

# PROPOSED INDUSTRIAL DEVELOPMENT

15 JUBILEE AVENUE, WARRIEWOOD, NSW, 2102



Sydney | Perth | Newcastle | Central Coast

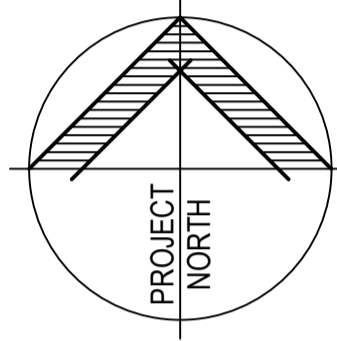
PROJECT  
PROPOSED INDUSTRIAL DEVELOPMENT  
15 JUBILEE AVENUE, WARRIEWOOD,  
NSW, 2102

CLIENT  
TREND LIVING PTY LTD

THIS DRAWING CONTAINS COLOURED INFORMATION C M Y

## DRAWING LIST

- C-0000 COVER SHEET, DRAWING LIST & LOCALITY PLAN
- C-0010 EROSION & SEDIMENT CONTROL PLAN
- C-0011 EROSION & SEDIMENT CONTROL DETAILS
- C-0020 STORMWATER DRAINAGE PLAN SHEET 1
- C-0021 STORMWATER DRAINAGE PLAN SHEET 2
- C-0030 CIVIL DETAILS SHEET 1
- C-0031 CIVIL DETAILS SHEET 2



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### LOCALITY PLAN

SCALE 1:1500

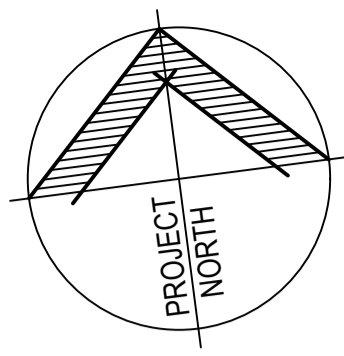
REV	DATE	DESCRIPTION	DRN	APP	M.N.	S.S.
P01	07.05.21	ISSUED FOR DA APPROVAL				

TITLE  
COVER SHEET, DRAWING LIST &  
LOCALITY PLAN



NOT FOR CONSTRUCTION

DOCUMENT STATUS			SHEET SIZE
FOR APPROVAL			A1
DRAWN I.Judd	DESIGNED L.Kleyn	APPROVED S.Sharma	SCALE 1:1500
DOCUMENT No.			REVISION
16762-LD-DR-C-0000			P01



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**LEGEND**

- 20.00 EXISTING CONTOUR SHOWN AT 0.50m INTERVALS
- 21.20 EXISTING SPOTLEVEL
- SP INDICATIVE TEMPORARY STOCKPILE LOCATION. FINAL LOCATION TO BE DETERMINED ON SITE. REFER TO DRAWING 16762-C-0011 FOR DETAILS
- SEDIMENT CONTROL FENCE, REFER TO DRAWING 16762-C-0011 FOR DETAILS
- STABILISED SITE ACCESS, REFER TO DRAWING 16762-C-0011 FOR DETAILS
- MESH AND GRAVEL INLET FILTER, REFER TO DRAWING 16762-C-0011 FOR DETAILS
- SB SANDBAG INLET SEDIMENT TRAP, REFER TO DRAWING 16762-C-0011 FOR DETAILS
- ROCK CHECK DAM OR COIR LOG, REFER TO DRAWING 16762-C-0011 FOR DETAILS
- BOUNDARY LINE
- EXISTING FENCE
- EXISTING ELECTRICAL SERVICE
- EXISTING SEWER SERVICE
- EXISTING TELSTRA SERVICE
- EXISTING COMMUNICATIONS SERVICE
- EXISTING WATER SERVICE
- PP EXISTING POWER POLE
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED

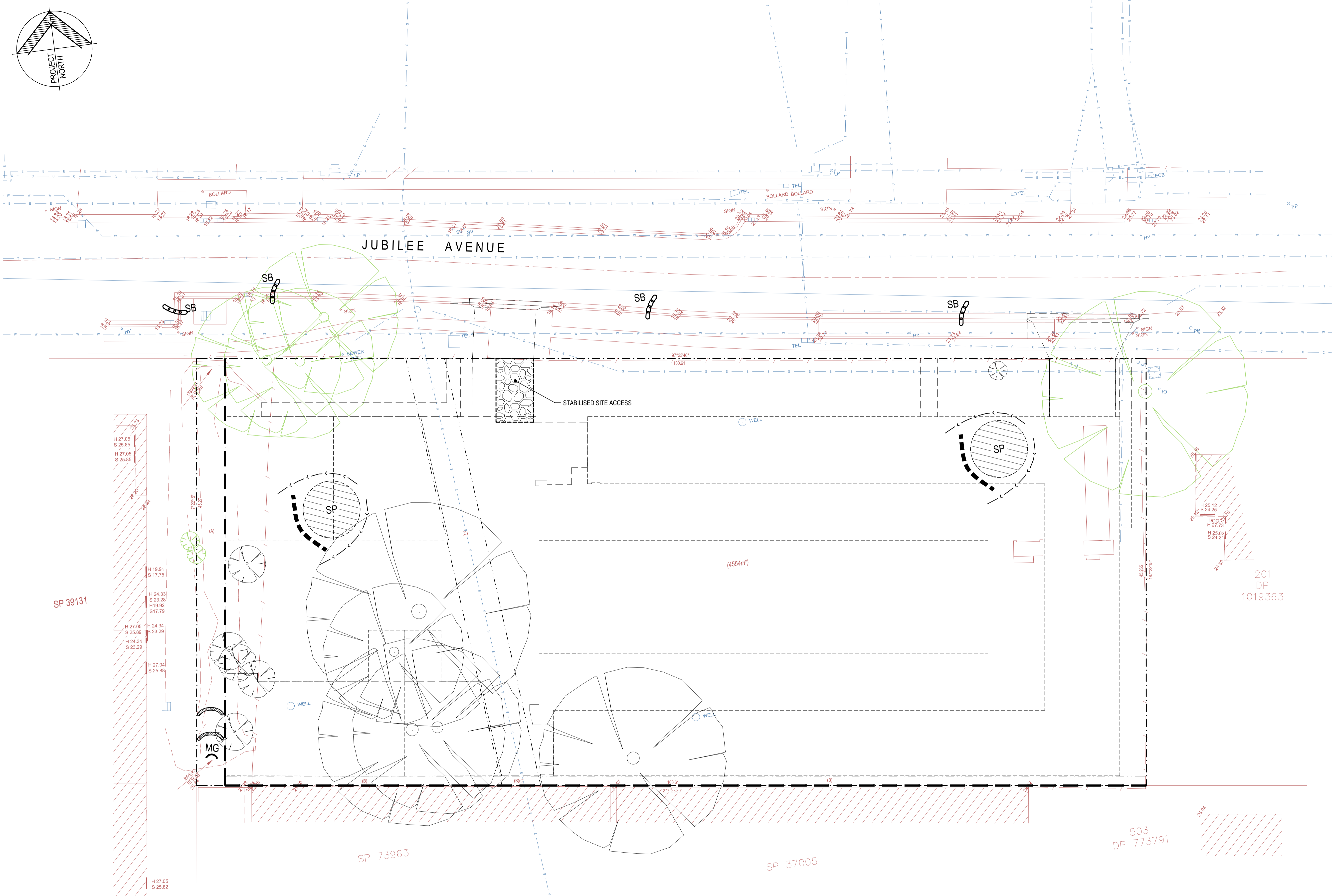
**NOTES**

THE ARRANGEMENT OF EROSION AND SEDIMENT CONTROL MEASURES SHOWN ARE INDICATIVE ONLY AND RELATE TO A PARTICULAR STAGE OF THE CONSTRUCTION WORKS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DESIGN, CONSTRUCT AND MAINTAIN ANY ADDITIONAL MEASURES THAT MAY BE REQUIRED FOR THE CONTRACTOR'S CONSTRUCTION METHODOLOGIES. IN ORDER TO MEET ALL CONDITIONS AND REQUIREMENTS IMPOSED BY ANY STATUTORY AUTHORITY.

THE POSITION OF ALL EXISTING SERVICES SHOWN SHOULD BE REGARDED AS APPROXIMATE AND NOT NECESSARILY COMPREHENSIVE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LOCATIONS OF ALL EXISTING SERVICES (WHETHER SHOWN OR NOT) AND INFORM ALL RELEVANT AUTHORITIES PRIOR TO ANY EXCAVATION.

DURING CONSTRUCTION, THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART OF THE STRUCTURE SHALL BE OVER-STRESSED. TEMPORARY STRUCTURES, FORMWORK, FALSEWORK, TEMPORARY BRACING, SHORING AND THE LIKE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

CONTRACTOR TO VERIFY SETOUT BEFORE COMMENCING EARTHWORKS. REFER ANY DISCREPANCIES TO ENGINEER.

