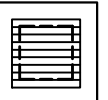
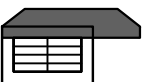
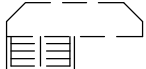
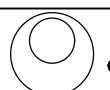


# STORMWATER MANAGEMENT PLAN

## TRIO NARRABEEN APARTMENTS AT

### 142 OCEAN STREET, NARRABEEN NSW

| LEGEND                                                                                   |                                                |
|------------------------------------------------------------------------------------------|------------------------------------------------|
| DP ●                                                                                     | DOWNPIPE                                       |
| — >>> —                                                                                  | STORMWATER LINE                                |
| — >>> —                                                                                  | STORMWATER LINE DRAINING TO RWT                |
| — OF —                                                                                   | OVER FLOW PIPE                                 |
| — — SSD —                                                                                | SUBSOIL LINE                                   |
| — — SWRM —                                                                               | STORMWATER RISING MAIN                         |
| — — e —                                                                                  | EXISTING STORMWATER LINE                       |
| — SW — SW —                                                                              | AUTHORITY STORMWATER LINE                      |
| — HL — HL —                                                                              | HIGH LEVEL STORMWATER LINE                     |
| — — S —                                                                                  | AUTHORITY SEWER LINE                           |
| — — W —                                                                                  | AUTHORITY WATER LINE                           |
| — G — G —                                                                                | AUTHORITY GAS LINE                             |
| — — — E —                                                                                | AUTHORITY ELECTRICITY LINE                     |
| — FO — FO — FO —                                                                         | AUTHORITY FIBRE OPTIC LINE                     |
| — — TEL —                                                                                | AUTHORITY COMMS LINE                           |
| — / — / —                                                                                | FENCE LINE                                     |
|       | GRADED SURFACE INLET PIT                       |
|       | GRADED SURFACE INLET PIT WITH ENVIROPOD INSERT |
|       | JUNCTION PIT                                   |
|       | KERB INLET PIT                                 |
|       | EXISTING GRADED SURFACE INLET PIT              |
|       | GRADED TRENCH DRAIN                            |
|       | EXISTING JUNCTION PIT                          |
|       | EXISTING KERB INLET PIT                        |
|  eTEL | EXISTING TELSTRA PIT                           |
|  eHYD | EXISTING HYDRANT                               |
|  eSV  | EXISTING STOP VALVE                            |
|  eGAS | EXISTING GAS VALVE                             |
|  ePP  | EXISTING POWER POLE                            |

| LEGEND                                                                                 |                        |
|----------------------------------------------------------------------------------------|------------------------|
| FF ○                                                                                   | FIRST FLUSH            |
|  eSMH | EXISTING SEWER MANHOLE |
| OFF ➡                                                                                  | OVERLAND FLOW PATH     |
| RWO ○                                                                                  | RAINWATER OUTLET       |
| PS ●                                                                                   | PIPE STAND             |
| CO ○                                                                                   | CLEAR OUT POINT        |
| DDO ○                                                                                  | DISH DRAIN OUTLET      |
| PD ○                                                                                   | PLANTER DRAIN          |
| ]                                                                                      | CAPPING                |
| (1.01)                                                                                 | PIT TAG/NUMBER         |
| RH ☒                                                                                   | RAINHEAD               |
|       | DOWNPIPE DROP          |
|      | NON RETURN VALVE       |
|     | WALL PENETRATION       |
| DP ● —                                                                                 | DOWNPIPE SPREADER      |
|     | WARNING LIGHT          |
| 0.00 ●                                                                                 | SPOT LEVELS            |
| ▲                                                                                      | BENCHMARK              |



DIAL BEFORE YOU DIG SHOULD BE CONTACTED PRIOR TO ANY EXCAVATION ON SITE

TM: TRADE MARK OF THE ASSOCIATION OF DIAL BEFORE YOU DIG SERVICES LTD. USED UNDER LICENSE.

| DRAWING REGISTER |                                                                    |          |
|------------------|--------------------------------------------------------------------|----------|
| NUMBER           | NAME                                                               | REVISION |
| SW001            | COVER SHEET                                                        | C        |
| SW010            | STORMWATER LAYOUT PLAN – BASEMENT PLAN, NOTES & DETAILS            | C        |
| SW011            | STORMWATER LAYOUT PLAN – ABSORPTION SYSTEM PLAN & SECTION DETAILS  | C        |
| SW020            | STORMWATER LAYOUT PLAN – GROUND FLOOR, NOTES & DETAILS             | C        |
| SW030            | STORMWATER LAYOUT PLAN – FIRST FLOOR & ROOF LEVEL, NOTES & DETAILS | C        |
| ER001            | EROSION AND SEDIMENT CONTROL PLAN                                  | C        |

#### DRAINAGE NOTES:

ALL PIPES TO BE LAID ON 75mm SAND BED WITH THE BARRELS FULLY SUPPORTED

100mm AND 150mm DIAMETER PIPES TO BE LAID ON MINIMUM 1% GRADE

MINIMUM DEPTH OF COVER FOR PIPES NOT SUBJECT TO VEHICULAR LOADING TO BE 300mm

ALL DRAINAGE PIPES LAID UNDER PAVEMENT SHALL BE REINFORCED CONCRETE WITH RUBBER RING JOINTS

BACKFILL TRENCHES WITH COMPACTED SAND OR APPROVED AGGREGATE MATERIAL

ALL PITS TO HAVE 600x600mm INTERNAL DIMENSIONS (U.N.O.)

SILT ARRESTORS TO HAVE 900x900mm INTERNAL DIMENSIONS

HEAVY DUTY GRATES AND COVERS ARE TO BE PROVIDED IN TRAFFICABLE AREAS

PIT GRATE TO BE TYPE WELDLÖK OR APPROVED EQUIVALENT

ALL PITS SHALL BE PROVIDED WITH A LOCKING CLIP

ALL PITS SHALL BE MAINTAINED REGULARLY

TOP OF BENCHING SHALL BE TO THE HALF OF THE OUTLET PIPE DIAMETER

MAXIMUM FRONT ENTRY PIPE: –  
STRAIGHT ENTRY – Ø750  
SKEW ENTRY 45° – Ø525

Ø100 SUBSOIL DRAINAGE PIPE 3000mm LONG WRAPPED IN FABRIC SOCK TO BE PROVIDED ADJACENT TO INLET PIPES

COMPRESSIVE STRENGTH  $f_c$  FOR CAST IN SITU CONCRETE TO BE A MINIMUM OF 20MPa AT 28 DAYS

PROVIDE CLEANING EYES TO ALL DOWNPIPES NOT DIRECTLY CONNECTED TO PITS

ISOLATED JOINTS TO BE PROVIDED TO ISOLATE CONCRETE PAVEMENTS FROM PITS

ALL TRENCH GRATES PROVIDED SHALL HAVE A MINIMUM CLEAR WIDTH OF 200mm

STORMWATER DRAINAGE CONNECTIONS TO THE MAIN SYSTEM SHALL BE TO THE REQUIREMENTS AND THE SATISFACTION OF LOCAL COUNCIL

#### ABBREVIATIONS:

|          |                                  |
|----------|----------------------------------|
| Ø or DIA | DIAMETER                         |
| CBR      | CALIFORNIA BEARING RATIO         |
| CH       | CHAINAGE                         |
| CL       | CENTER LINE                      |
| CO       | CLEAR OUT                        |
| DD       | DISH DRAIN                       |
| DDO      | DISH DRAIN OUTLET                |
| DEJ      | DOWELLED EXPANSION JOINT         |
| DGB      | DENSE GRADED BASECOURSE          |
| DGS      | DENSE GRADED SUB-BASE            |
| DP       | DOWNPIPE                         |
| e        | EXISTING                         |
| FFL      | FINISHED FLOOR LEVEL             |
| GTD      | GRADED TRENCH DRAIN              |
| GSIP     | GRADED SURFACE INLET PIT         |
| HYD      | HYDRANT                          |
| IJ       | ISOLATING JOINT                  |
| IK       | INTEGRAL KERB                    |
| IL       | INVERT LEVEL                     |
| IP       | INTERSECTION POINT               |
| KIP      | KERB INLET PIT                   |
| KO       | KERB ONLY                        |
| K&G      | KERB & GUTTER                    |
| KR       | KERB RETURN                      |
| LS       | LONGITUDINAL SECTION             |
| NGL      | NATURAL GROUND LEVEL             |
| OPF      | OVERLAND FLOW PATH               |
| OSD      | ON-SITE DETENTION                |
| R        | RADIUS                           |
| RCP      | REINFORCED CONCRETE PIPE         |
| RK       | ROLL KERB & GUTTER               |
| RL       | REDUCED LEVEL                    |
| RW       | RETAINING WALL                   |
| RWT      | RAINWATER TANK                   |
| SJ       | SAWM CONTROL JOINT               |
| SMH      | SEWER MAN HOLE                   |
| SW       | STORMWATER                       |
| SWP      | STORMWATER PIT                   |
| SWRM     | STORMWATER RISING MAIN           |
| SWS      | STORMWATER SUMP                  |
| SV       | STOP VALVE                       |
| TOK      | TOP OF KERB                      |
| TOW      | TOP OF WALL                      |
| TWL      | TOP WATER LEVEL                  |
| TP       | TANGENT POINT                    |
| UPVC     | UNPLASTICISED POLYVINYL CHLORIDE |
| UNO      | UNLESS NOTED OTHERWISE           |
| WPJ      | WEAKENED PLANE JOINT             |
| FF       | FIRST FLUSH DEVICE               |
| TYP      | TYPICAL                          |
| BM       | BENCH MARK                       |

#### STORMWATER PIPE BEDDING/PAVING NOTES:

WHERE TRENCH BASE IS ROCK A MINIMUM OF 75mm BEDDING TO BE PROVIDED UNDER PIPE COLLARS.

STORMWATER PIPE BEDDING DETAIL TO BE IN ACCORDANCE WITH LOCAL COUNCIL REQUIREMENTS. BEDDING DETAILS TO BE CONFIRMED UPON EXCAVATION & PRIOR TO INSTALLATION OF PIPEWORK.

#### FOOTPATH REINSTATEMENT NOTES:

REMOVE ALL SAND FILL WITHIN THE FOOTPATH AREA TO THE EXISTING SUBGRADE.

SUPPORT ALL AUTHORITY SERVICES TO STRUCTURAL ENGINEERS DETAILS DURING EXCAVATION.

REINSTATE FOOTPATH SUBGRADE.

THE CONTRACTOR SHALL PROVIDE CERTIFICATION OF COMPACTION FROM A NATA REGISTERED TESTING AUTHORITY. MINIMUM THREE TESTS PER LAYER AS FOLLOWS:

|                                                 |               |
|-------------------------------------------------|---------------|
| SELECT FILL                                     | 95% MODIFIED  |
| SELECT FILL (LESS THAN 300mm BELOW BASE COURSE) | 98% MODIFIED  |
| BASE COURSE                                     | 100% MODIFIED |

#### EROSION & SEDIMENT CONTROL NOTES:

PROVIDE SILT FENCE/HAY BAIL BARRIERS TO THE LOW SIDE OF ALL EXPOSED EARTH EXCAVATIONS (TYPICAL).

ISOLATE EXISTING STORMWATER PITS WITH HAY BALES TO FILTER ALL INCOMING FLOWS.

DO NOT STOCK PILE EXCAVATED MATERIAL ON THE ROAD WAY.

#### SURVEY

THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY REGISTERED SURVEYORS. THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. CAPITAL ENGINEERING CONSULTANTS DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAW.

SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT CAPITAL ENGINEERING CONSULTANTS.

ADOPT DATUM BM NAIL IN TOP OF KERB RL:10.01 (A.H.D)

SERVICES SHOWN ON PLAN ARE INDICATIVE, EXACT DEPTH AND LOCATION TO BE CONFIRMED ONSITE. CONTRACTOR TO CARRY OUT DIAL BEFORE YOU DIG APPLICATION AND ENGAGE A REGISTERED SURVEYOR TO PEG OUT ALL EXISTING SERVICES PRIOR TO ANY WORK COMMENCING ONSITE.

