

PIPEWORK

|         |                                                 |
|---------|-------------------------------------------------|
| STW     | STORMWATER                                      |
| SS      | SUBSOIL                                         |
| DP      | DOWNPIPE                                        |
| RD      | ROOF DRAINAGE                                   |
|         | EXISTING SERVICE                                |
| X-X-X-X | EXISTING SERVICE TO BE DISCONNECTED AND REMOVED |

PIPEWORK SYMBOLS

|       |                              |
|-------|------------------------------|
| R     | RISER                        |
| D     | DROPPER                      |
| COF   | CAPPED OFF                   |
| HP    | HORIZONTAL PENETRATION       |
| DOF   | DIRECTION OF FLOW            |
| NC    | NEW CONNECTION               |
| C     | CONTINUATION                 |
| MH    | MAN HOLE                     |
| IO    | INSPECTION OPENING           |
| STWIP | STORMWATER KERB INLET PIT    |
| STWIP | STORMWATER INLET PIT         |
| GRD   | GRATED DRAIN                 |
| SO    | SAFETY OVERFLOW              |
| SP    | SPREADER                     |
| RWO   | RAINWATER OUTLET             |
| BRWO  | BALCONY RAINWATER OUTLET     |
| PRWO  | PLANTER RAINWATER OUTLET     |
| SRWO  | SPOON DRAIN RAINWATER OUTLET |

ABBREVIATIONS

|      |                                  |
|------|----------------------------------|
| FFL  | FINISH FLOOR LEVEL               |
| IL   | INVERT LEVEL                     |
| RL   | REDUCED LEVEL                    |
| UPVC | UNPLASTICIZED POLYVINYL CHLORIDE |
| NTS  | NOT TO SCALE                     |
| UNO  | UNLESS NOTED OTHERWISE           |
| SQ   | SQUARE                           |
| mm   | MILLIMETRES                      |
| m    | METRES                           |
| m2   | SQUARE METRES                    |
| m3   | CUBIC METRES                     |
| /sec | PER SECOND                       |
| MIN  | MINIMUM                          |
| MAX  | MAXIMUM                          |
| APPR | APPROXIMATELY                    |
| DIA  | DIAMETER                         |
| EX   | EXISTING                         |
| AHD  | AUSTRALIAN HEIGHT DATUM          |

