

# 91-93 MCINTOSH ROAD, NARRAWEENA

## CONCEPT STORMWATER MANAGEMENT PLAN

### DEVELOPMENT APPLICATION



**LOCALITY MAP**

NOT TO SCALE

SOURCE : GOOGLE MAPS (©2016)

#### DRAWING SCHEDULE

18010-DA-C1.01	COVER SHEET
18010-DA-C2.01	CONCEPT SEDIMENT AND EROSION CONTROL PLAN
18010-DA-C2.02	SEDIMENT AND EROSION CONTROL DETAILS
18010-DA-C3.01	CONCEPT STORMWATER MANAGEMENT PLAN - GROUND FLOOR
18010-DA-C3.02	CONCEPT STORMWATER MANAGEMENT PLAN - BASEMENT LEVEL
18010-DA-C4.01	DRIVEWAY LONGITUDINAL SECTIONS
18010-DA-C4.02	STORMWATER LONGSECTION
18010-DA-C5.01	DETAILS SHEET

REV	DATE	ISSUE DESCRIPTION	DRN	DES	VER
3	19.10.18	ISSUED FOR DEVELOPMENT APPLICATION	AD	AD	AD
2	10.09.18	ISSUED FOR DEVELOPMENT APPLICATION	AD	AD	AD
1	23.05.18	ISSUED FOR INFORMATION	AD	AD	AD

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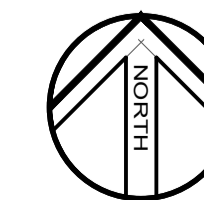
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SCALE:

PROJECT: 91-93 MCINTOSH ROAD  
NARRAWEENA, NSW

DRAWING: COVER SHEET



CLIENT: DREAM BUILD  
ARCHITECT: BENSON McCORMACK ARCHITECTS

STATUS: ISSUED FOR APPROVAL  
NOT TO BE USED FOR CONSTRUCTION

SIZE: A1 DRAWING NUMBER: 18010-DA-C1.01 REVISION: 03




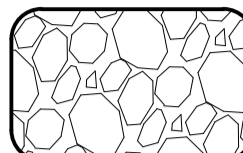

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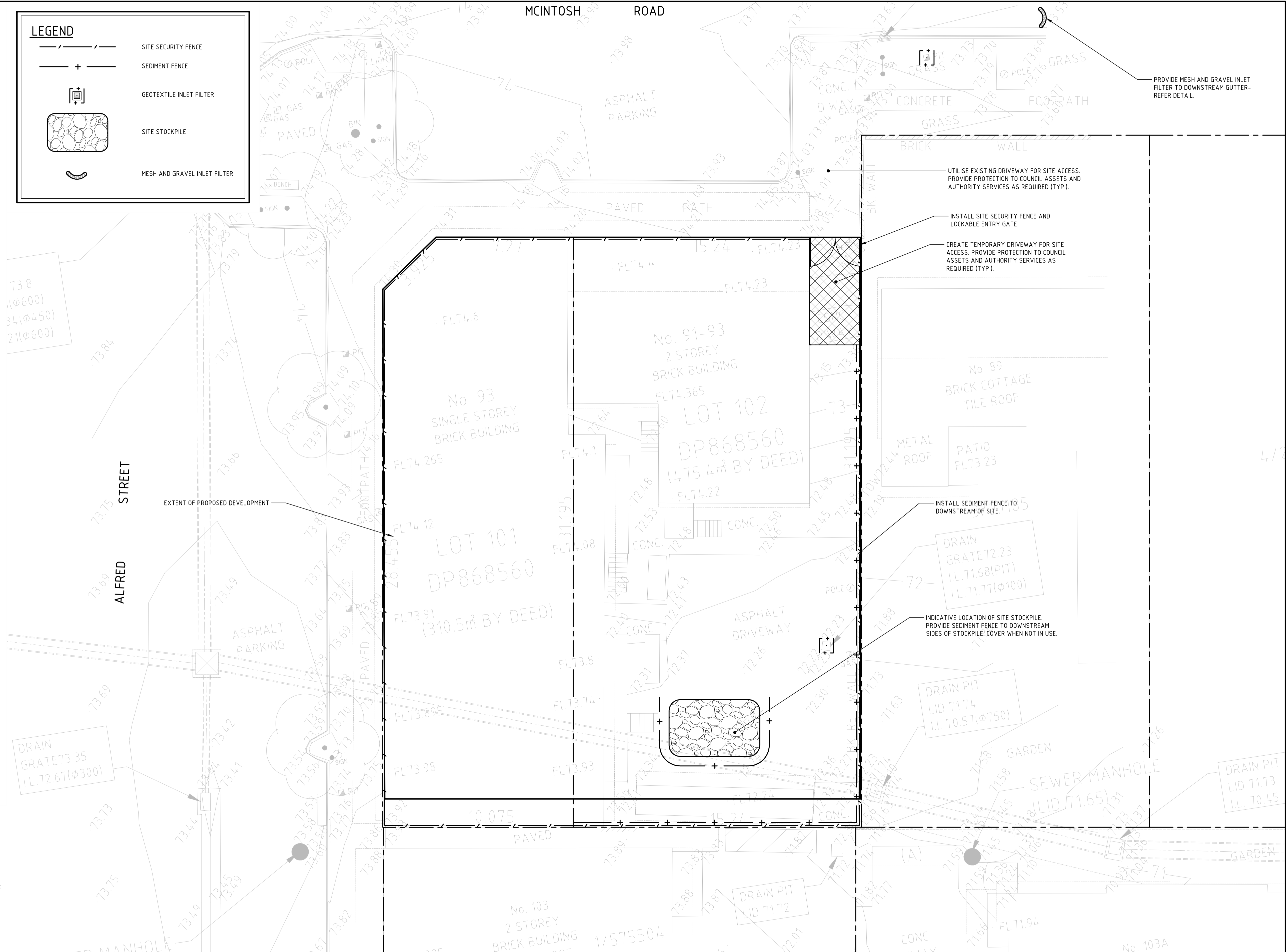