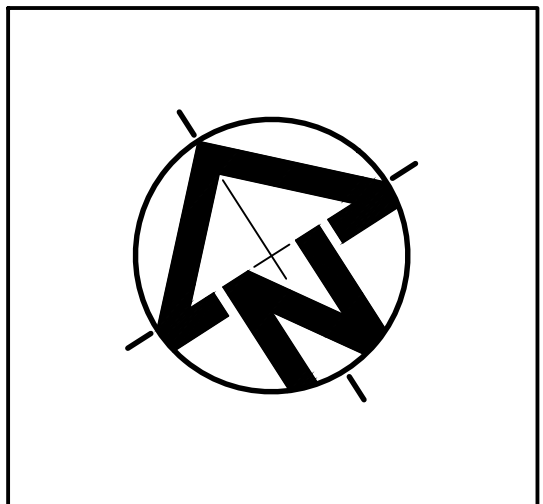
IT IS THE BUILDERS RESPONSIBILITY TO MAKE SURE ALL SURVEY MARKS TO BE PRESERVED AT ALL COST.

| Rev. | Description                          | By.  | Chk. | App. | Date       |
|------|--------------------------------------|------|------|------|------------|
|      |                                      |      |      |      |            |
|      |                                      |      |      |      |            |
|      |                                      |      |      |      |            |
| C    | RAINWATER TANK PROVIDED AS PER BASIX | M.W. | M.W. | P.E. | 08.07.2021 |
| B    | ISSUED FOR DEVELOPMENT APPLICATION   | M.W. | M.W. | P.E. | 03.06.2021 |
| A    | ISSUED FOR DEVELOPMENT APPLICATION   | M.W. | M.W. | P.E. | 31.05.2021 |



|                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------|
| Client                                                                                                                           |
| BIAGIO ABIGNANO                                                                                                                  |
| Project                                                                                                                          |
| 142 OCEAN STREET, NARRABEEN                                                                                                      |
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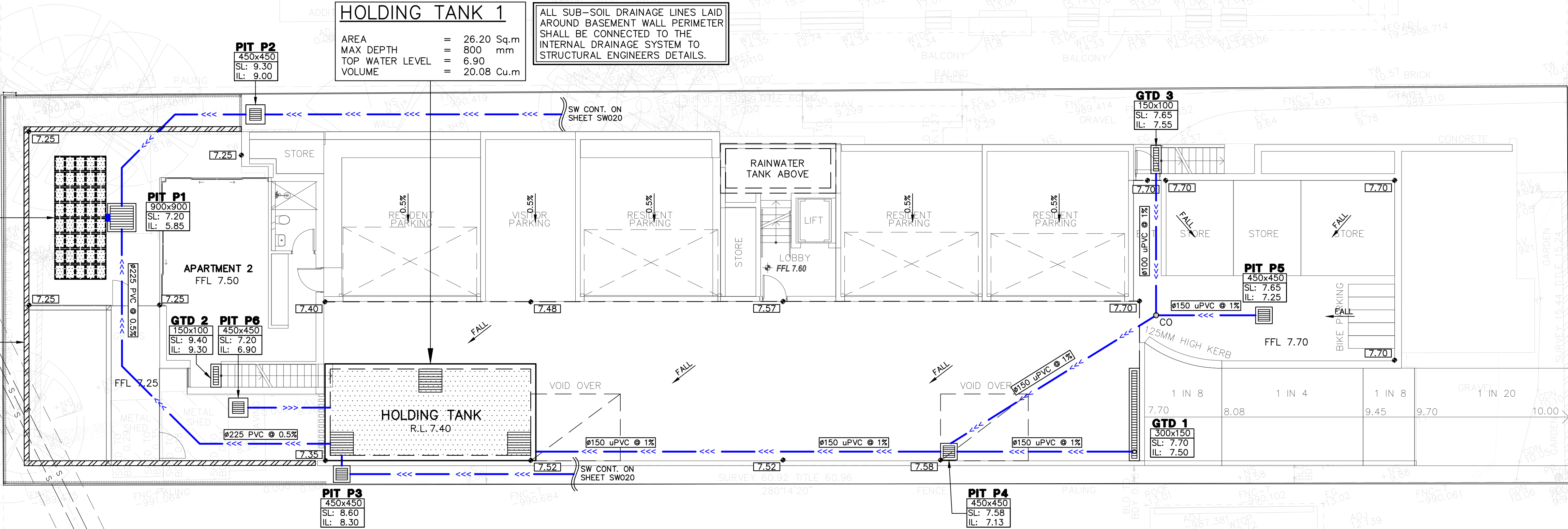
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| Title       |
| COVER SHEET |



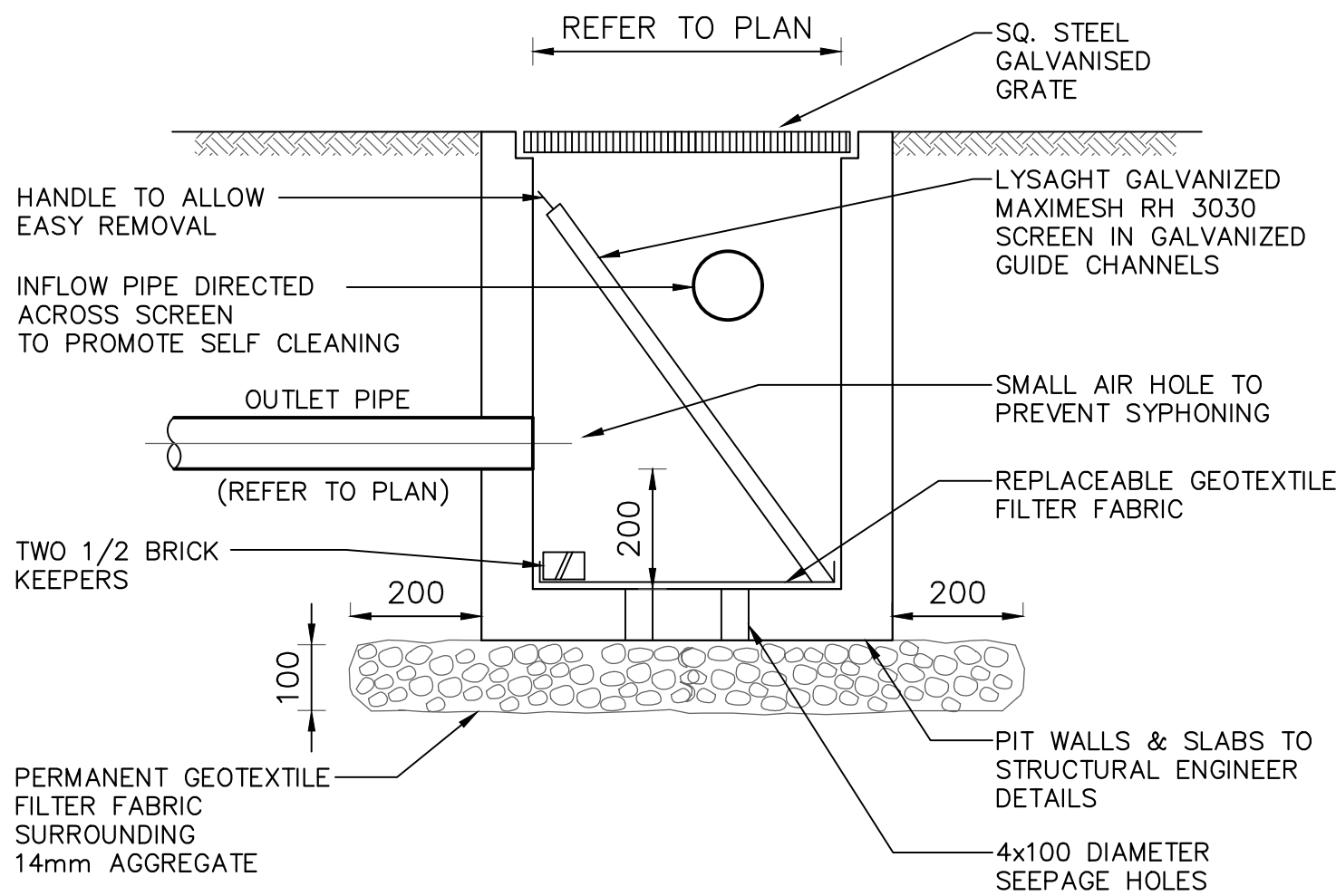
| DEVELOPMENT APPLICATION (DA) |            |                |         |                | Approved                                               |  |
|------------------------------|------------|----------------|---------|----------------|--------------------------------------------------------|--|
| FOR APPROVAL                 |            |                |         |                | P.E.                                                   |  |
| Paper Size                   | Design     | Drawn          | Checked | Datum          | PAUL EL-BAYEH<br>B.E., M.E., FIEAust, CPEng, NER, RPEQ |  |
| A1                           | M.W.       | M.W.           | M.W.    | AHD            |                                                        |  |
| Scale                        | Date       | Project Number |         | Drawing Number | Revision                                               |  |
| 1:100                        | 08.07.2021 | SW21079        |         | SW001          | C                                                      |  |

| ON-SITE ABSORPTION TRENCH 1 |                                  |
|-----------------------------|----------------------------------|
| IMPERVIOUS CATCHMENT AREA   | = 742.0 Sq.m                     |
| TRENCH BASE                 | = 9.60 Sq.m                      |
| NO. OF ROWS                 | = 2                              |
| BASE THICKNESS              | = 300 mm                         |
| NO. OF TRENCHES             | = 80 ENVIROMODULE (600x400x450)  |
| VOID AREA                   | = 95 %                           |
| NOMINAL ABSORPTION RATE     | = 2.00 L/Sq.m/s                  |
| DESIGN ABSORPTION RATE      | = 1.00 L/Sq.m/s                  |
| DESIGN YEAR ARI             | = 100 YEAR (MASS CURVE ANALYSIS) |
| VOLUME PROVIDED             | = 8.93 Cu.m                      |