STORMWATER GENERAL NOTES

ALL IN ACCORDANCE WITH COUNCIL'S STORMWATER REQUIREMENTS

PIPEWORK DESIGN

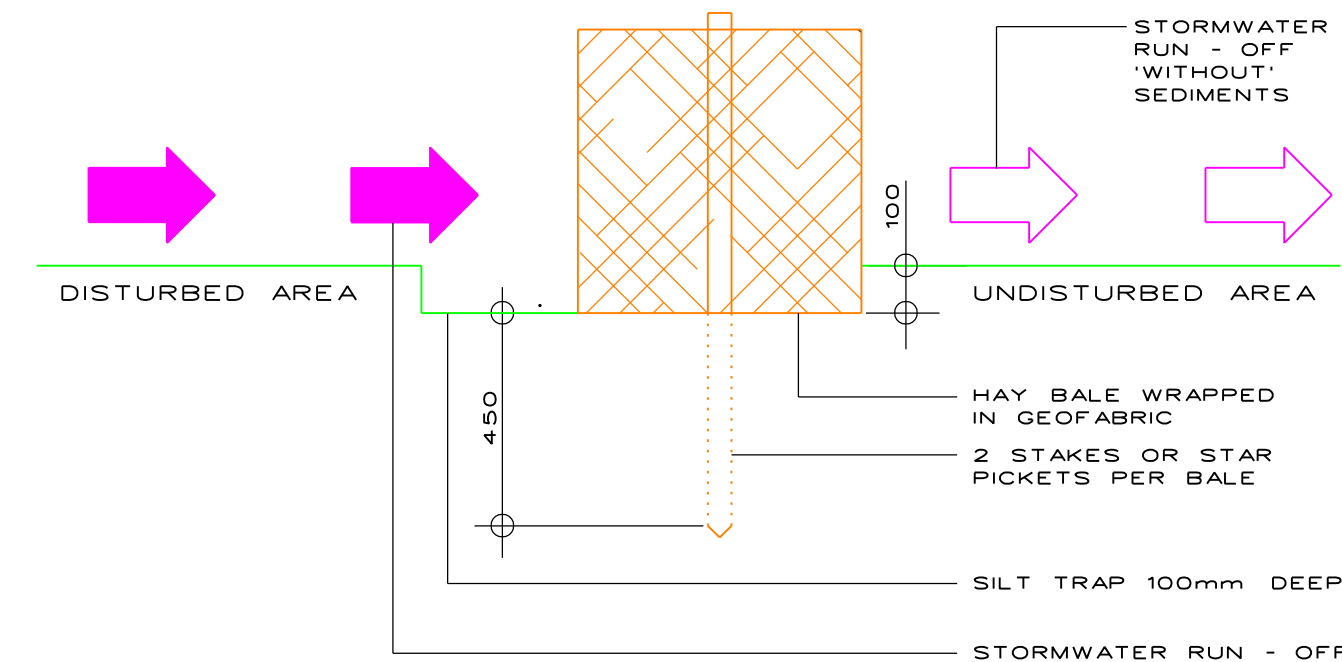
ALL PIPEWORK IS SIZED AND DESIGNED TO HANDLE A 1:100 YEAR EVENT RAINFALL

PIPEWORK

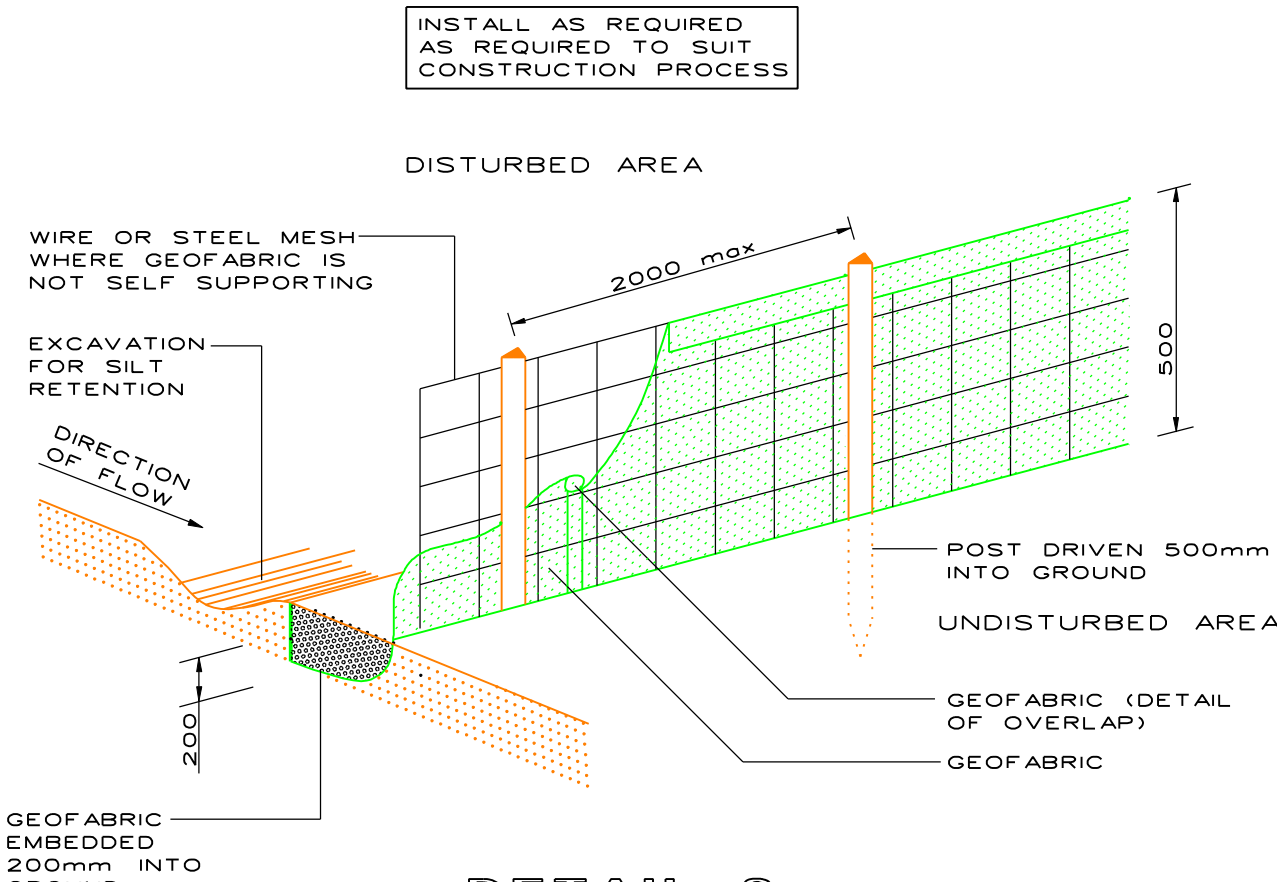
ALL PIPEWORK TO BE 100mm @ 1% FALL (UNO)

