

PROBIOTEC FACILITY
LOT 14, THE YARDS ESTATE
MAMRE ROAD, KEMPS CREEK, NSW
CIVIL WORKS PACKAGE

DRAWING LIST - SITE WORKS

DRAWING NO.	DRAWING TITLE
C013362.09-DA10	DRAWING LIST & GENERAL NOTES
C013362.09-DA20	EROSION AND SEDIMENT CONTROL PLAN
C013362.09-DA25	EROSION AND SEDIMENT CONTROL DETAILS
C013362.09-DA40	DRAWING KEY PLAN
C013362.09-DA41	CONCEPT STORMWATER PLAN - SHEET 1
C013362.09-DA42	CONCEPT STORMWATER PLAN - SHEET 2
C013362.09-DA43	STORMWATER CATCHMENT PLAN
C013362.09-DA45	CONCEPT STORMWATER DETAILS - SHEET 1
C013362.09-DA46	CONCEPT STORMWATER DETAILS - SHEET 2
C013362.09-DA51	FINISHED LEVELS PLAN - SHEET 1
C013362.09-DA52	FINISHED LEVELS PLAN - SHEET 2

DRAWING LIST - ROAD WORKS

DRAWING NO. C013362.09-R20	DRAWING TITLE EROSION AND SEDIMENT CONTROL PLAN
C013362.09-R40	CONCEPT STORMWATER PLAN
C013362.09-R41	STORMWATER CATCHMENT PLAN
C013362.09-R45	CONCEPT ROADWORKS DETAILS-SHEET 1
C013362.09-R46	CONCEPT ROADWORKS DETAILS-SHEET 2
C013362.09-R50	FINISHED LEVELS PLAN
C013362.09-R51	ROAD LONG SECTIONS & TYPICAL CROSS SECTIONS
C013362.09-R70	SIGNAGE AND LINE MARKING PLAN
C013362.09-R90	TURNING PATHS PLAN

GENERAL NOTES:

1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
2. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT AND CURRENT STANDARDS AUSTRALIA CODES AND WITH THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITIES EXCEPT WHERE VARYED BY THE PROJECT SPECIFICATION.
3. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. ENGINEER'S DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS. ENGINEER'S DRAWINGS ISSUED IN ANY ELECTRONIC FORMAT MUST NOT BE USED FOR DIMENSIONAL SETOUT.
4. REFER TO THE ARCHITECT'S DRAWINGS FOR ALL DIMENSIONAL SETOUT INFORMATION. DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED. TEMPORARY BRACING SHALL BE PROVIDED BY THE BUILDER TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES.
5. UNLESS NOTED OTHERWISE ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES.
6. ALL WORKS SHALL BE UNDERTAKEN IN ACCORDANCE WITH ACCEPTABLE SAFETY STANDARDS & APPROPRIATE SAFETY SIGNS SHALL BE INSTALLED AT ALL TIMES DURING THE PROGRESS OF THE JOB.

ELECTRONIC INFORMATION NOTES:

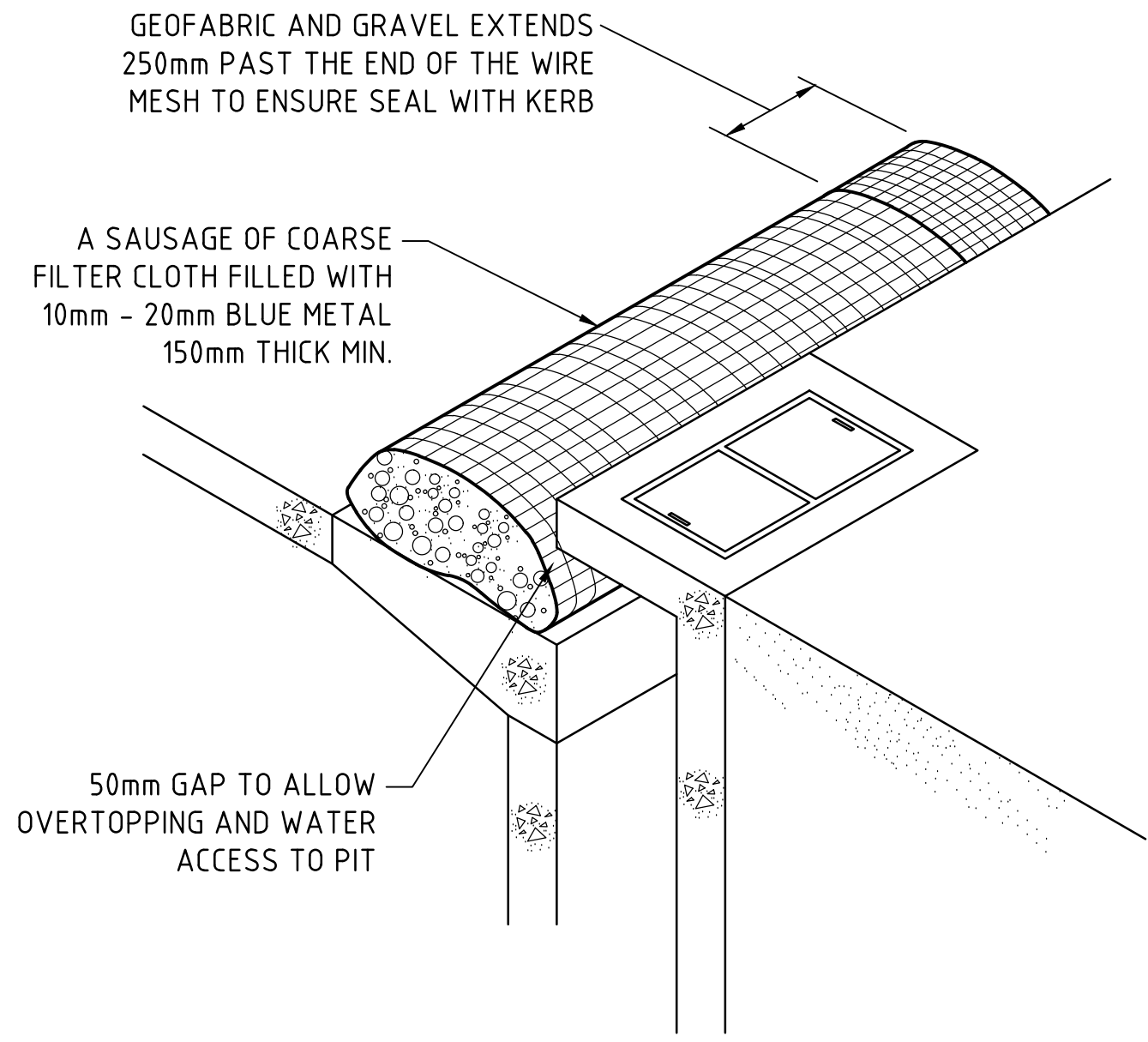
1. THE ISSUED DRAWINGS IN HARD COPY OR PDF FORMAT TAKE PRECEDENCE OVER ANY ELECTRONICALLY ISSUED INFORMATION, LAYOUTS OR DESIGN MODELS.
2. THE CONTRACTOR'S DIRECT AMENDMENT OR MANIPULATION OF THE DATA OR INFORMATION THAT MIGHT BE CONTAINED WITHIN AN ENGINEER-SUPPLIED DIGITAL TERRAIN MODEL AND ITS SUBSEQUENT USE TO UNDERTAKE THE WORKS WILL BE SOLELY AT THE DISCRETION OF AND THE RISK OF THE CONTRACTOR.
3. THE CONTRACTOR IS REQUIRED TO HIGHLIGHT ANY DISCREPANCIES BETWEEN THE DIGITAL TERRAIN MODEL AND INFORMATION PROVIDED IN THE CONTRACT AND/OR DRAWINGS AND IS REQUIRED TO SEEK CLARIFICATION FROM THE SUPERINTENDENT.
4. THE ENGINEER WILL NOT BE LIABLE OR RESPONSIBLE FOR THE POSSIBLE ON-GOING NEED TO UPDATE THE DIGITAL TERRAIN MODEL, SHOULD THERE BE ANY AMENDMENTS OR CHANGES TO THE DRAWINGS OR CONTRACT INITIATED BY THE CONTRACTOR.



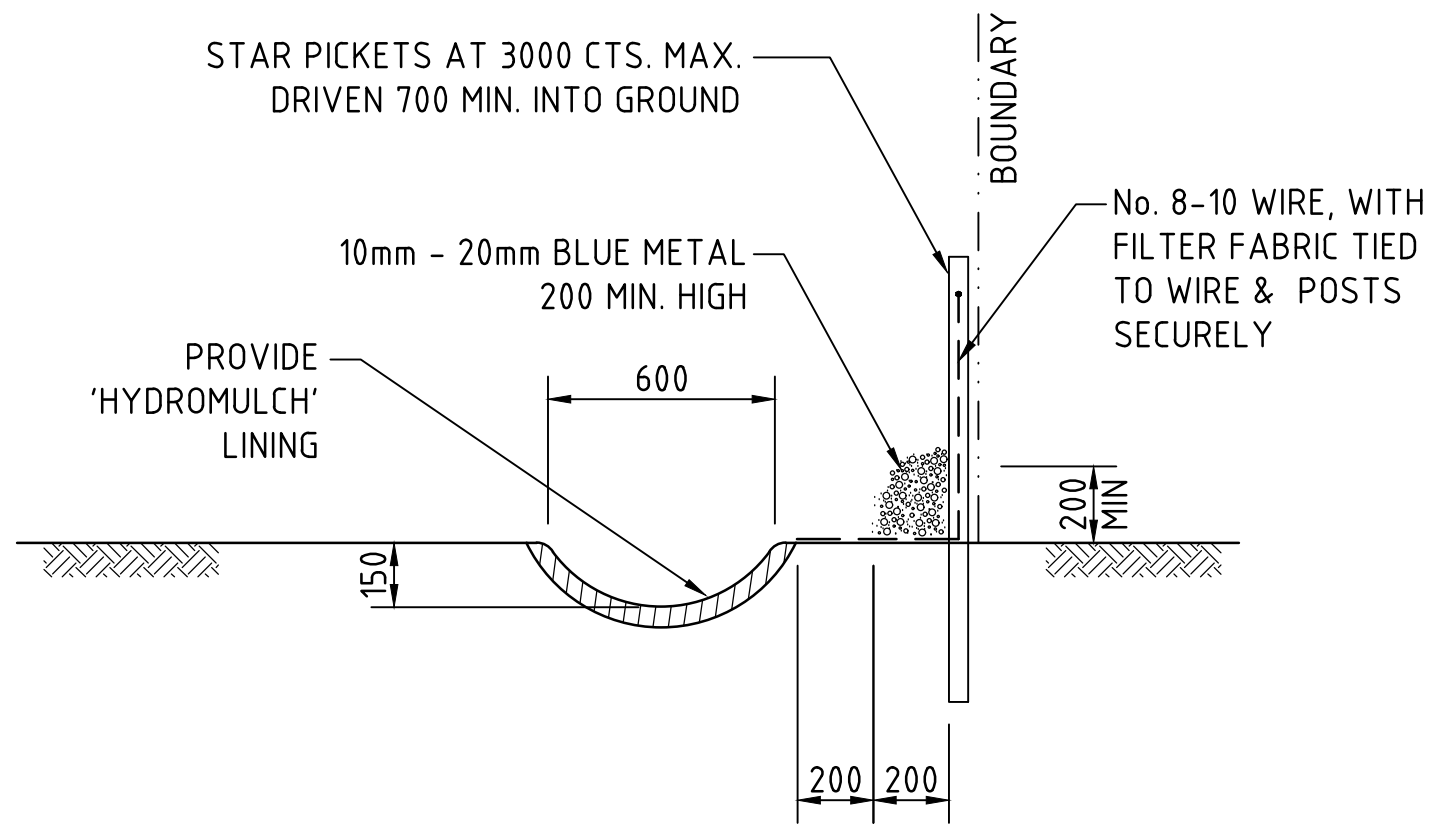
LOCALITY PLAN

FOR DEVELOPMENT APPLICATION

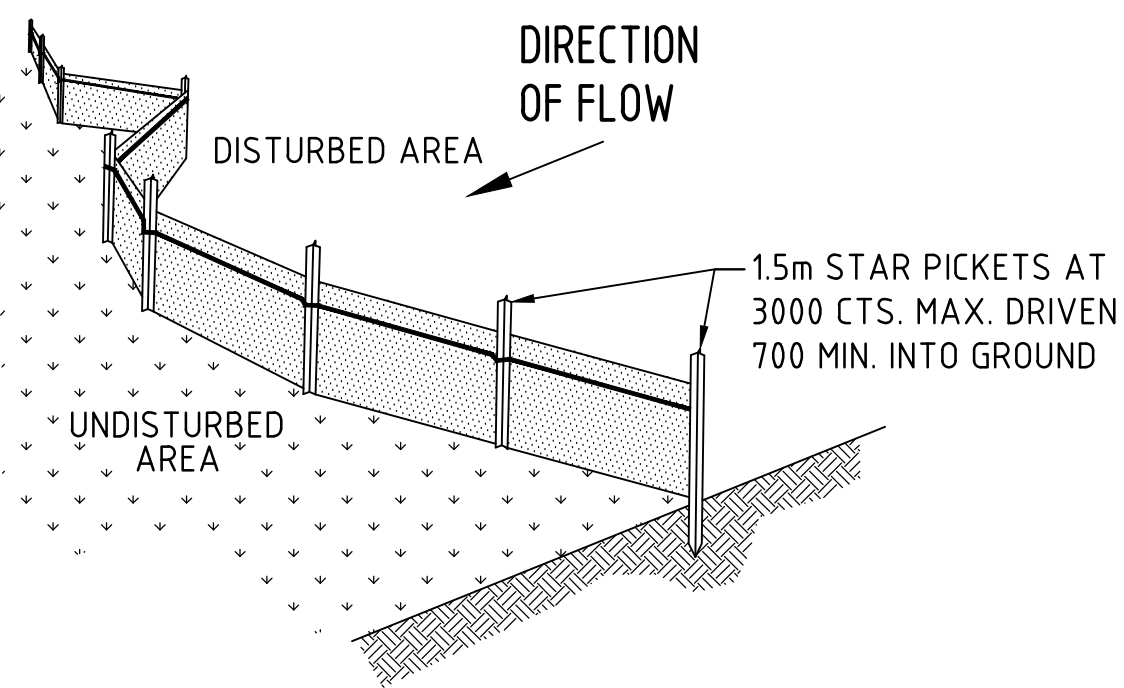
[illegible]



KERB INLET CONTROL
N.T.S.

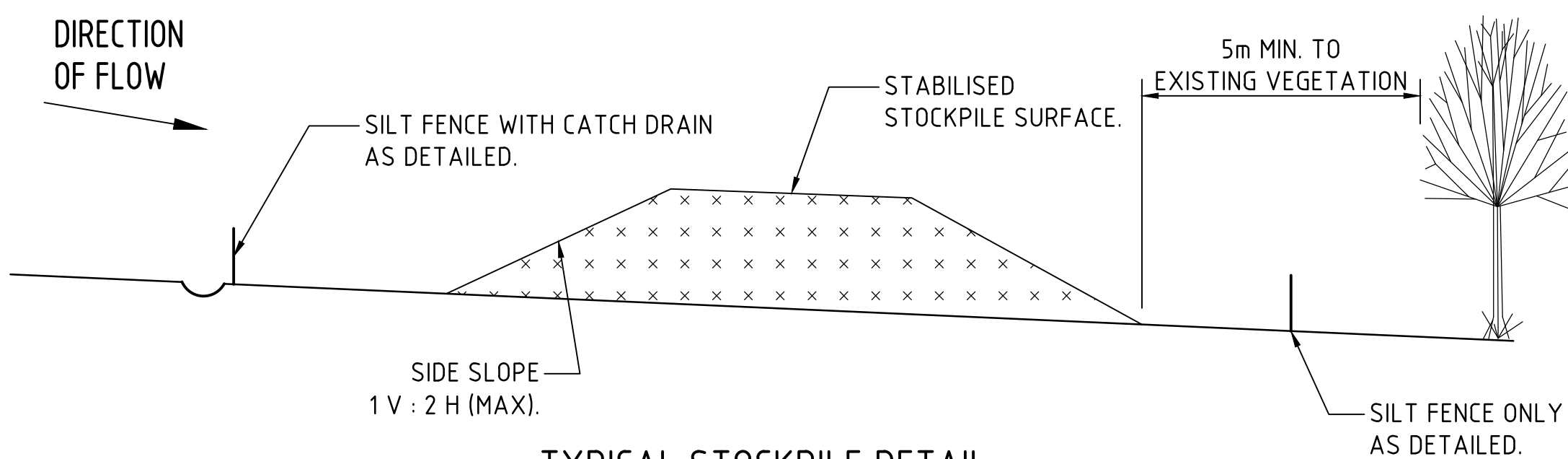


TYPICAL OPEN DRAIN & SILT FENCE
SCALE 1:20



TYPICAL SILT FENCE DETAIL
N.T.S.