**SEDIMENT & EROSION NOTES**

- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE ESTABLISHMENT AND MAINTENANCE OF EROSION AND SEDIMENTATION THROUGHOUT THE CONTRACT IN ACCORDANCE WITH:
  - LOCAL AUTHORITY REQUIREMENTS
  - EPA REQUIREMENTS
  - NSW DEPARTMENT OF HOUSING MANUAL "MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION", 4th EDITION, MARCH 2004 ("THE BLUE BOOK")
- THE EROSION AND SEDIMENTATION CONTROLS SHOWN ON THE DRAWINGS REPRESENT CONCEPTS ONLY TO DEMONSTRATE THE MINIMUM REQUIREMENTS.
- MAINTAIN THE EROSION CONTROL DEVICES AT ALL TIMES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE LOCAL AUTHORITY.
- AS STORMWATER PITS ARE CONSTRUCTED, PREVENT SITE RUNOFF ENTERING UNLESS SEDIMENT FENCES ARE ERECTED AROUND PITS.
- WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE, I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED STRUCTURE.
- DURING WINDY WEATHER, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL. DUST CONTROL HESSIAN SHALL BE INSTALLED TO SITE FENCES AS REQUIRED.
- FINAL SITE LANDSCAPING OR TEMPORARY STABILISATION WILL BE UNDERTAKEN AS SOON AS POSSIBLE FROM COMPLETION OF CONSTRUCTION ACTIVITIES.
- THE CONTRACTOR IS TO INFORM ALL SUB-CONTRACTORS OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS.
- WHERE PRACTICAL, THE SOIL EROSION HAZARD ON THE SITE SHALL BE KEPT AS LOW AS POSSIBLE. TO THIS END, WORKS SHOULD BE UNDERTAKEN IN THE FOLLOWING SEQUENCE:
  - INSTALL ALL TEMPORARY SEDIMENT FENCES AND BARRIER FENCES. WHERE FENCES ARE ADJACENT TO EACH OTHER THE SEDIMENT FENCE CAN BE INCORPORATED INTO THE BARRIER FENCE.
  - CONSTRUCT TEMPORARY STABILISED SITE ACCESS, INCLUDING SHAKE DOWN AND WASH PAD.
  - INSTALL SEDIMENT CONTROL MEASURES AS OUTLINED ON THE APPROVED PLANS.
  - UNDERTAKE SITE DEVELOPMENT WORKS IN ACCORDANCE WITH THE ENGINEERING PLANS. WHERE POSSIBLE, PHASE DEVELOPMENT SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF WORKABLE SIZE.
- TOPSOIL STRIPPED FROM SITE SHALL BE STOCKPILED WITHIN THE SITE FOR REUSE
- STOCKPILES WILL NOT BE LOCATED WITHIN 2 METRES OF HAZARDOUS AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS. WHERE THEY ARE BETWEEN 2 AND 5 METRES FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSLOPE WATERS, E.G. THROUGH INSTALLATION OF SEDIMENT FENCING, SEDIMENT RETENTION STRUCTURES TO BE PLACED DOWNSLOPE OF ANY STOCKPILES. STOCKPILES IN PLACE - 28 DAYS TO BE TEMPORARILY GRASSED.
- ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD OVER THE SURFACE) WILL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.
- TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.
- ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER AND SHALL BE DISPOSED OF IN ACCORDANCE WITH REGULATORY AUTHORITY REQUIREMENTS, PAY ALL FEES AND PROVIDE EVIDENCE OF SAFE DISPOSAL.
- STRIPPING WORKS ARE TO BE STAGED TO MINIMISE EXTENTS OF EXPOSED AREAS AT ONE TIME. WEATHER CONDITIONS TO BE ASSESSED PRIOR TO UNDERTAKING STRIPPING.
- SITE ACCESS TO BE RESTRICTED TO ALLCOATED TRUCK ROUTES. EXTERNAL ROADS TO BE SWEEPED REGULARLY FOR DURATION OF WORKS.

**LEGEND**

-  SITE SECURITY FENCE
-  SEDIMENT FENCE
-  GEOTEXTILE INLET FILTER
-  SITE STOCKPILE
-  MESH AND GRAVEL INLET FILTER



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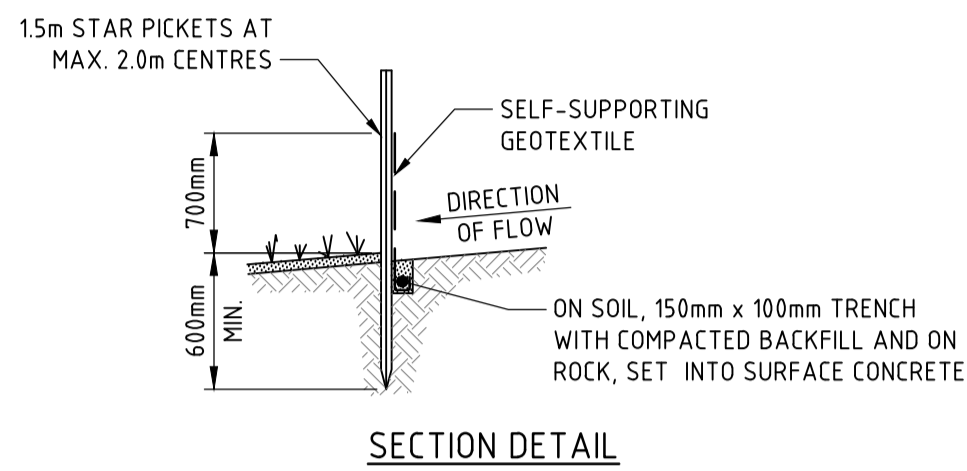
PROJECT: 91-93 MCINTOSH ROAD  
NARRAWEENA, NSW

