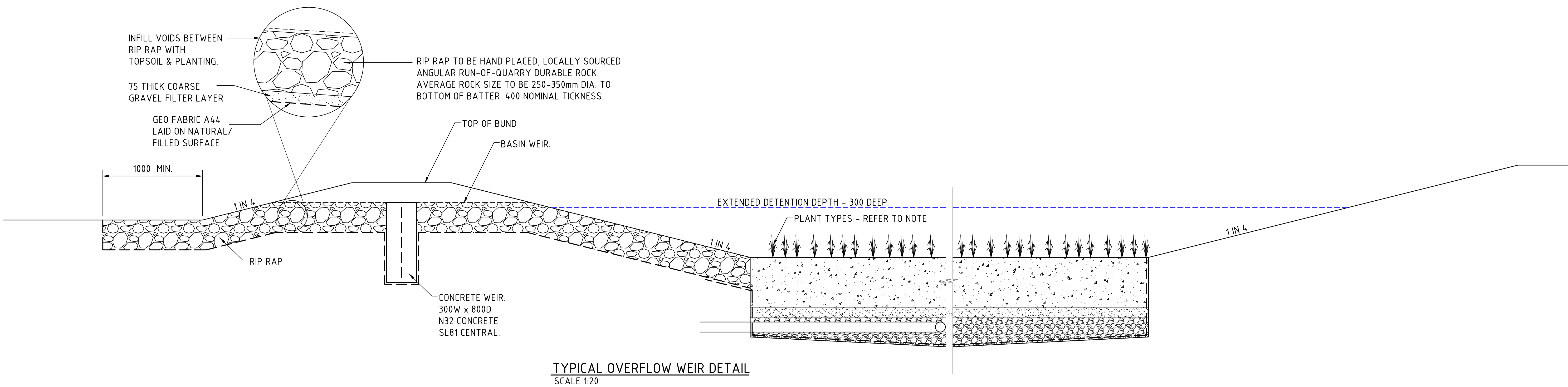
PLANTS TO BE IN ACCORDANCE WITH LIVERPOOL CITY COUNCIL REQUIREMENTS.

PROVIDE 100mm TOPSOIL AND TEMPORARY EROSION PROTECTION (JUTEMASTER OR EQUIV) TO SWALE BATTER SLOPES AND ADJACENT LANDSCAPED AREAS. NOTE THAT NO TOPSOIL IS TO BE PLACED OVER FILTRATION MEDIA. PROVIDE SILT FENCE TO TOP OF BANK UNTIL SUCH TIME AS THIS STABILISING AND VEGETATION HAS BEEN COMPLETED.

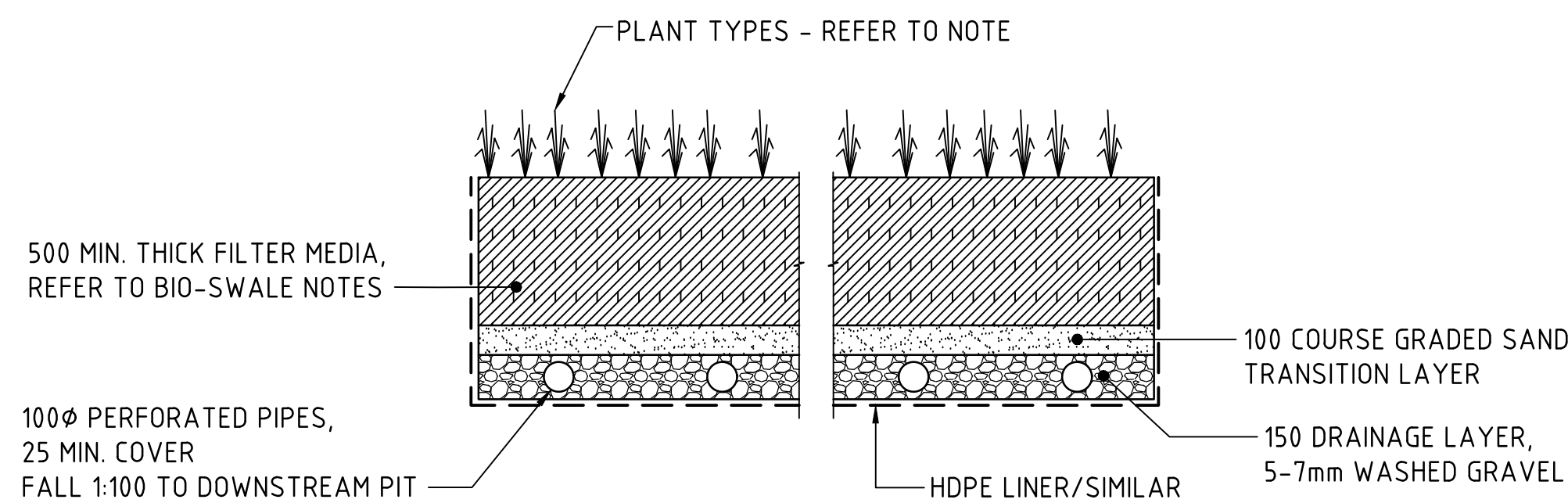
BIO-RETENTION TO BE PARTIALLY INSTALLED, FOLLOWING COMPLETION OF THE ROAD, WITH THE TOP 75-100mm OF FILTER MEDIA REPLACED WITH A FINE TO COARSE SAND UNDERLAIN WITH A GEOTEXTILE LAYER (REFER TO DETAIL). FOLLOWING COMPLETION OF THE UPSTREAM DEVELOPMENT AND SITE STABILISATION, THE SAND IS TO BE REMOVED, REPLACED WITH FILTER MATERIAL AND PLANTED OUT. REFER TO TEMPORARY BIO-BASIN DETAIL