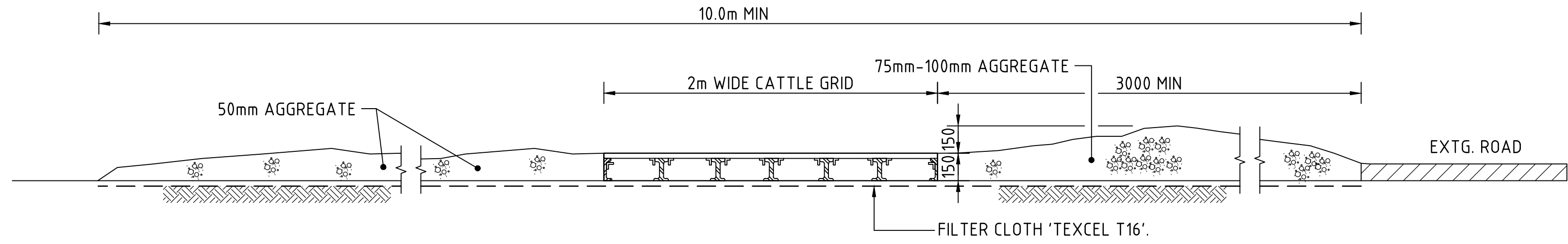
NOTE: PROVIDE 1m RETURNS AT 30m INTERVALS. TYPICAL



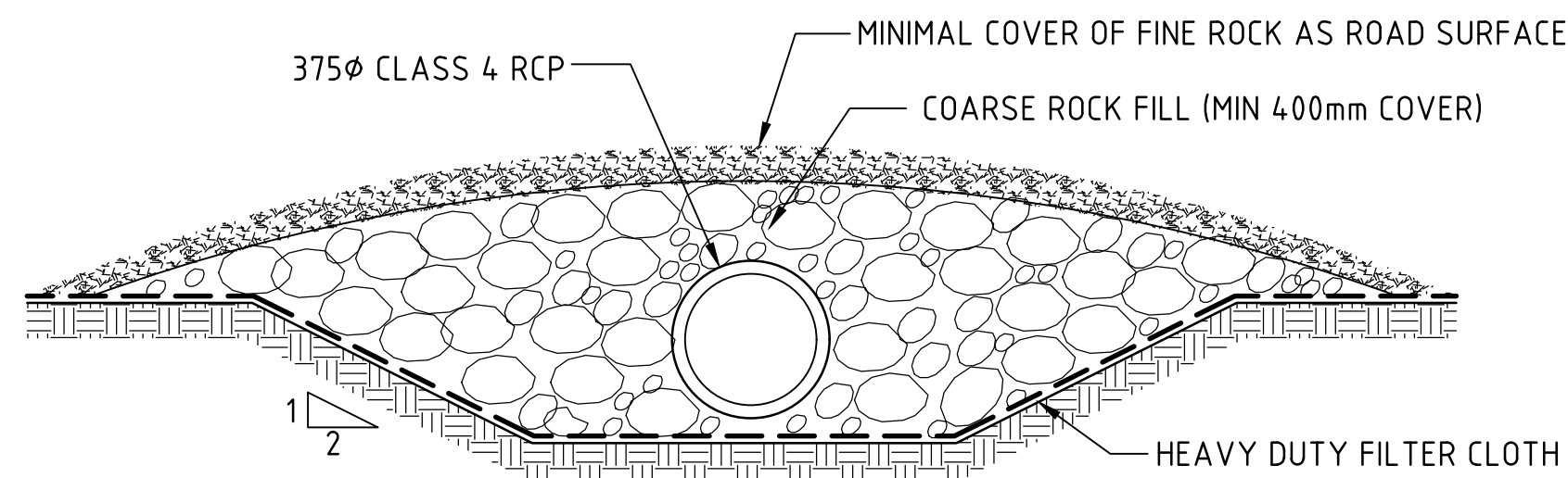
TYPICAL STOCKPILE DETAIL
N.T.S.

STOCKPILE NOTES

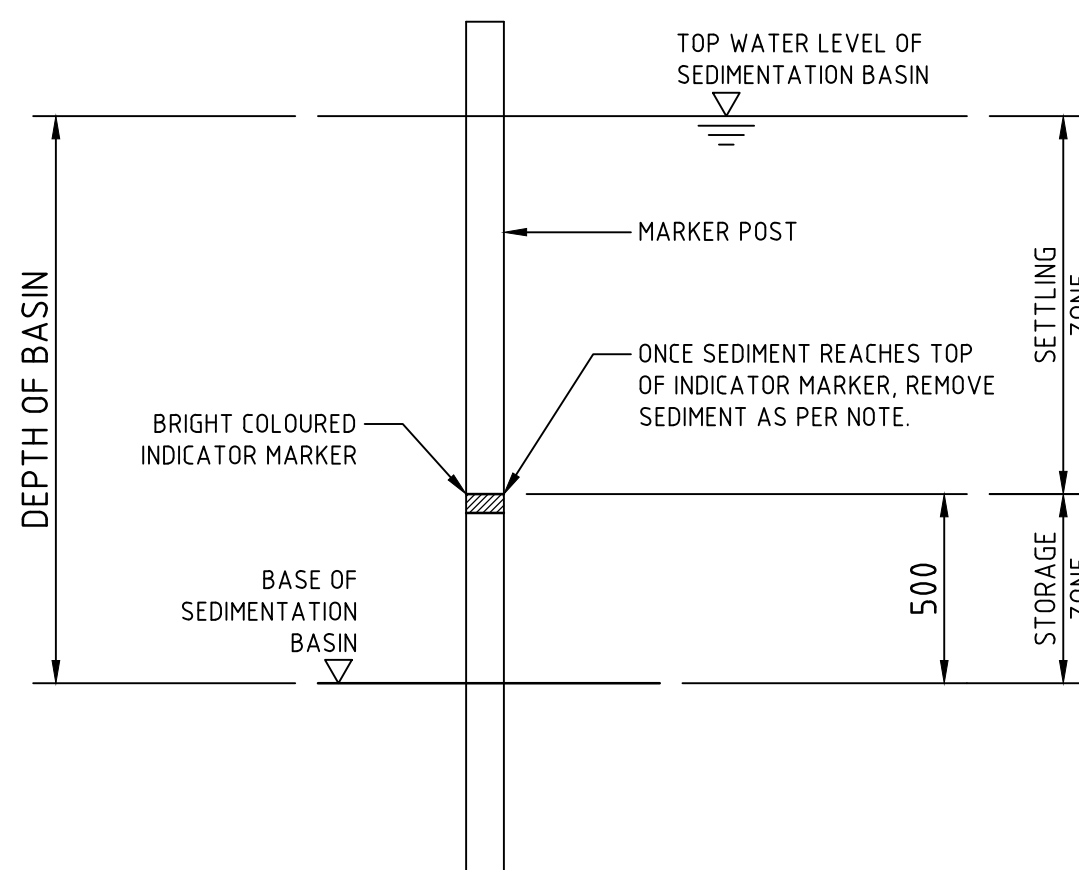
1. PLACE ALL STOCKPILES IN LOCATIONS MORE THAN 5m FROM EXISTING VEGETATION, ROADS & HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT ELONGATED MOUNDS. SIDE SLOPE TO BE 1 V: 2 H MAX.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE STOCKPILES ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE USING WOOD CHIP MULCH - 16 TONNE/Ha.
5. CONSTRUCT SILT FENCE WITH CATCH DRAIN ON UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES & SILT FENCE ONLY 1 TO 2m DOWNSLOPE AS SHOWN.



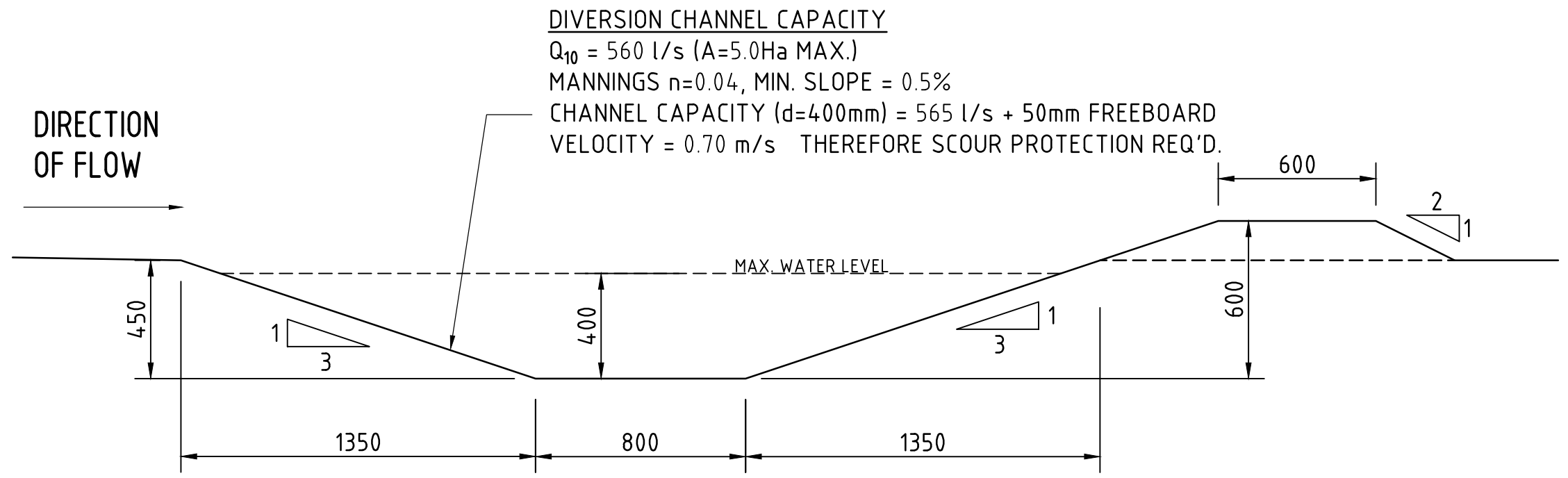
SECTION 1:20 1: STABILISED CONSTRUCTION ENTRANCE 'TRUCK SHAKER'



SECTION 1:20 1: TYPICAL CROSSING OVER DIVERSION CHANNEL



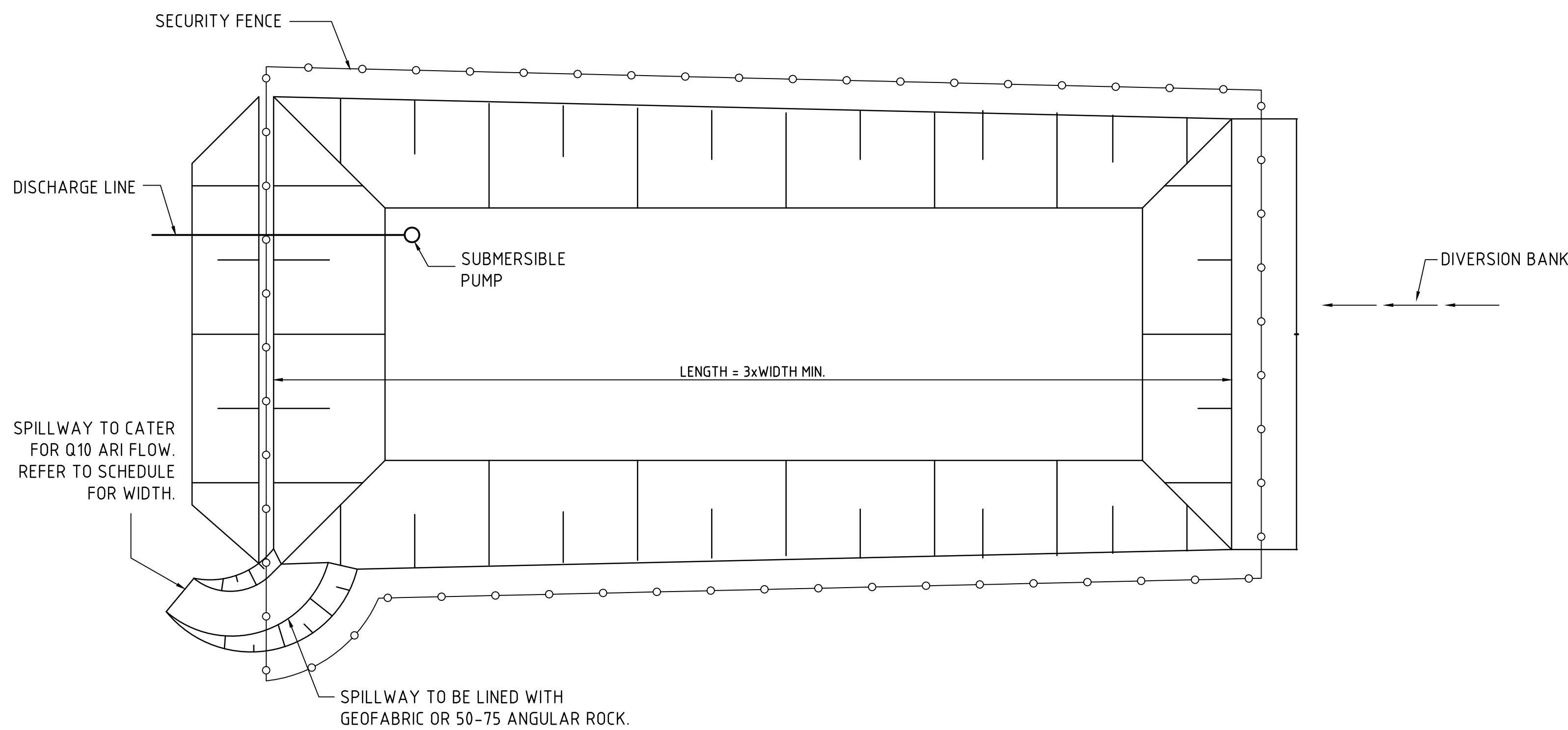
SEDIMENT STORAGE MARKER
SCALE 1:20



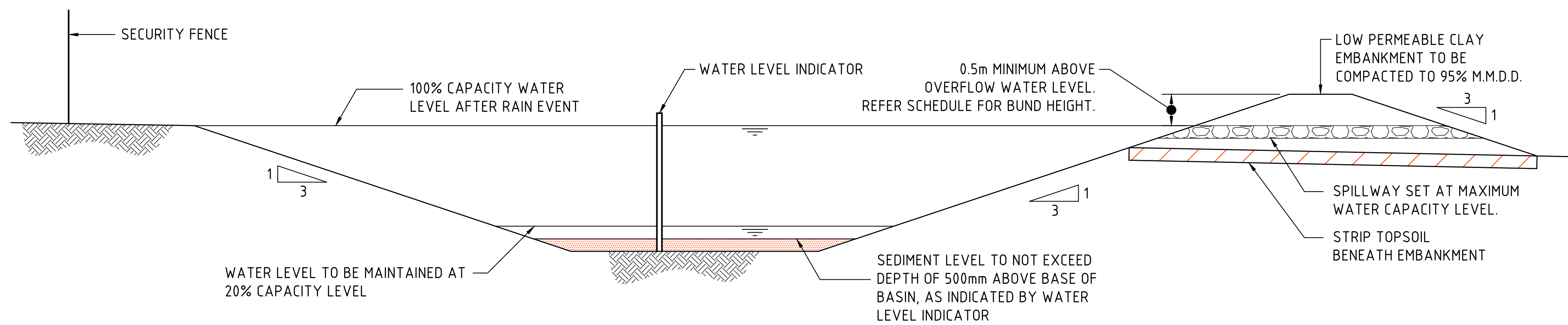
DIVERSION DRAIN SECTION - 3500 WIDE
SCALE 1:20

TEMPORARILY PROTECT THE SWALE FROM EROSION DURING CONSTRUCTION

TEMPORARY DIVERSION DRAINS & EARTHEN CLEAN WATER DIVERSION DRAINS SHALL BE STABILISED BY:
a. TURF REINFORCEMENT, OR
b. GEOFABRIC LINER, OR
c. POLYMER HYDRAULIC SOIL STABILISER. DOSAGE TO BE TO MANUFACTURER'S SPECIFICATION FOR FLOW RATES NOMINATED. DOSAGE SHALL BE SUCH THAT $C=0.05$.