DRAWING: CONCEPT SEDIMENT AND EROSION CONTROL PLAN

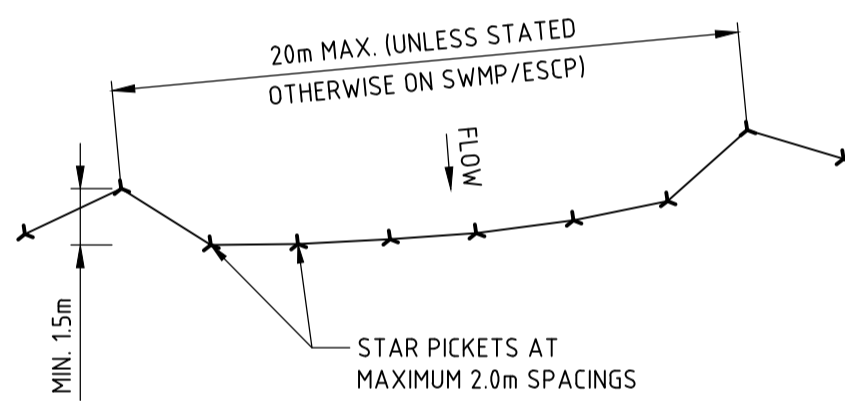
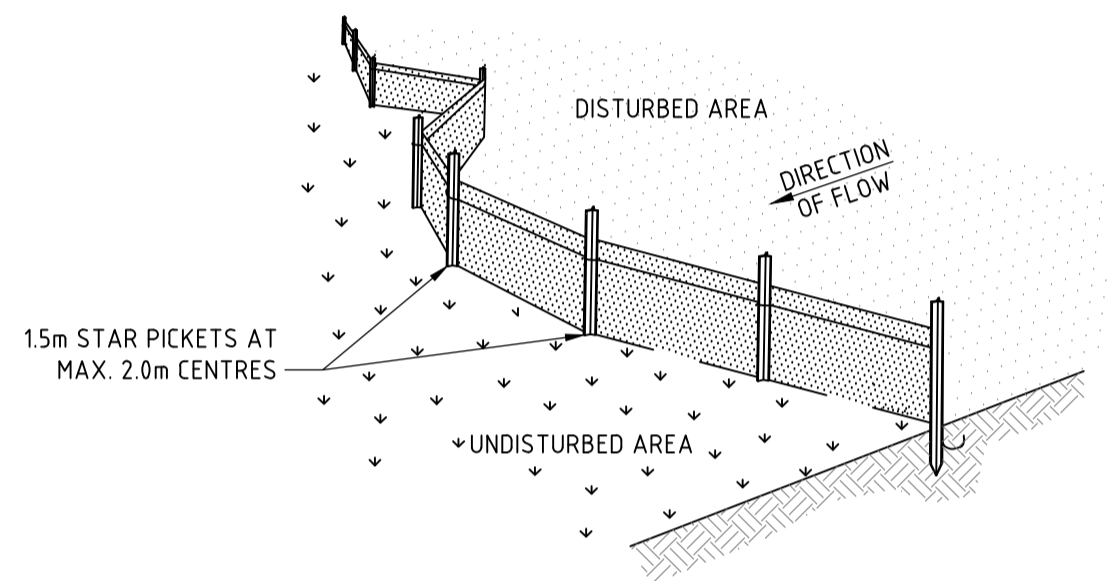
CLIENT: DREAM BUILD  
ARCHITECT: BENSON McCORMACK ARCHITECTS  
STATUS: ISSUED FOR APPROVAL  
NOT TO BE USED FOR CONSTRUCTION

SIZE: A1  
DRAWING NUMBER: 18010-DA-C2.01  
REVISION: 03





SECTION DETAIL



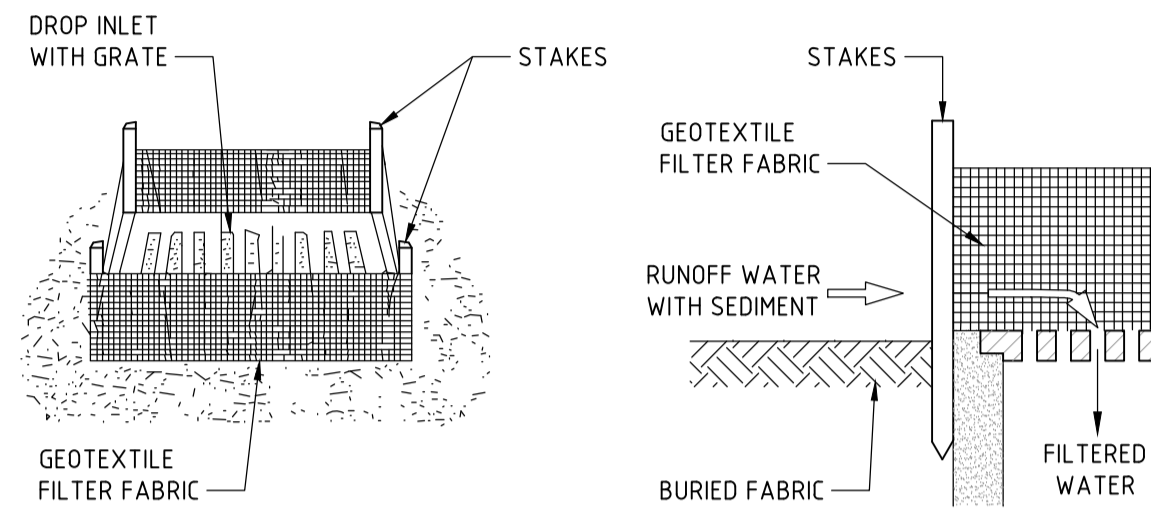
PLAN

**NOTES:**

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50L/s IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 200mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 15m LONG STAR PICKETS INTO GROUND AT 2.0m INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