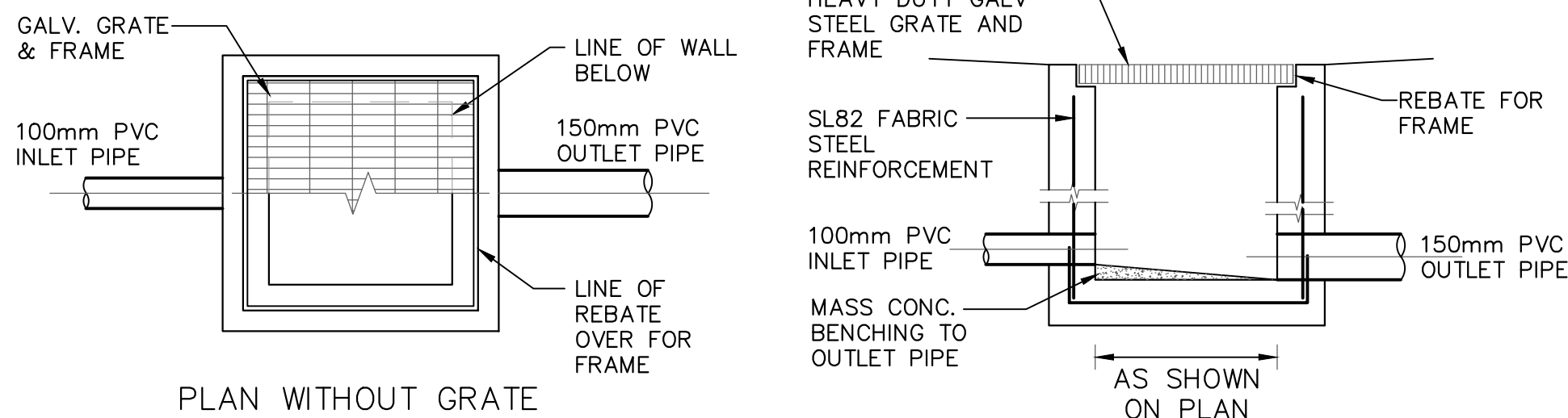
REFER TO ARCHITECTURAL DRAWINGS FOR TOP AND BOTTOM OF WALL LEVELS



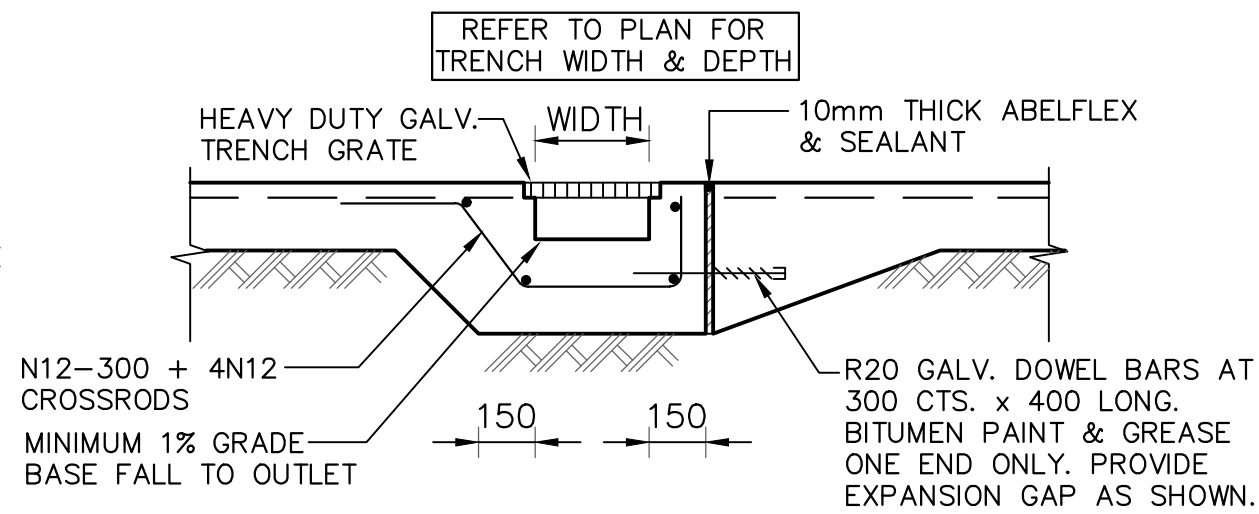
STORMWATER LAYOUT PLAN  
BASEMENT LEVEL  
SCALE 1:100



DETAIL  
SILT/LITTER ARRESTOR  
PIT(S) P2, P3, P4, P6  
SCALE 1:20



TYPICAL GRATED INLET PIT DETAIL  
SCALE: 1:20



GRADED DRAIN DETAIL  
SCALE: 1:20

### ABSORPTION SYSTEM NOTES:

AN ABSORPTION SYSTEM IS PROVIDED FOR THE PROPOSED DEVELOPMENT IN ACCORDANCE WITH COUNCIL'S DCP.

THE INFILTRATION TRENCH IS DESIGNED USING MASS CURVE ANALYSIS. FULL CALCULATIONS ARE PROVIDED ON SHEET NO. SW011.

A DEBRIS/SILT COLLECTION PIT IS CONSTRUCTED IMMEDIATELY UPSTREAM OF THE UNDERGROUND SYSTEM. A CAPPED OBSERVATION RISER IS INSTALLED OVER THE UNDERGROUND SYSTEM AS PER COUNCIL'S REQUIREMENTS.

REFER TO GEOTECHNICAL REPORT NO 2021-073 PREPARED BY CROZIER GEOTECHNICAL CONSULTANTS FOR VERIFICATION OF NOMINAL INFILTRATION RATE RECORDED ON-SITE.

| Rev. | Description                          | By.  | Chk. | App. | Date       |
|------|--------------------------------------|------|------|------|------------|
|      |                                      |      |      |      |            |
|      |                                      |      |      |      |            |
| C    | RAINWATER TANK PROVIDED AS PER BASIX | M.W. | M.W. | P.E. | 08.07.2021 |
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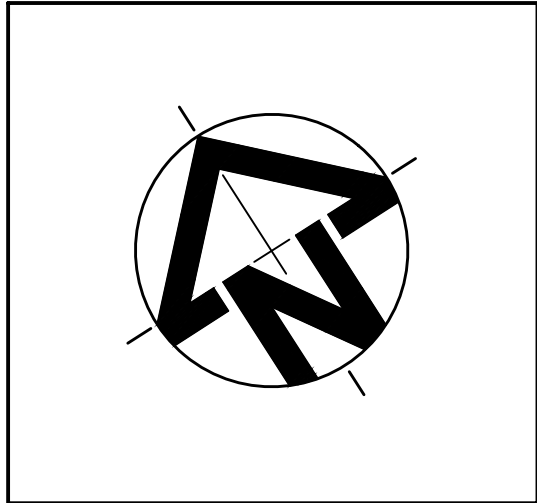
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info@capitalengineering.com.au  
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Client  
**BIAGIO ABIGNANO**

Project  
**142 OCEAN STREET, NARRABEEN**

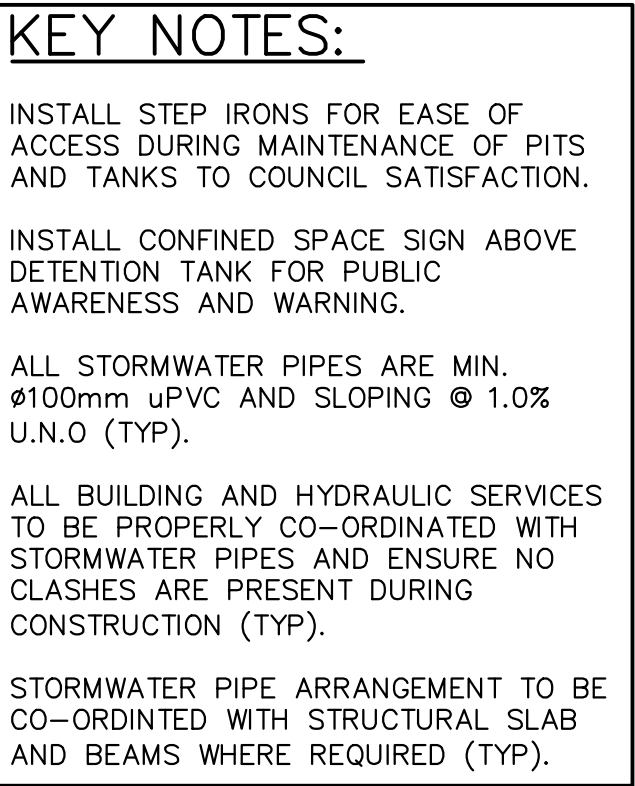
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Title  
**STORMWATER LAYOUT PLAN  
BASEMENT PLAN, NOTES &  
DETAILS**



| DEVELOPMENT APPLICATION (DA) |                           |                                  |                        |                     |
|------------------------------|---------------------------|----------------------------------|------------------------|---------------------|
| FOR APPROVAL                 |                           |                                  |                        |                     |
| Paper Size<br><b>A1</b>      | Design<br><b>M.W.</b>     | Drawn<br><b>M.W.</b>             | Checked<br><b>M.W.</b> | Datum<br><b>AHD</b> |
| Scale<br><b>1:100</b>        | Date<br><b>08.07.2021</b> | Project Number<br><b>SW21079</b> |                        |                     |

| Approved                                               |                      |
|--------------------------------------------------------|----------------------|
| <b>P.E.</b>                                            |                      |
| PAUL EL-BAYEH<br>B.E., M.E., FIEAust, CPEng, NER, RPEQ |                      |
| Drawing Number<br><b>SW010</b>                         | Revision<br><b>C</b> |

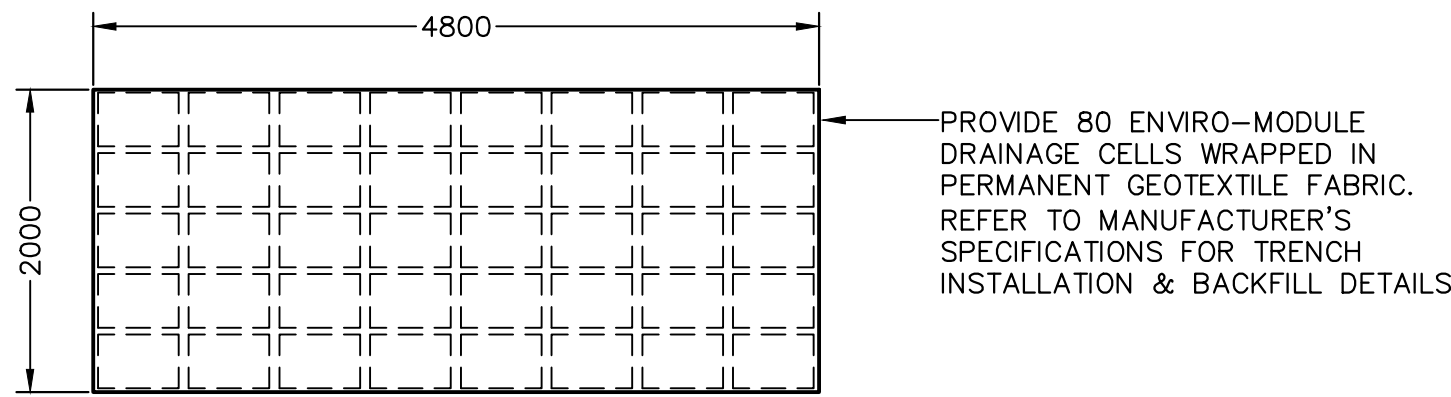
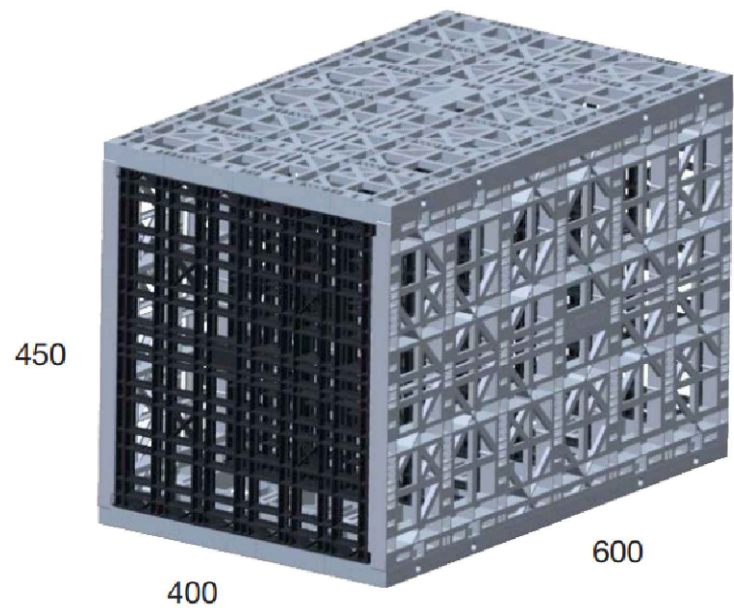
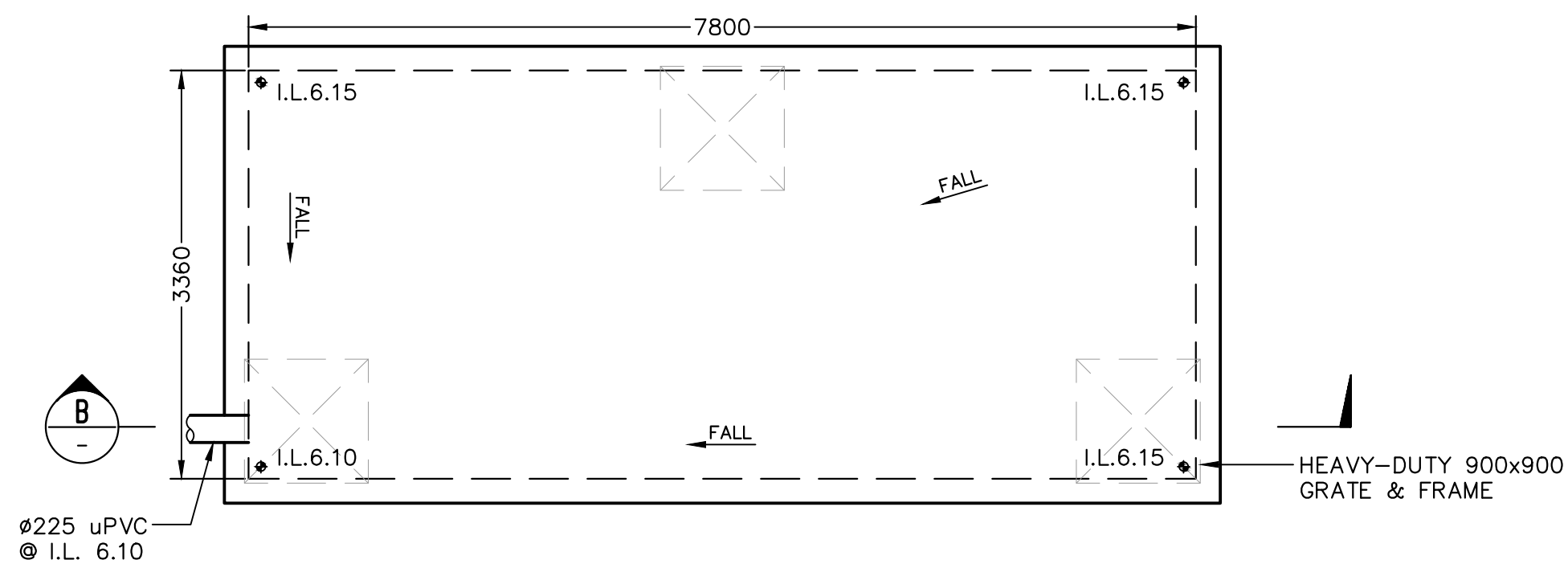