STORMWATER PIT SIZES

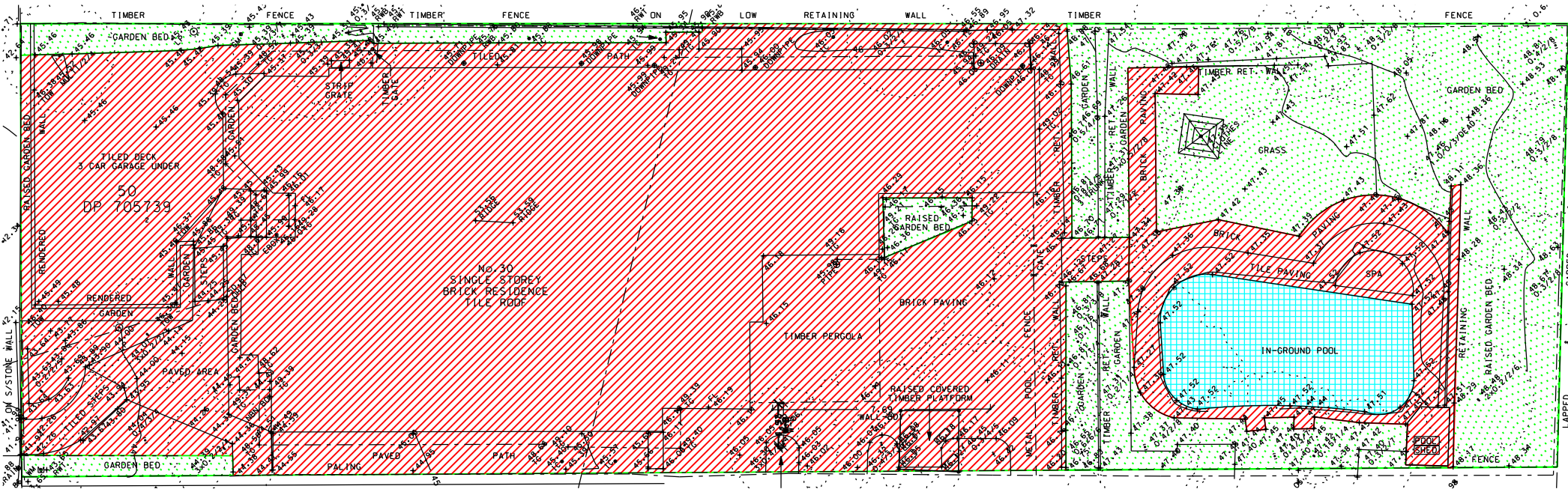
| MINIMUM INTERNAL MEASUREMENTS: |                   |                    |          |                    |
|--------------------------------|-------------------|--------------------|----------|--------------------|
| DEPTH TO BASE OF CHAMBER       | RECTANGULAR WIDTH | RECTANGULAR LENGTH | CIRCULAR | LADDER / STEP IRON |
| SMALLER THAN 600               | 450               | 450                | 600      | NO                 |
| 601 TO 900                     | 600               | 600                | 900      | NO                 |
| 901 TO 1200                    | 600               | 900                | 1050     | NO                 |
| GREATER THAN 1200              | 900               | 900                | 1050     | YES                |