**SEDIMENT FENCE**

NOT TO SCALE

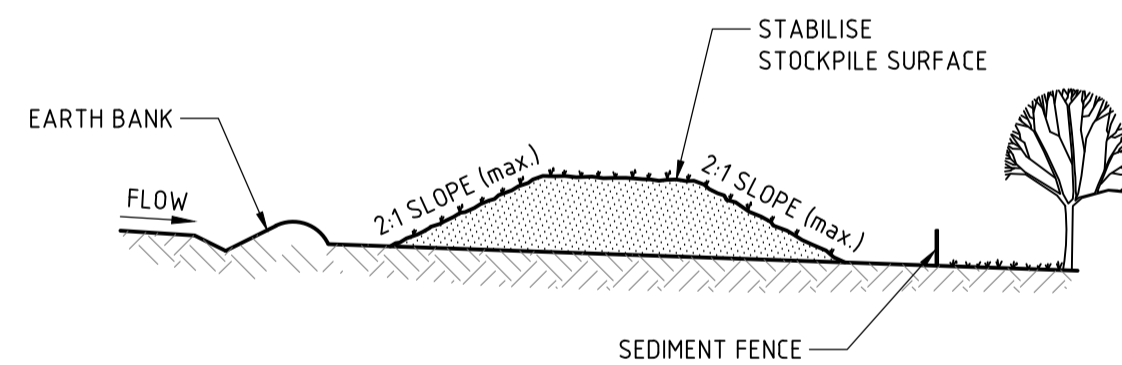


**NOTES:**

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. CUT A 200mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.0m LONG STAR PICKETS INTO GROUND AT THE FOUR CORNERS OF PIT WALLS. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

**GEOTEXTILE INLET FILTER**

NOT TO SCALE

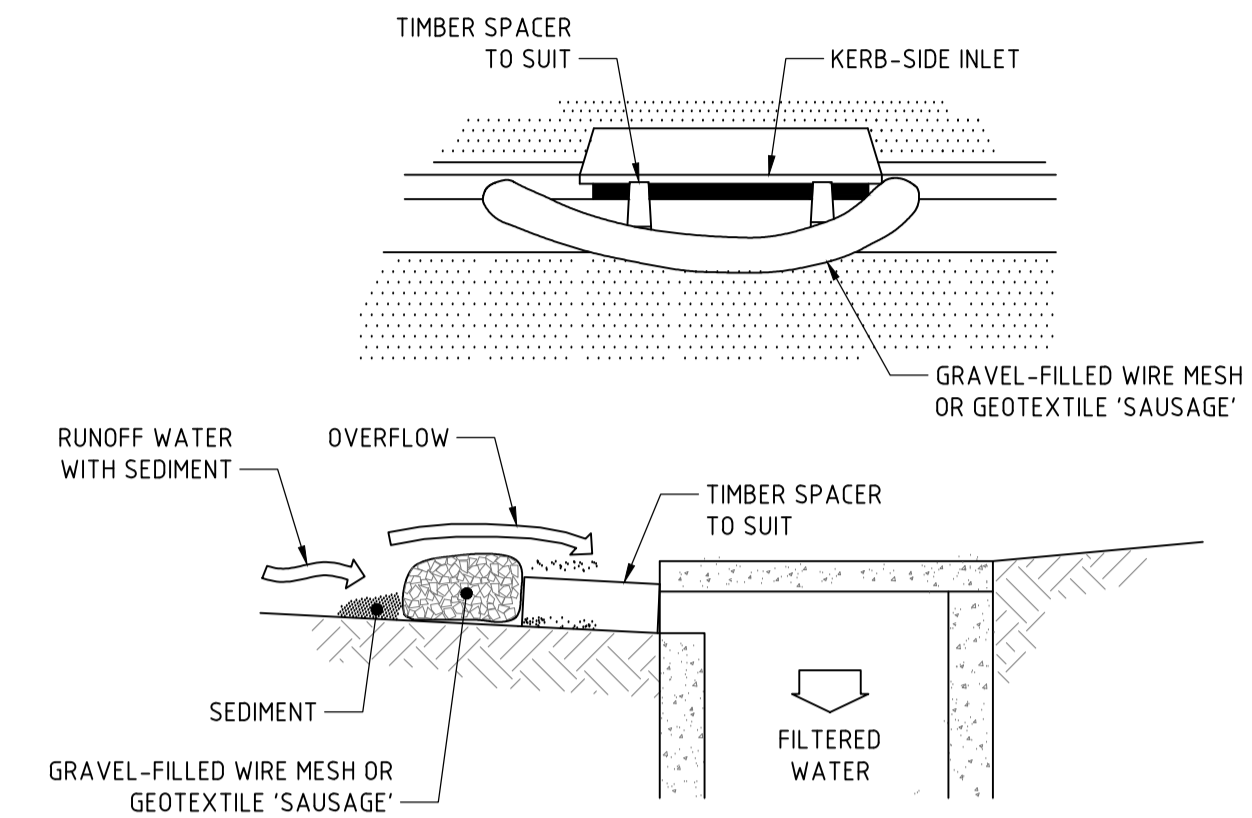


**NOTES:**

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES 1 TO 2 METRES DOWNSLOPE.