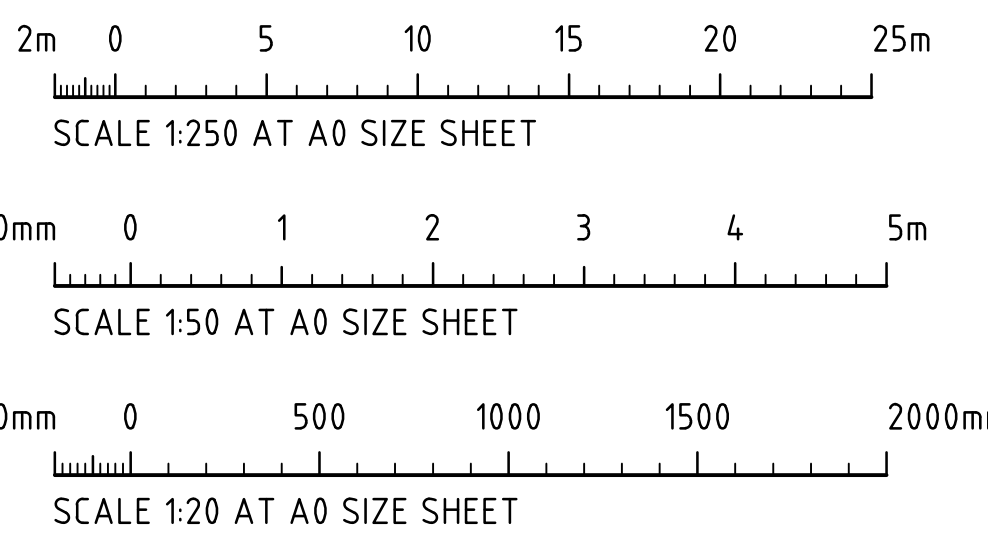


TYPICAL SEDIMENT CONTROL POND PLAN
SCALE 1:250



TYPICAL SEDIMENT CONTROL BASIN SECTION
SCALE 1:50

SPILLWAY SCHEDULE					
CATCHMENT (Ha)	FLOW (m³/s)	WIDTH (m)	FLOW DEPTH (m)	ROCK SIZE (mm)	BUND HEIGHT ABOVE SPILLWAY (m)
1	0.3	2	0.20	200	0.70
2	0.6	4	0.20	200	0.70
5	1.4	5	0.30	200	0.80
10	2.8	8	0.35	200	0.85
20	5.5	14	0.40	250	0.90
40	11.0	20	0.50	250	1.00



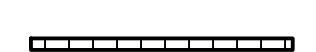
FOR DEVELOPMENT APPLICATION

ISSUED FOR DEVELOPMENT APPLICATION			14.06.23			C			ARCHITECT			CLIENT			PROJECT			CONSULT AUSTRALIA			Costin Roe Consulting Pty Ltd.			DRAWING TITLE			EROSION & SEDIMENT CONTROL DETAILS		
ISSUED FOR DEVELOPMENT APPLICATION			24.11.22			B			hla architects			FRASERS PROPERTY			PROBIOTEC FACILITY			PO Box N419 Sydney NSW 1220			CRC			CIVIL & STRUCTURAL ENGINEERS			DRAWING No.		
ISSUED FOR DEVELOPMENT APPLICATION			19.08.22			A			AMENDMENTS			DATE			DESIGNED			Lot 14, THE YARDS			KEMPS CREEK, 2178, NSW			C013362.09- DA25			ISSUE		
AMENDMENTS			DATE			ISSUE			DATE			ISSUE			MW			MC			AUG 22			MW			AS		
															SCALE			AS SHOWN			CAD REF.								
															1:20			1:50			1:250								

LEGEND:

LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY
INFORMATION PROVIDED BY BOXAL SURVEYORS DATED 02.09.20.

-  - SGGP, SINGLE GRATED GULLY PIT
-  - SJP, SEALED JUNCTION PIT
-  - GD, GRATED DRAIN (300W x 225D UNO)
-  - ESTATE DRAINAGE LINE
-  - OVERLAND FLOW DIRECTION

PIT SCHEDULE-LINE A

PIT No.	GRATE RL	TYPE	SIZE	COMMENT
PIT A1	38.95	SGGP	900x900	
PIT A2	38.95	SGGP	900x900	
PIT A3	38.95	SGGP	900x900	
PIT A4	38.95	SGGP	900x900	
PIT A5	39.25	SGGP	900x900	
PIT A6	38.85	SGGP	900x900	
PIT A7	38.50	SGGP	900x900	
PIT A8	38.50	SGGP	1200x1200	900sq RISER
PIT A9	38.50	SGGP	1200x1200	900sq RISER
PIT A10	38.50	SGGP	1200x1200	900sq RISER
PIT A11	38.50	SGGP	1200x1200	900sq RISER
PIT A12	38.50	SGGP	1200x1200	900sq RISER
PIT A13	38.50	SGGP	1200x1200	900sq RISER
PIT A14	38.05	SGGP	1200x1200	900sq RISER
PIT A15	38.05	SGGP	1200x1200	900sq RISER
PIT A16	38.05	SGGP	1200x1200	900sq RISER
PIT A17	38.05	SGGP	1500x1500	900sq RISER
PIT A18	37.90	SJP	1500x1500	900sq RISER
PIT A19	37.39	SJP	1800x1800	900sq RISER
PIT A20	39.25	SJP	900x900	
PIT A21	37.95	SGGP	900x900	
PIT A22	39.25	SJP	900x900	
PIT A23	39.25	SJP	900x900	
PIT A24	39.05	SJP	900x900	
PIT A25	37.56	SGGP	900x900	

PIT SCHEDULE-LINE B

PIT No.	GRATE RL	TYPE	SIZE	COMMENT
PIT B1	39.10	SJP	900x900	
PIT B2	39.10	SJP	900x900	
PIT B3	39.10	SJP	900x900	
PIT B4	39.22	SJP	900x900	
PIT B5	39.06	SJP	900x900	
PIT B6	39.06	SJP	1200x1200	900sq RISER
PIT B7	38.96	SJP	1200x1200	900sq RISER
PIT B8	39.02	SJP	1200x1200	900sq RISER
PIT B9	38.91	SGGP	1200x1200	900sq RISER
PIT B10	38.90	SGGP	1200x1200	900sq RISER
PIT B11	37.00	FIP	900x900	

SHEET 1 - REFER TO DA41 & DA51

SHEET 2 - REFER TO DA42 & DA52

SHEET 1 - REFER TO R40 & R50

ESTATE
OSD BASIN

PROPOSED LOT 13
SUBJECT TO SEPARATE APPLICATION

ARDEX DEVELOPMENT
LOT 12-NOT PART OF PROPOSED WORKS

RESIDUAL LOT

DRAWING KEY PLAN
1:750 SCALE

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

FOR DEVELOPMENT APPLICATION

ISSUED FOR DEVELOPMENT APPLICATION				14.06.23				C			
ISSUED FOR DEVELOPMENT APPLICATION				24.11.22				B			
ISSUED FOR DEVELOPMENT APPLICATION				19.08.22				A			
AMENDMENTS				DATE	ISSUE	AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE
ARCHITECT				hla architects				CLIENT			
PROJECT				PROBIOTEC FACILITY LOT 14, THE YARDS KEMPS CREEK, 2178, NSW				CONSULT AUSTRALIA			
DESIGNED				DATE	CHECKED	SCALE	CAD REF.	Costin Roe Consulting Pty Ltd. ABN 50 003 696 446 PO Box N419 Sydney NSW 1220 Level 4, 9 Windmill Street, Millers Point NSW 2000 p: +61 2 9251 7699 f: +61 2 9241 3731 e: mail@costinroe.com.au w: costinroe.com.au			
DRAWING				DATE	SCALE	AS SHOWN		CRC COSTIN ROE CONSULTING CIVIL & STRUCTURAL ENGINEERS			
DRAWING				DATE	SCALE	AS SHOWN		DRAWING TITLE DRAWING KEY PLAN DRAWING No: C013362.09- DA40			

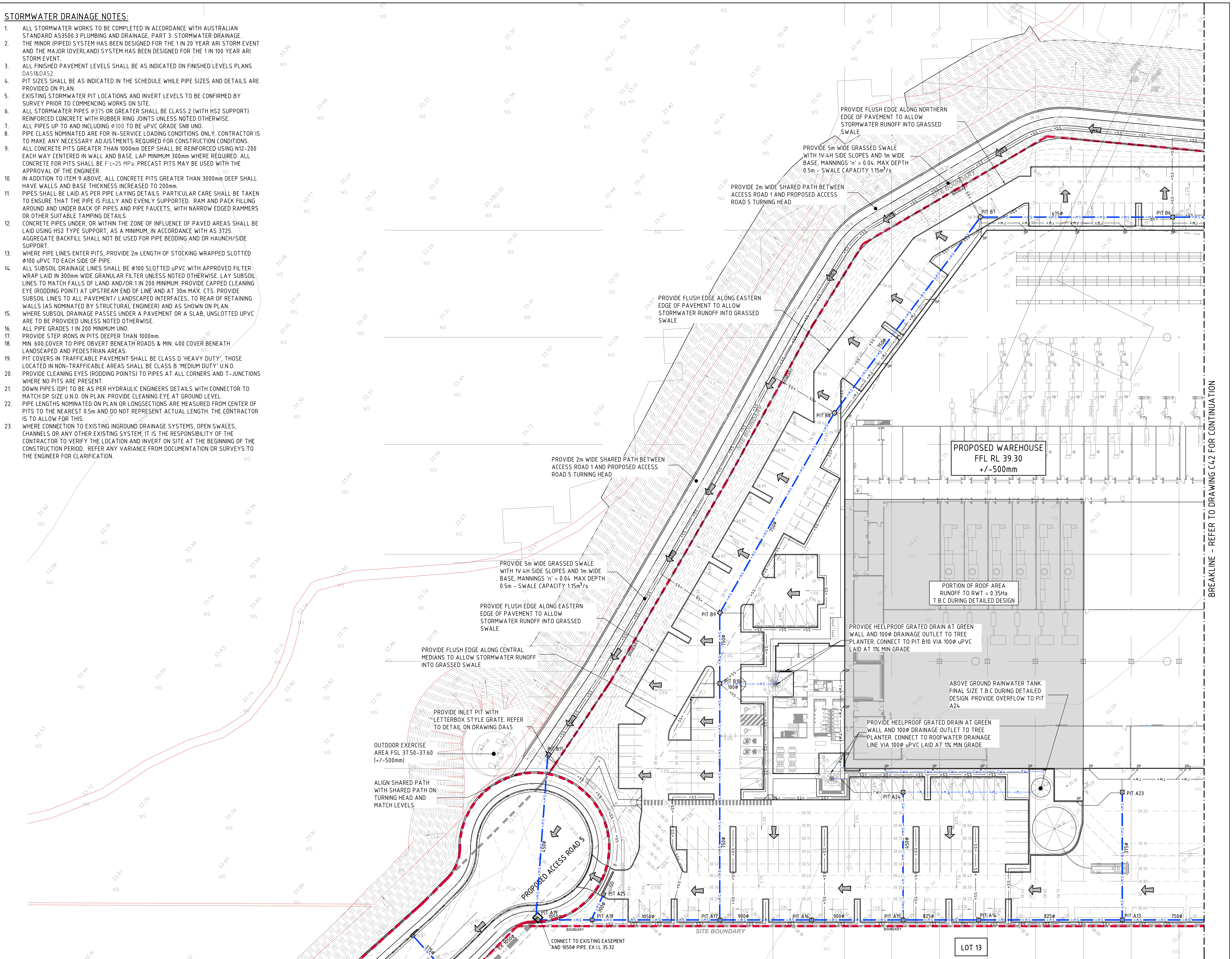
REFER TO DRAWING DA40 FOR PIT SCHEDULE

LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY
INFORMATION PROVIDED BY BOXAL SURVEYORS DATED 02.09.20

- | | |
|---|---|
|  | - SGGP, SINGLE GRATED GULLY PIT |
|  | - SJP, SEALED JUNCTION PIT |
|  | - GD, GRATED DRAIN (300W x 225D UNO) |
|  | - PROPOSED DRAINAGE LINE |
|  | - EXISTING DRAINAGE LINE |
|  | - ROOFWATER DOWNPIPE (INDICATIVE) |
|  | - ROOFWATER LINE |
|  | - SUBSOIL LINE |
|  | - OVERLAND FLOW DIRECTION |
|  | - FINISHED PAVEMENT CONTOUR (MAJOR)
0.5m INTERVALS |
|  | - FINISHED PAVEMENT CONTOUR (MINOR)
0.1m INTERVALS |
|  | - FINISHED PAVEMENT SPOT HEIGHT |
|  | - ESTATE UNDERGROUND ELEC |
|  | - ESTATE WATER MAIN |
|  | - ESTATE RECYCLED WATER MAIN |
|  | - ESTATE TELECOMMUNICATIONS |
|  | - ESTATE SEWER |

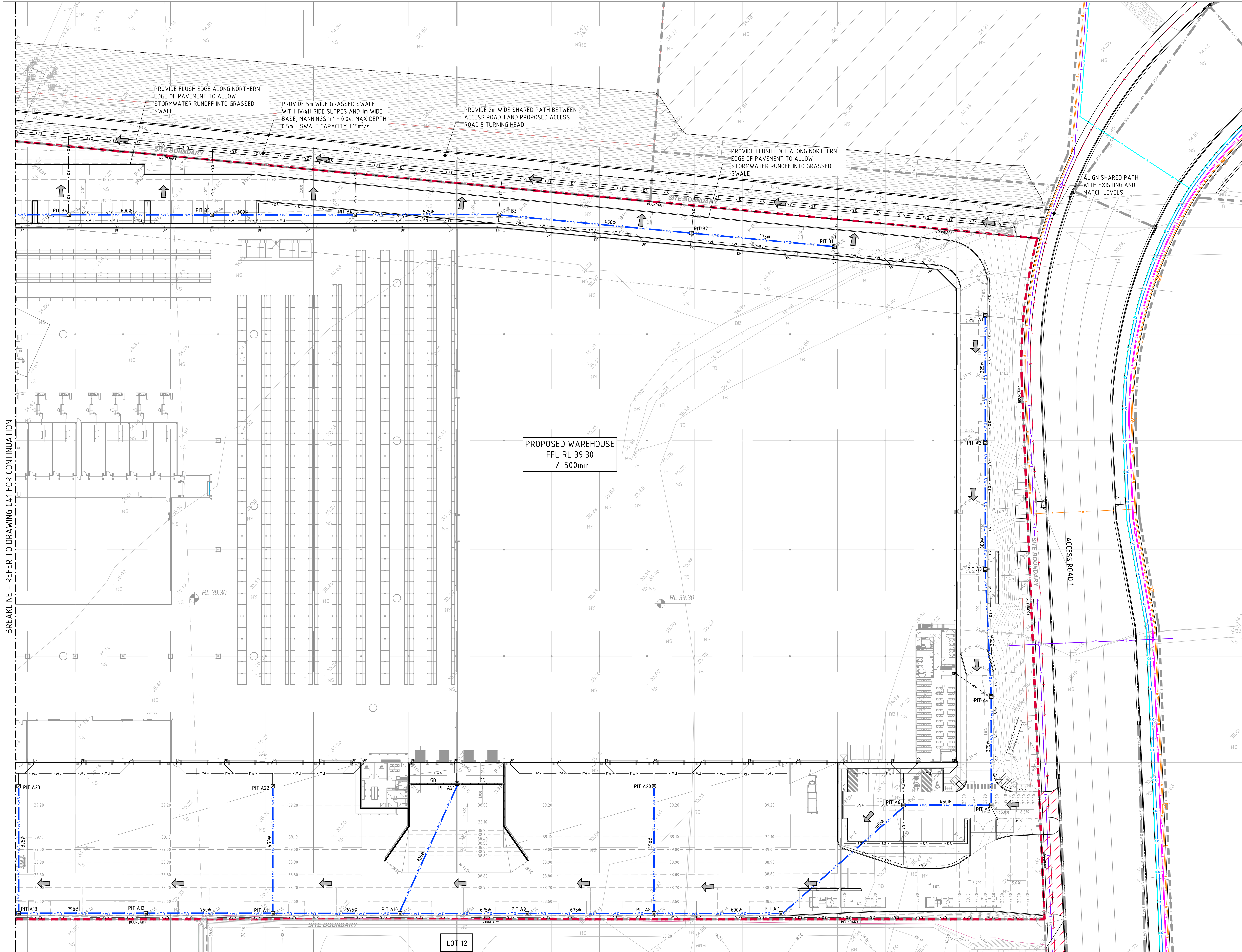
1. ALL STORMWATER WORKS TO BE COMPLETED IN ACCORDANCE WITH AUSTRALIAN STANDARD AS3500.3 PLUMBING AND DRAINAGE, PART 3. STORMWATER DRAINAGE.
2. THE MINOR (PIPER) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 20 YEAR AIR STORM EVENT AND THE MAJOR (OVERLAND) SYSTEM HAS BEEN DESIGNED FOR THE 1 IN 100 YEAR AIR STORM EVENT.
3. ALL FINISHED PAVEMENT LEVELS SHALL BE AS INDICATED ON FINISHED LEVELS PLANS DAS18/0A52.
4. PIPES SIZES SHALL BE AS INDICATED IN THE SCHEDULE WHILE PIPE SIZES AND DETAILS ARE PROVIDED ON PLAN.
5. EXISTING STORMWATER PIT LOCATIONS AND INVERT LEVELS TO BE CONFIRMED BY SURVEY PRIOR TO COMMENCING WORKS ON SITE.
6. ALL STORMWATER PIPES Ø375 OR GREATER SHALL BE CLASS 2 (WITH HS2 SUPPORT) RATHER THAN CONCRETE WITH RUBBER RING JOINTS UNLESS NOTED OTHERWISE.
7. ALL PIPES UP TO AND INCLUDING Ø300 TO BE UPVC GRADE SNB UNO.
8. PIPE CLASS NOMINATED ARE FOR IN-SERVICE LOADING CONDITIONS ONLY. CONTRACTOR IS TO MAKE ANY NECESSARY ADJUSTMENTS REQUIRED FOR CONSTRUCTION CONDITIONS.
9. ALL CONCRETE PITS GREATER THAN 1000mm DEEP SHALL BE REINFORCED USING N12-200 EACH WAY CENTERED IN WALL AND BASE. LAP MINIMUM 300mm where REQUIRED. ALL CONCRETE FOR PITS SHALL BE $F_{cc} \geq 25$ MPa. PRECAST PITS MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
10. IN ADDITION TO ITEM 9 ABOVE, ALL CONCRETE PITS GREATER THAN 3000mm DEEP SHALL HAVE WALLS AND BASE THICKNESS INCREASED TO 200mm.
11. PIPES SHALL BE LAID AS PER PIPE LAYING DETAILS. PARTICULAR CARE SHALL BE TAKEN TO ENSURE THAT THE PIPE IS FULLY AND EVENLY SUPPORTED. RAM AND PACK FILLING ARE TO BE USED UNDER BACK OF PIPE AND PIPE FAUCETS, WITH NARROW EDGED RAMMERS OR OTHER SUITABLE TAMPING DETAILS.
12. CONCRETE PIPES UNDER, OR WITHIN THE ZONE OF INFLUENCE OF PAVED AREAS SHALL BE LAID USING HS2 TYPE SUPPORT, AS A MINIMUM, IN ACCORDANCE WITH AS 3725. AGGREGATE BACKFILL SHALL NOT BE USED FOR PIPE BEDDING AND/OR HAUNCH/SIDE SUPPORT.
13. WHERE PIPE LINES ENTER PITS, PROVIDE 2m LENGTH OF STOCKING WRAPPED SLOTTED Ø100 uPVC TO EACH SIDE OF PIPE.
14. ALL SUBSOIL DRAINAGE LINES SHALL BE Ø100 SLOTTED uPVC WITH APPROVED FILTER WRAP LAY IN 300mm wide GRANULAR FILTER UNLESS NOTED OTHERWISE. LAY SUBSOIL LINES TO MATCH FALLS OF LAND AND/OR 1 IN 200 MINIMUM. PROVIDE CAPPED CLEANING EYE (RODDING POINT) AT UPSTREAM END OF LINE AND AT 30m MAX. CTS. PROVIDE SUBSOIL LINES TO ALL PAVEMENT/ LANDSCAPED INTERFACES, TO REAR OF RETAINING WALLS AND NOMINATED BY STRUCTURAL ENGINEER AND AS SHOWN ON PLAN.
15. WHERE SUBSOIL DRAINAGE PIPES UNDER A PAVEMENT OR A SLAB, UNSLOTTED UPVC ARE TO BE PROVIDED UNLESS NOTED OTHERWISE.
16. ALL PIPE GRADES 1 IN 200 MINIMUM UNO.
17. PROVIDE STEEL IRONS IN PITS DEEPER THAN 1000mm.
18. MIN. 600 COVER TO PIPE OBVERT BENEATH ROADS & MIN. 400 COVER BENEATH LANDSCAPED AND PEDESTRIAN AREAS.
19. PIT COVERS IN TRAFFICABLE PAVEMENT SHALL BE CLASS D 'HEAVY DUTY', THOSE LOCATED IN NON-TRAFFICABLE AREAS SHALL BE CLASS B 'MEDIUM DUTY' U.N.O.
20. PROVIDE CLEANING EYES (RODDING POINTS) TO PIPES AT ALL CORNERS AND T-JUNCTIONS WHERE NO PITS ARE PRESENT.
21. DOWN PIPES (DP) TO BE AS PER HYDRAULIC ENGINEERS DETAILS WITH CONNECTOR TO MATCH DP SIZE UNO. ON PLAN. PROVIDE CLEANING EYE AT GROUND LEVEL.
22. PIPE SIZES NOMINATED ON PLAN OR LONGSECTIONS ARE MEASURED FROM CENTER OF PITS TO THE NEAREST 0.5m AND DO NOT REPRESENT ACTUAL LENGTH. THE CONTRACTOR IS TO ALLOW FOR THIS.
23. WHERE CONNECTION TO EXISTING INGROUND DRAINAGE SYSTEMS, OPEN SWALES, CHANNELS OR ANY OTHER EXISTING SYSTEM, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION AND INVERT ON SITE AT THE BEGINNING OF THE CONSTRUCTION PERIOD. REFER ANY VARIANCE FROM DOCUMENTATION OR SURVEYS TO THE ENGINEER FOR CLARIFICATION.