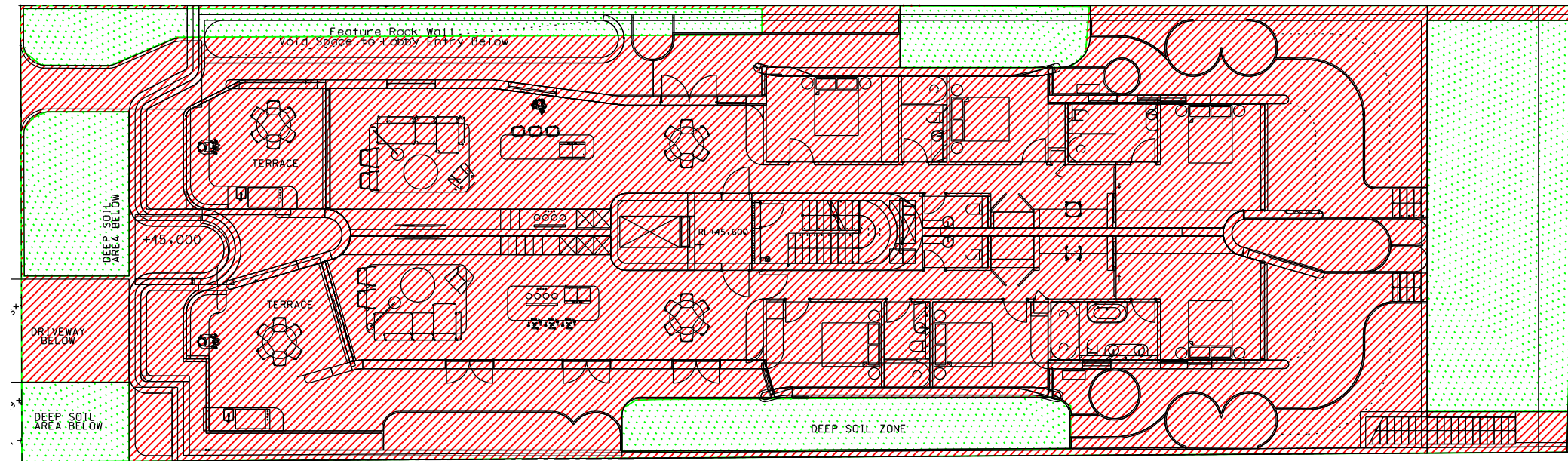
DETAIL 1: HAY BALE BARRIER  
NTS



DETAIL 2: SILT FENCE  
NTS



PRE DEVELOPED  
CATCHMENT AREAS



POST DEVELOPED  
CATCHMENT AREAS

TYPICAL NOTE: EXISTING WALL / FENCE (PREVENTS RUN OFF ONTO NEIGHBOURING PROPERTY)

TYPICAL NOTE: OVERLAND FLOW WITH SEDIMENTS

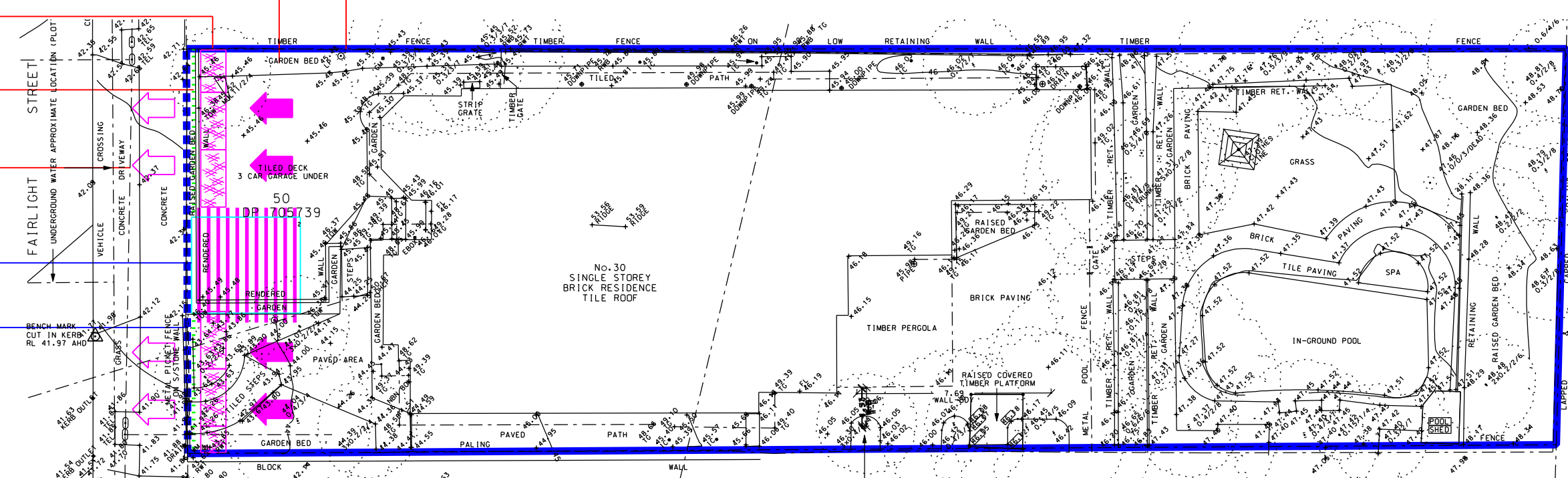
TYPICAL NOTE: HAY BALE BARRIER (REFER TO DETAIL 1)

TYPICAL NOTE: SILT FENCE (REFER TO DETAIL 2)

TYPICAL NOTE: OVERLAND FLOW 'WITHOUT' SEDIMENTS

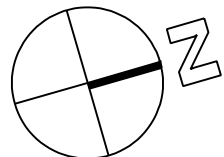
VEHICULAR SITE ENTRY COMPLETE WITH CATTLE GRID AND HOSE TAP

CHAINWIRE MESH FENCE COMPLETE WITH ACCESS GATE(S) AS REQUIRED



SEDIMENTATION CONTROL DURING CONSTRUCTION

APPROVAL



|     |                    |          |
|-----|--------------------|----------|
|     |                    |          |
|     |                    |          |
|     |                    |          |
|     |                    |          |
|     |                    |          |
|     |                    |          |
| C   | RE - ISSUED FOR DA | 04.07.22 |
| B   | RE - ISSUED FOR DA | 14.10.21 |
| A   | ISSUED FOR DA      | 22.09.21 |
| REV | DESCRIPTION        | DATE     |