**STOCKPILE**

NOT TO SCALE

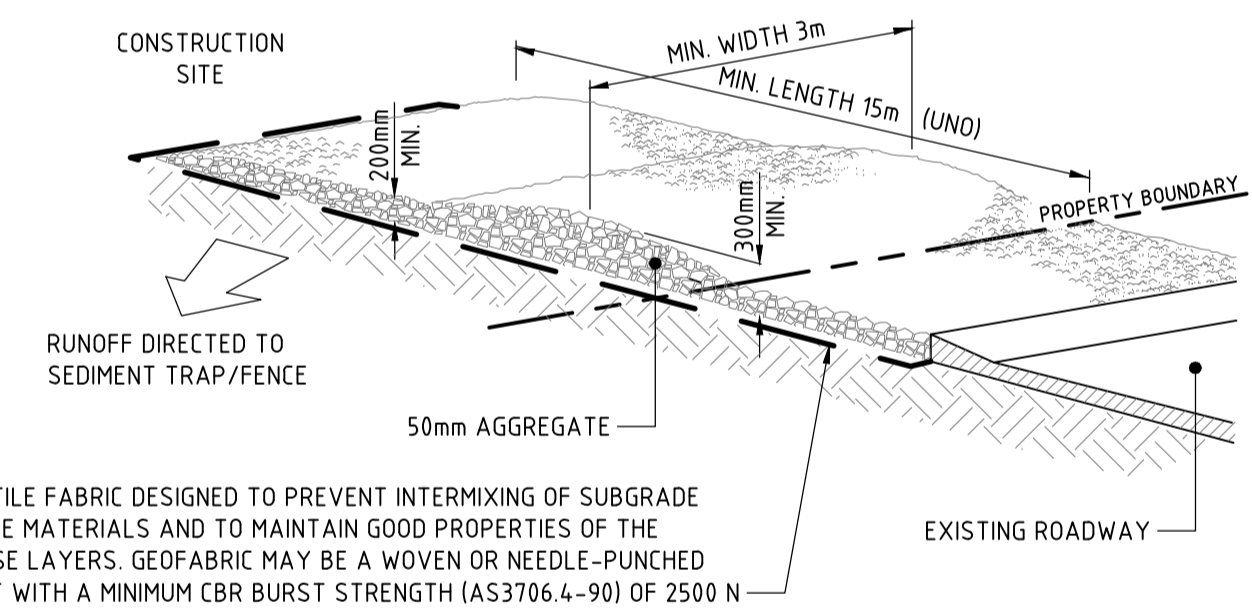


**MESH AND GRAVEL INLET FILTER**

NOT TO SCALE

**NOTES:**

1. THIS PRACTICE ONLY TO BE USED WHERE SPECIFIED IN AN APPROVED SWMP/ESCP.
2. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
3. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
4. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
5. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100-mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACE BLOCKS.
6. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
7. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.



GEOTEXTILE FABRIC DESIGNED TO PREVENT INTERMIXING OF SUBGRADE AND BASE MATERIALS AND TO MAINTAIN GOOD PROPERTIES OF THE SUB-BASE LAYERS. GEOTEXTILE MAY BE A WOVEN OR NEEDLE-PUNCHED PRODUCT WITH A MINIMUM CBR BURST STRENGTH (AS3706.4-90) OF 2500 N

**NOTES:**

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15m LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3m WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

**TEMPORARY CONSTRUCTION ENTRY/EXIT**

NOT TO SCALE

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SCALE: NOT TO SCALE

PROJECT: 91-93 MCINTOSH ROAD  
NARRAWEENA, NSW  
DRAWING: SEDIMENT AND EROSION CONTROL DETAILS

CLIENT: DREAM BUILD  
ARCHITECT: BENSON McCORMACK ARCHITECTS  
STATUS: ISSUED FOR APPROVAL  
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SIZE: A1  
DRAWING NUMBER: 18010-DA-C2.02  
REVISION: 03



**LEGEND**

- PROPOSED STORMWATER PIPE
- EXISTING STORMWATER PIPE
- CHARGED STORMWATER PIPE
- PROPOSED STORMWATER PIT
- FINISHED FLOOR LEVEL (FFL 74.77)
- GRATED TRENCH DRAIN (GTD)
- DOWNPIPE (DP)
- PIPE SIZE AND FLOW DIRECTION
- SURFACE FALL (5.0%)
- PROPOSED SURFACE LEVEL (RL 73.73)

**NOTES**

- THESE PLANS HAVE BEEN DESIGN IN ACCORDANCE WITH RELEVANT LOCAL AUTHORITY GUIDELINES FOR DEVELOPMENT APPLICATION PURPOSES TO DEMONSTRATE FEASIBILITY AND ARE SUBJECT TO COUNCIL APPROVAL AND DETAIL DESIGN AT CONSTRUCTION CERTIFICATE STAGE.
- DO NOT OBTAIN DIMENSIONS BY SCALING THE DRAWINGS. ALL DIMENSIONS ARE IN METRES (M) AND ALL LEVELS ARE IN METRES (m). UNO. ALL LEVEL ARE TO AUSTRALIAN HEIGHT DATUM (AHD).

**DESIGN SUMMARY**

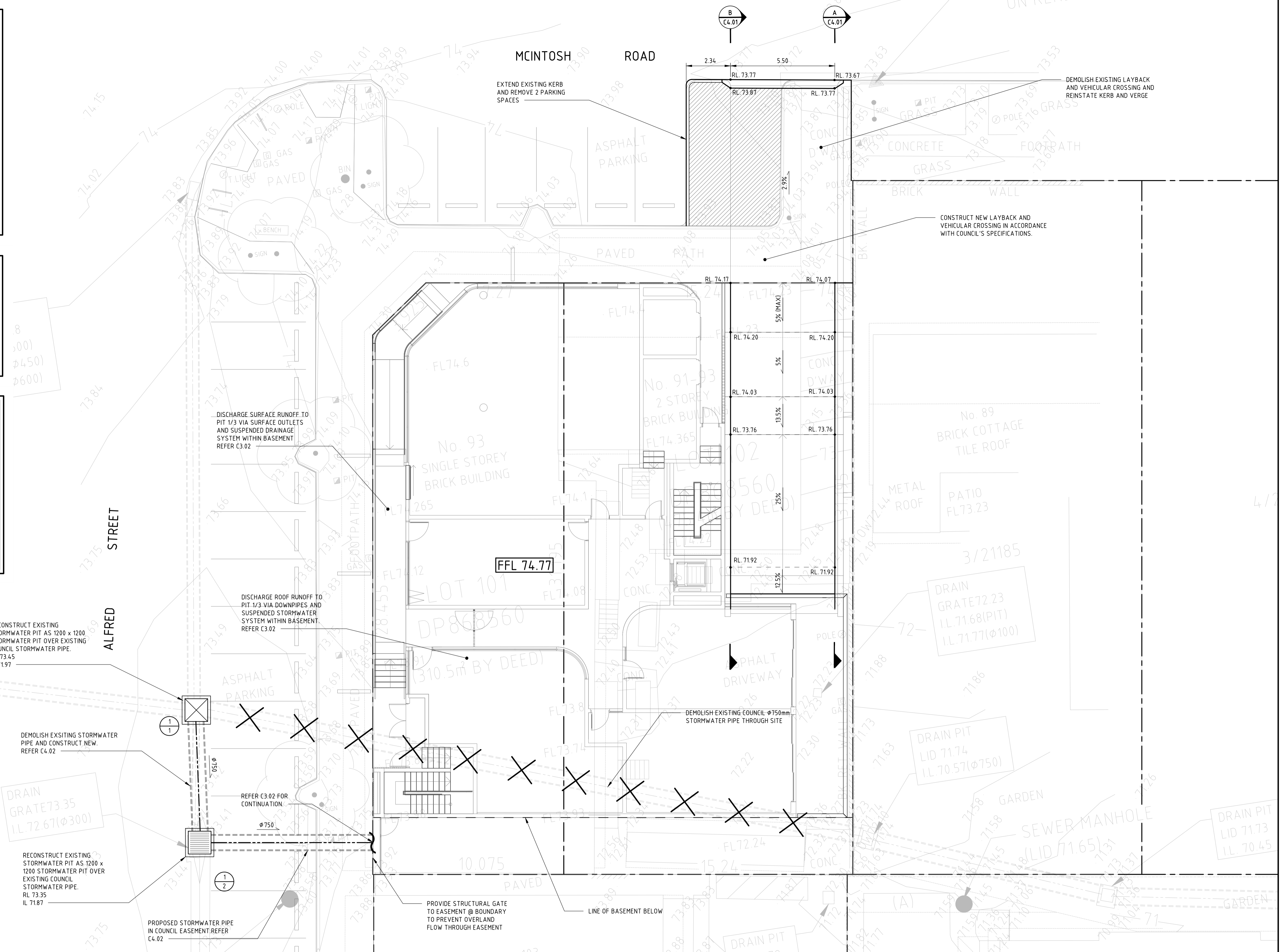
SITE ARE = 786m<sup>2</sup>  
 EXISTING IMPERVIOUS AREA = 786m<sup>2</sup>, 100%  
 PROPOSED IMPERVIOUS AREA = 786m<sup>2</sup>, 100%  
 INCREASED IMPERVIOUS AREA = 0m<sup>2</sup>, 0%