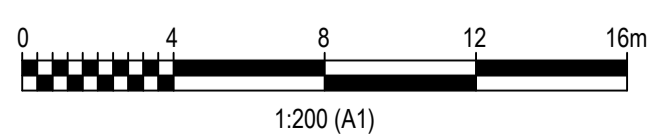


(A) EASEMENT TO DRAIN WATER 3 WIDE (DP1019363)  
 (B) EASEMENT TO DRAIN WATER 1 WIDE (DP1019363)  
 (C) EASEMENT FOR SEWERAGE PURPOSES 4 WIDE (3951558)

1. THE BOUNDARY OF LOT 202 IN DP 1019363 IS COMPILED FROM DP 1019363 AND NOT VERIFIED BY SURVEY  
 2. A NOTATION OF PLAN FOR PROPOSED EASEMENT FOR SEWER (DP1000308) IS SHOWN ON THE TITLE OF LOT 202 IN DP 1019363

**EROSION & SEDIMENT CONTROL PLAN**

SCALE 1:200



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**EROSION & SEDIMENT CONTROL PLAN**

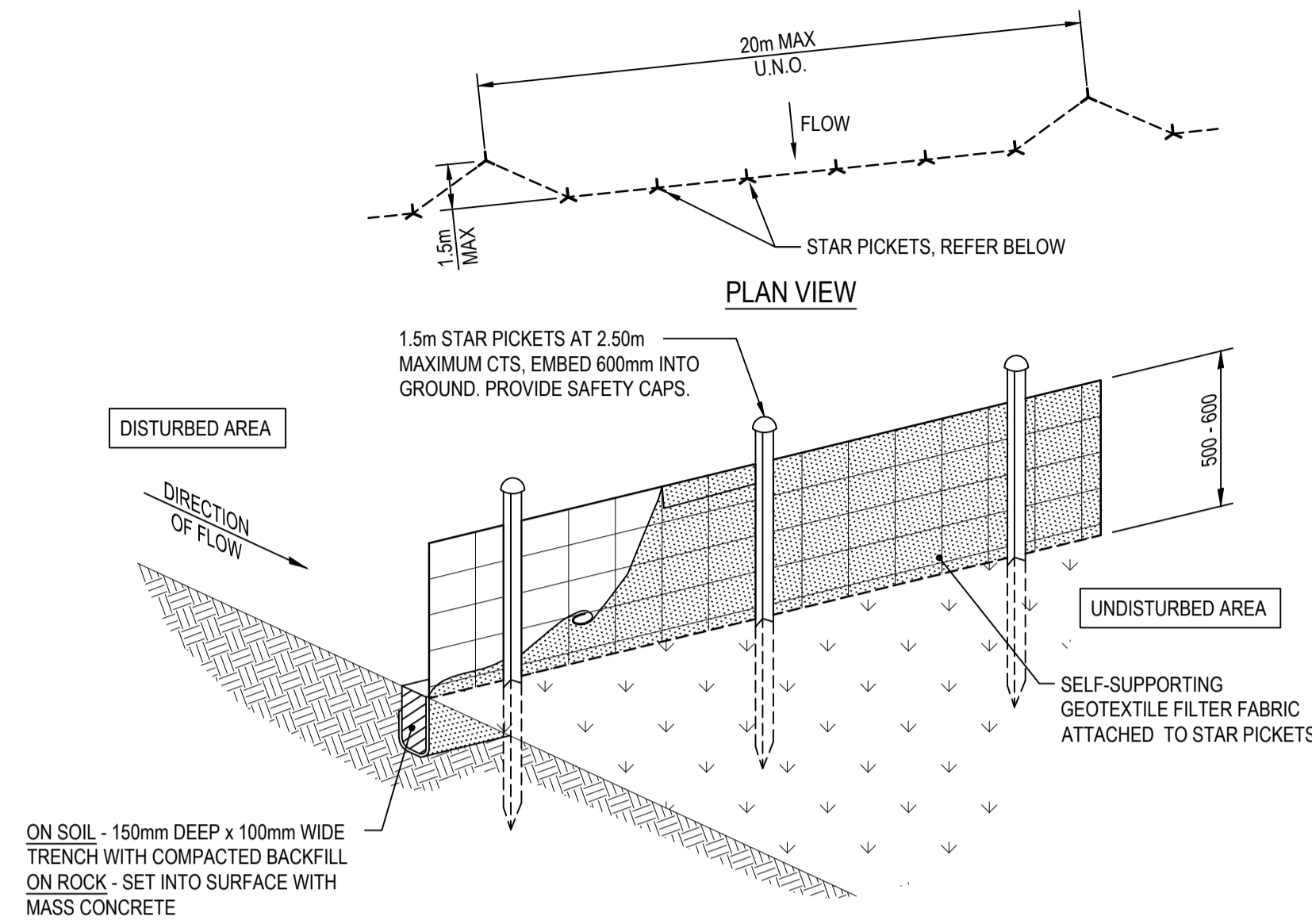
DOCUMENT STATUS			SHEET SIZE
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DRAWN I.Judd	DESIGNED L.Kleyn	APPROVED S.Sharma	SCALE 1:200
DOCUMENT No.			REVISION



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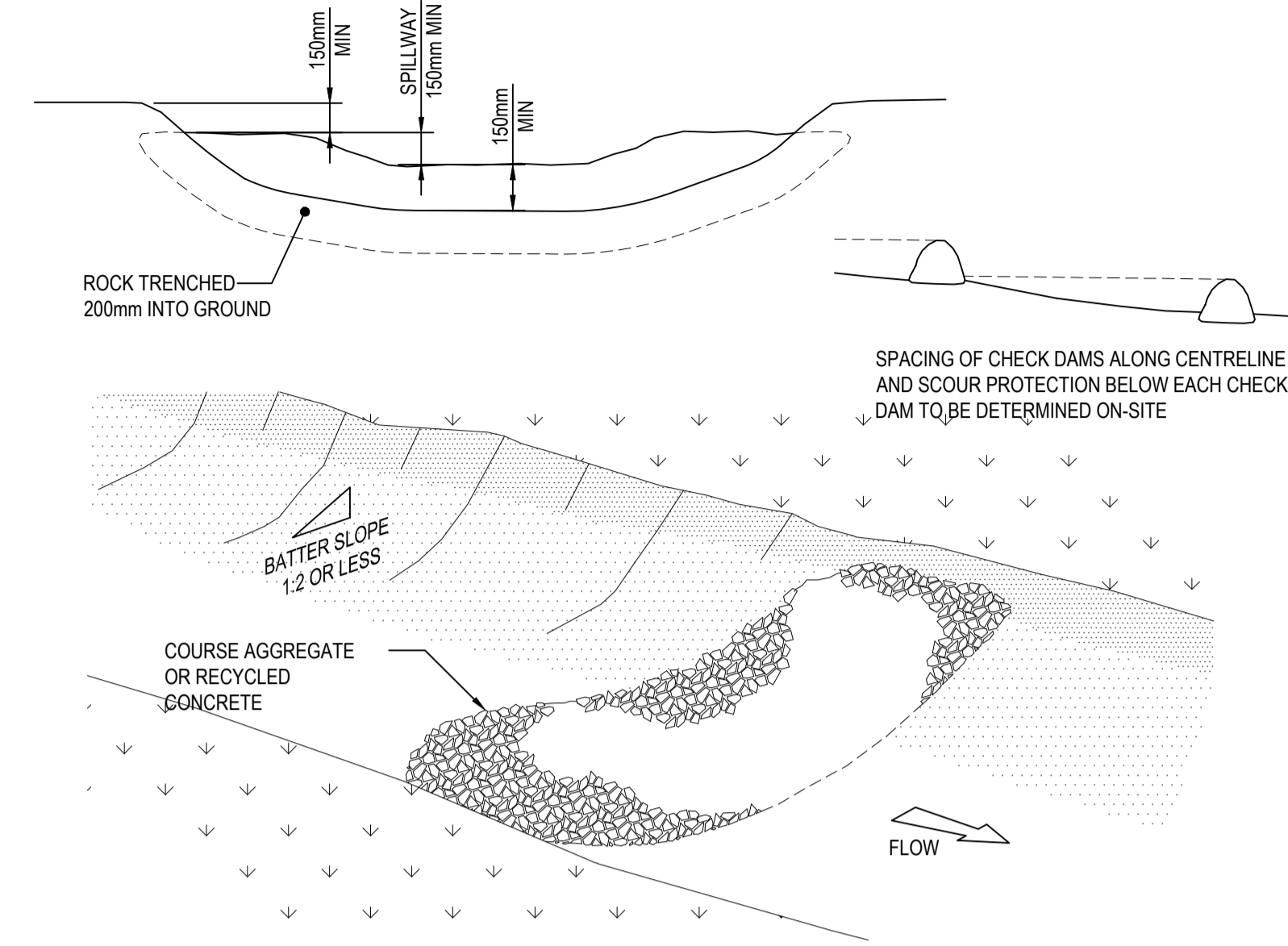
16762-LD-DR-C-0010