PRIOR TO PLANTING, THE TOP 100mm OF THE BIORETENTION FILTER MEDIA IS TO BE AMELORATED WITH APPROPRIATE ORGANIC MATTER, FERTILISER AND TRACE ELEMENTS TO AID PLANT ESTABLISHMENT AS PER THE TABLE BELOW:

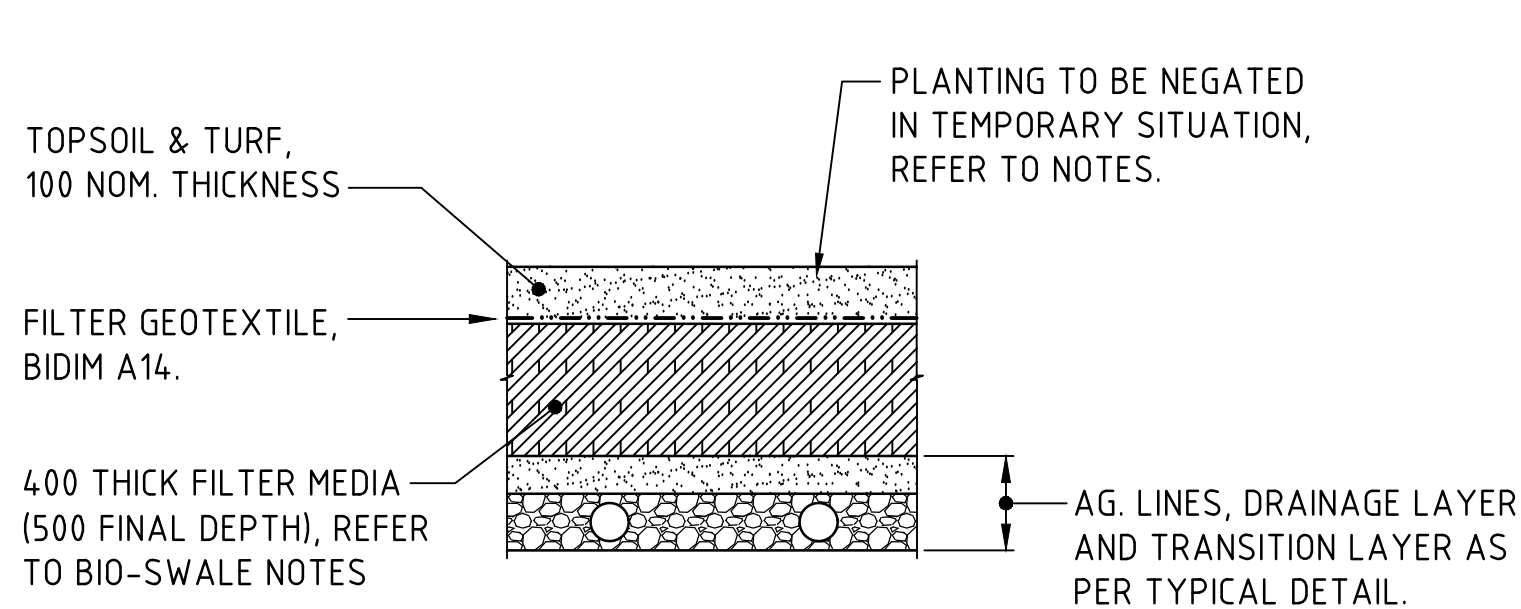
| CONSTITUENT                     | QUANTITY (kg/m2 OF FILTER AREA) |
|---------------------------------|---------------------------------|
| GRANULATED POULTRY MANURE FINES | 50                              |
| SUPERPHOSPHATE                  | 2                               |
| MAGNESIUM SULPHATE              | 3                               |
| POTASSIUM SULPHATE              | 2                               |
| TRACE ELEMENT MIX               | 1                               |
| FERTILISER NPK (16 & 16)        | 4                               |
| LIME                            | 20                              |