-----BREAKLINE-----REFER TO DRAWING C42 FOR CONTINUATION

FOR DEVELOPMENT APPLICATION

ISSUED FOR DEVELOPMENT APPLICATION										19.06.23		D																																DRAWING TITLE CONCEPT STORMWATER PLAN SHEET 1									
ISSUED FOR DEVELOPMENT APPLICATION										14.06.23		C																																DRAWING NO C013362.09 - DA41				ISSUE D					
ISSUED FOR DEVELOPMENT APPLICATION										24.11.22		B																																									
ISSUED FOR DEVELOPMENT APPLICATION										19.08.22		A																																									
AMENDMENTS										DATE		ISSUE		AMENDMENTS										DATE		ISSUE		AMENDMENTS										DATE		ISSUE		DRAWING NO C013362.09 - DA41										ISSUE D	



LEGEND:
LEVELS DATUM IS AHD.
EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY BOXAL SURVEYORS DATED 02.09.20.

- SGP, SINGLE GRATED GULLY PIT
- SJP, SEALED JUNCTION PIT
- GD, GRATED DRAIN (300W x 225D UNO)
- PROPOSED DRAINAGE LINE
- EXISTING DRAINAGE LINE
- ROOFWATER DOWNPIPE (INDICATIVE)
- ROOFWATER LINE
- SUBSOIL LINE
- OVERLAND FLOW DIRECTION
- FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
- FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS
- FINISHED PAVEMENT SPOT HEIGHT
- ESTATE UNDERGROUND ELEC
- ESTATE WATER MAIN
- ESTATE RECYCLED WATER MAIN
- ESTATE TELECOMMUNICATIONS
- ESTATE SEWER

PIT SCHEDULE
REFER TO DRAWING DA40 FOR PIT SCHEDULE

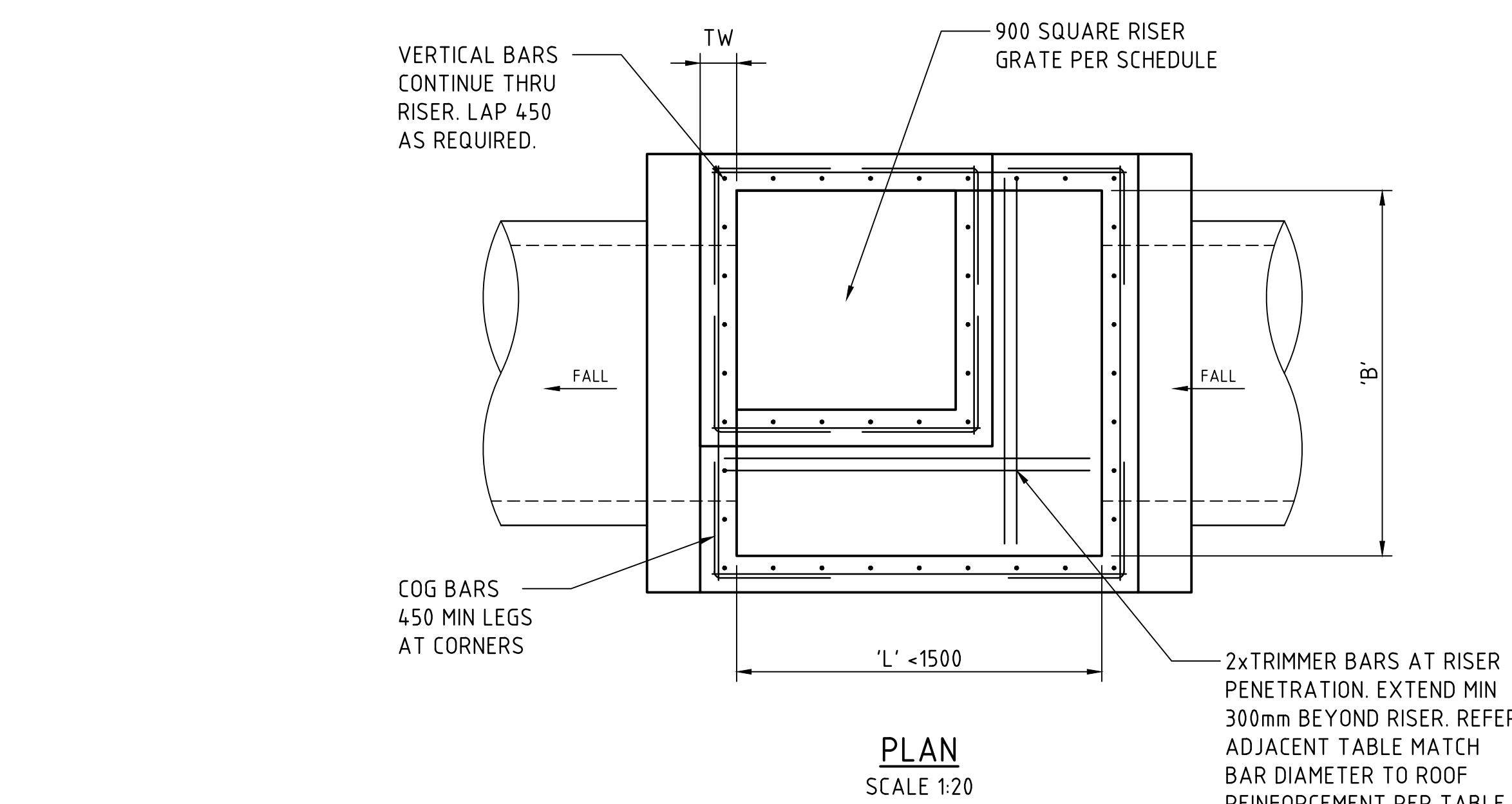
BREAKLINE - REFER TO DRAWING C41 FOR CONTINUATION

FOR DEVELOPMENT APPLICATION

CONCEPT STORMWATER PLAN-SHEET 2
1:300 SCALE

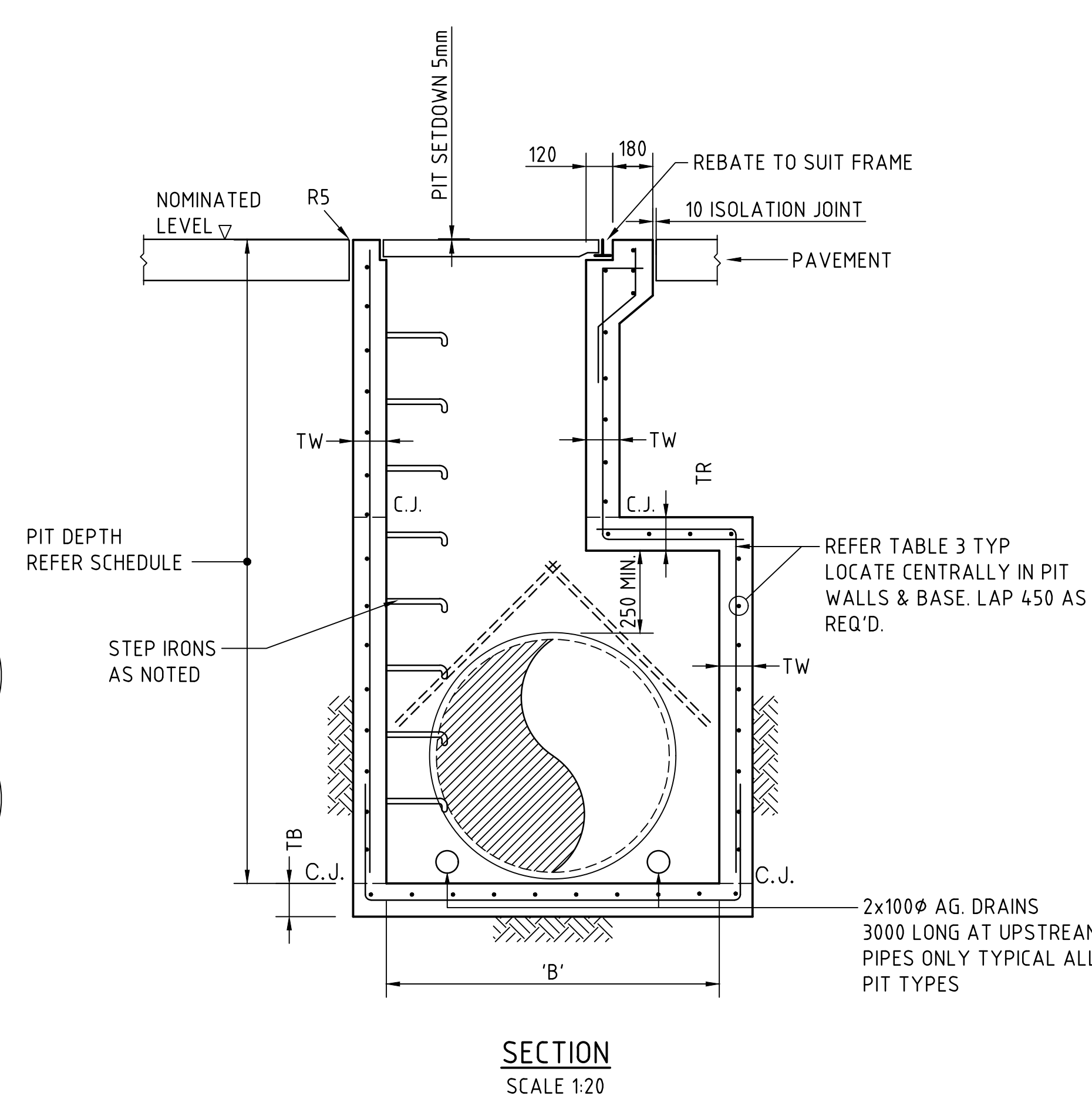
3m 0 5 10 15 20 25 30m
SCALE 1:300 AT A0 SHEET SIZE

ISSUED FOR DEVELOPMENT APPLICATION ISSUED FOR DEVELOPMENT APPLICATION ISSUED FOR DEVELOPMENT APPLICATION ISSUED FOR DEVELOPMENT APPLICATION AMENDMENTS				19.06.23 D 14.04.23 C 24.11.22 B 19.08.22 A				DATE ISSUE AMENDMENTS DATE ISSUE AMENDMENTS				ARCHITECT hla architects				CLIENT FRASERS PROPERTY				PROJECT PROBIOTEC FACILITY LOT 14, THE YARDS KEMPS CREEK, 2178, NSW				CONSULT AUSTRALIA				Costin Roe Consulting Pty Ltd. ABN 50 003 696 446 PO Box N419 Sydney NSW 1220 Level 4, 4 Woodmill Street, Millers Point NSW 2000 p: +61 2 9251 7699 e: mail@costinroe.com.au w: costinroe.com.au				CRC COSTIN ROE CONSULTING CIVIL & STRUCTURAL ENGINEERS				DRAWING TITLE CONCEPT STORMWATER PLAN SHEET 2 DRAWING No. C013362.09-DA42				ISSUE D			
--	--	--	--	--	--	--	--	--	--	--	--	-----------------------------	--	--	--	----------------------------	--	--	--	--	--	--	--	-------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	------------	--	--	--



TAPERED SINGLE GRATED GULLY PIT - SGGP

SUBSOIL NOT SHOWN FOR CLARITY.