P01



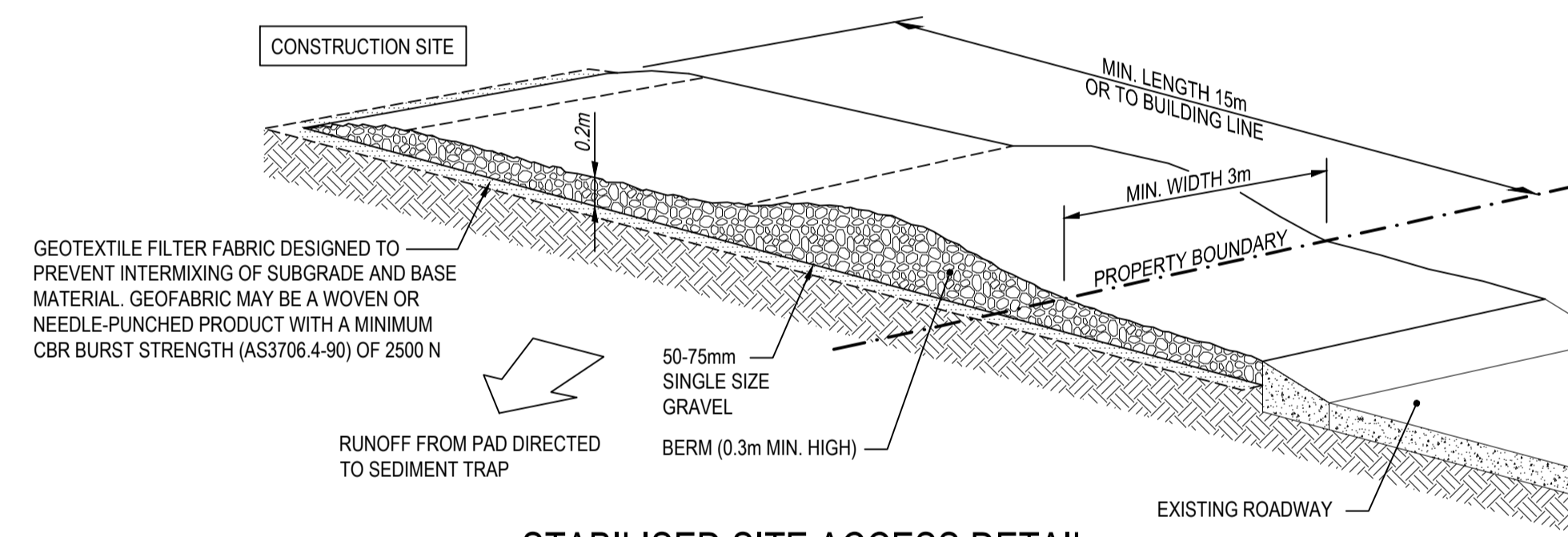
**SEDIMENT CONTROL FENCE DETAIL**

N.T.S.  
IN ACCORDANCE WITH LANDCOM 'BLUE BOOK'  
SD6-8 SEDIMENT FENCE



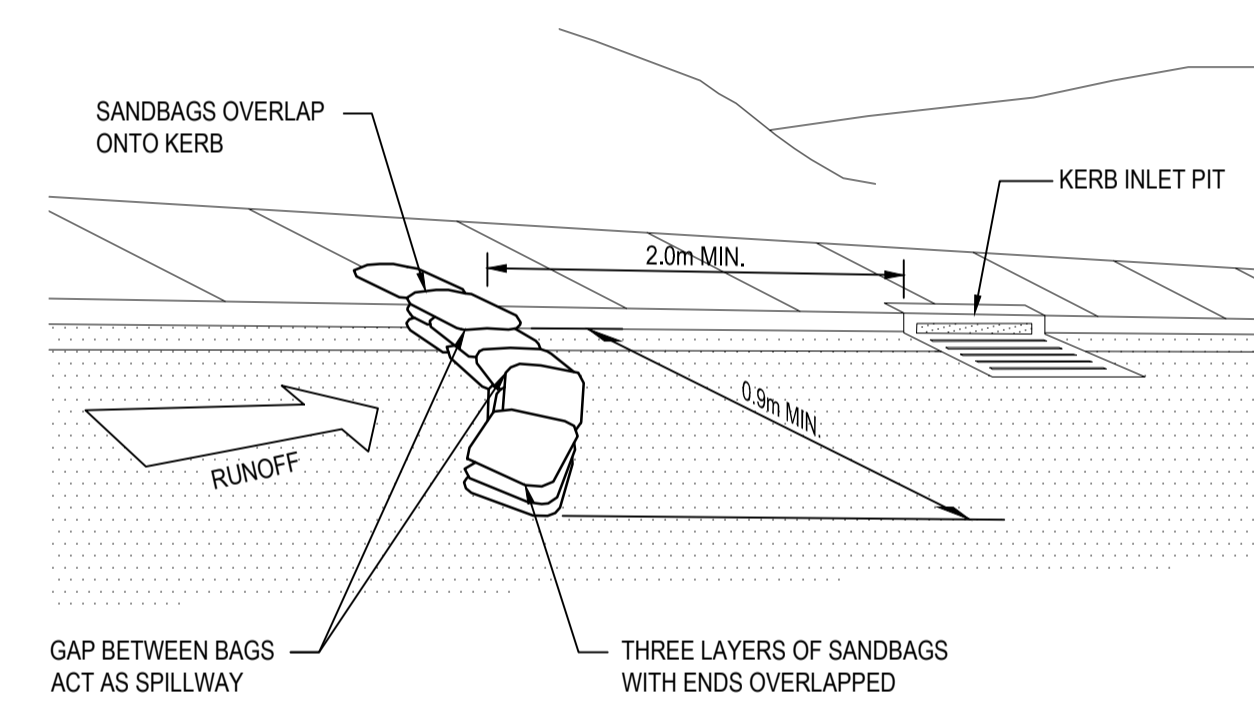
**ROCK CHECK DAM DETAIL**

N.T.S.  
IN ACCORDANCE WITH LANDCOM 'BLUE BOOK'  
SD5-4 ROCK CHECK DAM



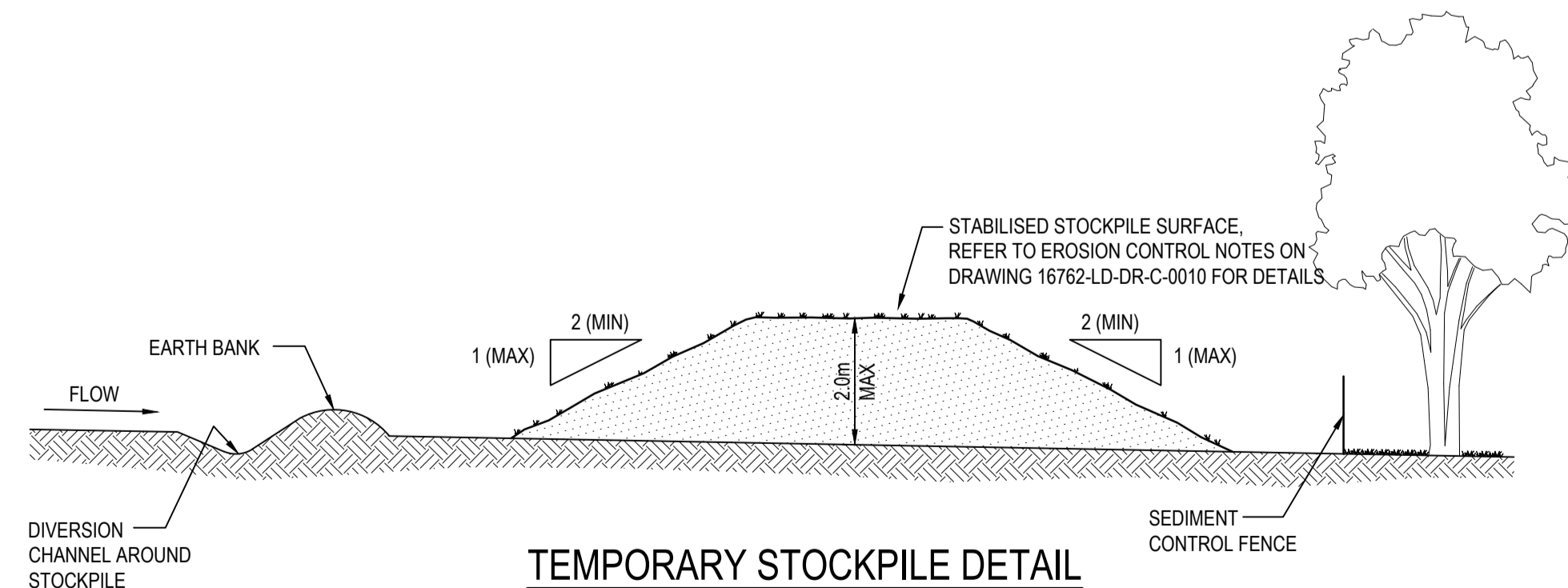
**STABILISED SITE ACCESS DETAIL**

N.T.S.  
IN ACCORDANCE WITH LANDCOM 'BLUE BOOK'  
SD6-14 STABILISED SITE ACCESS



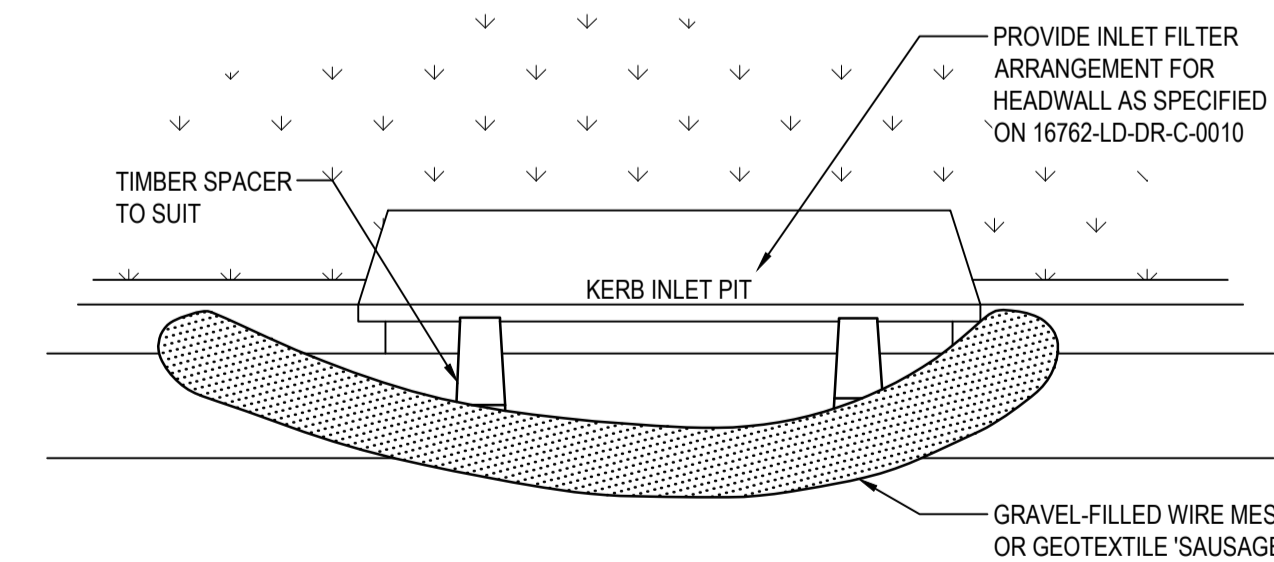
**SANDBAG INLET SEDIMENT TRAP DETAIL**

N.T.S.



**TEMPORARY STOCKPILE DETAIL**

N.T.S.  
IN ACCORDANCE WITH LANDCOM 'BLUE BOOK'  
SD4-1 STOCKPILES



**MESH AND GRAVEL INLET DETAIL**

N.T.S.  
IN ACCORDANCE WITH LANDCOM 'BLUE BOOK'  
SD6-11 MESH AND GRAVEL INLET FILTER

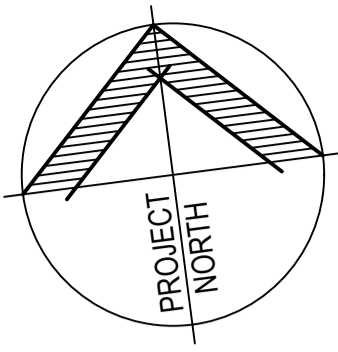
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**EROSION & SEDIMENT CONTROL DETAILS**



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DRAWN I.Judd	DESIGNED L.Kleyn	APPROVED S.Sharma	SCALE N.T.S.	
DOCUMENT No.			REVISION	
16762-LD-DR-C-0011			P01	



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ALL HANDRAILS, IF REQUIRED, ARE TO ARCHITECT'S LOCATION & DETAIL.