OSD IS NOT REQUIRED IN LINE WITH COUNCIL PRE-LODGEADVICE DATED 02/06/18.

STORMWATER QUALITY IS NOT APPLICABLE DUE TO RESIDENTIAL BUILDING LESS THAN 2500m<sup>2</sup>. SEE WATER MANAGEMENT POLICY SECTION 3.1.

REFER FLOODING REPORT PREPARED BY DAWES CONSULTING ENGINEERS.

THE STORMWATER MANAGEMENT HAS BEEN DESIGNED IN ACCORDANCE WITH WARRINGAH COUNCILS WATER MANAGEMENT POLICY AND ON-SITE STORMWATER DETENTION TECHNICAL SPECIFICATIONS.



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7	07.04.19	ISSUED FOR DEVELOPMENT APPLICATION	AD	AD	AD
6	20.02.19	ISSUED FOR DEVELOPMENT APPLICATION	AD	AD	AD
5	19.10.18	ISSUED FOR DEVELOPMENT APPLICATION	AD	AD	AD
4	10.09.18	ISSUED FOR DEVELOPMENT APPLICATION	AD	AD	AD
3	29.05.18	ISSUED FOR INFORMATION	AD	AD	AD
2	24.05.18	ISSUED FOR INFORMATION	AD	AD	AD
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SCALE:

SCALE 1:100

PROJECT: 91-93 MCINTOSH ROAD  
 NARRAWEENA, NSW

DRAWING: CONCEPT STORMWATER MANAGEMENT PLAN - GROUND FLOOR

CLIENT: DREAM BUILD

ARCHITECT: BENSON McCORMACK ARCHITECTS

STATUS: ISSUED FOR APPROVAL  
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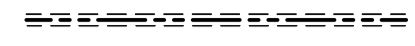
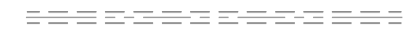


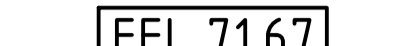



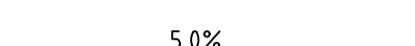

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DRAWING NUMBER: 18010-DA-C3.01

REVISION: 07



### LEGEND

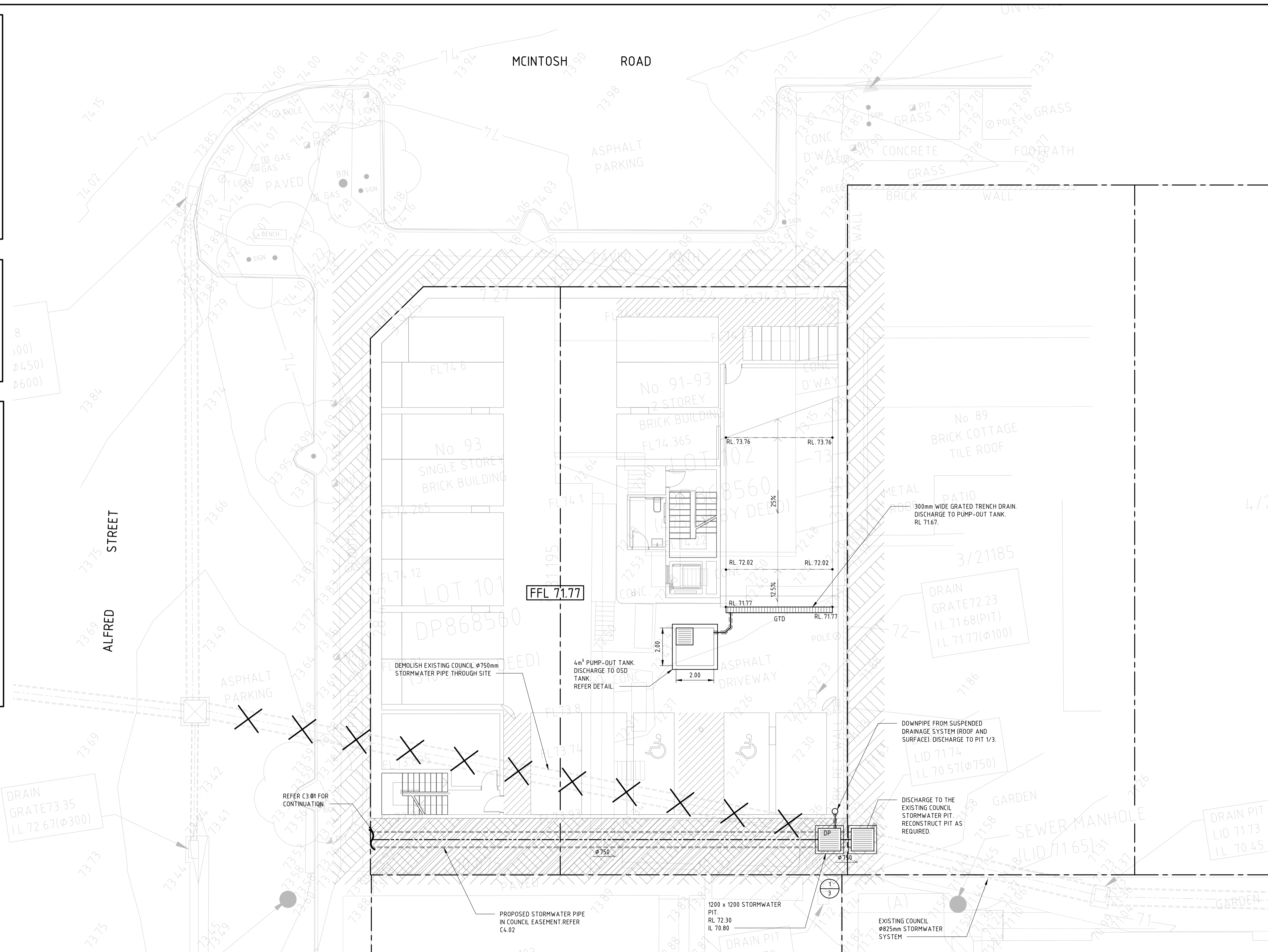
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-  SUSPENDED STORMWATER PIPE
-  PROPOSED STORMWATER PIT
-  FINISHED FLOOR LEVEL
-  GRATED TRENCH DRAIN
-  DOWNPIPE
-  PIPE SIZE AND FLOW DIRECTION
-  SURFACE FALL
-  PROPOSED SURFACE LEVEL