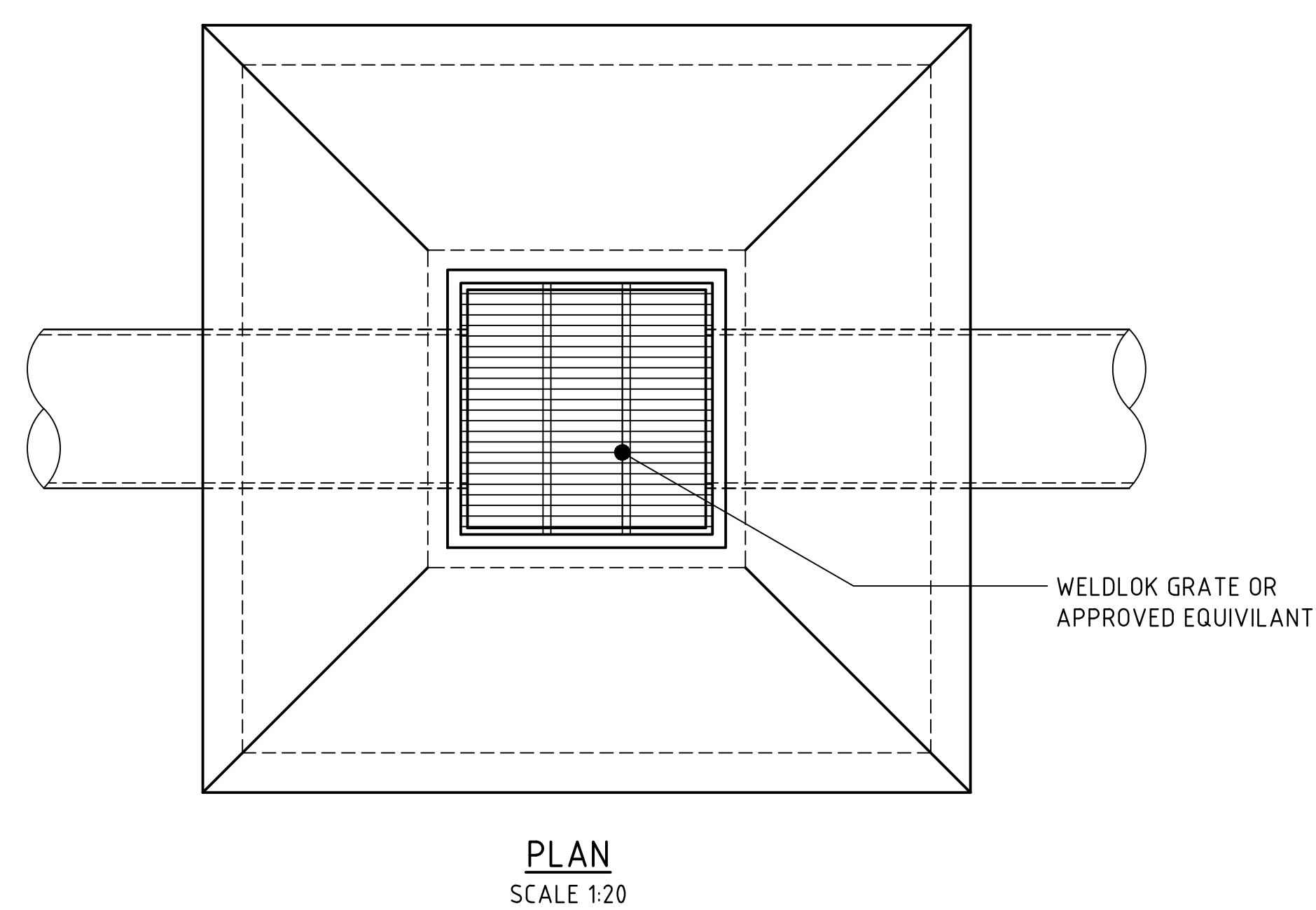


CONCRETE QUALITY					
ELEMENT	SLUMP	AGGREGATE (MAX. SIZE)	CEMENT TYPE	ADMIXTURE	F _c (MPa)
PIT	80	20	GP	NIL	32

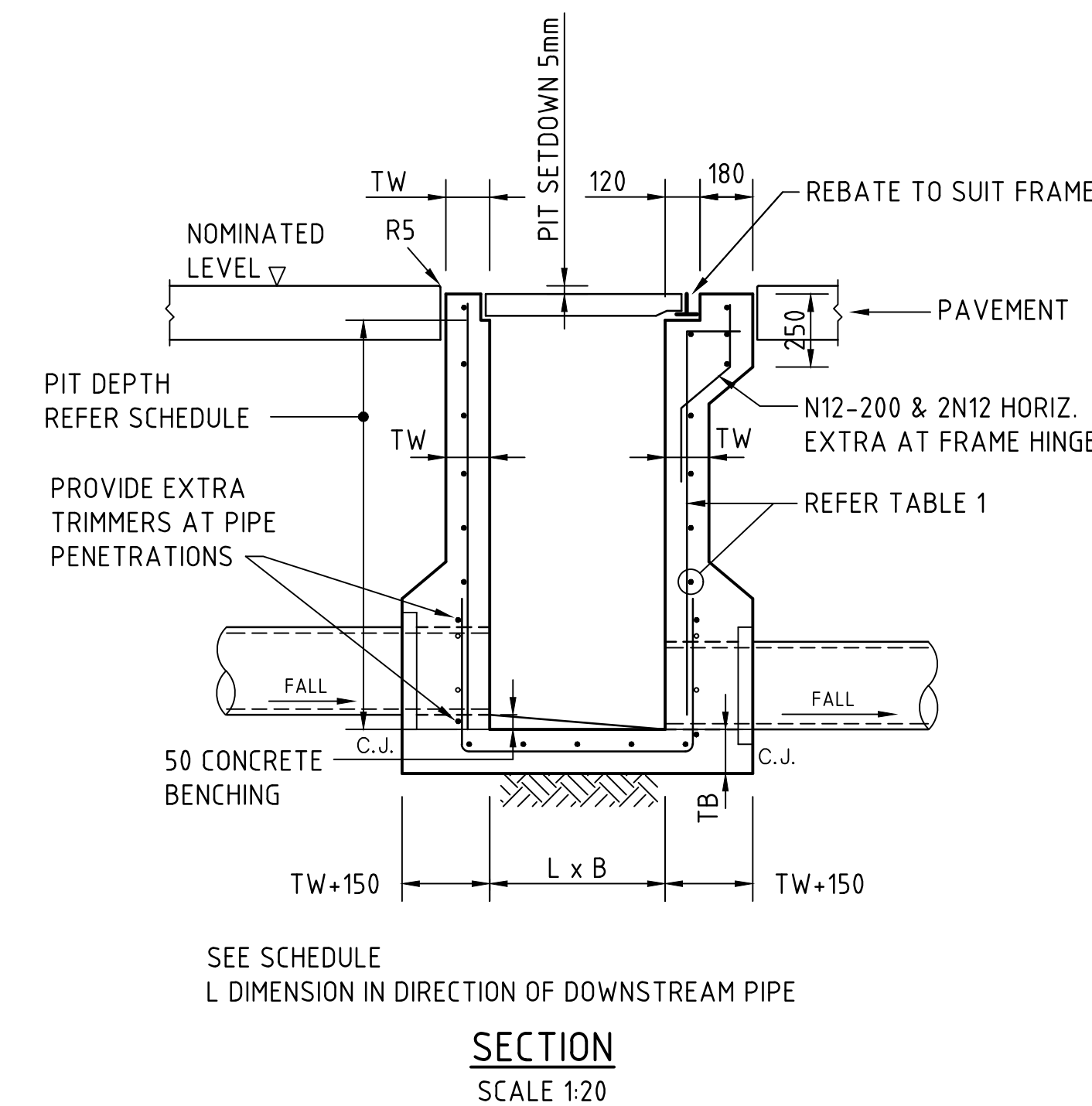
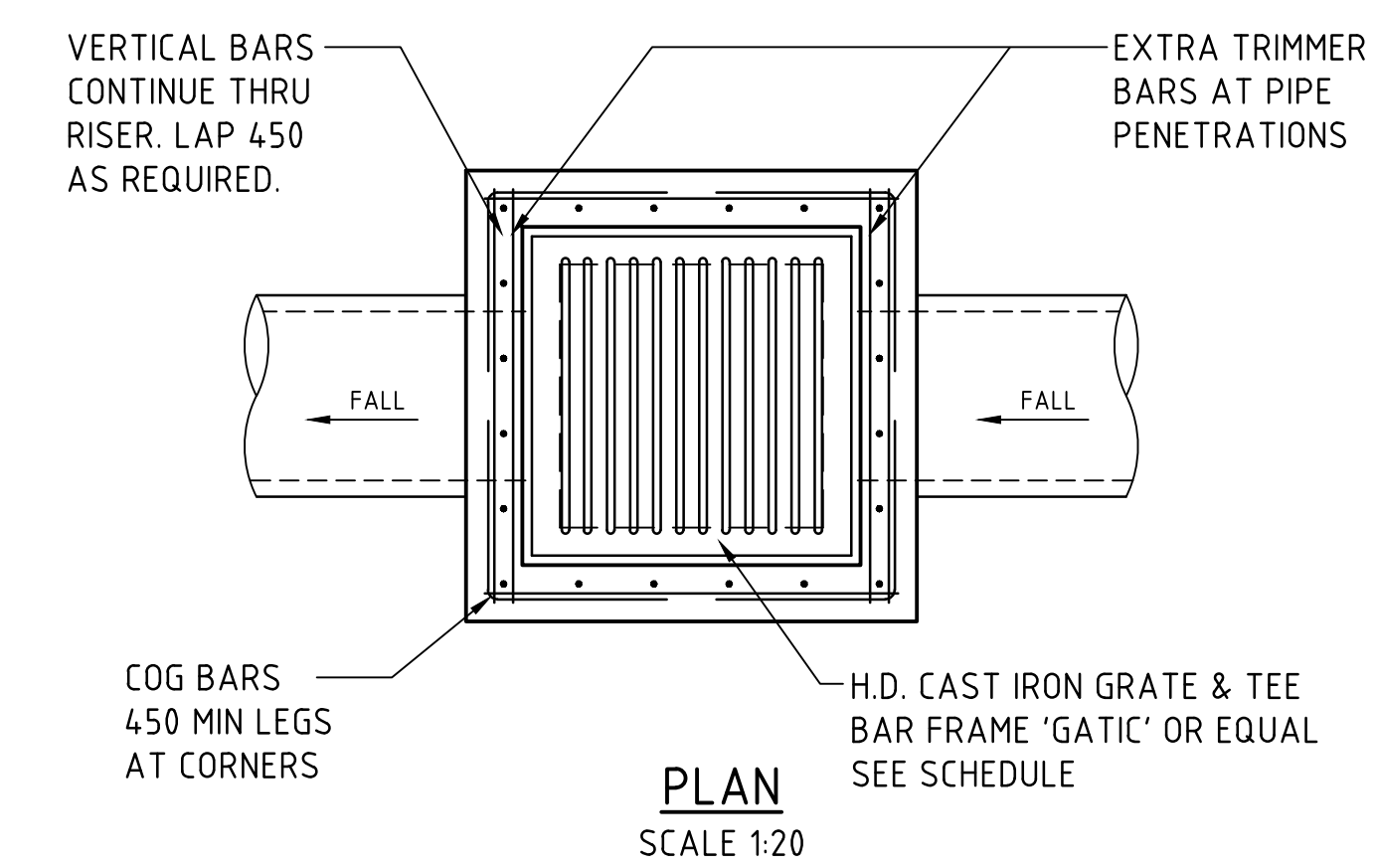
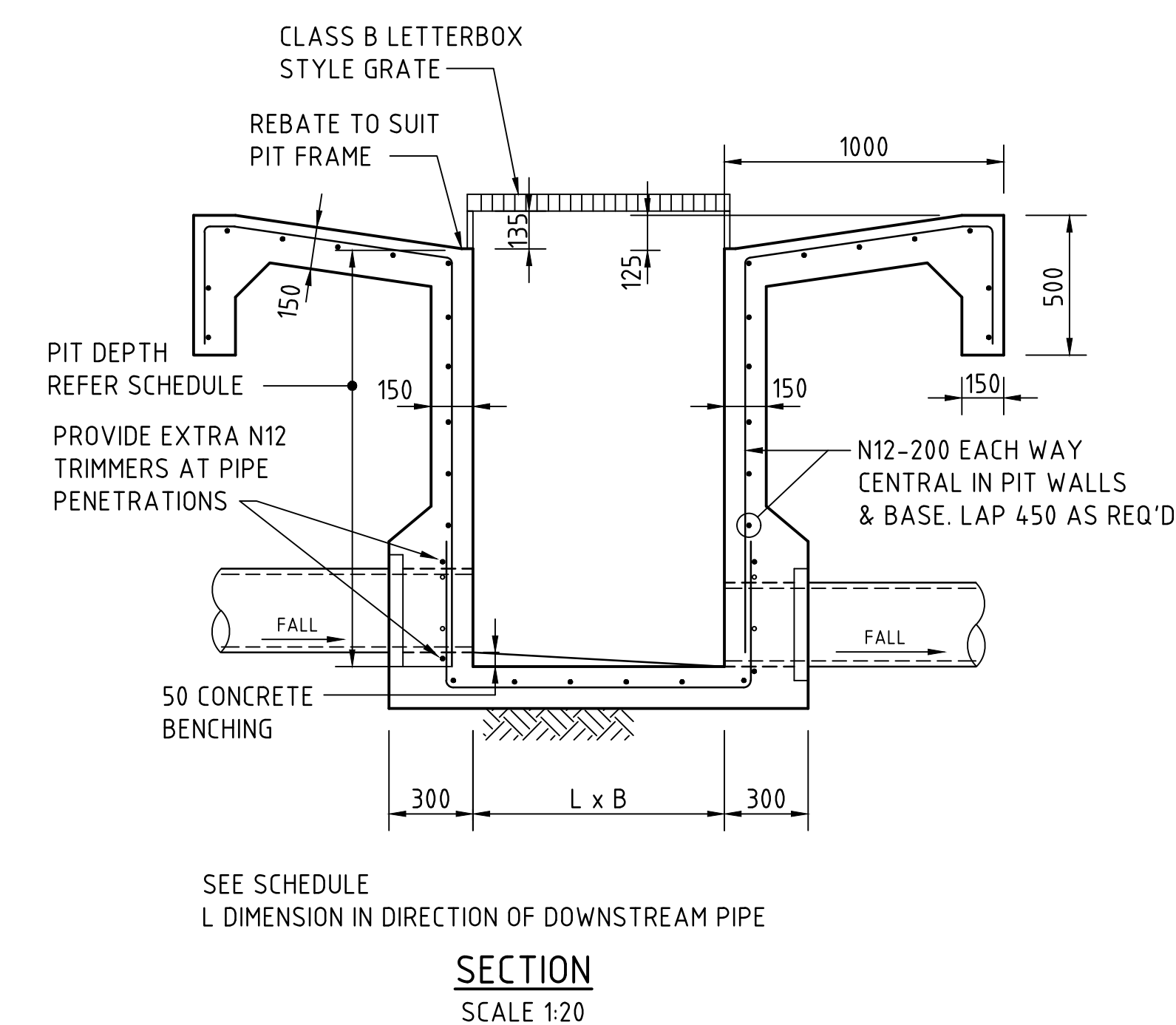
NOTES:

1. WHERE GULLY PIT IS LOCATED ON KERB RETURNS OR BULB OF CUL-DE-SACS PROVIDE CURVED PRECAST CONCRETE LINTELS.
2. SAG PITS SHALL HAVE LINTEL PLACED CENTRALLY ABOUT THE GRATE.
3. ALL REINFORCING TO HAVE 30 MIN. CLEAR CONCRETE COVER.
4. FOR PITS DEEPER THAN 1200mm STEP IRONS SHALL BE PROVIDED.