BENCHMARKS TO BE PROVIDED PRIOR TO COMMENCEMENT OF CONSTRUCTION.

CONTRACTOR TO VERIFY SETOUT BEFORE COMMENCING EARTHWORKS. REFER ANY DISCREPANCIES TO ENGINEER.

EXISTING CONTOURS ARE SHOWN AT 0.5m INTERVALS.

TREATMENT OF ALL EXPOSED / DISTURBED AREAS TO ARCHITECT'S DETAILS U.N.O.

DETAIL OF LANDSCAPING IS TO TAKE INTO CONSIDERATION OVERLAND FLOW PATHS.

ALL FENCES ARE TO BE DETAILED WITH 100mm GAP UNDER OR TO BE NON SOLID FENCES TO ALLOW WATER FLOW.

WHERE SITE IS IN CUT ADJACENT TO SITE BOUNDARY, TOP OF RETAINING WALLS TO BE CONSTRUCTED FLUSH WITH EXISTING SURFACE OF NEIGHBOURING PROPERTIES TO AVOID IMPOUNDING WATER ON NEIGHBOURING PROPERTIES.



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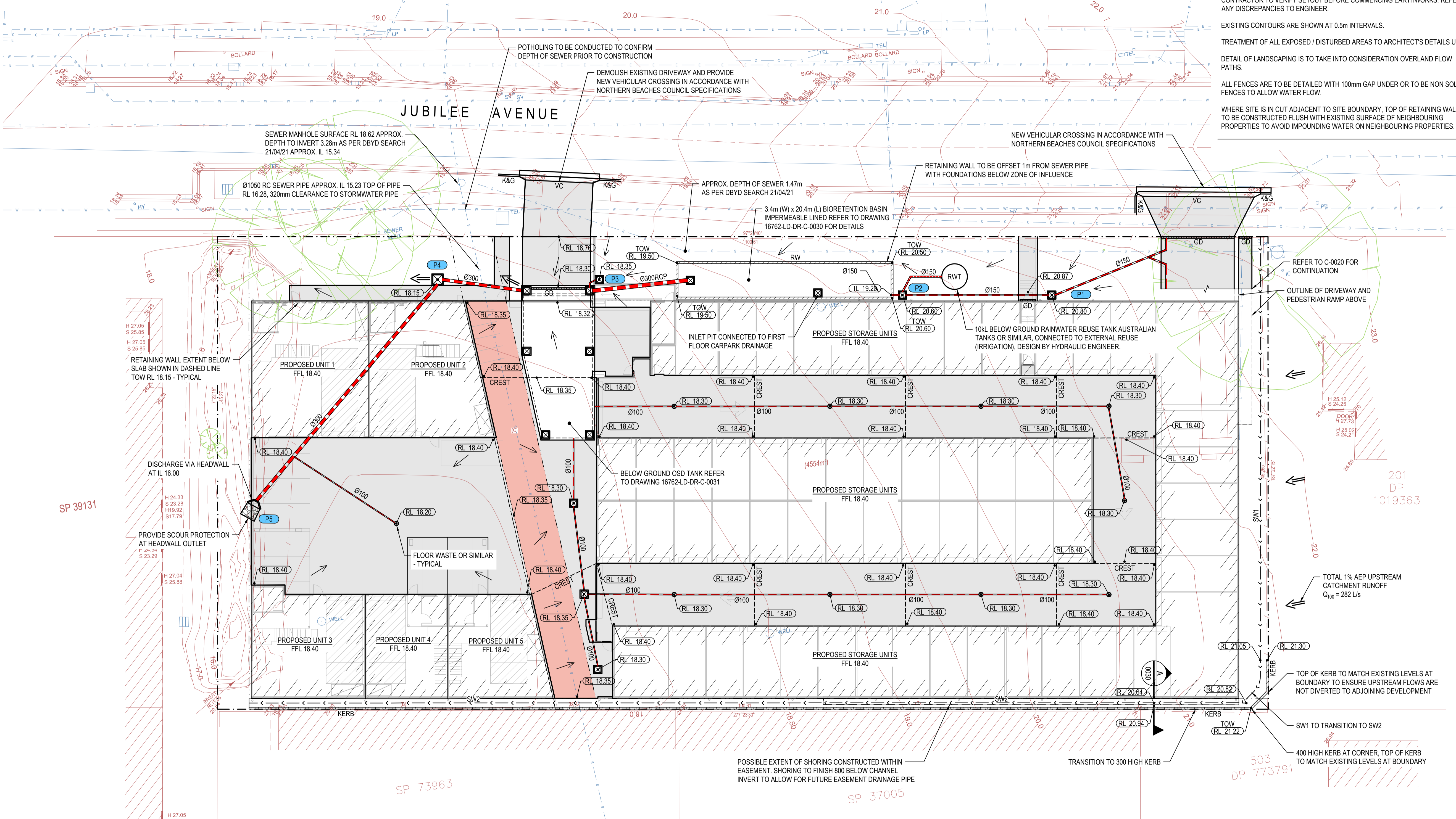
CLIENT  
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LEGEND

- NEW CONCRETE PAVEMENT, DESIGN BY OTHERS
- NEW REMOVABLE CONCRETE PANELS, DESIGN BY OTHERS
- EXISTING CONTOUR
- EXISTING SPOTLEVEL
- DESIGN SPOTLEVEL
- NEW STORMWATER DRAINAGE PIT, REFER TO PIT SCHEDULE ON DRAWING 16074-LD-DR-C-0030
- NEW PVC STORMWATER DRAINAGE PIPE LAID AT 1.0% MIN FALL (U.N.O.) IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS
- NEW GRATED DRAIN
- NEW VEHICULAR CROSSING IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL SPECIFICATIONS
- NEW KERB AND GUTTER, IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL SPECIFICATIONS
- DIRECTION OF SURFACE FALL
- OVERLAND FLOW PATH
- NEW SWALE, REFER TO DRAWING 16074-LD-DR-C-0030 FOR DETAILS
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**ALL WORKS IN ROAD RESERVE ARE SUBJECT TO SECTION 138 APPROVAL**



(A) EASEMENT TO DRAIN WATER 3 WIDE (DP1019363)  
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TITLE  
**STORMWATER DRAINAGE PLAN**  
 - SITE PLAN

DOCUMENT STATUS			SHEET SIZE
FOR APPROVAL			A1
DRAWN I.Judd	DESIGNED L.Kleyn	APPROVED S.Sharma	SCALE 1:200
DOCUMENT No.			REVISION