450

300

**DANGER**

**CONFINED SPACE**  
**NO ENTRY WITHOUT**  
**CONFINED SPACE**  
**TRAINING**



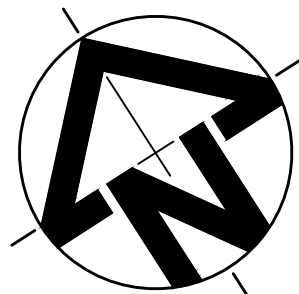
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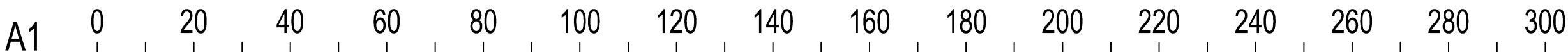
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Ph: (02) 9630 0121  
Fax: (02) 9630 0132  
info@capitalengineering.com.au  
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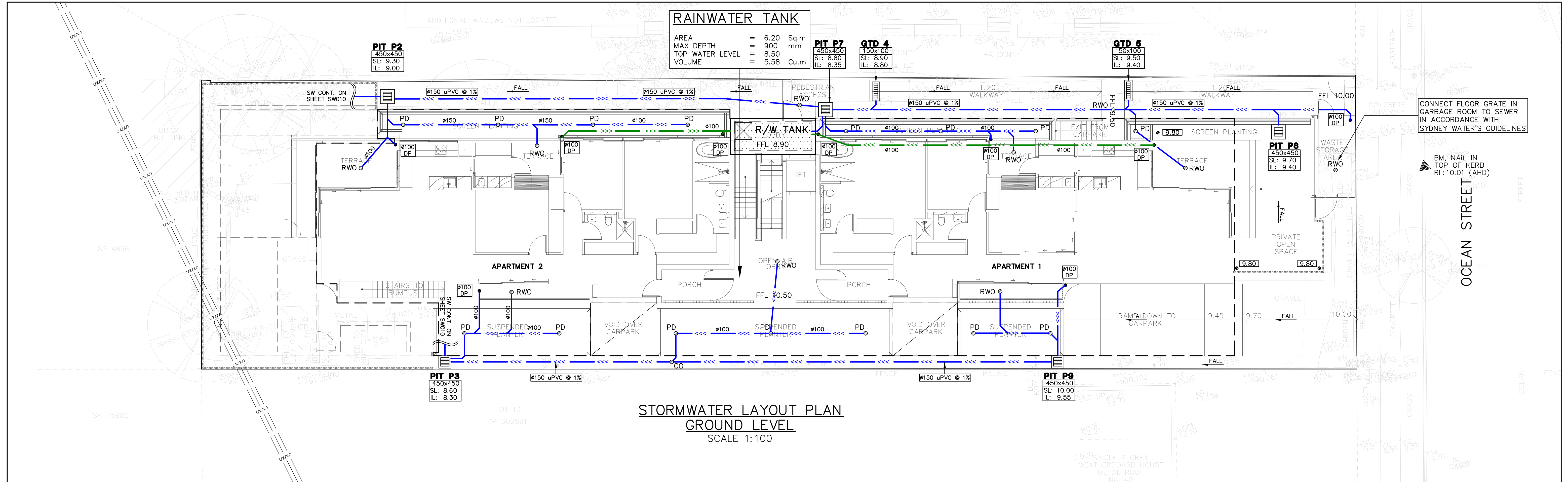
Title

# STORMWATER LAYOUT PLAN ABSORPTION SYSTEM PLAN & SECTION DETAILS

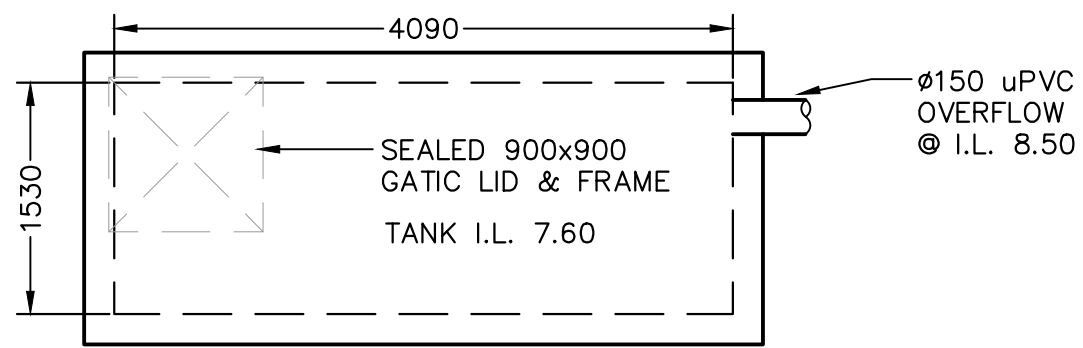


|                              |                    |                           |                 |              |                                                        |               |
|------------------------------|--------------------|---------------------------|-----------------|--------------|--------------------------------------------------------|---------------|
| DEVELOPMENT APPLICATION (DA) |                    |                           |                 |              | Approved                                               |               |
| FOR APPROVAL                 |                    |                           |                 |              | P.E.                                                   |               |
| Paper Size<br>A1             | Design<br>M.W.     | Drawn<br>M.W.             | Checked<br>M.W. | Datum<br>AHD | PAUL EL-BAYEH<br>B.E., M.E., FIEAust, CPEng, NER, RPEQ |               |
| Scale<br>1:100               | Date<br>08.07.2021 | Project Number<br>SW21079 |                 |              | Drawing Number<br>SW011                                | Revision<br>C |