CLIENT  
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email: markus@itmdesign.com.au

PROJECT  
30 FAIRLIGHT STREET  
FAIRLIGHT NSW 2094

DRAWING TITLE  
LEGEND, CATCHMENT CALCS. AND SED. CONTROL

SCALE  
1:200 @ A1 / 1:400 @ A3

JOB No  
20/306

DISCIPLINE  
HYD

DRAWING No  
H-DA-00

REVISION  
C

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

CONTRACT DRAWING

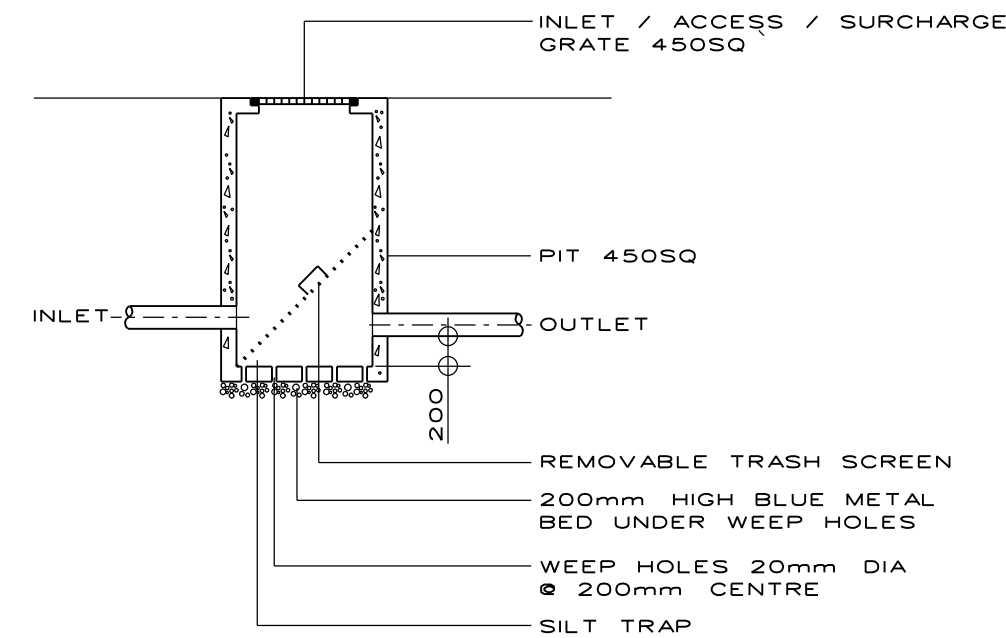


STORMWATER DA  
DRAWING ONLY

- NOT FOR CONSTRUCTION  
- FINAL LOCATION OF ALL DOWNPIPES, PITS, RAINWATER OUTLETS  
AND SUBSOIL PIPES TO BE CONFIRMED DURING CONSTRUCTION  
CERTIFICATE STAGE OF THE PROPOSED DEVELOPMENT