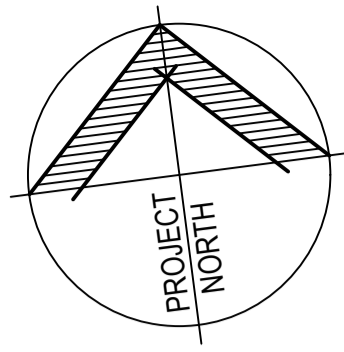


**NOT FOR CONSTRUCTION**

16762-LD-DR-C-0020 P01



PLAN  
 SCALE 1:200



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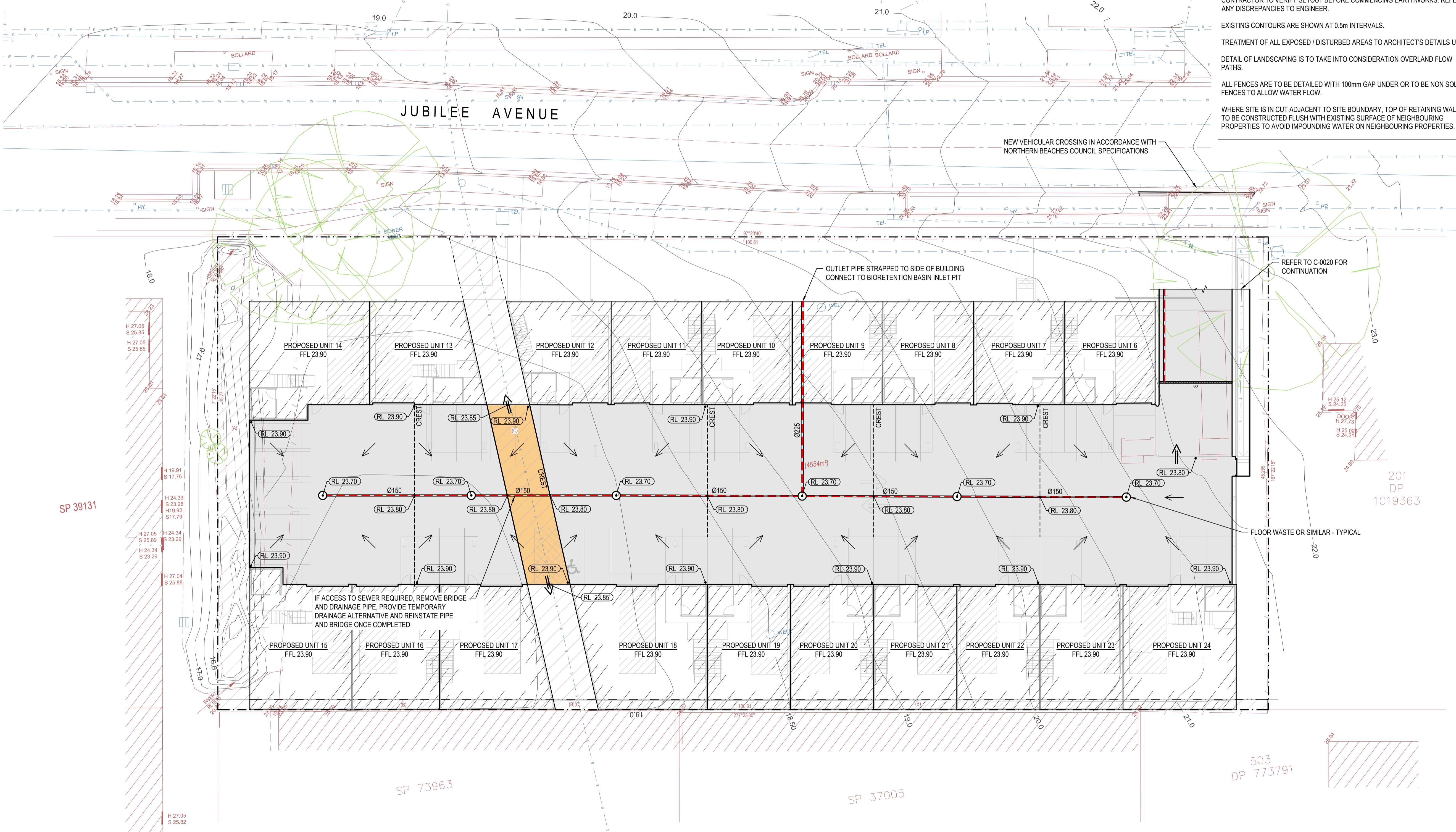
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- VC NEW VEHICULAR CROSSING IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL SPECIFICATIONS
- K&G NEW KERB AND GUTTER, IN ACCORDANCE WITH
- DIRECTION OF SURFACE FALL
- ⇨ OVERLAND FLOW PATH
- SW → NEW SWALE, REFER TO DRAWING 16074-LD-DR-C-0030 FOR DETAILS
- - - BOUNDARY LINE
- / / / EXISTING FENCE
- - - EXISTING ELECTRICAL SERVICE
- - - EXISTING SEWER SERVICE
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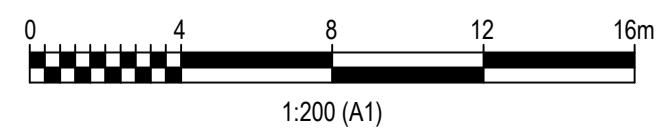
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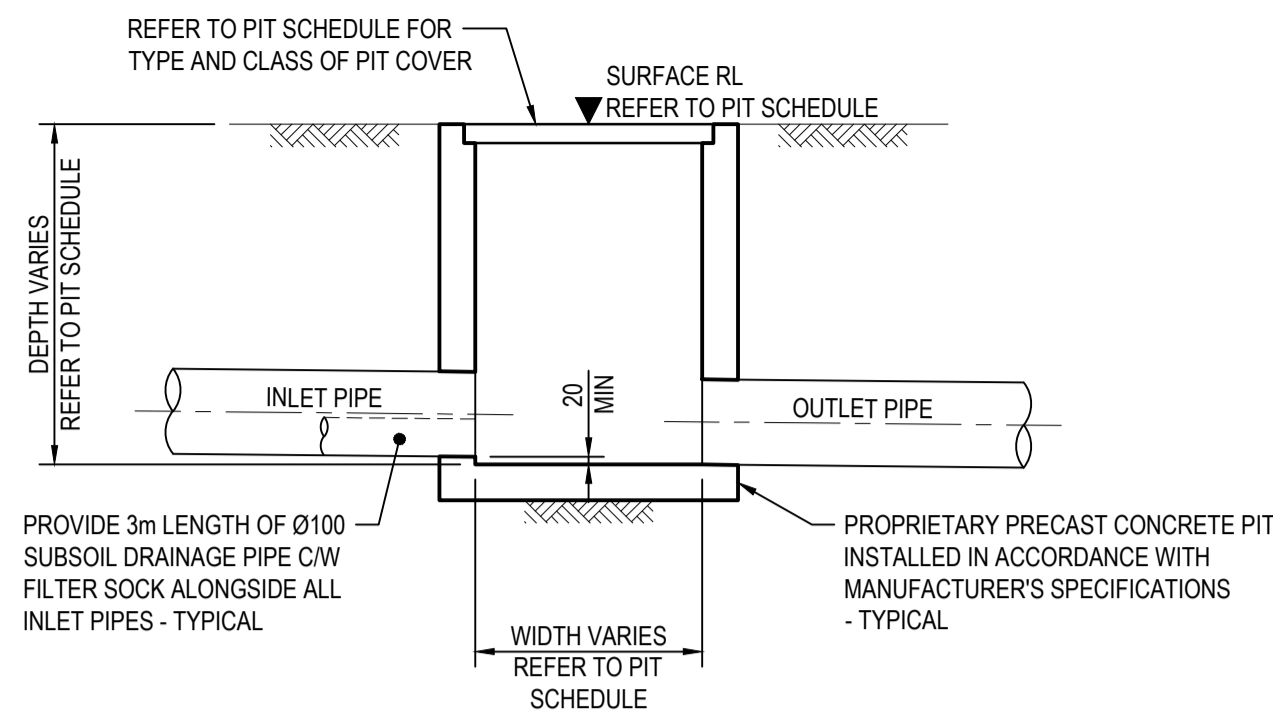


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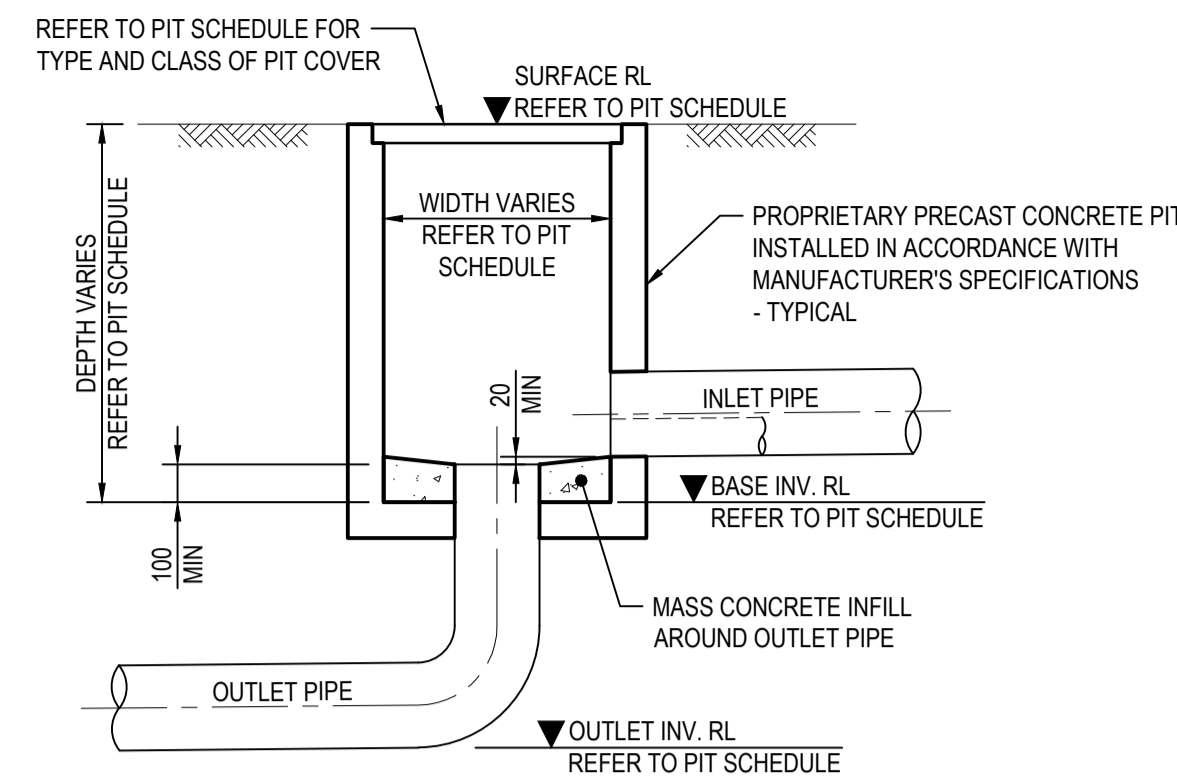
STORMWATER DRAINAGE PLAN  
 - FIRST FLOOR

DOCUMENT STATUS			SHEET SIZE
FOR APPROVAL			A1
DRAWN I.Judd	DESIGNED L.Kleyn	APPROVED S.Sharma	SCALE 1:200
DOCUMENT No.			REVISION
16762-LD-DR-C-0021			P01