### NOTES

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### PUMP-OUT TANK DESIGN SUMMARY

- PUMP-OUT STORAGE DESIGNED IN ACCORDANCE WITH AS3500.3:2003, SECTION 9.3.6
  - DESIGN STORM = 10 YEAR ARI, 120 MIN DURATION
  - CATCHMENT AREA = 104m<sup>2</sup>
  - RAINFALL INTENSITY = 66.3mm/Hr
  - DESIGN RUNOFF =  $\frac{C.I.A.}{3600} = \frac{1 \times 104 \times 66.3}{3600} = 1.82L/s$
  - MINIMUM EFFECTIVE STORAGE VOLUME = 1.82 x 60 x 120 = 13104L = 13.1m<sup>3</sup>
  - ALLOWANCE FOR PUMP CAPACITY
  - MINIMUM PUMP-OUT RATE = 10L/s
  - DESIGN PUMP-OUT RATE = 5L/s
  - PUMP CAPACITY (30MIN) = 5 x 60 x 30 = 9000L
  - SO MINIMUM PUMP-OUT TANK STORAGE = 4.1m<sup>3</sup>
- PUMP-OUT TANK INCLUDE:
  - DUTY AND STANDBY PUMPS WITH ALTERNATING SWITCHES (MIN 10L/s)
  - FUEL GENERATOR FOR BACK-UP POWER
  - HIGH LEVEL ALARM
  - CONTROL PANEL
  - ASSOCIATED FLOAT VALVES



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SCALE: 1:100

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 NARRAWEENA, NSW

DRAWING: CONCEPT STORMWATER MANAGEMENT PLAN - BASEMENT LEVEL

CLIENT: DREAM BUILD

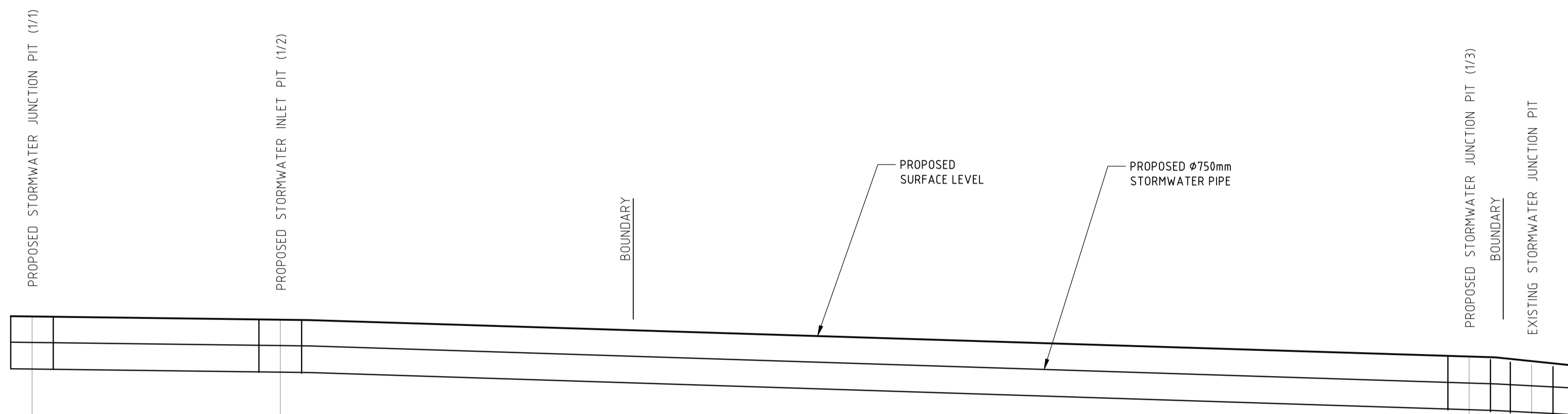
ARCHITECT: BENSON MCCORMACK ARCHITECTS

STATUS: ISSUED FOR APPROVAL  
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SIZE: A1 DRAWING NUMBER: 18010-DA-C3.02 REVISION: 06







DATUM RL 68.0

FINISHED SURFACE	73.45	73.35	72.30	72.10
STORMWATER HGL				
STORMWATER INVERT	71.97	71.87	70.80	70.70
CHAINAGE	0	6.99	40.47	42.23