NOTES

FOR GENERAL NOTES AND LEGEND  
REFER TO DRAWING H - DA - 00

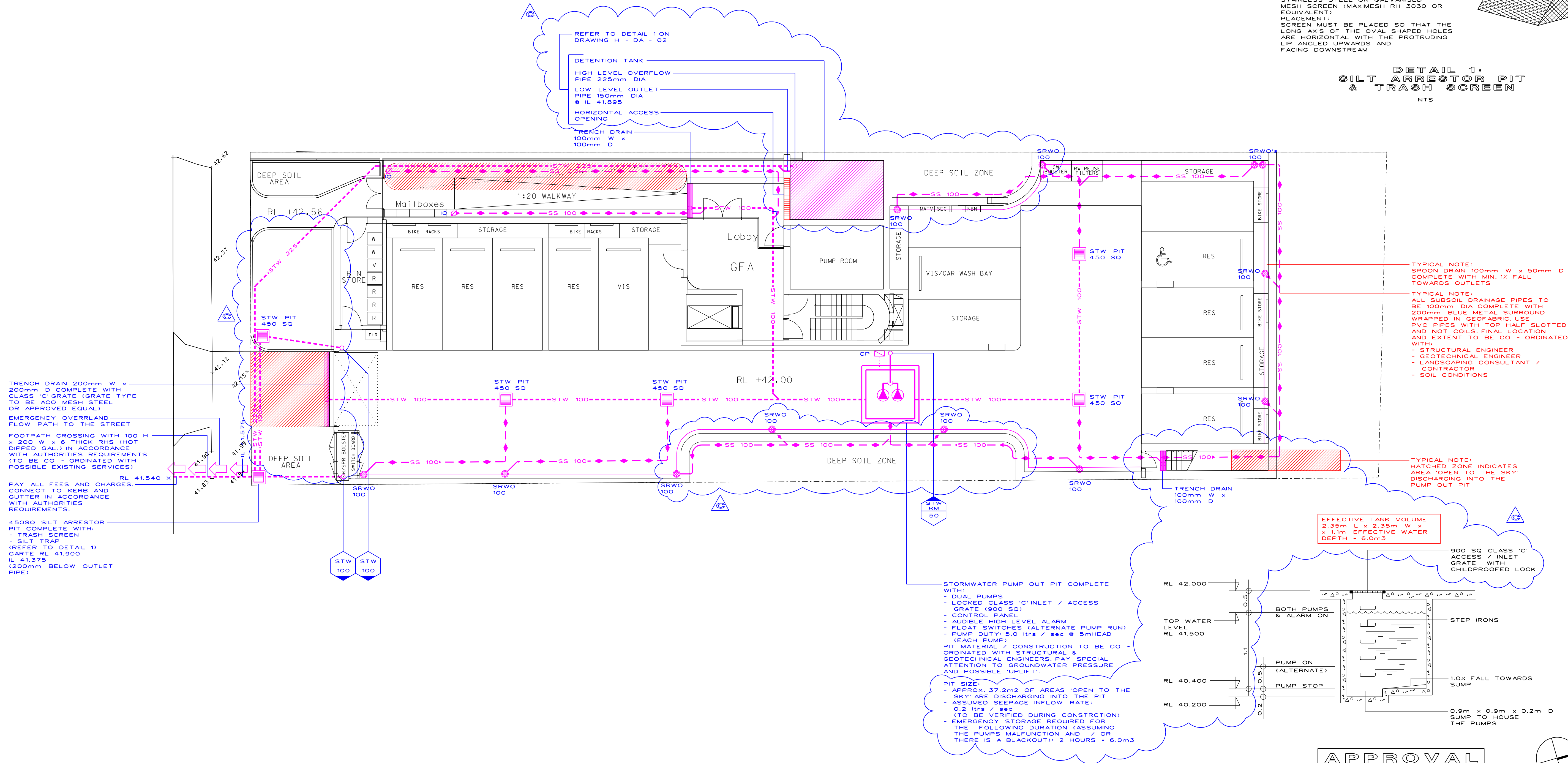


HANDLE

OUTLET BEHIND

TRASH SCREEN TO PROTECT THE OUTLET  
& DOWNSTREAM DRAINAGE SYSTEM  
MATERIAL:  
STAINLESS STEEL OR GALVANISED  
MESH SCREEN (MAXIMESH RH 3030 OR  
EQUIVALENT)  
PLACEMENT:  
SCREEN MUST BE PLACED SO THAT THE  
LONG AXIS OF THE OVAL SHAPED HOLES  
ARE HORIZONTAL WITH THE PROTRUDING  
LIP ANGLED UPWARDS AND  
FACING DOWNSTREAM

DETAIL 1:  
SILT ARRESTOR PIT  
& TRASH SCREEN  
NTS



APPROVAL

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PROJECT  
30 FAIRLIGHT  
STREET  
FAIRLIGHT  
NSW 2094

DRAWING TITLE  
BASEMENT  
STORMWATER  
DRAINAGE

|                                  |                       |
|----------------------------------|-----------------------|
| SCALE<br>1:100 @ A1 / 1:200 @ A3 | JOB No<br>20/308      |
| DISCIPLINE<br>HYD                | DRAWING No<br>H-DA-01 |
|                                  | REVISION<br>C         |

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



STORMWATER DA  
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AND SUBSOIL PIPES TO BE CONFIRMED DURING CONSTRUCTION  
CERTIFICATE STAGE OF THE PROPOSED DEVELOPMENT

LANDSCAPING DRAINAGE

ALL LANDSCAPED AREAS LOCATED ABOVE CONCRETE SLABS  
TO BE EQUIPPED WITH WATERPROOFING MEMBRANE,  
DRAINAGE CELL AND GEOFABRIC

ON SITE DETENTION

ALL ACCORDANCE WITH NORTHERN BEACHES  
STORMWATER REQUIREMENTS

ACCORDING TO DESIGN GRAPHS (APPENDIX 14.3):