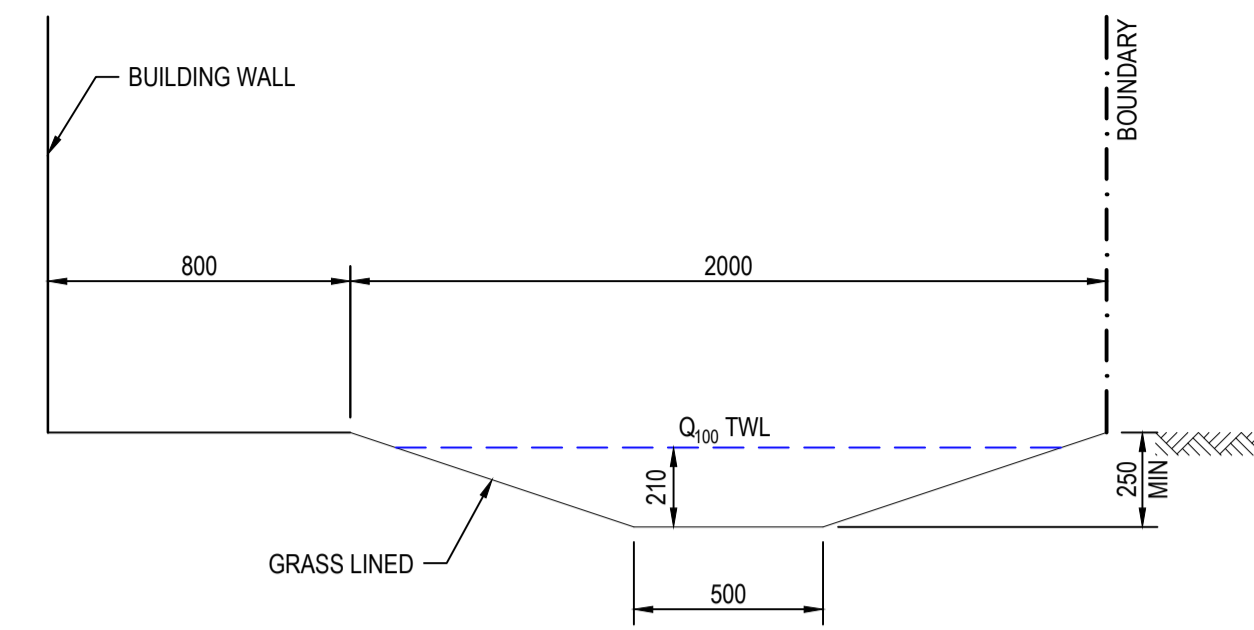
**STORMWATER DRAINAGE PIT PRECAST PIT**

SCALE 1:20



**STORMWATER DRAINAGE PIT PRECAST DROPPER PIT**

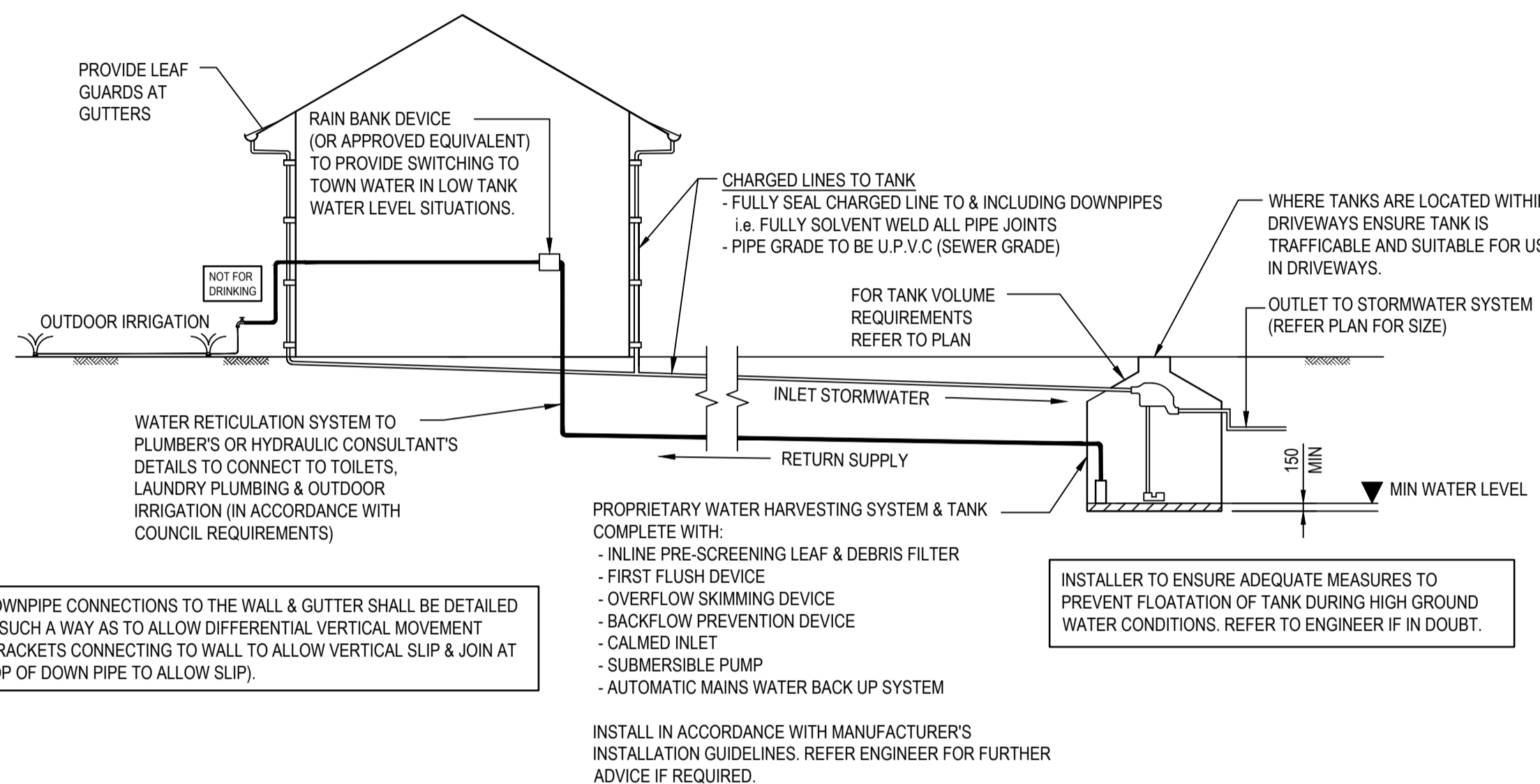
SCALE 1:20



**STORMWATER DRAINAGE SWALE - SW1**

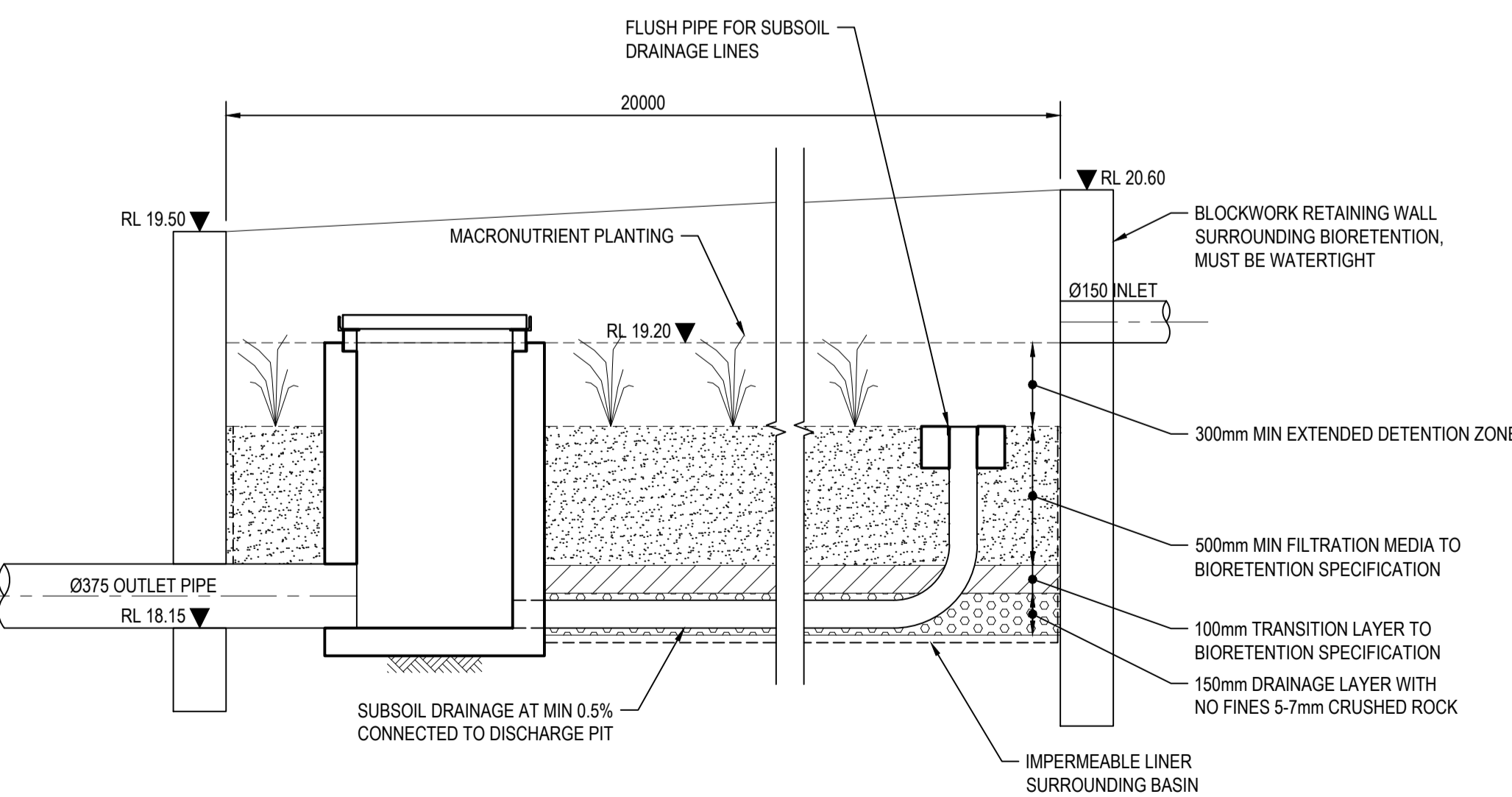
SCALE 1:20

MANNING CHECK  
 PEAK FLOW Q100 = 282 L/s  
 CHANNEL CAPACITY = 286 L/s + 40mm  
 FREEBOARD (S = 2%, n = 0.03)  
 VELOCITY x DEPTH < 0.4 m<sup>2</sup>/S



**WATER RE-USE SCHEMATIC (TANK BELOW GROUND) - SINGLE UNIT SYSTEM**

N.T.S.



**BIORETENTION DETAIL**

N.T.S.