TYPICAL OVERFLOW WEIR DETAIL  
SCALE 1:20

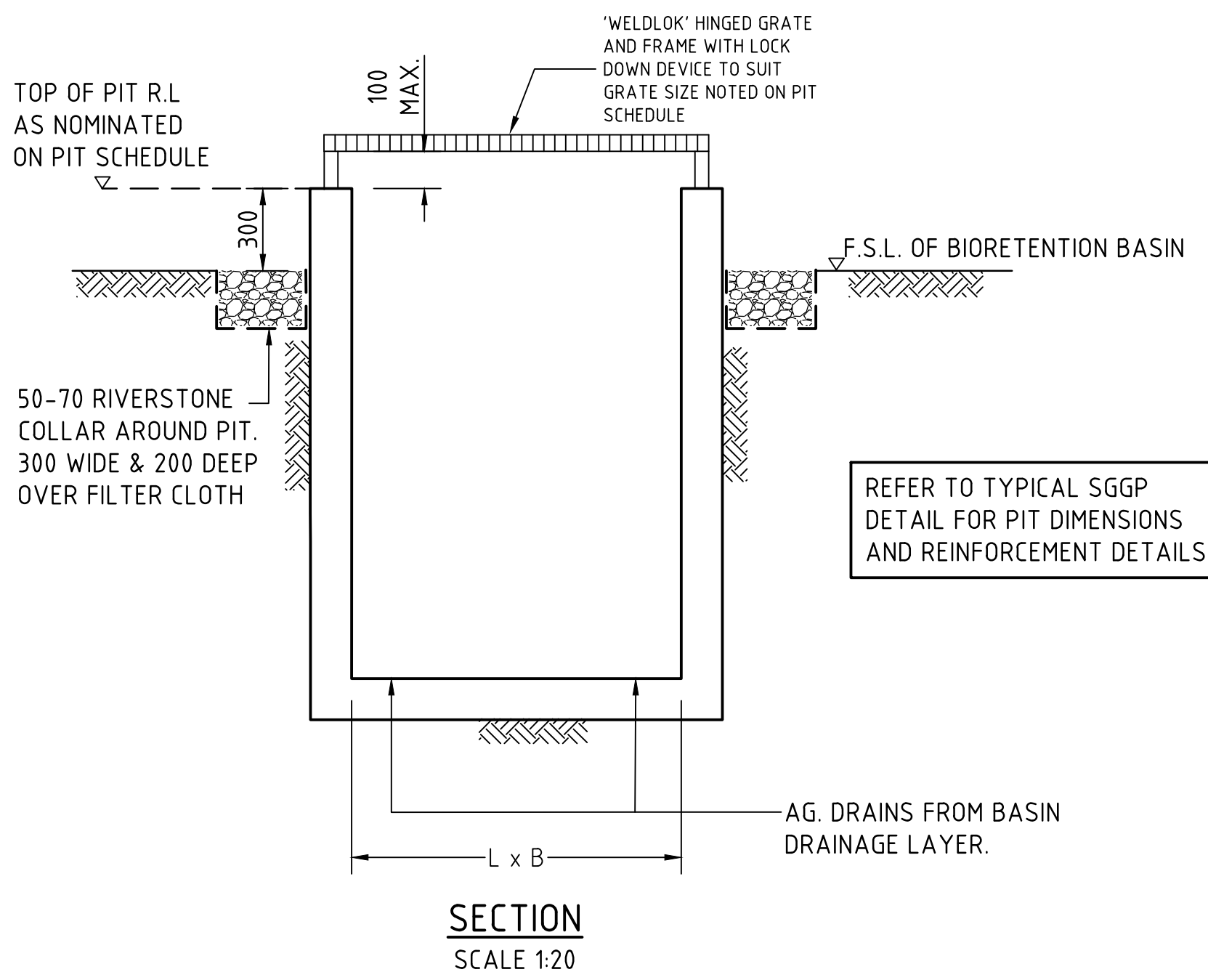


TYPICAL BIO-RETENTION DETAIL  
SCALE 1:20

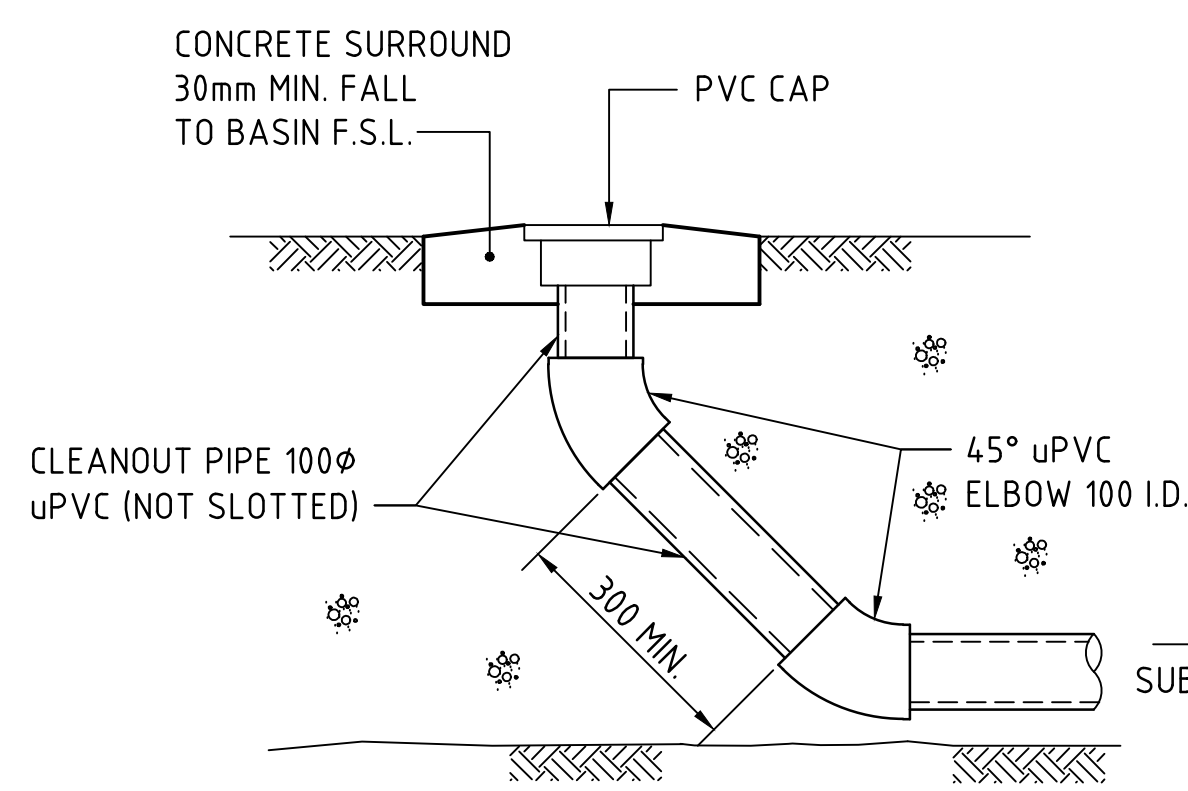


TEMPORARY BIO-RETENTION PROTECTION DETAIL  
SCALE 1:20  
TEMPORARY CONSTRUCTION REQUIREMENT DETAIL - REFER TO NOTES FOR IMPLEMENTATION PERIODS.