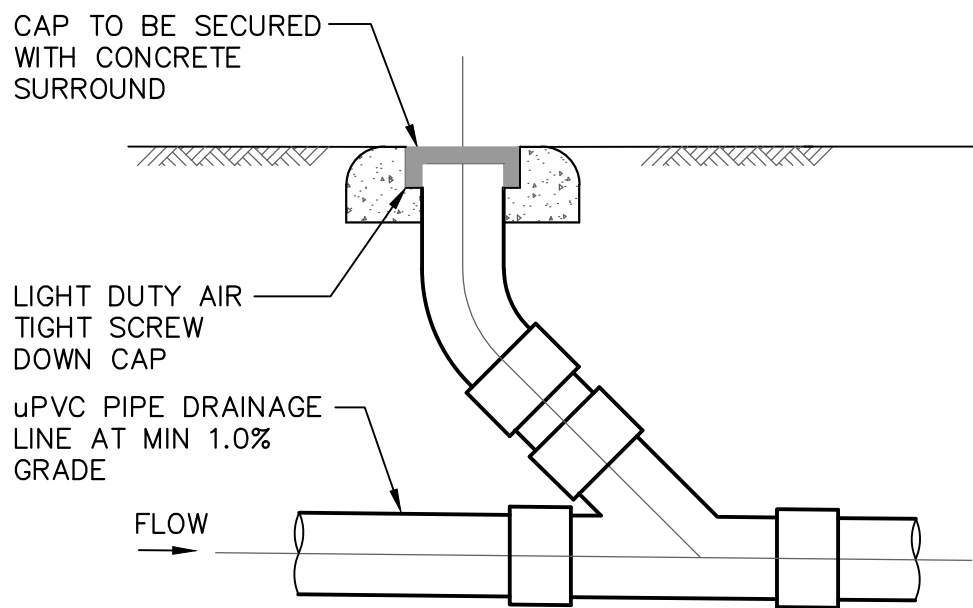




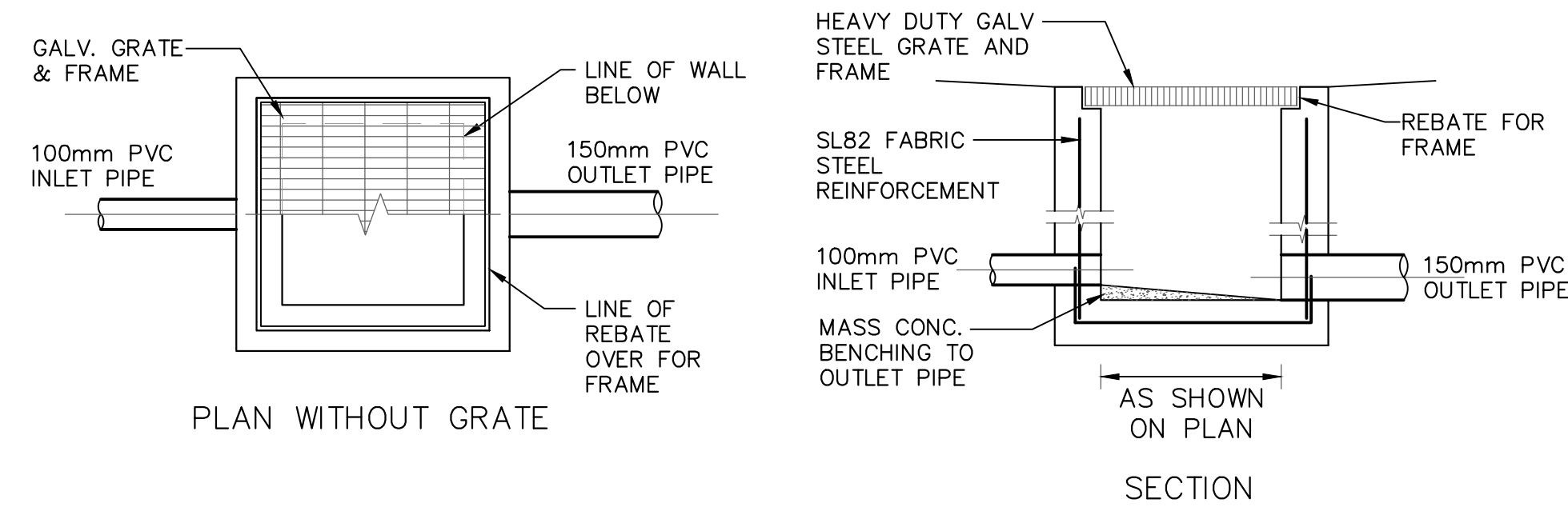
STORMWATER LAYOUT PLAN  
GROUND LEVEL  
SCALE 1:100



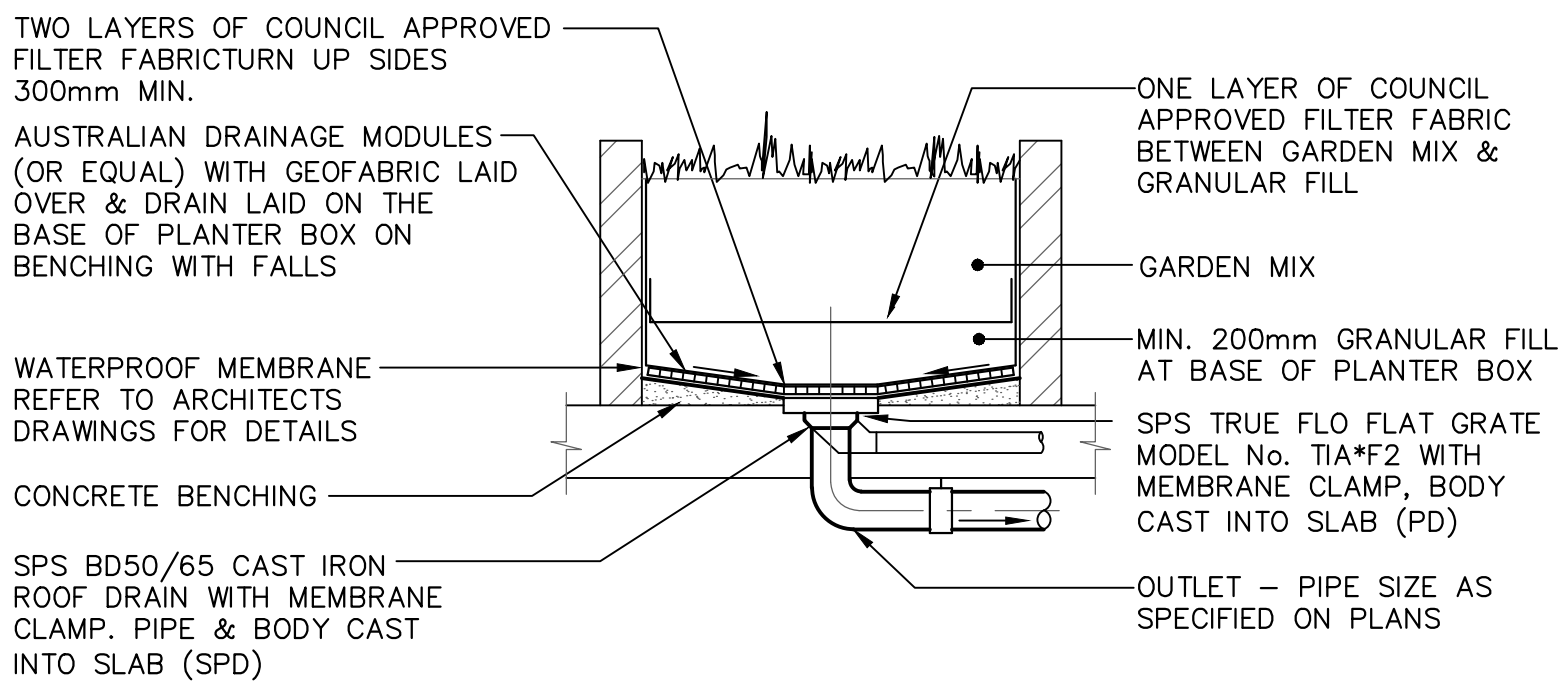
RAINWATER TANK 1 PLAN DETAIL  
SCALE 1:50



CLEANING EYE DETAIL  
SCALE: 1:20



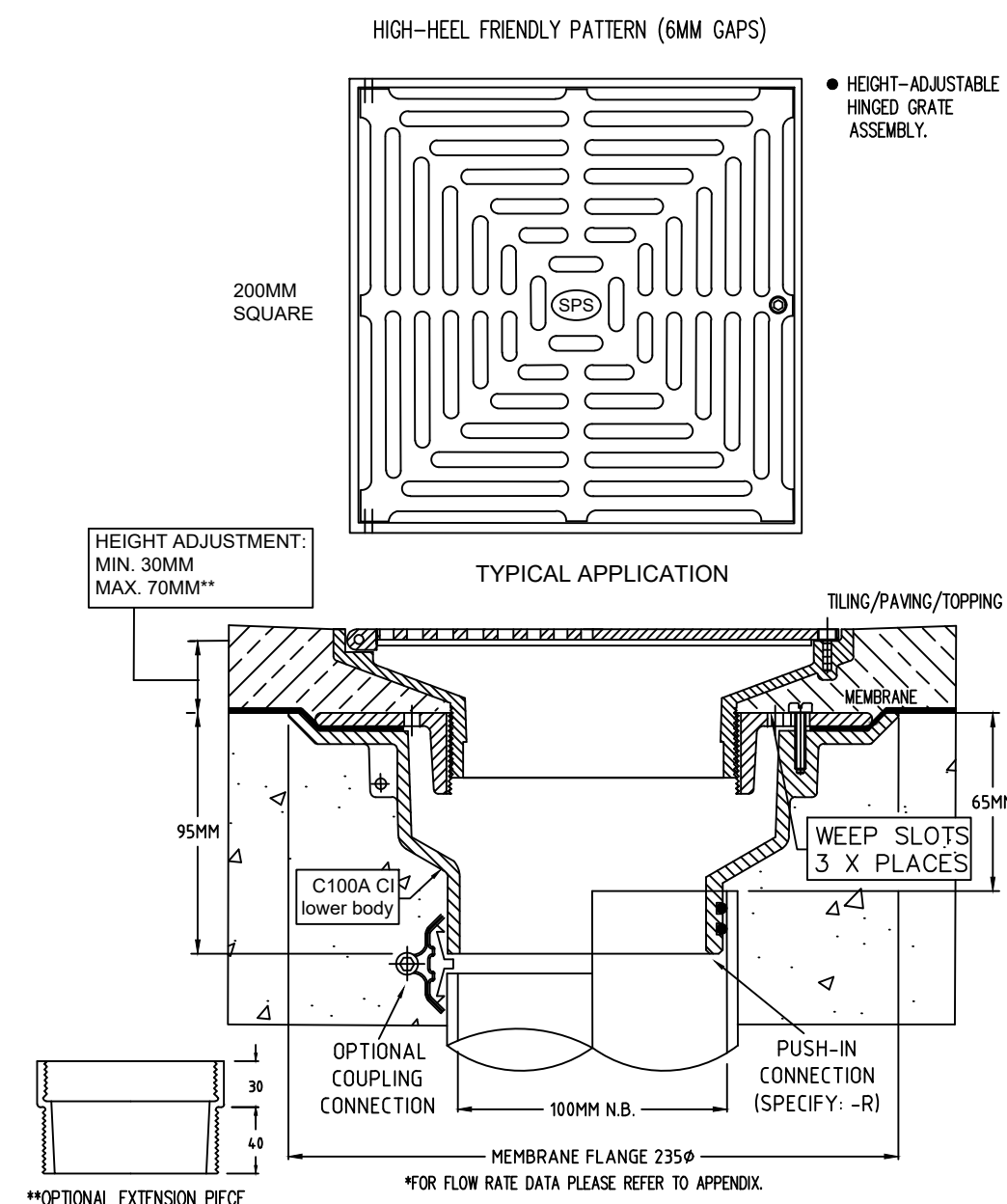
TYPICAL GRATED INLET PIT DETAIL  
SCALE: 1:20



PLANTER DRAIN (PD) DETAIL  
SCALE: 1:20

SPS 200MM SQ. VARI-LEVEL VERTICAL DRAIN  
100MM OUTLET

SPECIFICATION CODES:  
Q200S4/C (POLISHED 304 STAINLESS STEEL, CI LOWER BODY)



SPECIALITY PLUMBING SUPPLIES PTY LTD  
TEL: (02) 9417 1900 FAX: (02) 9417 0108 E-MAIL: INFO@SPSDRAINS.COM.AU

DESIGN NOTES:

SITE IS LOCATED IN NORTHERN BEACHES COUNCIL

SITE AREA = 932.9m<sup>2</sup>

ON SITE INFILTRATION HAS BEEN ADOPTED TO DRAIN THE SITE AS THE GEOTECHNICAL REPORT INDICATES THAT THE SUBSTRATE HAS EXCELLENT PERMEABILITY AND CONSISTENCY.

ON SITE INFILTRATION HAS BEEN SIZED FOR THE 1:100 YEAR STORM USING MASS CURVE ANALYSIS AND A 50% REDUCTION FACTOR ON INFILTRATION OUTFLOWS FOR A MORE CONSERVATIVE VOLUME.

ALL IFD DATA OBTAINED FROM THE BOM (2016 RAINFALLS)

VOLUME REQUIRED (NO BLOCKAGE) = 16.48 Cu.m  
VOLUME REQUIRED (F<sub>R</sub> = 0.5) = 27.98 Cu.m

VOLUME PROVIDED (TANK & TRENCH) = 29.01 Cu.m

ALL PITS GREATER THAN 900mm DEEP TO BE FITTED WITH STEP IRONS & GRATES SECURED WITH CHILD-PROOF LOCKING RESTRAINTS E.G. J-BOLTS OR EQUIVALENT.

SPECIFIED PRODUCTS MUST BE USED WHERE SPECIFIED, ALTERNATE PRODUCTS WILL NOT BE CERTIFIED WITHOUT PRIOR WRITTEN CONSENT FROM CAPITAL ENGINEERING CONSULTANTS.

ALL STORMWATER PIPES TO HAVE A MINIMUM OF 100mm CONCRETE OR 300mm TOPSOIL COVER U.N.O.

INSTALL CLEAR OUT FOR INSPECTION AND MAINTENANCE PURPOSES WHERE REQUIRED (TYP).

ALL DOWNPIPES AND STORMWATER PIPES SHOWN ON PLAN ARE 100mm uPVC AND SLOPE AT 1% U.N.O (TYP).

PROPOSED DOWNPIPE LOCATIONS ARE NOMINAL AND TO BE CONFIRMED DURING CONSTRUCTION (TYP).

ALLOW FOR FILL & MINOR REGRADING OF FINISHED SURFACE TO ARCHIVE NOMINATED REDUCED LEVEL OF GRATED SURFACE INLET PITS, WHERE REQUIRED (TYP).

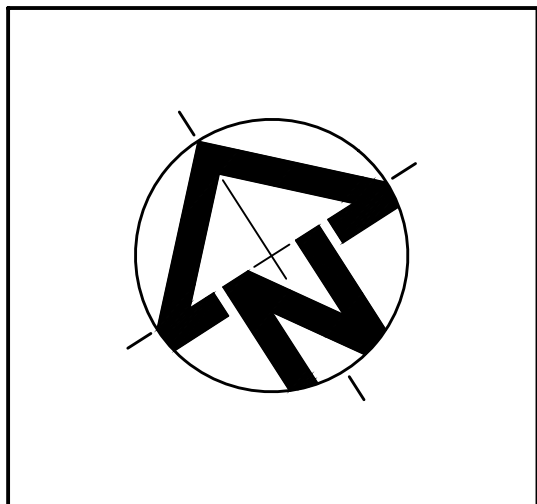
PROVIDE SUBSOIL DRAINAGE WITHIN LANDSCAPED AREAS & BEHIND RETAINING WALLS TO PREVENT LONG TERM SATURATION DURING PROLONGED WET WEATHER.

| Rev. | Description                          | By.  | Chk. | App. | Date       |
|------|--------------------------------------|------|------|------|------------|
|      |                                      |      |      |      |            |
|      |                                      |      |      |      |            |
| C    | RAINWATER TANK PROVIDED AS PER BASIX | M.W. | M.W. | P.E. | 08.07.2021 |
| B    | ISSUED FOR DEVELOPMENT APPLICATION   | M.W. | M.W. | P.E. | 03.06.2021 |
| A    | ISSUED FOR DEVELOPMENT APPLICATION   | M.W. | M.W. | P.E. | 31.05.2021 |