DEPTH 'H'	WALL THICKNESS 'TW'	WALL REINFORCEMENT	ROOF THICKNESS 'TR'	ROOF REINFORCEMENT	BASE THICKNESS 'TB'	BASE REINFORCEMENT
<15m	150mm	N12-200 EACH WAY	150mm	N12-200 EACH WAY	150mm	N12-200 EACH WAY
15m-3.0m	200mm	N12-200 EACH WAY	200mm	N12-200 EACH WAY	200mm	N12-200 EACH WAY
3.0m-4.5m	200mm	N16-200 EACH WAY	200mm	N16-200 EACH WAY	200mm	N12-200 EACH WAY
4.5-6.0	250mm	N16-200 EACH WAY	250mm	N16-200 EACH WAY	250mm	N16-200 EACH WAY



FIELD INLET PIT - FIP
PIT B11

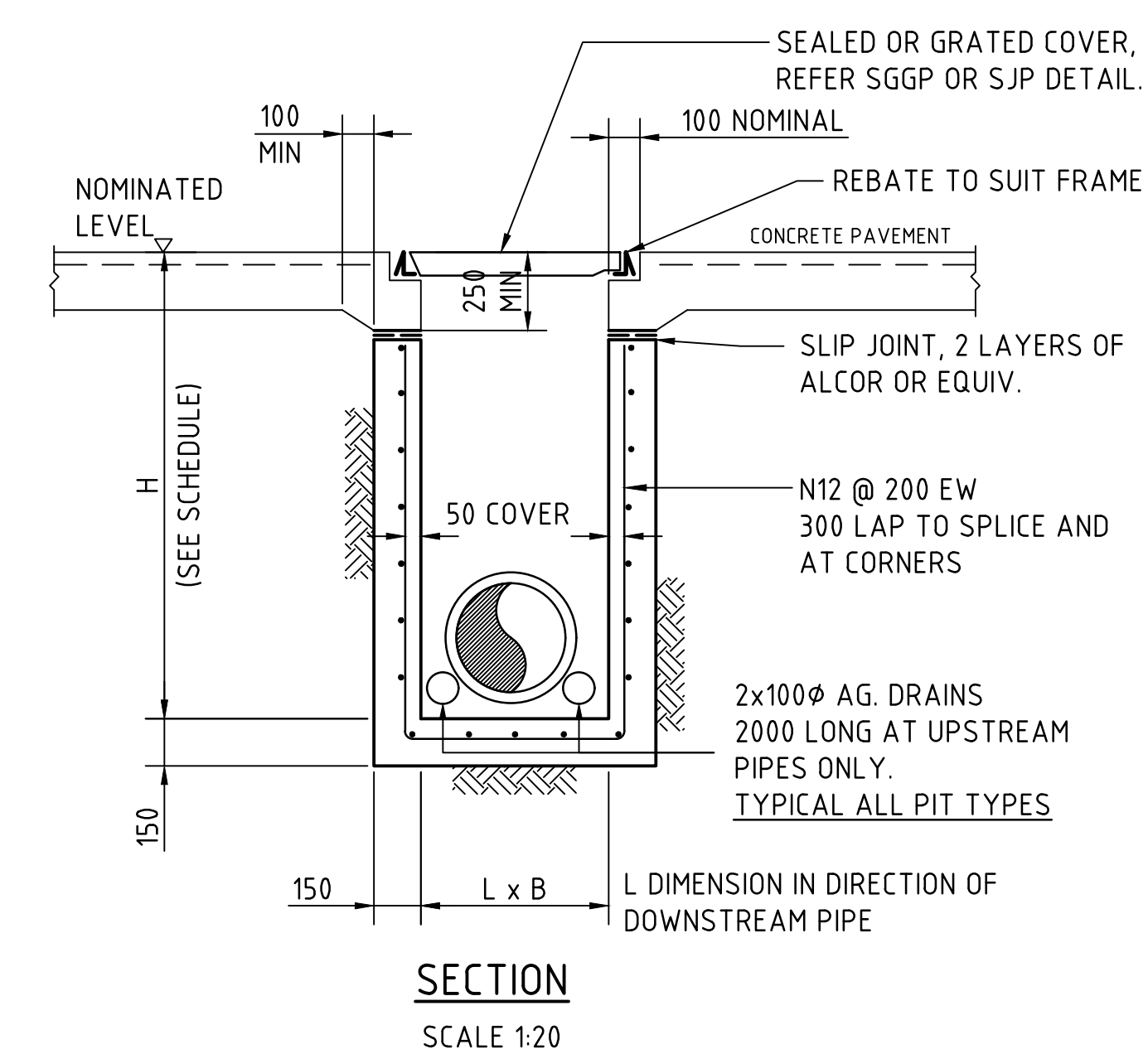


SINGLE GRATED GULLY PIT - SGGP

CONCRETE QUALITY					
ELEMENT	SLUMP	AGGREGATE (MAX. SIZE)	CEMENT TYPE	ADMIXTURE	F'c (MPa)
PIT	80	20	GP	NIL	32

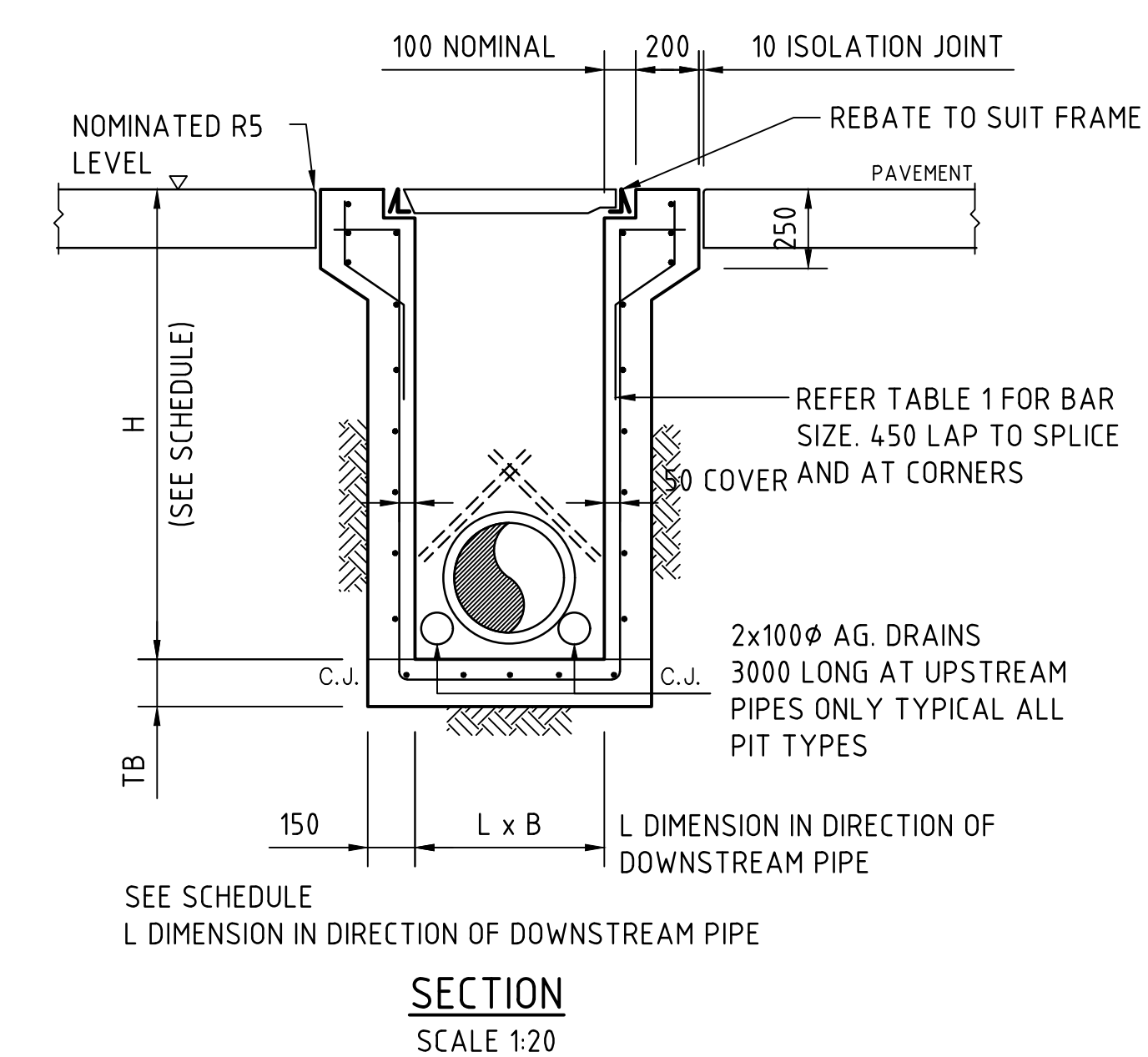
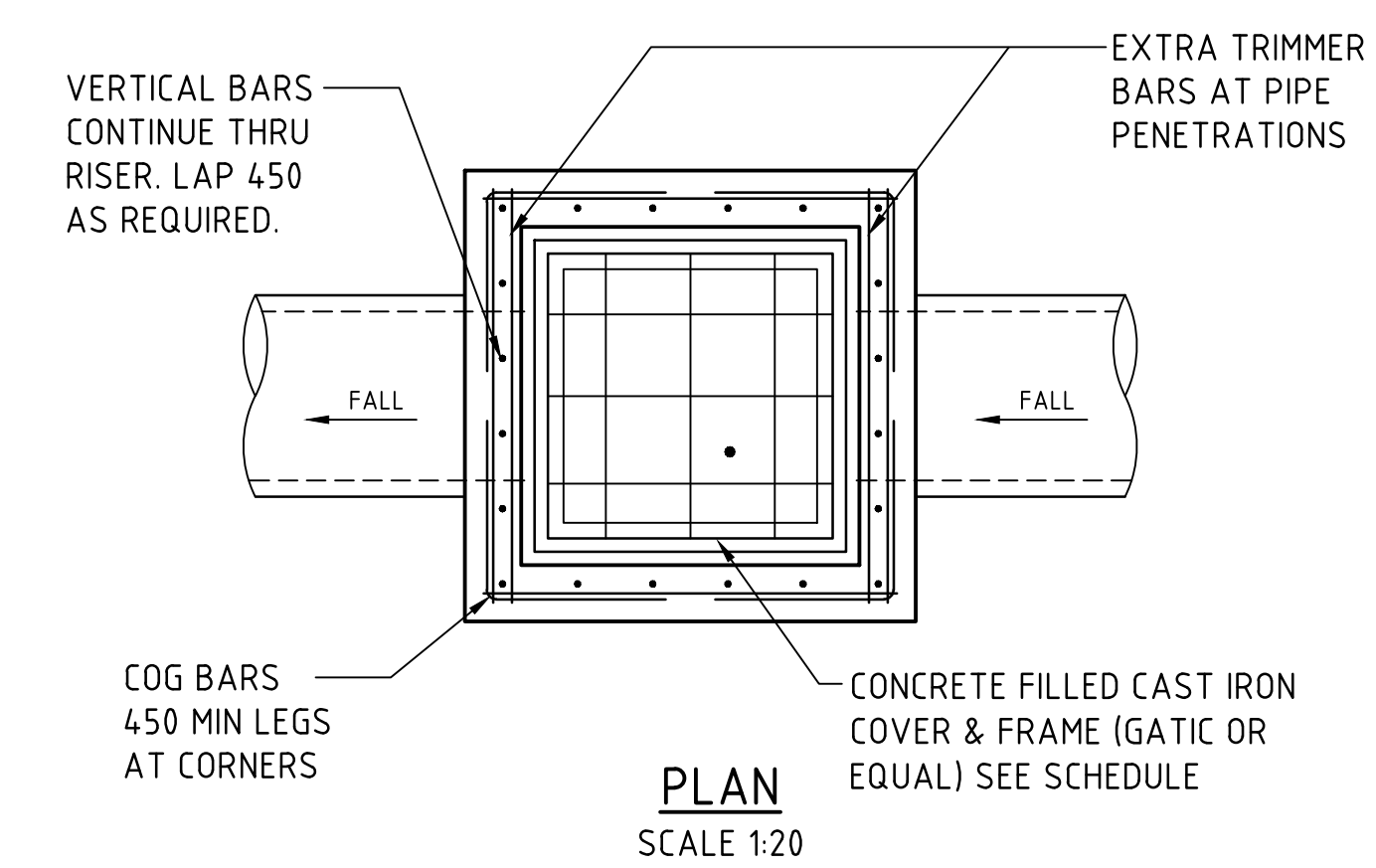
NOTES:

1. WHERE GULLY PIT IS LOCATED ON KERB RETURNS OR BULB OF CUL-DE-SACS PROVIDE CURVED PRECAST CONCRETE LINTELS.
2. SAG PITTS SHALL HAVE LINTEL PLACED CENTRALLY ABOUT THE GRATE.
3. ALL REINFORCING TO HAVE 30 MIN. CLAEAR CONCRETE COVER.
4. FOR PITTS DEEPER THAN 1200mm CLIMB RAILS SHALL BE PROVIDED.



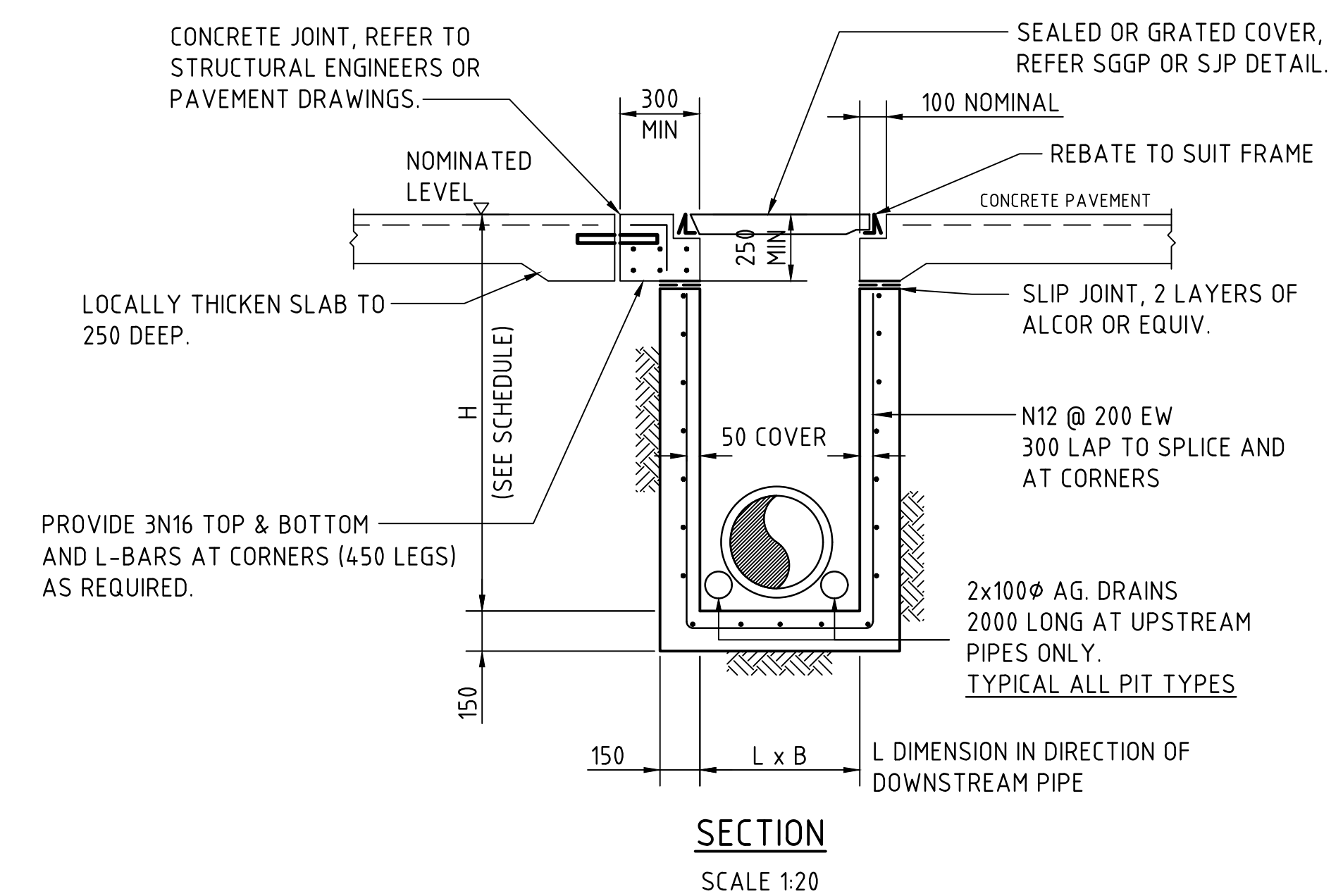
SJP/CIS & SGGP/CIS (CAST IN SLAB) PIT DETAIL
GRATE/COVER SUPPORT
CAST-INTO PAVEMENT SLAB

(ADOPT IN CONCRETE PAVEMENTS FOR SGGP's & SJP's, WHERE JOINTS ARE NOT LOCATED WITHIN PROXIMITY OF THE GRATE)



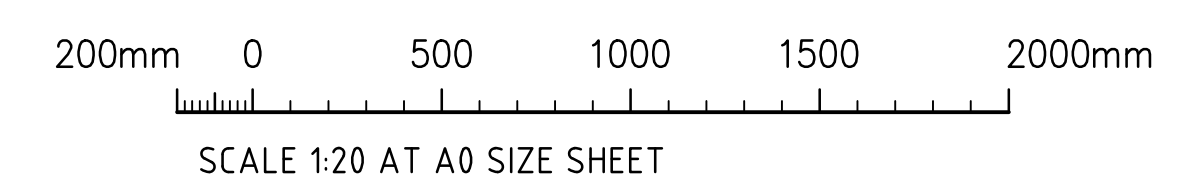
SEALED PIT - SP

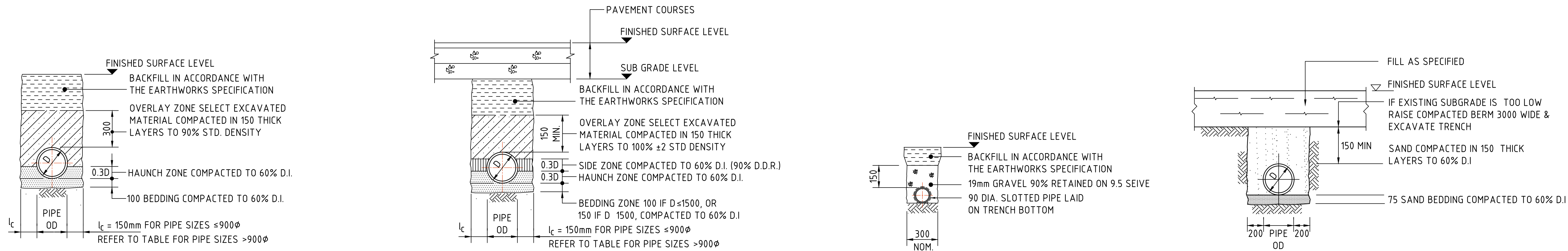
DEPTH 'H'	WALL THICKNESS 'TW'	WALL REINFORCEMENT	BASE THICKNESS 'TB'	BASE REINFORCEMENT
< 10m	150mm	-	150mm	-
10m–30m	150mm	N12-200 EACH WAY	150mm	N12-200 EACH WAY
30m–4.5m	200mm	N12-200 EACH WAY	200mm	N12-200 EACH WAY
4.5–6.0	200mm	N16-200 EACH WAY	200mm	N16-200 EACH WAY