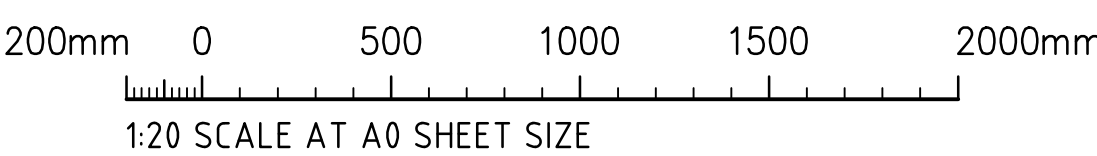
BIO-RETENTION BASIN DETAILS



BASIN INLET PIT - BIP  
SCALE 1:20

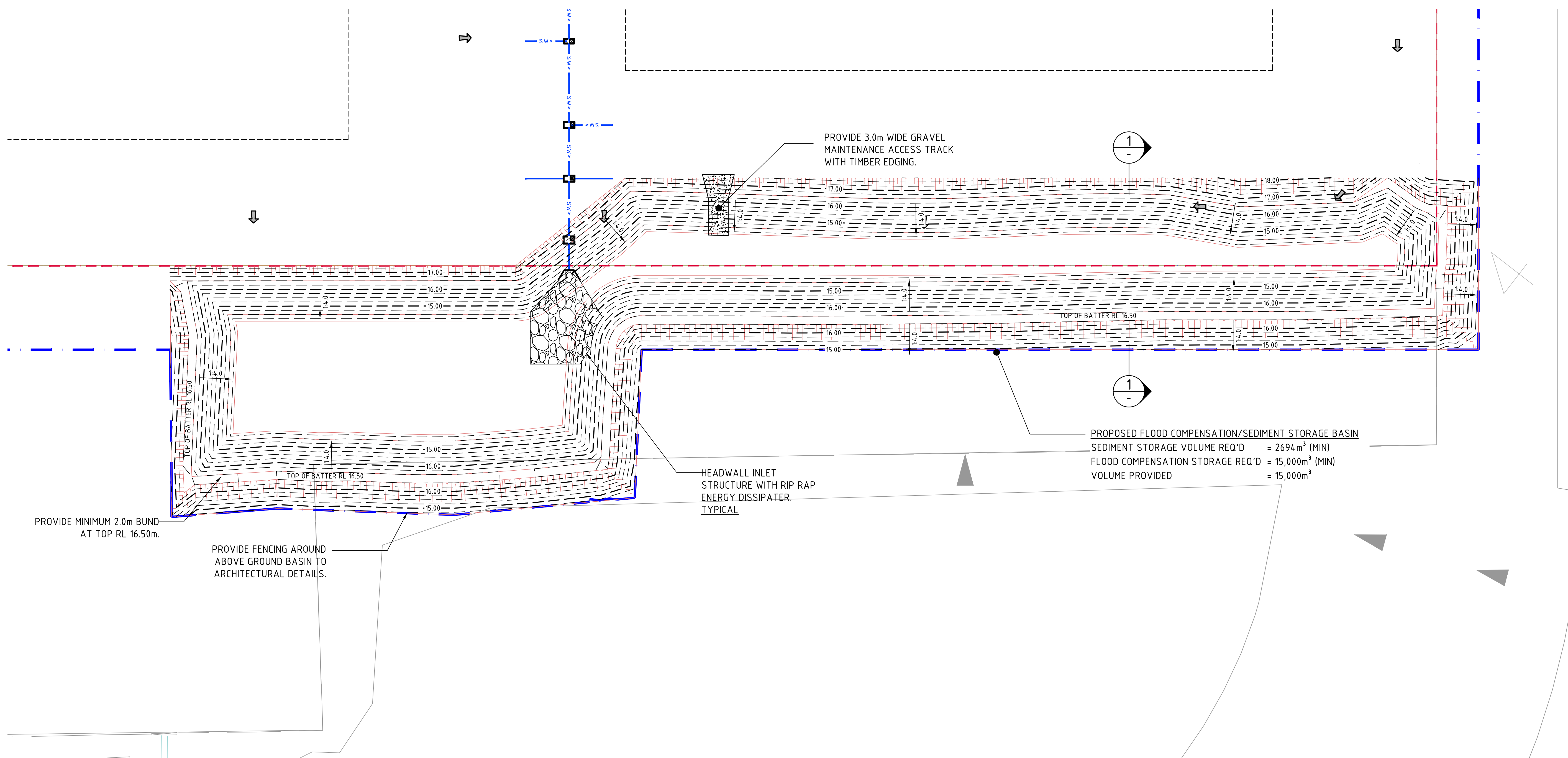


BIORETENTION CLEANOUT EYE ELEVATION  
SCALE 1:20  
DENOTED C.E. ON PLAN



1:500 SCALE AT A0 SHEET SIZE





**OSD WARNING SIGN**

N.T.S  
SUGGESTED SIZE 600mm x 450mm  
TO BE PROVIDED ADJACENT TO OSD  
TANKS / OSD BASINS IN SUITABLE AREA  
T.B.C ON SITE