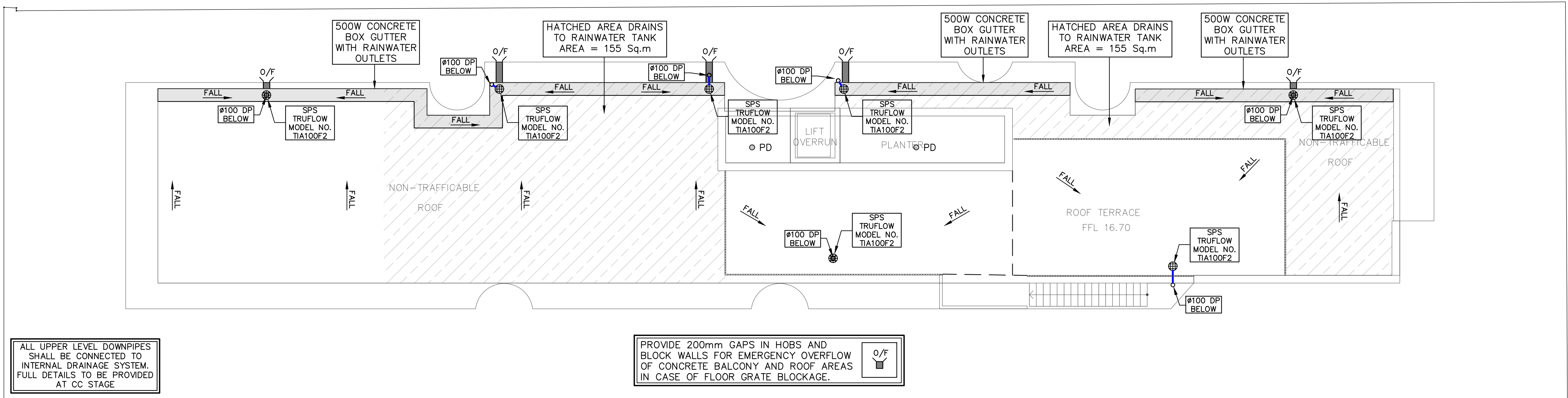
|                                                                                                                                  |                             |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| Client                                                                                                                           | BIAGIO ABIGNANO             |
| Project                                                                                                                          | 142 OCEAN STREET, NARRABEEN |
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|       |                                                                 |
|-------|-----------------------------------------------------------------|
| Title | STORMWATER LAYOUT PLAN<br>GROUND FLOOR PLAN,<br>NOTES & DETAILS |
|-------|-----------------------------------------------------------------|

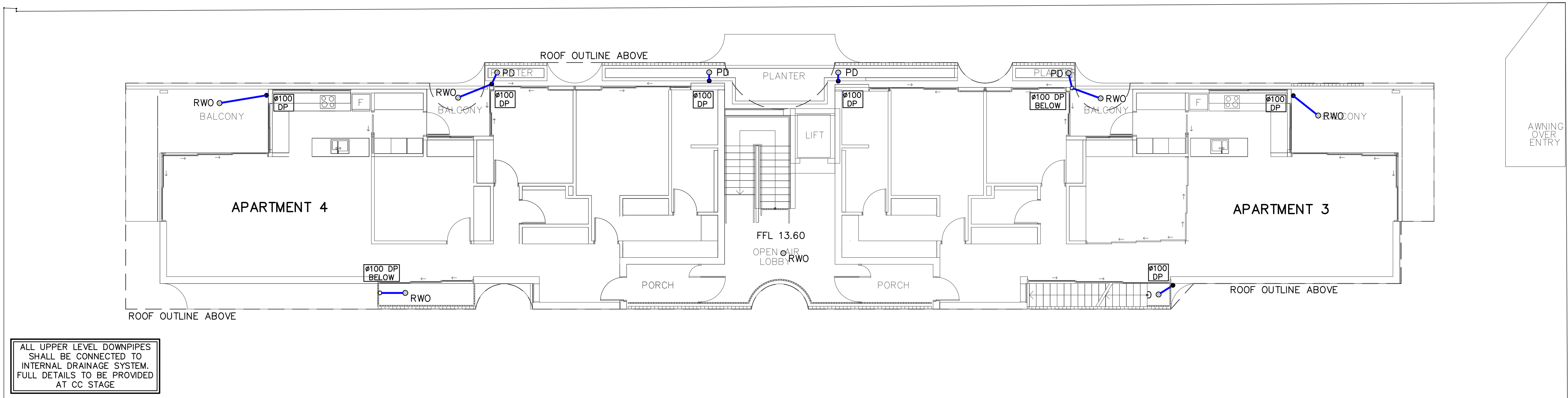


| DEVELOPMENT APPLICATION (DA) |            |                |         |       |
|------------------------------|------------|----------------|---------|-------|
| FOR APPROVAL                 |            |                |         |       |
| Paper Size                   | Design     | Drawn          | Checked | Datum |
| A1                           | M.W.       | M.W.           | M.W.    | AHD   |
| Scale                        | Date       | Project Number |         |       |
| 1:100                        | 08.07.2021 | SW21079        |         |       |

|                                                        |          |
|--------------------------------------------------------|----------|
| Approved                                               | P.E.     |
| PAUL EL-BAYEH<br>B.E., M.E., FIEAust, CPEng, NER, RPEQ |          |
| Drawing Number                                         | Revision |
| SW020                                                  | C        |



STORMWATER LAYOUT PLAN  
ROOF LEVEL  
SCALE 1:100



STORMWATER LAYOUT PLAN  
FIRST FLOOR LEVEL  
SCALE 1:100

FIRST FLOOR & ROOF NOTES:

INSTALL 50mm uPVC SPITTER PIPES 20mm ABOVE SURFACE LEVEL FOR BALCONY AND CONCRETE ROOF AREAS TO ALLOW FOR EMERGENCY OVERFLOW INCASE OF BLOCKAGES DURING HEAVY STORMS. PLUMBER TO CONFIRM LOCATION DURING CONSTRUCTION.

ALL BUILDING AND HYDRAULIC SERVICES TO BE PROPERLY CO-ORDINATED WITH STORMWATER PIPES AND ENSURE NO CLASHES ARE PRESENT DURING CONSTRUCTION (TYP).

STORMWATER PIPE ARRANGEMENT TO BE CO-ORDINTED WITH STRUCTURAL SLAB AND BEAMS WHERE REQUIRED (TYP).

BALCONY, TERRACE & CONCRETE ROOF AREAS TO SLOPE TOWARDS RAINWATER OUTLETS WHERE REQUIRED (TYP).

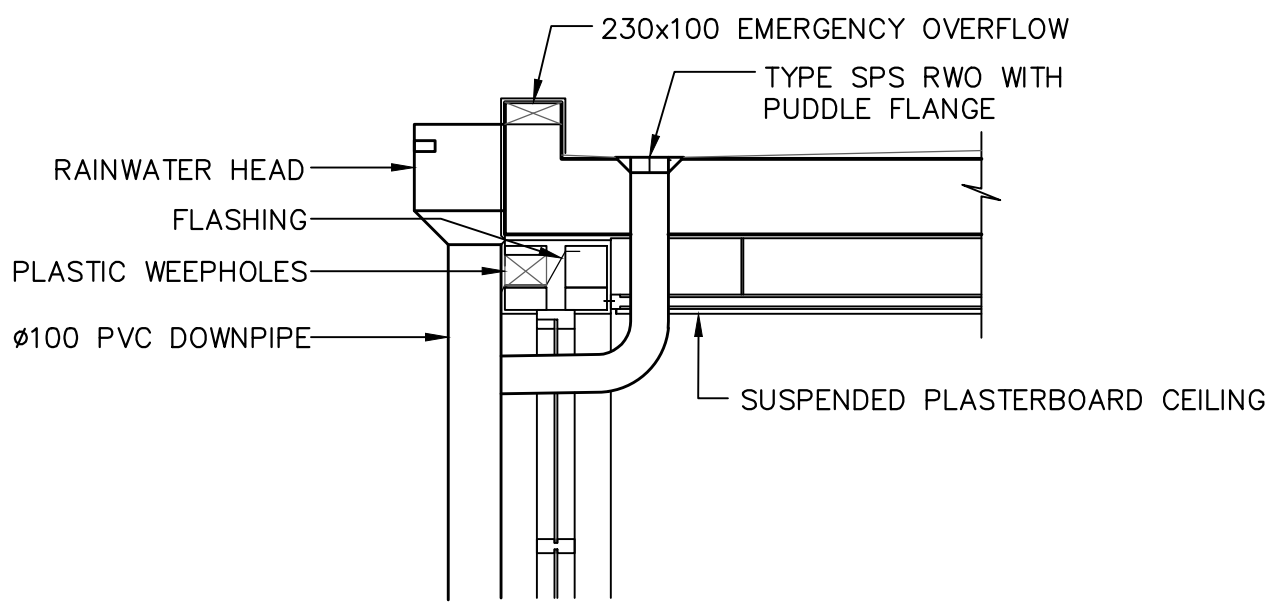
ARROW DENOTES THE SLOPE OF FINISHED SURFACE LEVEL (TYP).

DOWNPINES SHOWN ON PLAN ARE TO BE Ø100mm uPVC U.N.O. (TYP).

PROPOSED DOWNPIPE LOCATIONS ARE NOMINAL AND TO BE CONFIRMED DURING CONSTRUCTION (TYP).

INSTALL DOWNPIPE WITH SPREADER (IF REQUIRED) TO DISPERSE STORMWATER ONTO LOWER ROOF AREAS EFFECTIVELY.

PROVIDE SURFACE DRAINAGE FOR ALL CONCRETE AND BALCONY ROOF AREAS WHERE REQUIRED.

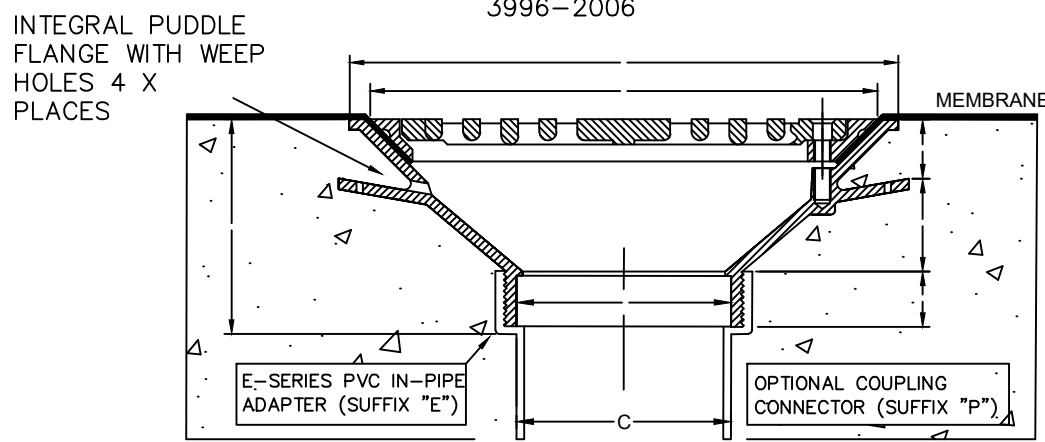
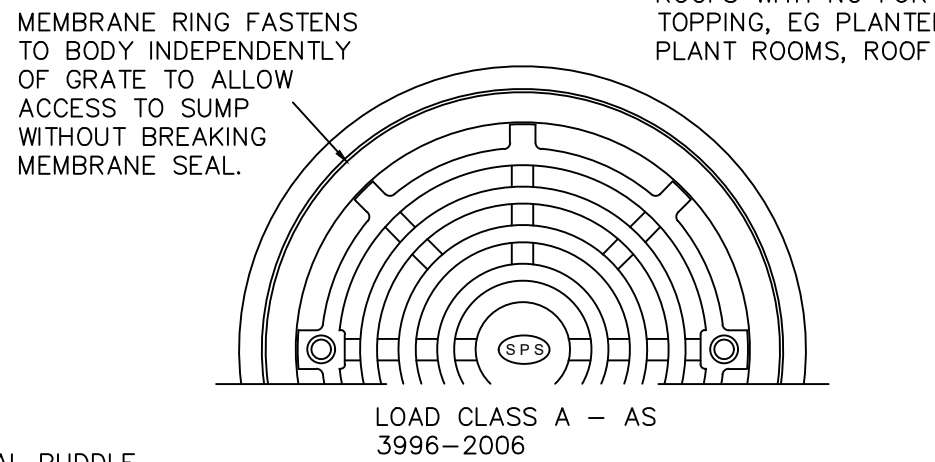