LONGITUDINAL SECTION ALONG PROPOSED DRAINAGE EASEMENT

HORIZONTAL SCALE 1:100@A1  
 VERTICAL SCALE 1:100@A1


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SCALE:



SCALE 1:50 A1

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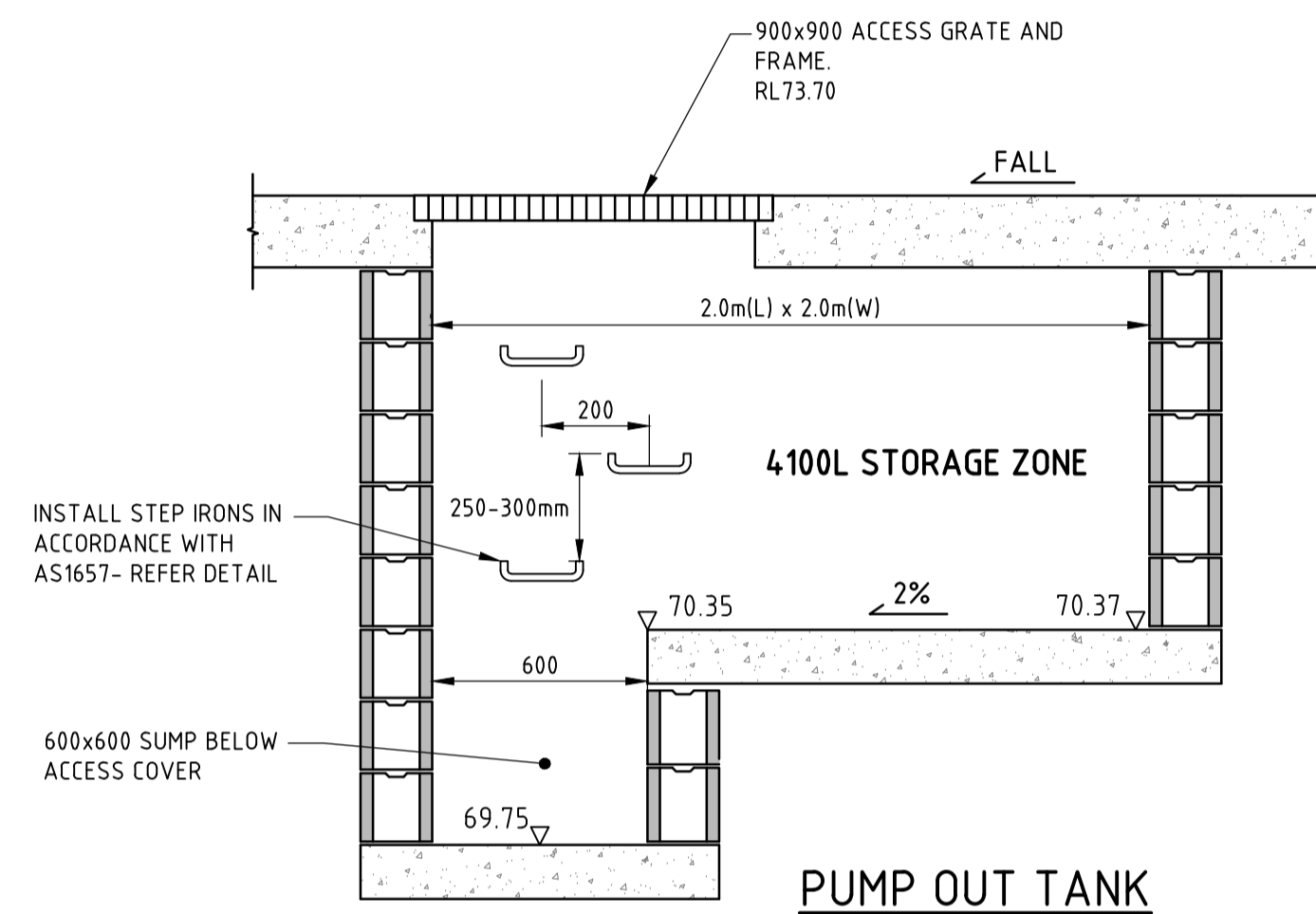
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 LONGITUDINAL SECTION

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- NOTE :
1. REFER STRUCTURAL ENGINEERS DETAILS FOR TANK STRUCTURE.
  2. A CONFINED SPACES WARNING SIGN IS TO BE INSTALLED IN THE TANK AT THE ACCESS LOCATION.
  3. PUMP-OUT TANK TO INCLUDE:
    - 3.1.1 SUBMERSIBLE DUTY AND STANDBY PUMPS WITH (SPECIFIED BY OTHER TWO) ALTERNATING SWITCHES (MIN 10L/s)
    - 3.1.2 FUEL GENERATOR FOR BACK-UP POWER
    - 3.1.3 HIGH LEVEL ALARM
    - 3.1.4 CONTROL PANEL
    - 3.1.5 ASSOCIATIVE FLOAT VALVES
  4. PROVIDE MOSQUITO AND VERMIN PROTECTION TO ALL INLETS AND OUTLETS.
  5. PROVIDE WATERPROOFING TO ARCHITECTS SPECIFICATIONS.
  6. DISCHARGE TO WATER QUALITY CHAMBER.

REV	DATE	ISSUE DESCRIPTION	DRN	DES	VER
3	19.10.18	ISSUED FOR DEVELOPMENT APPLICATION	AD	AD	AD
2	10.09.18	ISSUED FOR DEVELOPMENT APPLICATION	AD	AD	AD
1	23.05.18	ISSUED FOR INFORMATION	AD	AD	AD

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SCALE:

SCALE 1:10 A1  
SCALE 1:20 A1

PROJECT: 91-93 MCINTOSH ROAD  
NARRAWEENA, NSW

DRAWING: DETAILS SHEET

CLIENT: DREAM BUILD  
ARCHITECT: BENSON McCORMACK ARCHITECTS

STATUS: ISSUED FOR APPROVAL  
NOT TO BE USED FOR CONSTRUCTION

SIZE: A1  
DRAWING NUMBER: 18010-DA-C5.01  
REVISION: 03