DETENTION REQUIRED = 32.0m<sup>3</sup>

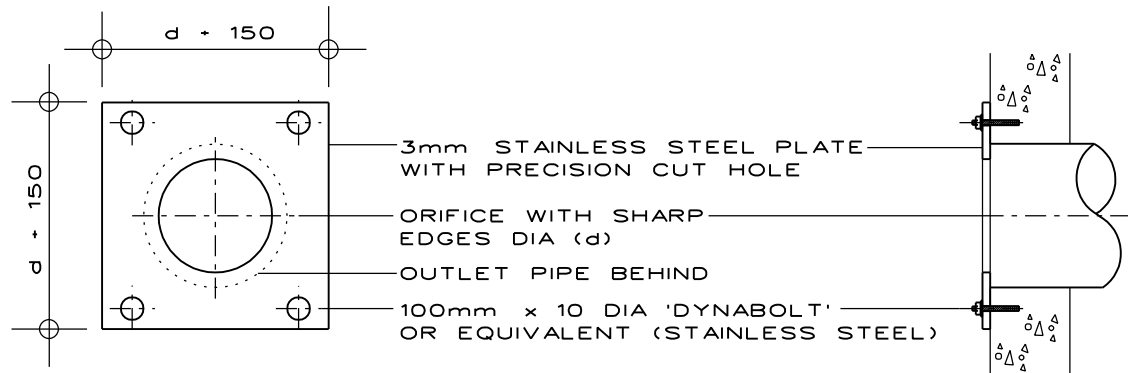
PSD = 25.0 l/s/sec

MAX. PERMISSIBLE DISCHARGE TO KERB AND GUTTER

| ITEM | DESCRIPTION                                       |                    |
|------|---------------------------------------------------|--------------------|
| A    | TANK AREA                                         | 12.8m <sup>2</sup> |
| B    | AVERAGE EFFECTIVE WATER DEPTH                     | 2.5m               |
| C    | EFFECTIVE TANK VOLUME (12.8m <sup>2</sup> x 2.5m) | 32.0m <sup>3</sup> |
| D    | NOT USED                                          |                    |
| E    | LOUVERED HORIZONTAL ACCESS OPENING (LOCKED)       | 0.6m H x 2.0m W    |
| F    | MAX. WATER LEVEL ABOVE C OF ORIFICE PLATE         | 2.53m              |
| G    | OUTLET PIPE                                       | 150mm DIA          |
| H    | TRASH SCREEN                                      | REFER TO DETAIL 2  |
| I    | ORIFICE PLATE                                     | REFER TO DETAIL 3  |
| J    | SILT TRAP                                         | 1.0m SQUARE        |
| K    | WEEP HOLES 20mm DIA                               | 200mm CENTRE       |
| L    | BLUE METAL BED (WRAPPED IN GEOFABRIC)             | 200mm HIGH         |
| M    | INLET PIPE                                        | REFER TO PLAN      |
| N    | STEP IRONS                                        |                    |
| O    | FREEBOARD                                         | 0.3m               |
| P    | EMERGENCY OVERFLOW PIPE                           | 225mm DIA          |
| Q    | DISCHARGE PIPE TO COUNCIL'S DRAINAGE SYSTEM       | 225mm DIA          |

HANDLE

ORIFICE PLATE BEHIND  
TRASH SCREEN TO PROTECT THE ORIFICE  
& DOWNSTREAM DRAINAGE SYSTEM  
MATERIAL:  
STAINLESS STEEL OR GALVANISED  
MESH SCREEN (MAXIMESH RH 3030 OR  
EQUIVALENT)  
PLACEMENT:  
SCREEN MUST BE PLACED SO THAT THE  
LONG AXIS OF THE OVAL SHAPED HOLES  
ARE HORIZONTAL, WITH THE PROTRUDING  
LIP ANGLED UPWARDS AND  
FACING DOWNSTREAM



CALCULATION OF ORIFICE SIZE

PSD = PERMISSIBLE SITE DISCHARGE IN [m<sup>3</sup>/s]

A = CROSSECTIONAL AREA OF ORIFICE PLATE IN [m<sup>2</sup>]

C = DISCHARGE CO-EFFICIENT (0.6 FOR ORIFICE PLATE)

G = ACCELERATION DUE TO GRAVITY = 9.81 [m/s<sup>2</sup>]

H = MAX. HEIGHT / HEAD OF WATER ABOVE THE CENTRE LINE OF THE ORIFICE PLATE IN [m]

D = ORIFICE DIAMETER IN [mm]