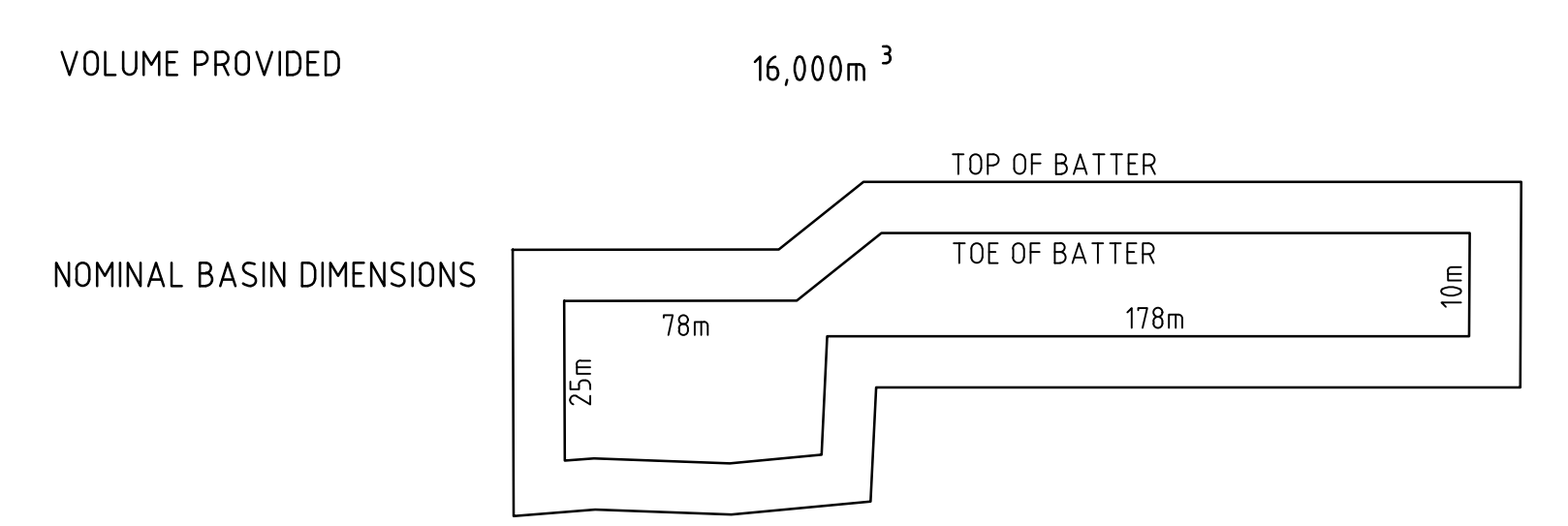
**CONFINED SPACE SIGN**

N.T.S  
SUGGESTED SIZE 300mm x 450mm  
TO BE PROVIDED ADJACENT TO OSD  
TANKS / DCP OUTLET PITS IN SUITABLE  
AREA T.B.C ON SITE

NOTE:  
REFER TO APPENDIX 'N' IN VERSION 4 OF THE UPPER PARRAMATTA  
RIVER CATCHMENT TRUST (UPRCT) FOR SIGN REQUIREMENTS.