RAINWATER OUTLET TO RAINWATER HEAD  
SCALE 1:20

SPS TRUFLO RWO WITH FLAT GRATE & MEMBRANE CLAMP  
100MM OUTLET

SPECIFICATION CODES:  
TIA100F2 (CI BODY, ALUMINIUM FLAT GRATE & MEMBRANE RING)  
TIB100F2 (CI BODY, BRONZE FLAT GRATE & MEMBRANE RING)  
TBA100F2 (ALL-BRONZE ASSEMBLY)

SUGGESTED APPLICATION:  
MEMBRANED FLOORS OR ROOFS WITH NO FURTHER TOPPING, EG PLANTER BOXES, PLANT ROOMS, ROOF DECKS.



| Dimensions (mm) |     |     |     |     |    |    |    |
|-----------------|-----|-----|-----|-----|----|----|----|
| N.B             | A   | B   | C   | D   | E  | F  | G  |
| 100             | 260 | 240 | 103 | 106 | 28 | 45 | 25 |

\*FOR FLOW RATE DATA PLEASE REFER TO APPENDIX

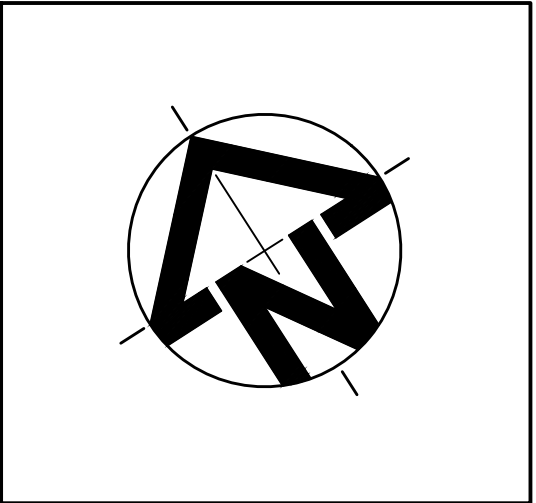
SPECIALITY PLUMBING SUPPLIES PTY LTD  
TEL: (02) 9417 1900 FAX: (02) 9417 0108 E-MAIL: INFO@SPSDRAINS.COM.AU

| Rev. | Description                          | By.  | Chk. | App. | Date       |
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|                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------|
| Client<br><b>BIAGIO ABIGNANO</b>                                                                                                 |
| Project<br><b>142 OCEAN STREET, NARRABEEN</b>                                                                                    |
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|                                                                                                         |
|---------------------------------------------------------------------------------------------------------|
| Title<br><b>STORMWATER LAYOUT PLAN<br/>FIRST FLOOR AND ROOF<br/>LEVEL PLAN, NOTES &amp;<br/>DETAILS</b> |
|---------------------------------------------------------------------------------------------------------|



| DEVELOPMENT APPLICATION (DA) |                           |                                  |                        |                                | Approved                                               |  |
|------------------------------|---------------------------|----------------------------------|------------------------|--------------------------------|--------------------------------------------------------|--|
| FOR APPROVAL                 |                           |                                  |                        |                                | P.E.                                                   |  |
| Paper Size<br><b>A1</b>      | Design<br><b>M.W.</b>     | Drawn<br><b>M.W.</b>             | Checked<br><b>M.W.</b> | Datum<br><b>AHD</b>            | PAUL EL-BAYEH<br>B.E., M.E., FIEAust, CPEng, NER, RPEQ |  |
| Scale<br><b>1:100</b>        | Date<br><b>08.07.2021</b> | Project Number<br><b>SW21079</b> |                        | Drawing Number<br><b>SW030</b> | Revision<br><b>C</b>                                   |  |

EROSION CONTROL

BEFORE EARTHWORKS CAN COMMENCE THE EROSION & SEDIMENT CONTROL MEASURES MUST BE IN PLACE.

DURING THE CONSTRUCTION PERIOD, THESE CONTROL MEASURES WILL NEED TO BE INSPECTED & MAINTAINED REGULARLY, ESPECIALLY AFTER STORM EVENTS, BY THE CONTRACTOR.

ALL WORK IS TO BE CARRIED OUT TO PREVENT EROSION, CONTAMINATION & SEDIMENTATION OF THE STORAGE SITE, SURROUNDING AREAS & DRAINAGE SYSTEMS.

MINIMIZE DISTURBED AREA COVERED WITH NATURAL VEGETATION. ONLY THOSE AREAS DIRECTLY REQUIRED FOR CONSTRUCTION ARE TO BE DISTURBED.

INSTALL EROSION/SEDIMENT CONTROL MEASURES PRIOR TO COMMENCEMENT OF CONSTRUCTION OR EXCAVATION OPERATIONS.

PROVIDE SILT FENCE/STRAW BAIL BARRIERS TO THE LOW SIDE OF ALL EXPOSED EARTH EXCAVATIONS. THE SEDIMENT FENCING MATERIAL TO CYCLONE WIRE SECURITY FENCE. SEDIMENT CONTROL FABRIC SHALL BE AN APPROVED MATERIAL (EG. HUMES PROPEX SILT STOP) STANDING 300mm ABOVE GROUND & EXTENDING 150mm BELOW GROUND.

ISOLATE EXISTING STORMWATER PITS WITH STRAW BALES OR SILT TRAPS TO FILTER ALL INCOMING FLOWS.

DO NOT STOCKPILE EXCAVATED MATERIAL ON THE ROAD WAY.

DIVERT CLEAN WATER FROM UNDISTURBED AREAS AROUND THE WORKING AREAS.

CONSTRUCTION ENTRY/EXIT SHALL BE VIA THE LOCATION NOTED ON THE DRAWING. CONTRACTOR SHALL ENSURE ALL DROPPABLE SOIL & SEDIMENT IS REMOVED PRIOR TO CONSTRUCTION TRAFFIC EXITING SITE. CONTRACTOR SHALL ENSURE ALL CONSTRUCTION TRAFFIC ENTERING AND LEAVING THE SITE DO SO IN A FORWARD DIRECTION.

TREAT THE STORMWATER RUNOFF WITH SUSPENDED SOLIDS SO THE DISCHARGE WATER QUALITY TO COUNCIL STORMWATER DRAINAGE SYSTEM HAS A MAXIMUM CONCENTRATION OF SUSPENDED SOLIDS THAT DOES NOT EXCEED 50 MILLIGRAMS PER LITRE IN ACCORDANCE WITH THE PROTECTION OF THE ENVIRONMENT OPERATION ACT (POEO 1997) AND SHALL BE APPROVED BY LOCAL COUNCIL.

ADOPT TEMPORARY MEASURES AS MAY BE NECESSARY FOR EROSION & SEDIMENT CONTROL, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

- DRAINS: TEMPORARY DRAINS AND CATCH DRAINS.
- SPREADER BANKS OR OTHER STRUCTURES: TO DISPERSE CONCENTRATED RUNOFF.
- SILT TRAPS: CONSTRUCTION AND MAINTENANCE OF SILT TRAPS TO PREVENT DISCHARGE OF SCOURED MATERIAL TO DOWNSTREAM AREAS.

AFTER RAIN, INSPECT, CLEAN, AND REPAIR IF REQUIRED, TEMPORARY EROSION & SEDIMENT CONTROL MEASURES.

REMOVE TEMPORARY EROSION & SEDIMENT CONTROL MEASURES WHEN THEY ARE NO LONGER REQUIRED.

COMPLY WITH THE REQUIREMENTS OF LANDCOM'S MANAGING URBAN STORMWATER - SOIL AND CONSTRUCTION 'THE BLUE BOOK' LATEST EDITION

THE EROSION & SEDIMENT CONTROL PLAN PROVIDED IS ONLY INDICATIVE. THE CONTRACTOR SHOULD PREPARE A DETAILED ESCP SUITABLE FOR THE SPECIFIC SITE CONDITIONS

CONSTRUCT SEDIMENT FENCE WHOLLY WITHIN SITE AT THE LOWER SIDES OF PROPERTY BOUNDARY TO PREVENT SITE RUNOFF FROM ENTERING DOWNSTREAM PROPERTIES (SHOWN OUTSIDE BOUNDARY FOR CLARITY).

CONSTRUCT TEMPORARY RUBBLE ENTRY/EXIT TO PREVENT TRANSFER OF SEDIMENT AND DEBRIS DURING VEHICULAR TRAFFIC (REFER DETAIL). LOCATION TO BE CONFIRMED ON SITE.

OUTLINE OF EXACTION SHOWN DASHED

OUTLINE OF EXACTION SHOWN DASHED

OUTLINE OF EXACTION SHOWN DASHED

UTILISE HOLDING TANK EXCAVATION AS TEMPORARY PUMP-OUT SUMP FOR DE-WATERING DURING EXCAVATION. TREAT WATER PRIOR TO DISCHARGE IF REQUIRED (REFER TO FLOCCULATION DETAIL)

CONSTRUCT SEDIMENT FENCE WHOLLY WITHIN SITE AT THE LOWER SIDES OF PROPERTY BOUNDARY TO PREVENT SITE RUNOFF FROM ENTERING DOWNSTREAM PROPERTIES (SHOWN OUTSIDE BOUNDARY FOR CLARITY).

TEMPORARY PUMP OUT RISING PRESSURE MAIN TO DISCHARGE TO OCEAN STREET KERB INVERT.

SUGGESTED LOCATION OF STOCKPILE AREA.

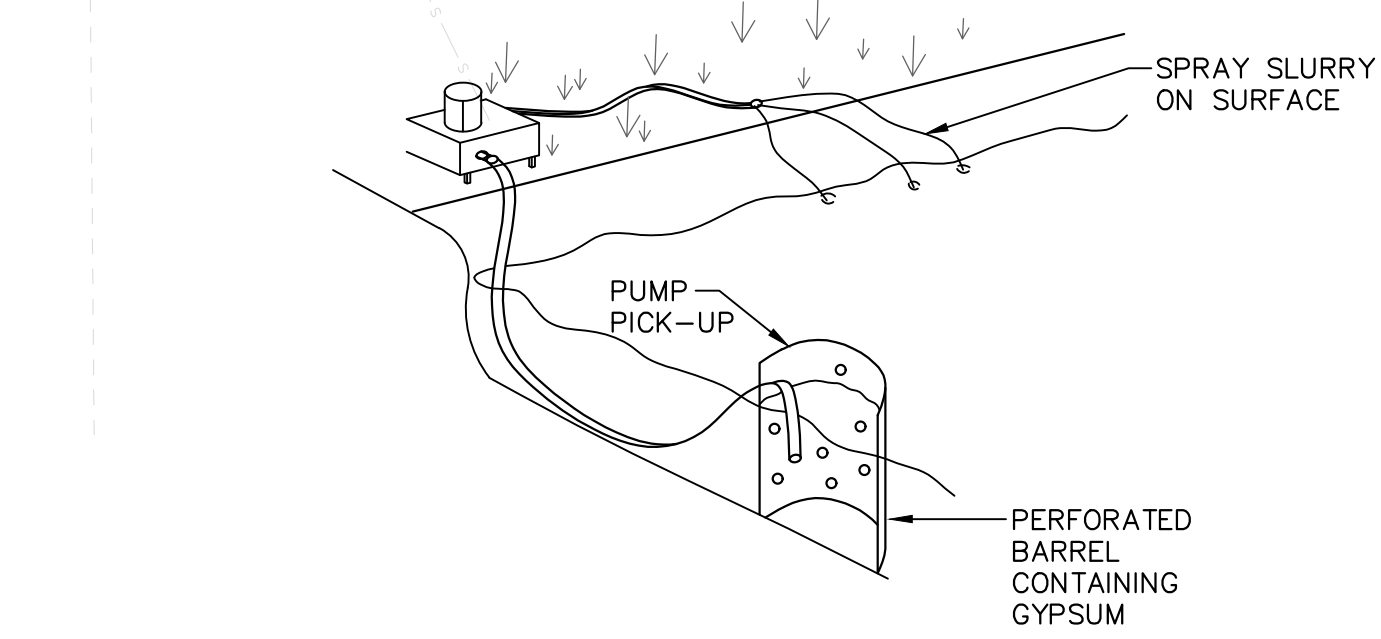
CONTRACTOR TO ENSURE THAT OCEAN STREET STAYS CLEAN FROM SEDIMENT AND DEBRIS AT ALL TIMES (TYP).