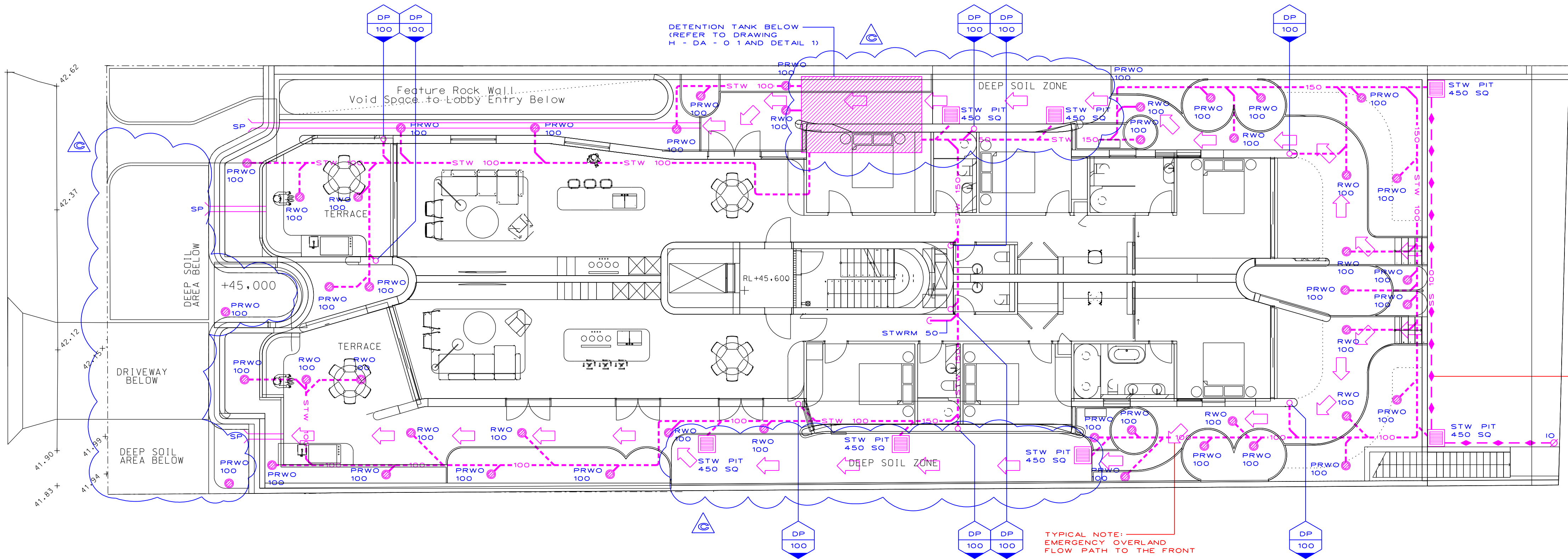
$$A = \frac{PSD}{C \times \sqrt{2 \times G \times H}} = \frac{0.025}{0.6 \times \sqrt{2 \times 9.81 \times 2.53}} = 0.006m^2$$

$$D = \sqrt{\frac{A \times 4}{\pi}} = \sqrt{\frac{0.006 \times 4}{\pi}} \times 1000 \text{ mm/m} = 87mm \text{ DIA}$$

DETAIL 3:  
ORIFICE PLATE  
NTS

DETAIL 1:  
DIAGRAMMATIC SECTION  
THROUGH DETENTION TANK  
NTS

DETAIL 2:  
REMOVABLE TRASH  
SCREEN  
NTS

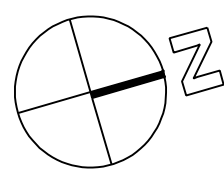


TYPICAL NOTE:  
ALL SUBSOIL DRAINAGE PIPES TO  
BE 100mm DIA COMPLETE WITH  
200mm BLUE METAL SURROUND  
WRAPPED IN GEOFABRIC. USE  
PVC PIPES WITH TOP HALF SLOTTED  
AND NOT COILS. FINAL LOCATION  
AND EXTENT TO BE CO - ORDINATED  
WITH:  
- STRUCTURAL ENGINEER  
- GEOTECHNICAL ENGINEER  
- LANDSCAPING CONSULTANT /  
CONTRACTOR  
- SOIL CONDITIONS

TYPICAL NOTE:  
EMERGENCY OVERLAND  
FLOW PATH TO THE FRONT

TYPICAL NOTE:  
FROM ROOF ABOVE, FINAL  
LOCATION AND EXTENT  
TO BE CONFIRMED DURING  
THE CC STAGE.

APPROVAL



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DRAWING TITLE  
GROUND FLOOR  
STORMWATER  
DRAINAGE

SCALE  
1:100 @ A1 / 1:200 @ A3

JOB No  
20/308

DISCIPLINE  
HYD

DRAWING No  
H-DA-02

REVISION  
C

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150