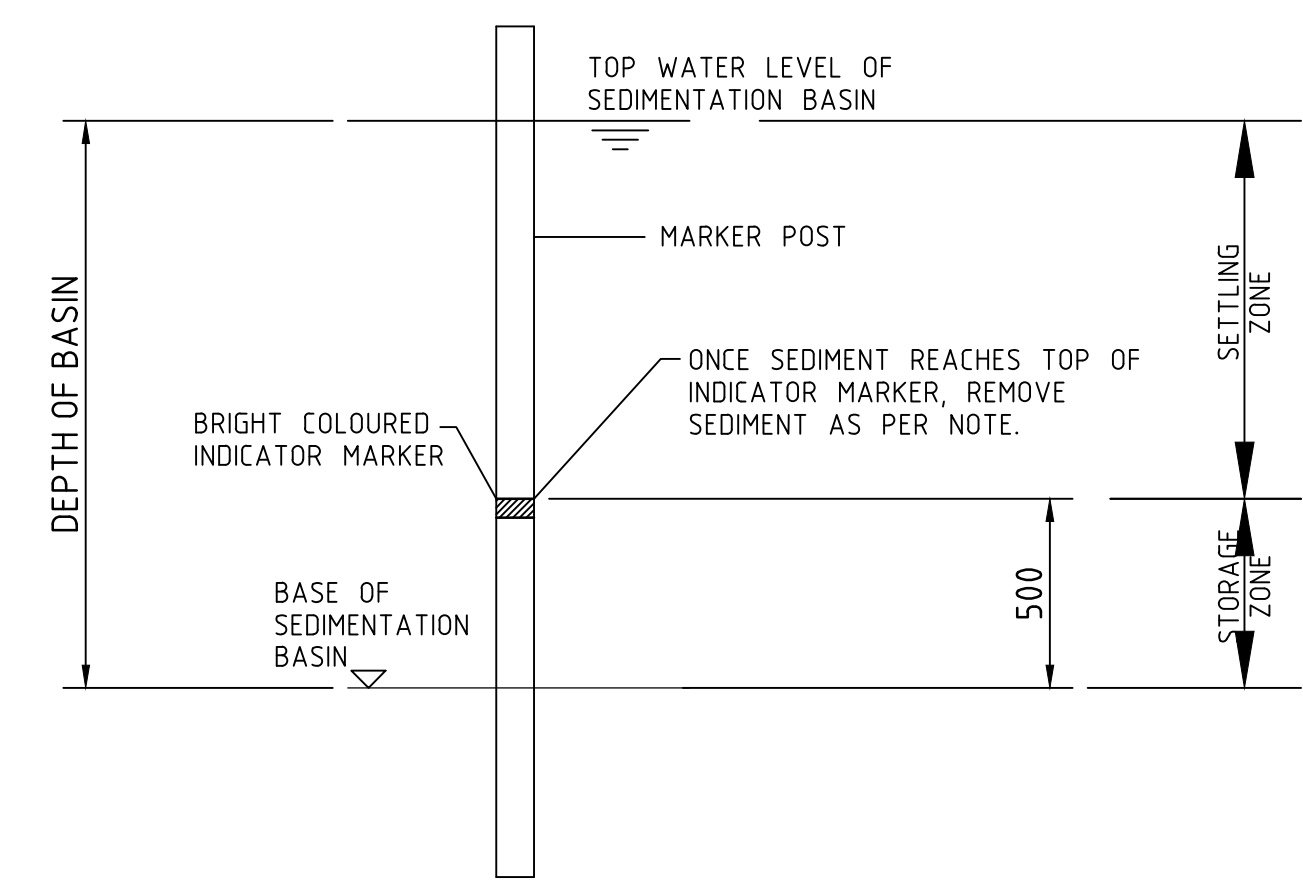
**BASIN B PLAN**  
1500 SCALE

**OSD BASIN STORAGE DETAILS**

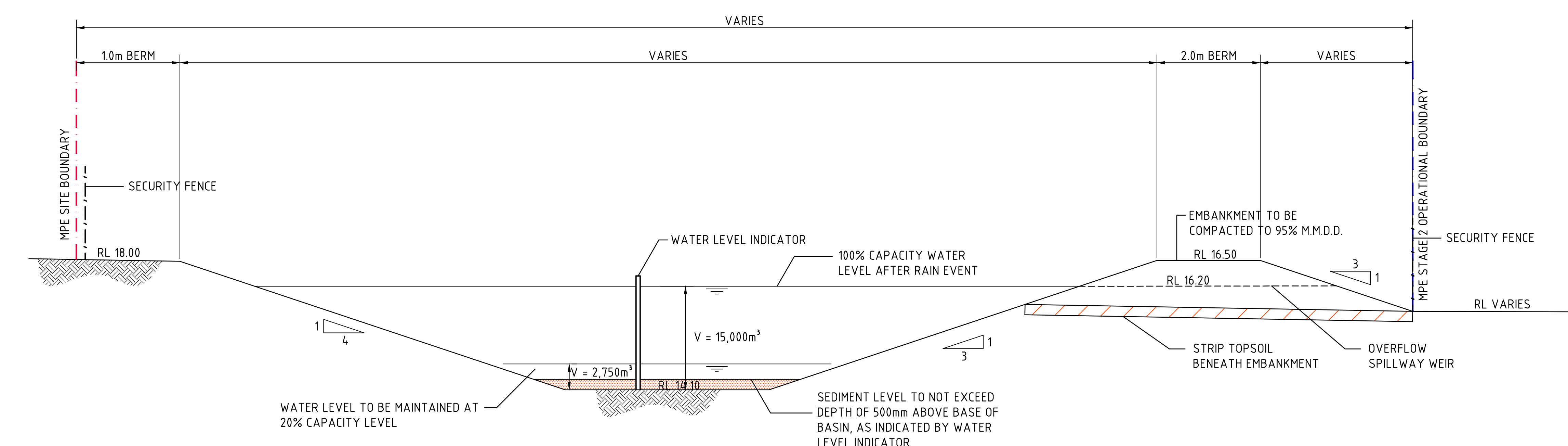


**LEGEND:**

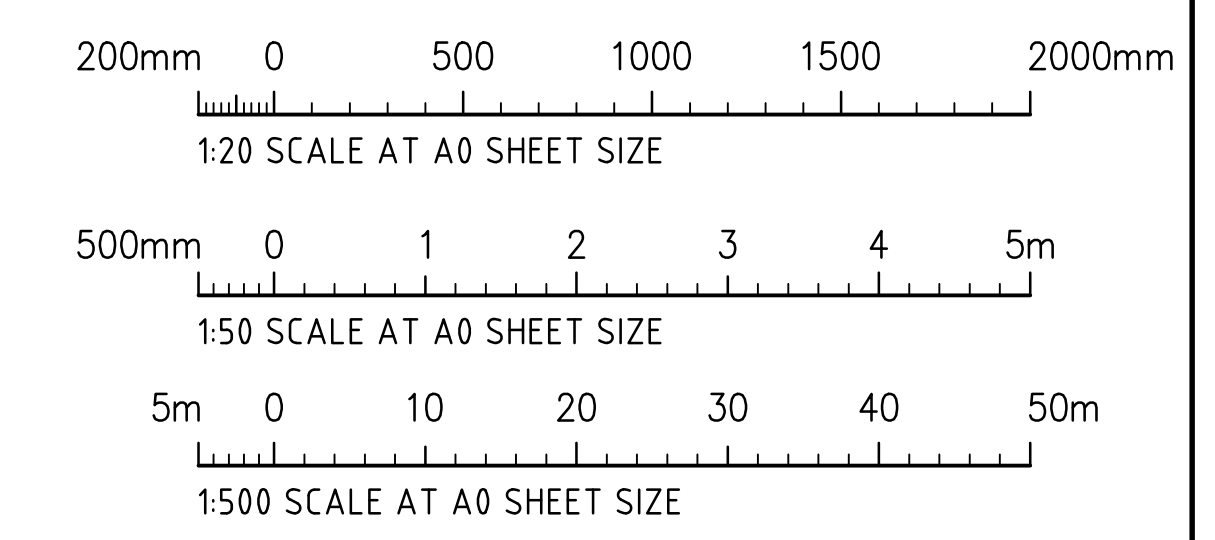
- LEVELS DATUM IS AHD.
- EXISTING SITE LEVELS AND DETAILS BASED ON A PLAN OF  
SURVEY '115804500 REV.22' BY 'CARDNO' DATED 12/10/2017.
- MPE SITE BOUNDARY
  - MPE STAGE 2 OPERATIONAL BOUNDARY (SSD 16-7628)
  - PROPOSED DRAINAGE LINE
  - OVERLAND FLOW PATH (1% AEP FLOW)
  - DENOTES 1V:4H BATTER