REFER TO C1-0020 FOR BIORETENTION PLAN VIEW DIMENSION

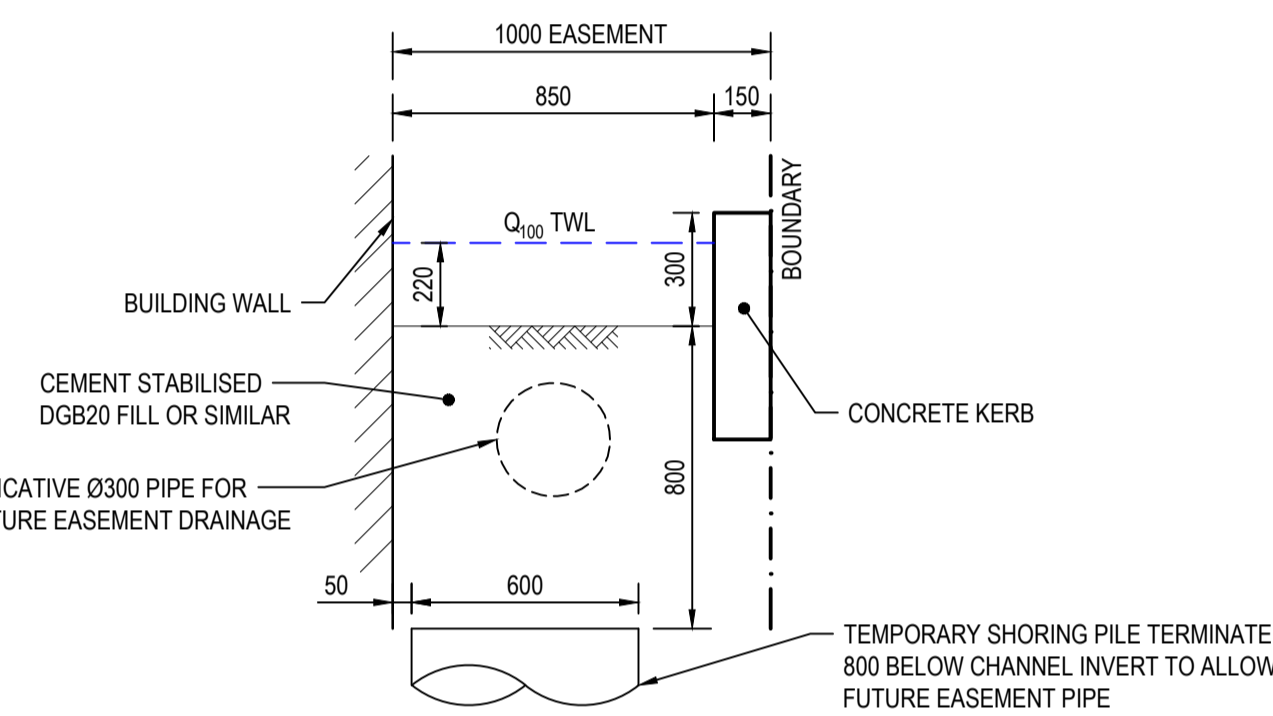
**BIORETENTION SPECIFICATION**

FILTRATION LAYER IS TO COMPRISE OF A SANDY-LOAM MIXTURE DESIGNED TO PROVIDE ADEQUATE ORGANIC MATERIAL FOR VEGETATION/ROOT GROWTH. MEDIA MUST MEET THE FOLLOWING SPECIFICATION:-

- SATURATED HYDRAULIC CONDUCTIVITY - 180mm/hr
- TN CONTENT = 800mg/kg
- ORTHOPHOSPHATE CONTENT = 40mg/kg
- ORGANIC MATERIAL <5%

TRANSITION LAYER TO COMPRISE OF CLEAN WELL GRADED MEDIUM TO COARSE SAND WITH MINIMAL FINES

DRAINAGE LAYER TO COMPRISE OF 5mm GRAVEL



**STORMWATER DRAINAGE SWALE - SW2 SECTION A**

SCALE 1:20

MANNING CHECK  
 PEAK FLOW Q100 = 282 L/s  
 CHANNEL CAPACITY = 292 L/s + 80mm FREEBOARD  
 (S = 2%, n = 0.025)  
 VELOCITY x DEPTH < 0.4 m<sup>2</sup>/S

**CONCEPT SUMMARY**

THIS SUMMARY SHOULD BE READ IN CONJUNCTION WITH LINDSAY DYNAN'S WATER MANAGEMENT REPORT SUBMITTED AS PART OF THIS DA PACKAGE. THE PROPOSED DEVELOPMENT, LOCATED AT 15 JUBILEE AVENUE, WARRIEWOOD INVOLVES CONSTRUCTION OF THE FOLLOWING:

- 24 WAREHOUSE UNITS AND 59 STORAGE UNITS
- NEW HARDSTAND PAVEMENTS WITH ASSOCIATED PARKING SPACES
- LANDSCAPED AREAS
- A BELOW GROUND ON-SITE DETENTION (OSD) TANK
- A RAINWATER HARVESTING TANK
- A BIORETENTION BASIN

**STORMWATER PHILOSOPHY**

ALL NEW ROOF AREA WILL BE DIRECTED TO A 10KL RAINWATER HARVESTING TANK LOCATED ADJACENT THE GROUND FLOOR ACCESS DRIVEWAY. THE TANK HAS BEEN SIZED ACCORDING TO THE WATER QUALITY REQUIREMENT CALCULATIONS BELOW. IT IS INTENDED THAT RUNOFF FROM ALL HARDSTAND AREAS, AS WELL AS OVERFLOW FROM THE RAINWATER HARVESTING TANK, WILL BE DIRECTED TO A 55m<sup>2</sup> BIORETENTION AND DOWNSTREAM 80m<sup>2</sup> OSD TANK DURING STORM EVENTS. ORIFICE CONTROLS INCORPORATED INTO THE OSD TANK WILL LIMIT POST DEVELOPED FLOWS TO THAT OF THE PRE-DEVELOPED SCENARIO FOR ALL STORMS FROM 20% AEP TO 1% AEP DISCHARGE FROM THE OSD TANK WILL OUTLET VIA A HEADWALL TO AN EXISTING EASEMENT CHANNEL AT THE SOUTHWEST CORNER OF THE SITE.

ADDITIONAL FLOWS FROM UPSTREAM CATCHMENTS WILL BE CONVEYED BY A DRAINAGE SWALE ALONG THE EASTERN AND SOUTHERN SITE BOUNDARIES AND DISCHARGE AT THE SOUTHWEST CORNER OF THE SITE.

**OSD CALCULATIONS**

SITE AREA = 4550 m<sup>2</sup>

PROPOSED SITE:

LANDSCAPE (TO OSD) = 315 m<sup>2</sup>

HARDSTAND AND ROOF (TO OSD) = 3810 m<sup>2</sup>

OSD BYPASS = 425 m<sup>2</sup>

AN ILSAX DRAINS MODEL WAS USED TO CALCULATE THE REQUIRED DETENTION VOLUMES. A SUMMARY IS PROVIDED OF THE PRE AND POST DEVELOPMENT FLOWS BELOW:

AEP (%)	PRE-DEVELOPMENT FLOW (L/s)	POST DEVELOPMENT FLOW (L/s)	OSD VOLUME m <sup>3</sup>
20	81	81	21.8
10	110	84	40.9
5	142	91	54.7
2	180	141	75.5
1	215	181	79.5

**WATER QUALITY**

A MUSIC MODEL WAS DEVELOPED TO DETERMINE THE EFFICIENCY OF THE PROPOSED WATER QUALITY TREATMENT TRAIN. THE TREATMENT TRAIN COMPRISES:

- 55m<sup>2</sup> BIORETENTION SYSTEM
- RAINWATER TANKS CONNECTED FOR NON-POTABLE REUSE INCLUDING OUTDOOR USE. REUSE DEMAND HAS BEEN CALCULATED BASED ON REUSE ESTIMATES TO BE CONFIRMED AT DETAILED DESIGN PHASE (IN LIEU OF NORTHERN BEACHES COUNCIL REUSE ESTIMATES) AS FOLLOWS:

EXTERNAL IRRIGATION  
 0.4 kL/YEAR/m<sup>2</sup> x 500m<sup>2</sup>  
 = 200 kL/YEAR

A SUMMARY OF THE WATER QUALITY REDUCTION TARGETS ACHIEVED CAN BE FOUND BELOW:

	SOURCES	RESIDUAL LOAD	% REDUCTION	TARGET REDUCTION %
FLOW (ML/y)	5.468	5.04	7.7	-
TOTAL SUSPENDED SOLIDS (kg/y)	811	119	85.4	85
TOTAL PHOSPHORUS (kg/y)	1.68	0.386	77	65
TOTAL NITROGEN (kg/y)	12.2	5	59.1	45
GROSS POLLUTANTS (kg/y)	127	3.86	97	90

TARGET REDUCTIONS ARE BASED ON TABLE 5 FROM NORTHERN BEACHES COUNCIL WATER MANAGEMENT FOR DEVELOPMENT POLICY.

**PIT SCHEDULE**

PIT No.	INTERNAL DIMS (mm)	PIT TYPE	COVER TYPE	DUTY	INLET INV. RL	OUTLET INV. RL	BASE INV. RL	SURFACE RL	PIT DEPTH (m)
P1	450 x 450	PROPRIETARY PRECAST CONCRETE	GALV. STEEL GRATE	B	20.32	20.30	20.30	20.80	0.50
P2	450 x 450	PROPRIETARY PRECAST CONCRETE DROPPER	GALV. STEEL GRATE	B	20.12	19.20	20.10	20.60	0.50
P3	450 x 450	PROPRIETARY PRECAST CONCRETE	GALV. STEEL GRATE	B	-	17.85	17.85	18.35	0.50
P4	900 x 900	PROPRIETARY PRECAST CONCRETE	GALV. STEEL GRATE	B	16.57	16.55	16.55	18.15	1.60
P5	-	PROPRIETARY PRECAST CONCRETE HEADWALL	-	-	-	16.00	-	16.50	-