EROSION & SEDIMENT CONTROL PLAN  
SCALE 1:100

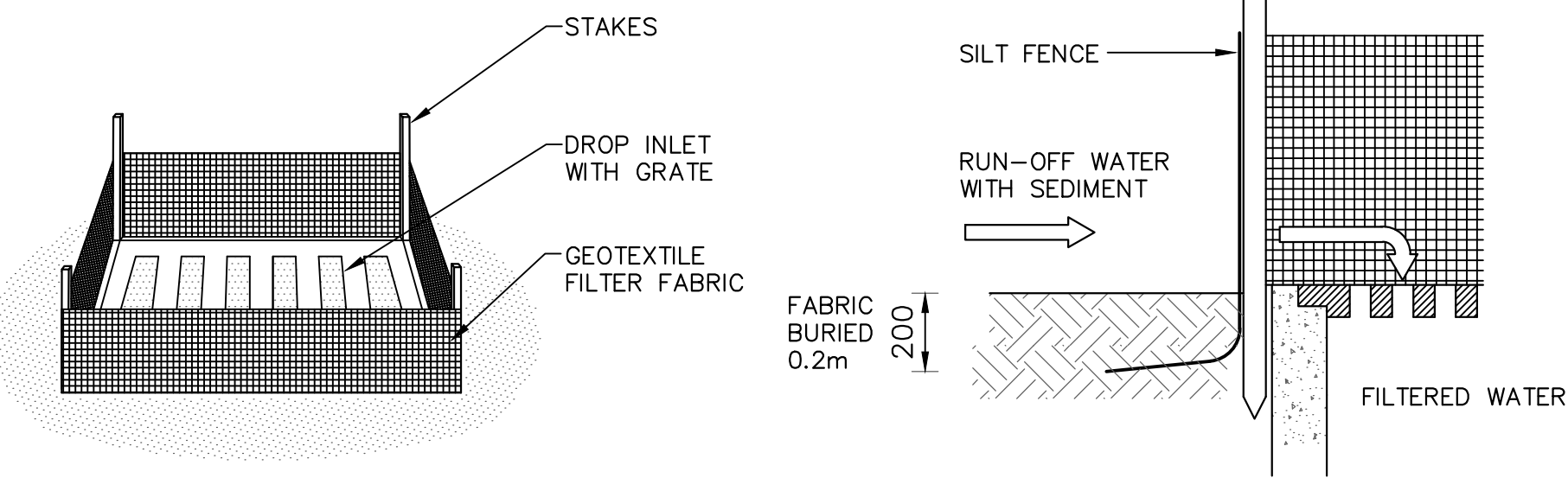
NOTE:

- FLOCCULATION TO BE USED IF WATER IS NOT CLEAR (ie. SEDIMENT GREATER THAN 50 mg/L) PRIOR TO DISCHARGING FROM TEMPORARY PUMP OUT
- FOR RATES & AGENTS SEE APPENDIX E OF NEW SOUTH WALES DEPARTMENT OF HOUSING "MANAGING URBAN STORMWATER SOILS & CONSTRUCTION".

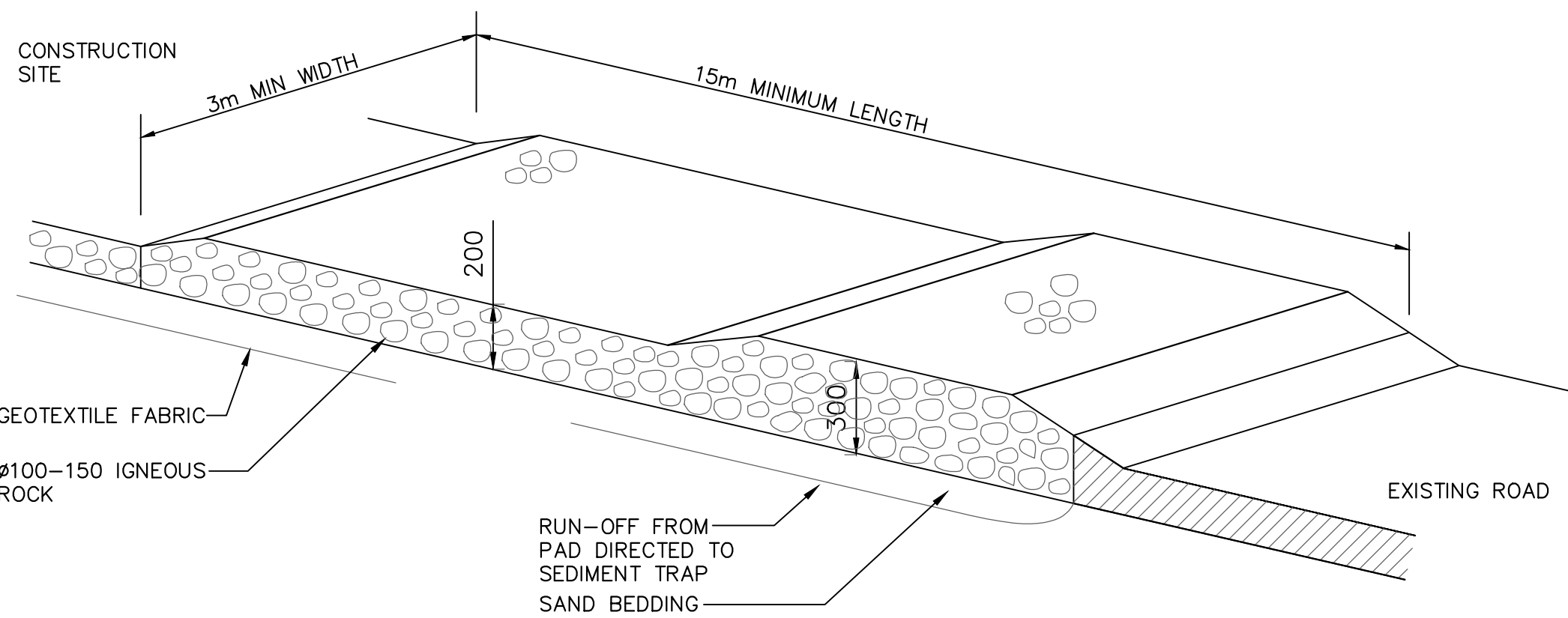
FLOCCULATION DETAIL  
NOT TO SCALE



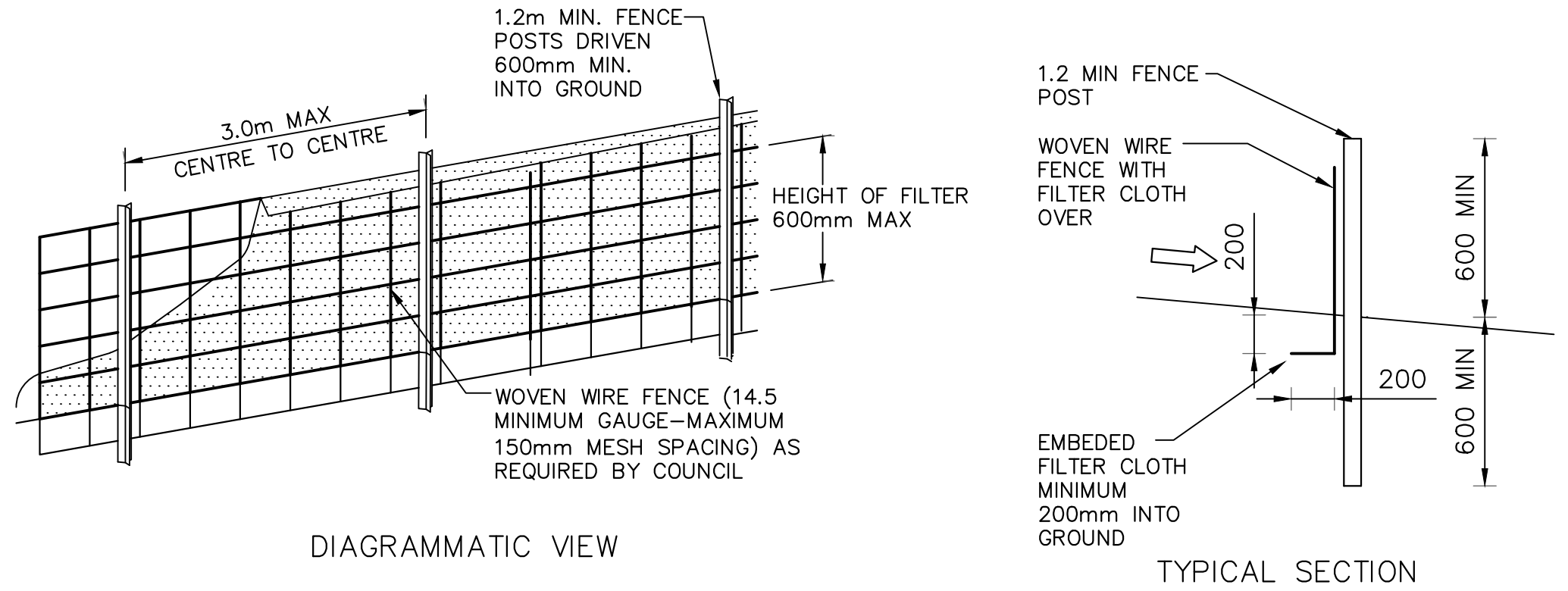
SUMP SEDIMENT TRAP DETAIL  
NOT TO SCALE



TEMPORARY CONSTRUCTION EXIT (RUBBLE ALTERNATIVE)  
NOT TO SCALE



SEDIMENT FENCE DETAIL  
NOT TO SCALE

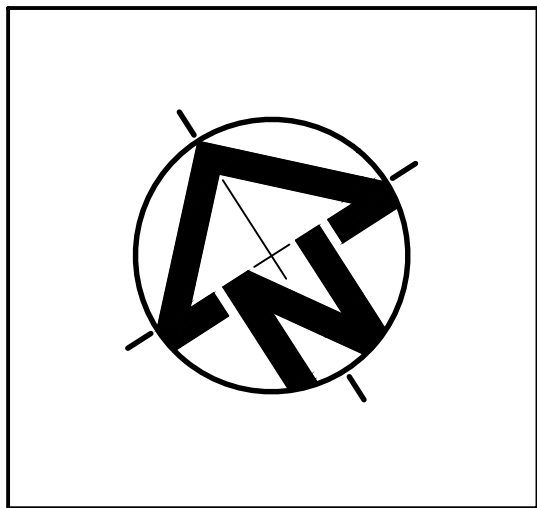


| Rev. | Description                          | By.  | Chk. | App. | Date       |
|------|--------------------------------------|------|------|------|------------|
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|                                                                                                                                  |                             |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| Client                                                                                                                           | BIAGIO ABIGNANO             |
| Project                                                                                                                          | 142 OCEAN STREET, NARRABEEN |
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|       |                                   |
|-------|-----------------------------------|
| Title | EROSION AND SEDIMENT CONTROL PLAN |
|-------|-----------------------------------|



| DEVELOPMENT APPLICATION (DA) |            |                |         |                | Approved                                               |  |
|------------------------------|------------|----------------|---------|----------------|--------------------------------------------------------|--|
| FOR APPROVAL                 |            |                |         |                | P.E.                                                   |  |
| Paper Size                   | Design     | Drawn          | Checked | Datum          | PAUL EL-BAYEH<br>B.E., M.E., FIEAust, CPEng, NER, RPEQ |  |
| A1                           | M.W.       | M.W.           | M.W.    | AHD            |                                                        |  |
| Scale                        | Date       | Project Number |         | Drawing Number | Revision                                               |  |
| 1:100                        | 08.07.2021 | SW21079        |         | ER001          | C                                                      |  |