SJP/CIS & SGGP/CIS (CAST IN SLAB) PIT DETAIL
GRATE/COVER SUPPORT
CAST-INTO PAVEMENT SLAB

(ADOPT IN CONCRETE PAVEMENT FOR SGGP's & SJP's,
WHERE PITS ARE LOCATED IN THE CORNER OF SLAB
PANELS OR ADJACENT TO SLAB PANEL JOINTS)





TYPE H1 SUPPORT TO CONCRETE PIPES AT LANDSCAPED AREAS
SCALE 1:20

BEDDING & HAUNCH MATERIAL GRADING	
SIEVE SIZE (mm)	WEIGHT PASSING (%)
19.0	100
2.36	100 TO 50
0.60	90 TO 50
0.30	60 TO 10
0.15	25 TO 0
0.075	10 TO 0

SIDE ZONE WIDTH	
PIPE SIZE (mm)	l _c (mm)
≤900ø	150
1050ø	175
1200ø	200
1350ø	225
1500ø	250
1650ø	275
1800ø	300

ENGINEER TO SPECIFY TRENCH
WIDTHS FOR PIPE SIZES
GREATER THAN 1800ø

TYPE HS2 SUPPORT TO CONCRETE PIPES UNDER PAVEMENT

SCALE 1:20
D ≤1350, MAX FILL = 4.0m
D >1350, MAX FILL = 3.0m

BEDDING & HAUNCH MATERIAL GRADING	
SIEVE SIZE (mm)	WEIGHT PASSING (%)
19.0	100
2.36	100 TO 50
0.60	90 TO 50
0.30	60 TO 10
0.15	25 TO 0
0.075	10 TO 0

SIDE ZONE WIDTH	
PIPE SIZE (mm)	l _c (mm)
≤900ø	150
1050ø	175
1200ø	200
1350ø	225
1500ø	250
1650ø	275
1800ø	300

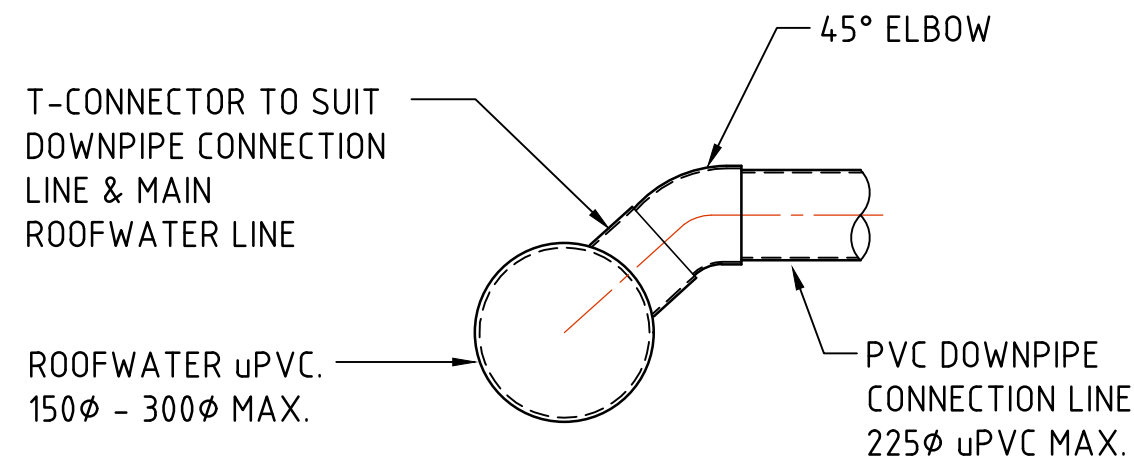
ENGINEER TO SPECIFY TRENCH
WIDTHS FOR PIPE SIZES
GREATER THAN 1800ø

SUPPORT TO AGRICULTURAL DRAIN
FOR USE UNDER CAR PARK PAVEMENTS/LANDSCAPED AREAS
SCALE 1:20

SIDE ZONE MATERIAL GRADING	
SIEVE SIZE (mm)	WEIGHT PASSING (%)
75.0	100
9.5	100 TO 50
2.36	100 TO 50
0.60	50 TO 15
0.075	25 TO 0

SELECT FILL MATERIAL IN ACCORDANCE WITH
TABLE 1 AS 3725

SUPPORT TO uPVC PIPES
SCALE 1:20

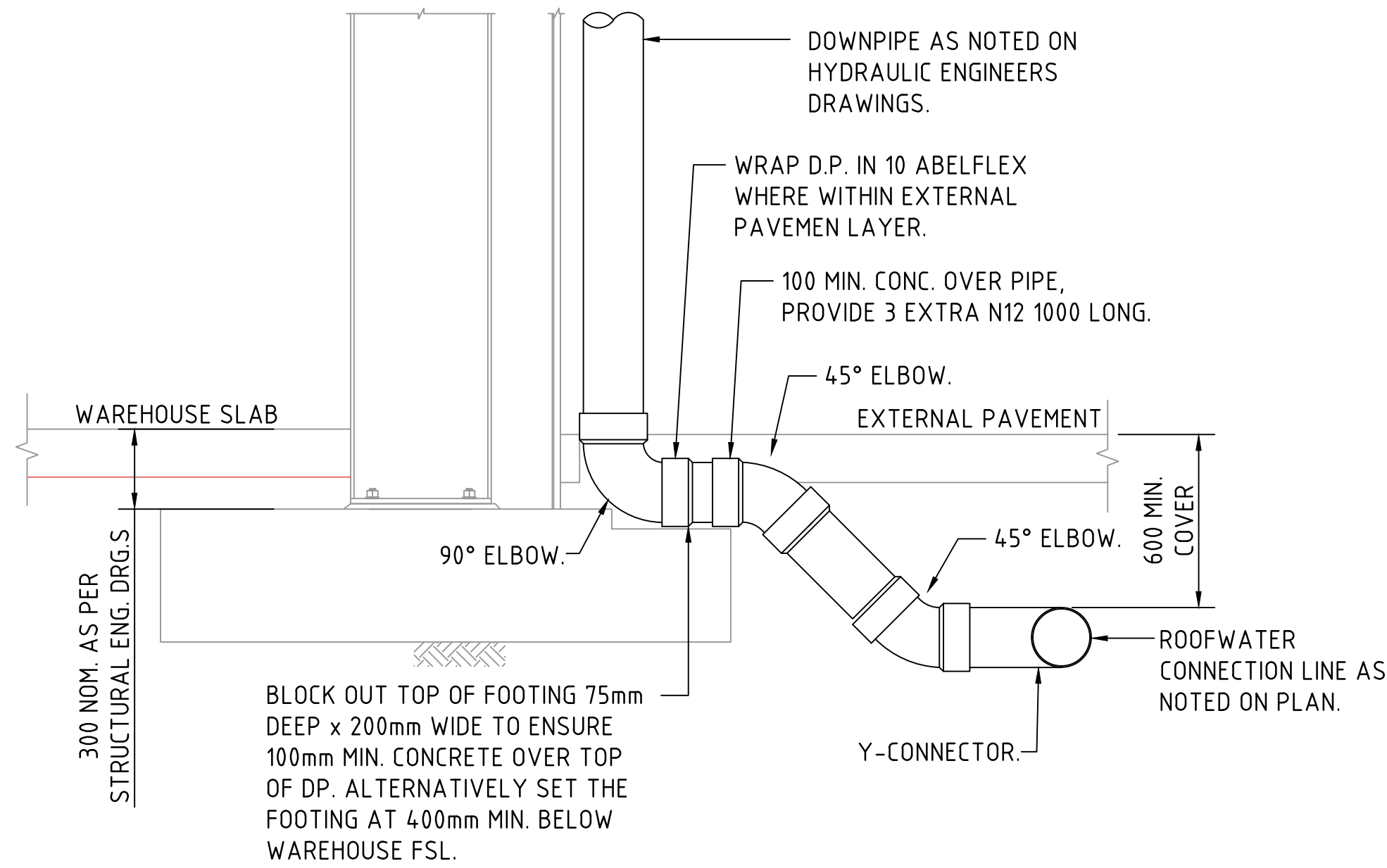


DOWN PIPE CONNECTION TO uPVC PIPE

- PROPRIETARY T-PIECE CONNECTORS SHALL BE USED TO WHERE DIRECT CONNECTIONS ARE REQUIRED TO uPVC PIPES.
- ALL JOINTS TO BE SEALED WITH SOLVENT WELDED JOINTS.
- THE PVC PIPE SHALL NOT PROTRUDE BEYOND THE INNER SURFACE OF THE STORMWATER PIPE.

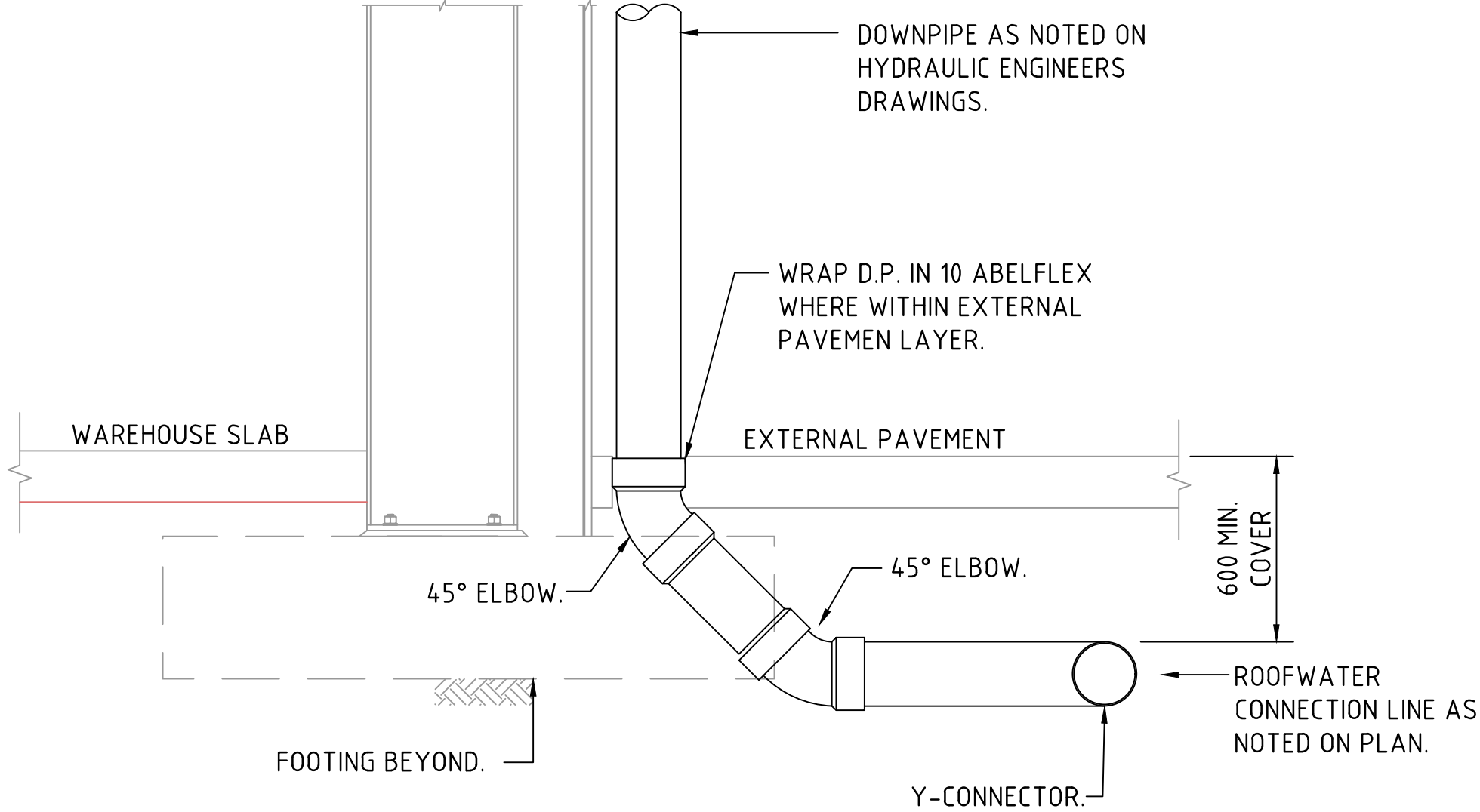
DOWNPIPE CONNECTION DETAILS

SCALE 1:20



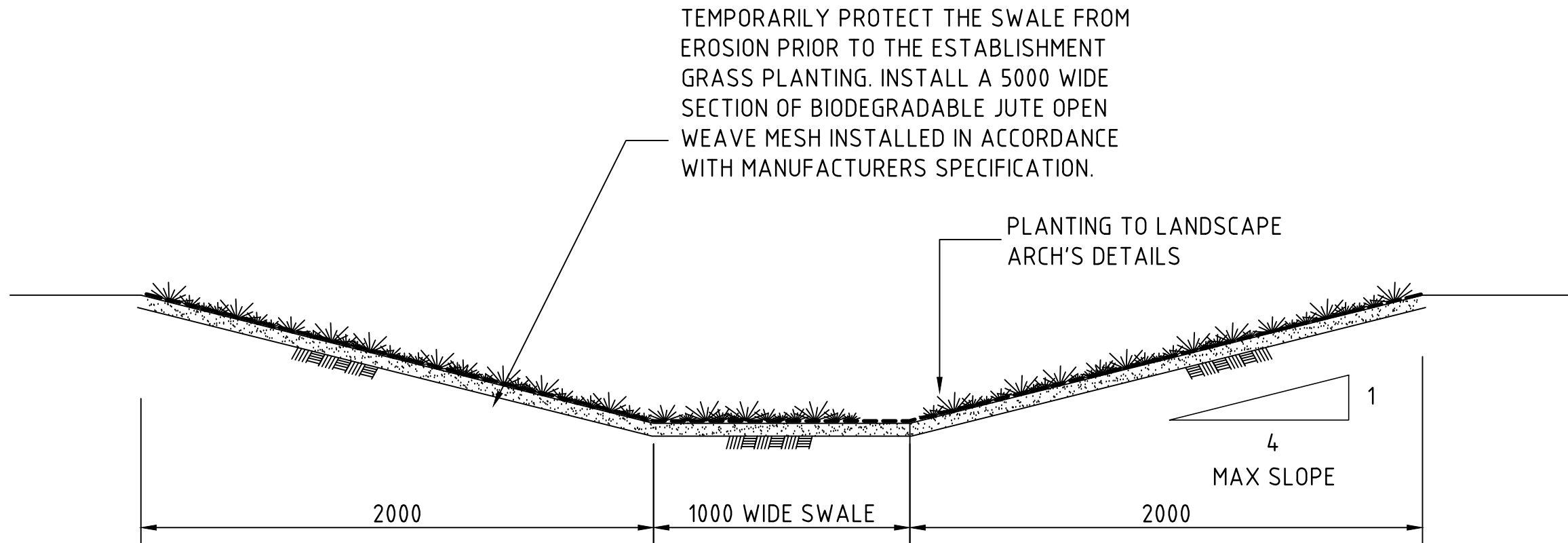
DOWNPIPE TURN-UP DETAIL A

(AT FOOTING LOCATION)
SCALE 1:20



DOWNPIPE TURN-UP DETAIL B

(CLEAR OF FOOTING)
SCALE 1:20



TYPICAL SWALE DETAIL

1:20

ADOPT AS REQUIRED

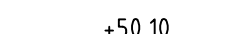
200mm 0 500 1000 1500 2000mm
SCALE 1:20 AT A0 SIZE SHEET