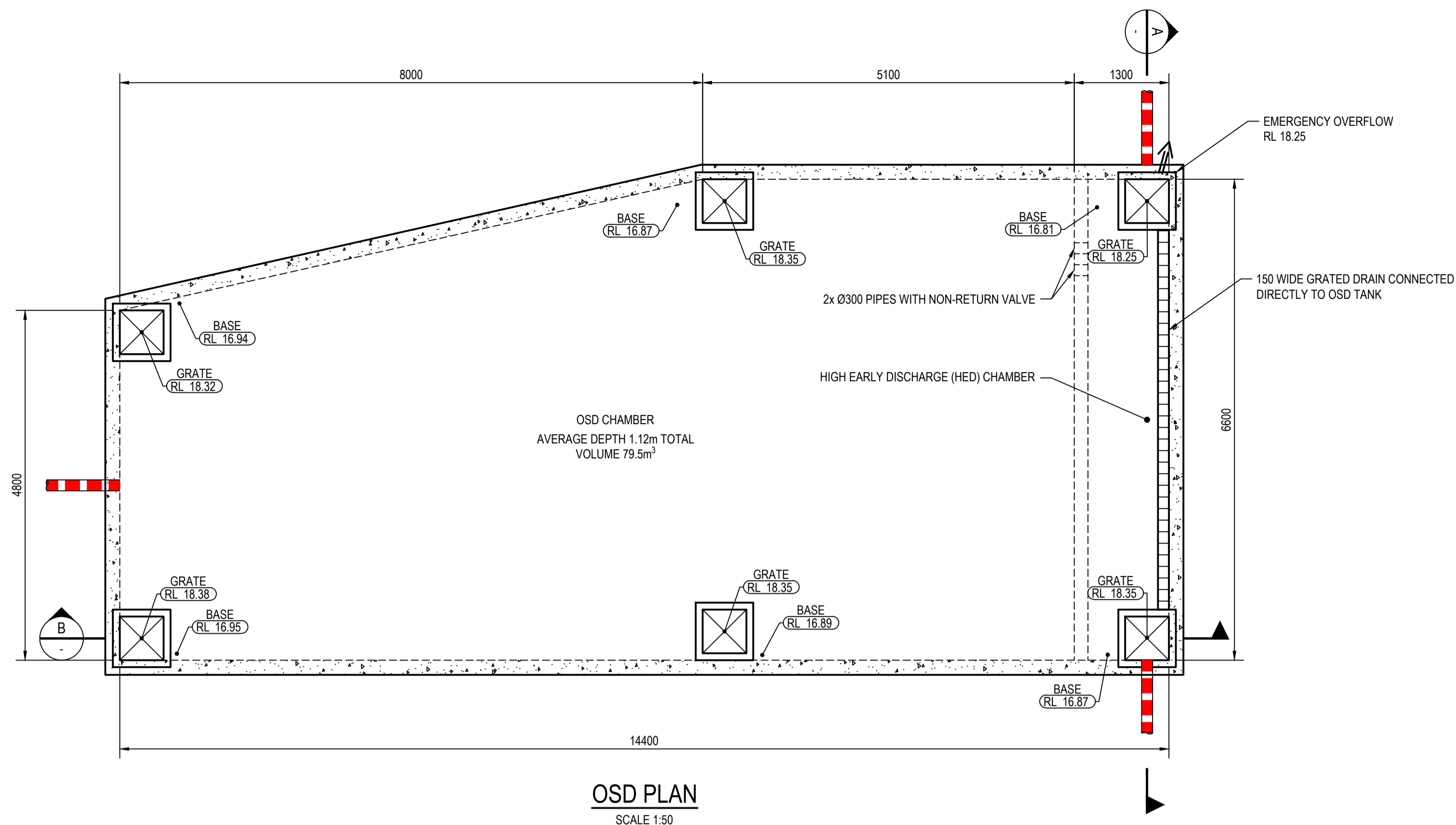
P01	07.05.21	ISSUED FOR DA APPROVAL	M.N.	S.S.
REV	DATE	DESCRIPTION	DRN	APP
TITLE				

**CIVIL DETAILS SHEET 1**

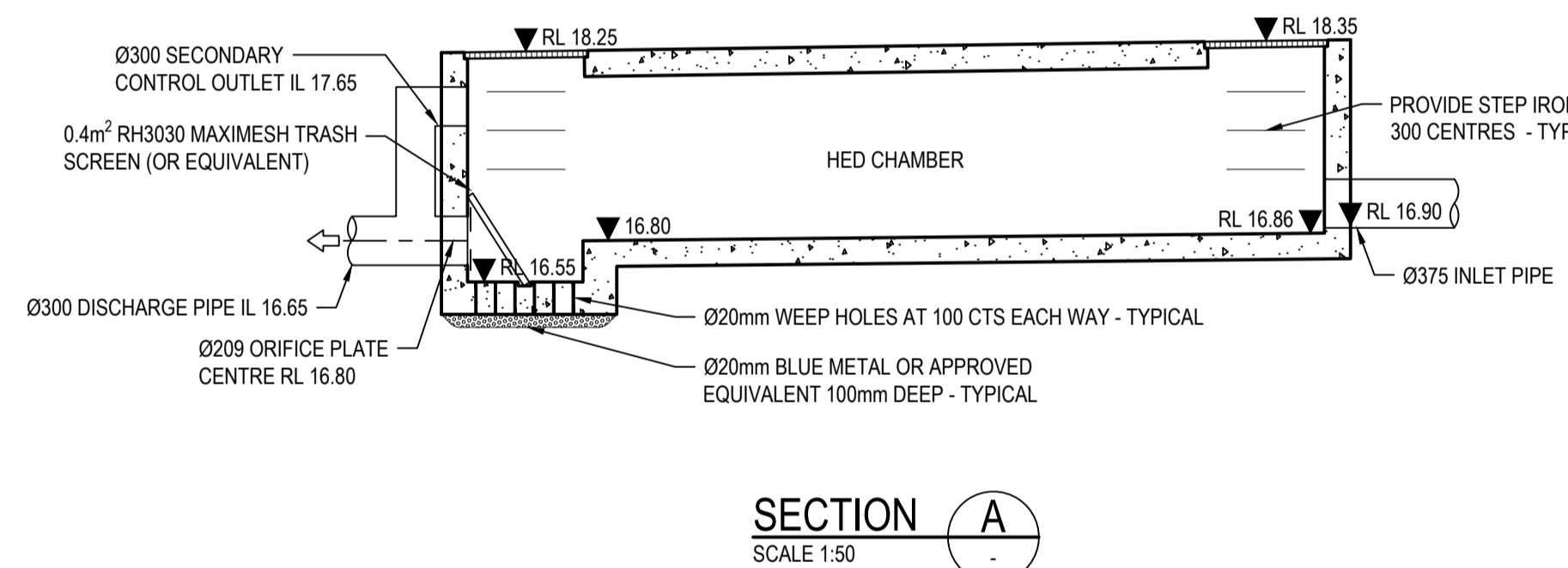
DOCUMENT STATUS			SHEET SIZE
<b>FOR APPROVAL</b>			<b>A1</b>
DRAWN I.Judd	DESIGNED L.Kleyn	APPROVED S.Sharma	SCALE AS SHOWN
DOCUMENT No.			REVISION

16762-LD-DR-C-0030 **P01**

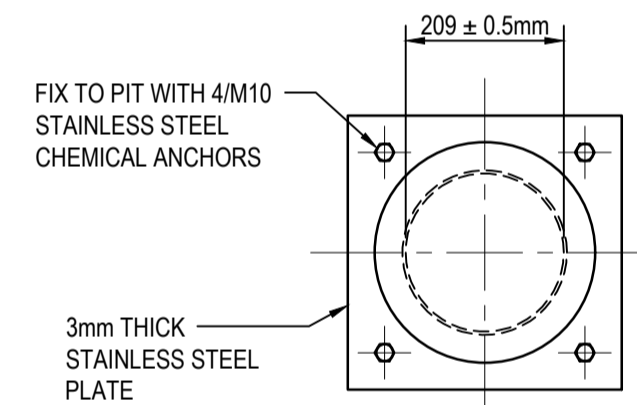
**NOT FOR CONSTRUCTION**



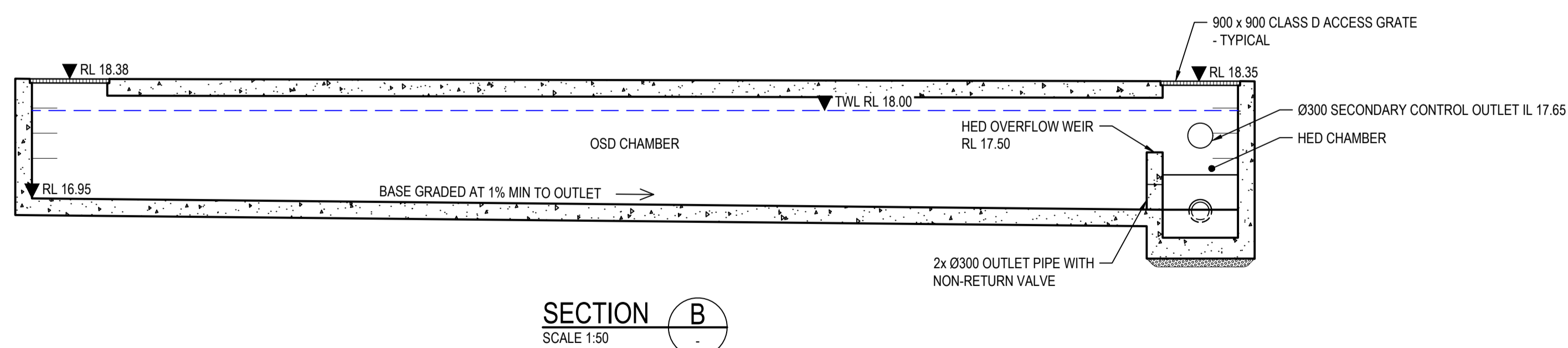
OSD PLAN  
 SCALE 1:50



SECTION A  
 SCALE 1:50



ORIFICE PLATE DETAIL  
 SCALE 1:10



SECTION B  
 SCALE 1:50

P01	07.05.21	ISSUED FOR DA APPROVAL	M.N.	S.S.
REV	DATE	DESCRIPTION	DRN	APP
TITLE				

CIVIL DETAILS SHEET 2



NOT FOR CONSTRUCTION

DOCUMENT STATUS			SHEET SIZE	
FOR APPROVAL			A1	
DRAWN	DESIGNED	APPROVED	SCALE	AS SHOWN
M.Nguyen	L.Kleyn	S.Sharma		
DOCUMENT No.	REVISION			
16762-LD-DR-C-0031			P01	