**SEDIMENT STORAGE MARKER**  
SCALE 1:20



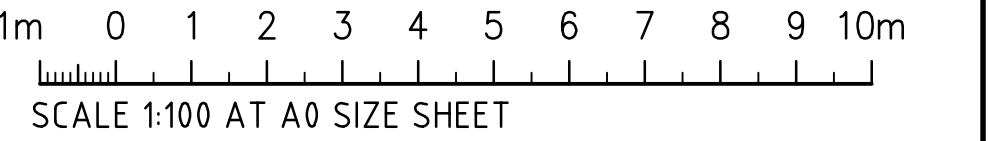
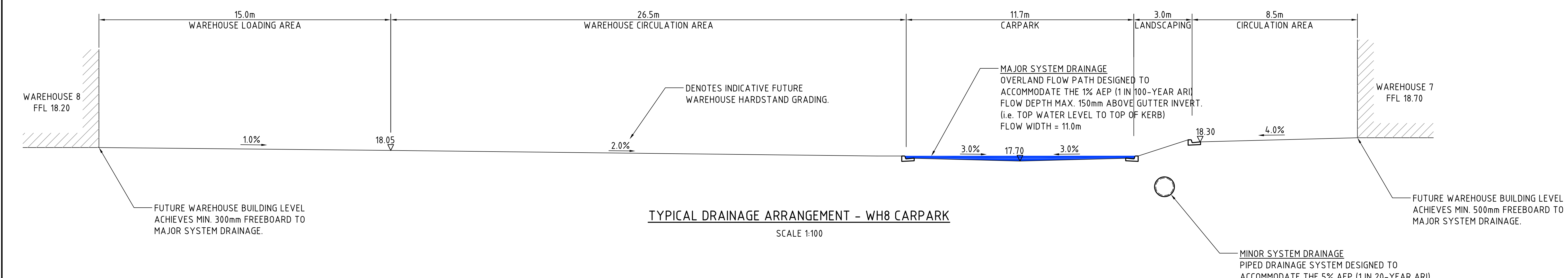
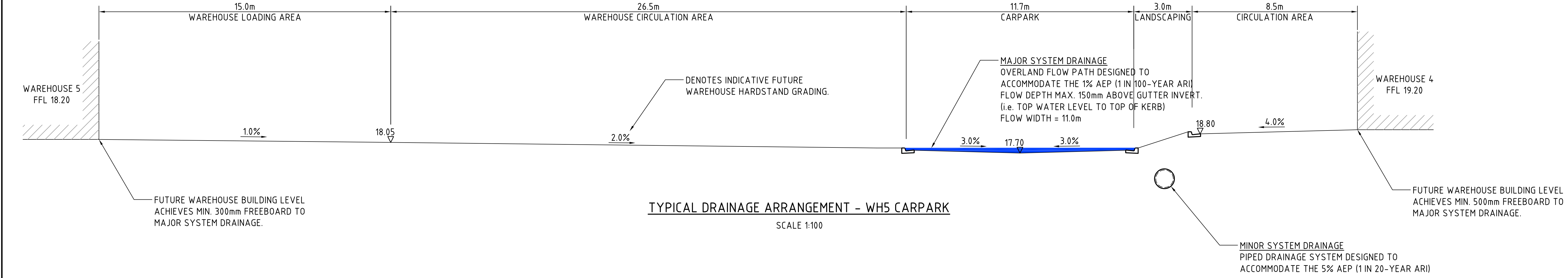
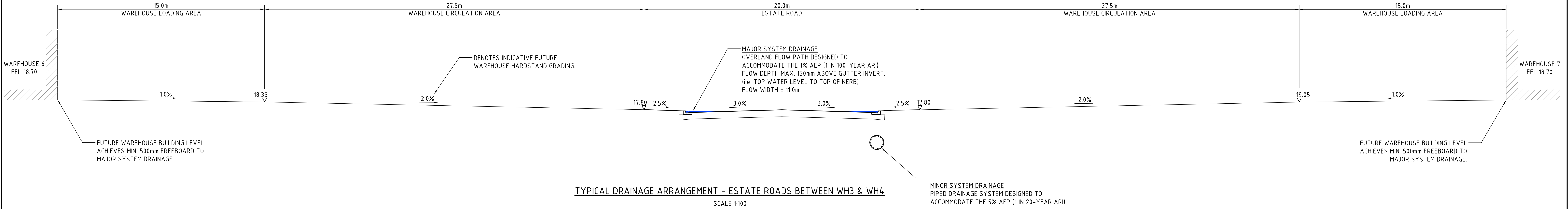
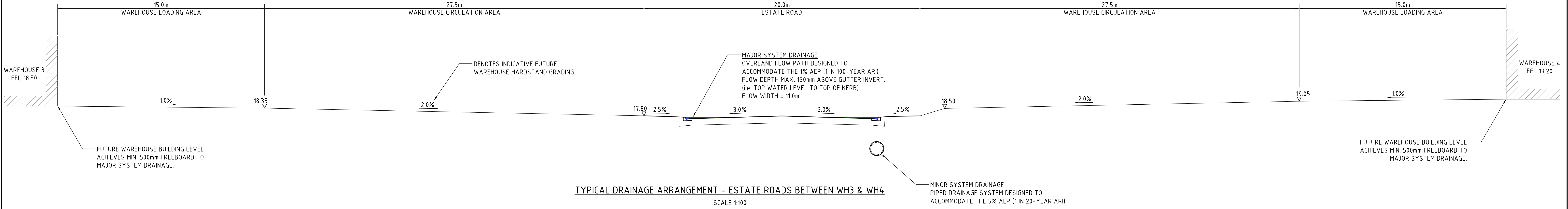
**TYPICAL SEDIMENT CONTROL BASIN SECTION**  
SCALE 1:50



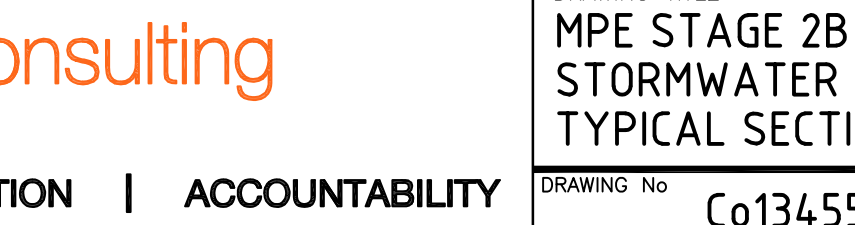
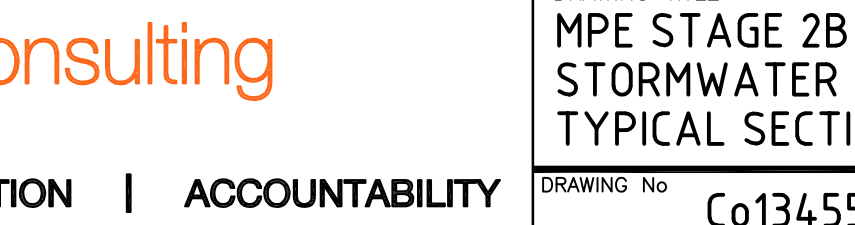
**FOR APPROVAL**

|                             |  |  |          |   |  |  |  |        |  |  |                                                                                                                                                                             |  |  |           |  |  |                                                                                                                                                                                                                                                                                                                         |  |  |                 |  |  |                                                                                                         |  |  |         |  |  |                                                                                                                                                                 |  |  |                                                                                                                                                                                                                                                                                        |  |  |  |  |  |               |  |  |                                                          |  |  |       |  |  |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  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| ISSUED FOR APPROVAL         |  |  | 05.07.19 | D |  |  |  | CLIENT |  |  |   |  |  | ARCHITECT |  |  | <br>ARCHITECTURE, INTERIORS, PROJECT MANAGEMENT<br>LEVEL 15, 124 WALKER STREET<br>NORTH SYDNEY NSW 2060 AUSTRALIA<br>TEL: 61 (0) 9550 0211 EMAIL: reidcampbell@reidcampbell.com<br>FAX: 61 (0) 9550 4968 WEB: www.reidcampbell.com |  |  | PROJECT MANAGER |  |  | <br>TACTICAL GROUP |  |  | PROJECT |  |  | <br>MOOREBANK PRECINCT EAST<br>INTERIM SWMP<br>MOOREBANK AVENUE, MOOREBANK |  |  | <br>Costin Roe Consulting Pty Ltd.<br>Consulting Engineers<br>LEVEL 1, 8 WINDMILL STREET<br>WAHIA BAY, SYDNEY NSW 2000<br>TEL: (02) 8851-7899 FAX: (02) 8841-3721<br>EMAIL: mail@costinroe.com.au |  |  |  |  |  | DRAWING TITLE |  |  | MPE STAGE 2 - BALANCE OF SITE<br>INTERIM BASIN B DETAILS |  |  | ISSUE |  |  | D |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 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| REVISED FOR CLIENT COMMENTS |  |  | 26.06.19 | C |  |  |  |        |  |  |                                                                                                                                                                             |  |  |           |  |  |                                                                                                                                                                                                                                                                                                                         |  |  |                 |  |  |                                                                                                         |  |  |         |  |  |                                                                                                                                                                 |  |  |                                                                                       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FOR APPROVAL

|                                                                 |  |  |                                                        |  |  |                                                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                           |  |                                                                 |  |                                                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                |  |                                                                                              |  |
|-----------------------------------------------------------------|--|--|--------------------------------------------------------|--|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------|--|
|                                                                 |  |  | CLIENT                                                 |  |  |   |  | ARCHITECT                                                                                                                                                                                                                                                                                                 |  | PROJECT MANAGER                                                 |  | <div>PROJECT</div> <div>MOOREBANK PRECINCT EAST<br/>INTERIM SWMP<br/>MOOREBANK AVENUE, MOOREBANK</div> <div></div> |  | <div>Costin Roe Consulting Pty Ltd.<br/>Consulting Engineers<br/>Level 1, 9 Windmill Street<br/>Wahah Bay, Sydney NSW 2000<br/>Tel: (02) 8551-7699 Fax: (02) 8541-3721<br/>email: mail@costinroe.com.au</div> <div></div> |  | <div>DRAWING TITLE</div> <div>MPE STAGE 2B<br/>STORMWATER DRAINAGE<br/>TYPICAL SECTION</div> |  |
| <div>ISSUED FOR APPROVAL</div> <div>05.07.19</div> <div>A</div> |  |  |                                                        |  |  |                                                                                                                                                                          |  | <div>ARCHITECT</div> <div><b>REIDCAMPBELL</b><br/>Architecture, Interiors, Project Management<br/>4/53-57/100-110<br/>Level 15, 524 Walker Street<br/>North Sydney NSW 2060 Australia<br/>Tel: 61 (0) 9554 4911 Email: info@reidcampbell.com<br/>Fax: 61 (0) 9554 4948 Email: info@reidcampbell.com</div> |  | <div>PROJECT MANAGER</div> <div><b>TACTICAL</b><br/>GROUP</div> |  | <div>PROJECT</div> <div>MOOREBANK PRECINCT EAST<br/>INTERIM SWMP<br/>MOOREBANK AVENUE, MOOREBANK</div> <div></div> |  | <div>Costin Roe Consulting Pty Ltd.<br/>Consulting Engineers<br/>Level 1, 9 Windmill Street<br/>Wahah Bay, Sydney NSW 2000<br/>Tel: (02) 8551-7699 Fax: (02) 8541-3721<br/>email: mail@costinroe.com.au</div> <div></div> |  | <div>DRAWING TITLE</div> <div>MPE STAGE 2B<br/>STORMWATER DRAINAGE<br/>TYPICAL SECTION</div> |  |
| <div>AMENDMENTS</div> <div>DATE</div> <div>ISSUE</div>          |  |  | <div>AMENDMENTS</div> <div>DATE</div> <div>ISSUE</div> |  |  |                                                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                           |  |                                                                 |  |                                                                                                                                                                                                         |  | <div>PRECISION</div> <div>COMMUNICATION</div> <div>ACCOUNTABILITY</div>                                                                                                                                                                                                                                        |  | <div>DRAWING No</div> <div>Co13455.04-IC415</div>                                            |  |
|                                                                 |  |  |                                                        |  |  |                                                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                           |  |                                                                 |  |                                                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                |  | <div>ISSUE</div> <div>A</div>                                                                |  |