FOR DEVELOPMENT APPLICATION

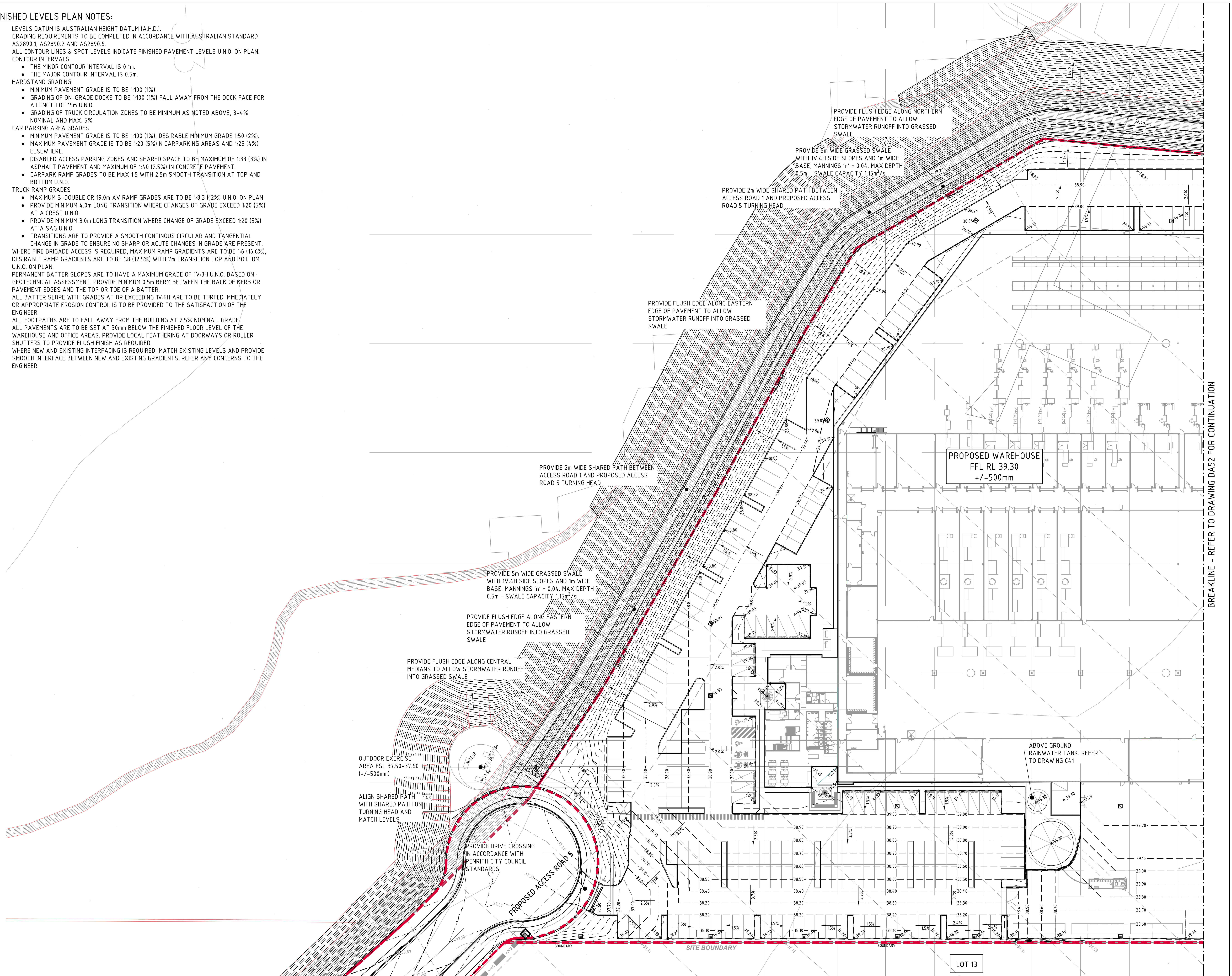
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

LEVELS DATUM IS AHD

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY
INFORMATION PROVIDED BY BOXAL SURVEYORS DATED 02.09.20.

-  - SGGP, SINGLE GRATED GULLY PIT
-  - SJP, SEALED JUNCTION PIT
-  - GD, GRATED DRAIN (300W x 225D UNITS)
-  - FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
-  - FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS
-  - FINISHED PAVEMENT SPOT HEIGHT
-  - ESTATE UNDERGROUND ELEC
-  - ESTATE WATER MAIN
-  - ESTATE RECYCLED WATER MAIN
-  - ESTATE TELECOMMUNICATIONS
-  - ESTATE SEWER

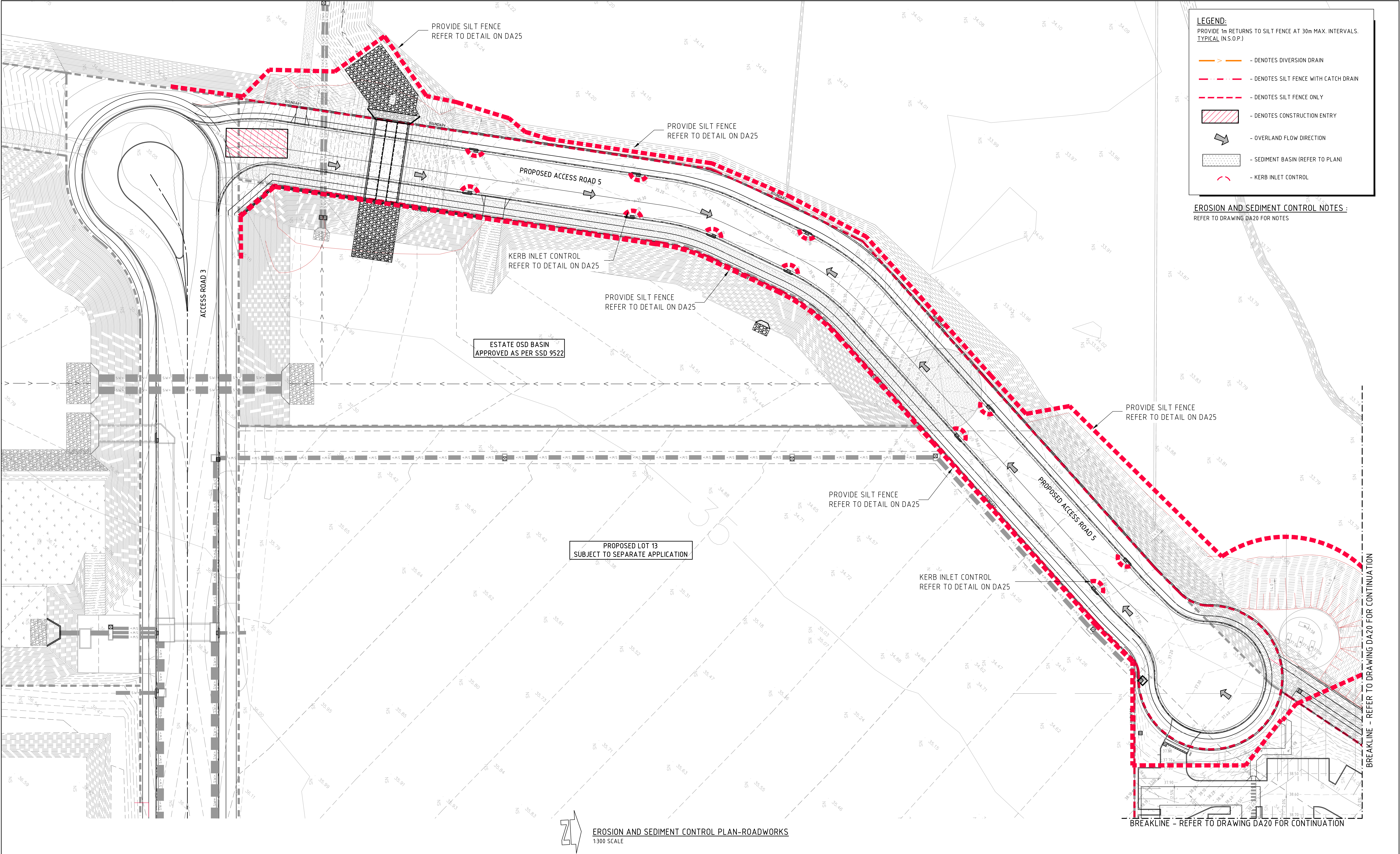
- LEVELS DATUM IS AUSTRALIAN HEIGHT DATUM (A.H.D.)
2. GRADING REQUIREMENTS TO BE COMPLETED IN ACCORDANCE WITH AUSTRALIAN STANDARD AS2890.1, AS2890.2 AND AS2890.6.
3. ALL CONTOUR LINES & SPOT LEVELS INDICATE FINISHED PAVEMENT LEVELS U.N.O. ON PLAN. CONTOUR INTERVALS
 - THE MINOR CONTOUR INTERVAL IS 0.1m.
 - THE MAJOR CONTOUR INTERVAL IS 0.5m.
4. HARDSAND GRADING
 - MINIMUM PAVEMENT GRADE IS TO BE 1:100 (1%).
 - GRADING OF ON-GRADE DOCKS TO BE 1:100 (1%) FALL AWAY FROM THE DOCK FACE FOR A LENGTH OF 15m U.N.O.
 - GRADING OF TRUCK CIRCULATION ZONES TO BE MINIMUM AS NOTED ABOVE, 3-4% NOMINAL AND MAX 5%.
5. CAR PARKING AREA GRADES
 - MINIMUM PAVEMENT GRADE IS TO BE 1:100 (1%), DESIRABLE MINIMUM GRADE 1:50 (2%).
 - MAXIMUM PAVEMENT GRADE IS TO BE 1:20 (5%) IN CARPARKING AREAS AND 1:25 (4%) ELSEWHERE.
 - DISABLED ACCESS PARKING ZONES AND SHARED SPACE TO BE MAXIMUM OF 1:33 (3%) IN ASPHALT PAVEMENT AND MAXIMUM OF 1:40 (2.5%) IN CONCRETE PAVEMENT.
 - CARPARK RAMP GRADES TO BE MAX 1:5 WITH 2.5m SMOOTH TRANSITION AT TOP AND BOTTOM U.N.O.
6. TRUCK RAMP GRADES
 - MAXIMUM B+DOUBLE OR 19.0m AV RAMP GRADES TO BE 1:8.3 (12%) U.N.O. ON PLAN
 - PROVIDE MINIMUM 4.0m LONG TRANSITION WHERE CHANGES OF GRADE EXCEED 1:20 (5%) AT A CREST U.N.O.
 - PROVIDE MINIMUM 3.0m LONG TRANSITION WHERE CHANGE OF GRADE EXCEED 1:20 (5%) AT A SAG U.N.O.
 - TRANSITIONS ARE TO PROVIDE A SMOOTH CONTINUOUS CIRCULAR AND TANGENTIAL CHANGE IN GRADE TO ENSURE NO SHARP OR ACUTE CHANGES IN GRADE ARE PRESENT.
7. WHERE FIRE BRIGADE ACCESS IS REQUIRED, MAXIMUM RAMP GRADIENTS ARE TO BE 1:6 (16.6%) DESIRABLE RAMP GRADIENTS ARE TO BE 1:8 (12.5%) WITH 7m TRANSITION TOP AND BOTTOM U.N.O. ON PLAN.
8. PERMANENT BATTER SLOPES ARE TO HAVE A MAXIMUM GRADE OF 1V:3H U.N.O. BASED ON GEOTECHNICAL ASSESSMENT. PROVIDE MINIMUM 50mm BERN BETWEEN THE BACK OF KERB OR PAVEMENT EDGES AND THE TOP OR TOE OF A BATTER.
9. ALL BATTER SLOPE WITH GRADES AT OR EXCEEDING 1V:6H ARE TO BE TURFED IMMEDIATELY OR APPROPRIATE EROSION CONTROL IS TO BE PROVIDED TO THE SATISFACTION OF THE ENGINEER.
10. ALL FOOTPATHS ARE TO FALL AWAY FROM THE BUILDING AT 2.5% NOMINAL GRADE.
11. ALL PAVEMENTS ARE TO BE SET AT 30mm BELOW THE FINISHED FLOOR LEVEL OF THE WAREHOUSE AND OFFICE AREAS. PROVIDE LOCAL FEATHERING AT DOORWAYS OR ROLLER SHUTTERS TO PROVIDE FLUSH FINISH AS REQUIRED.
12. WHERE NEW AND EXISTING INTERFACING IS REQUIRED, MATCH EXISTING LEVELS AND PROVIDE SMOOTH INTERFACE BETWEEN NEW AND EXISTING GRADIENTS. REFER ANY CONCERNS TO THE ENGINEER.



----- BREAKLINE - REFER TO DRAWING DA52 FOR CONTINUATION -----

FOR DEVELOPMENT APPLICATION

[illegible]



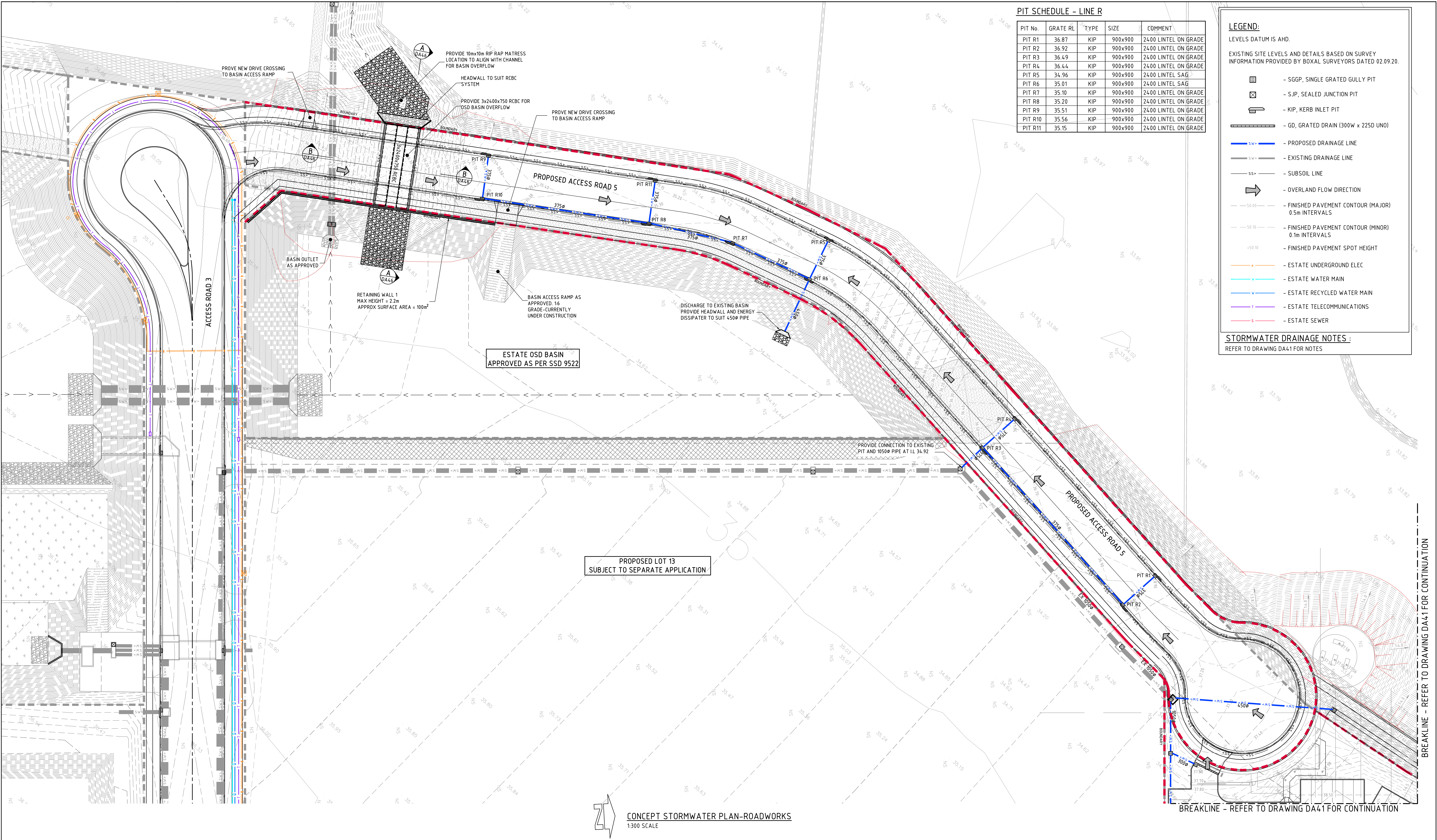
FOR DEVELOPMENT APPLICATION

ISSUED FOR DEVELOPMENT APPLICATION 14.06.23 C			ISSUED FOR DEVELOPMENT APPLICATION 24.11.22 B			ISSUED FOR DEVELOPMENT APPLICATION 19.08.22 A			AMENDMENTS			DATE			ISSUE			AMENDMENTS			DATE			ISSUE			AMENDMENTS			DATE			ISSUE		
AMENDMENTS			DATE			ISSUE			AMENDMENTS			DATE			ISSUE			AMENDMENTS			DATE			ISSUE			AMENDMENTS			DATE			ISSUE		

ARCHITECT	CLIENT	PROJECT	CONSULT	DRAWING TITLE
hla architects	FRASERS PROPERTY	PROBIOTEC FACILITY LOT 14, THE YARDS KEMPS CREEK, 2178, NSW	AUS	EROSION AND SEDIMENT CONTROL PLAN-ROADWORKS

DESIGNED	DRAWN	DATE	CHECKED	DATE	SCALE	CAD REF.
MW	MC	AUG 22	MW	AUG 22	AS SHOWN	E013362.09-R20

Costin Roe Consulting Pty Ltd. ABN 50 003 696 446 PO Box 2419 Sydney NSW 1520 Level 4 & 8 Woodmill Street, Millers Point NSW 2000 p: +61 2 9251 7699 e: mail@costinroe.com.au w: costinroe.com.au		CRC COSTIN ROE CONSULTING CIVIL & STRUCTURAL ENGINEERS	DRAWING TITLE EROSION AND SEDIMENT CONTROL PLAN-ROADWORKS DRAWING No. C013362.09-R20
---	--	--	--



PIT SCHEDULE - LINE R

PIT No.	GRATE RL	TYPE	SIZE	COMMENT
PIT R1	36.87	KIP	900x900	2400 LINTEL ON GRADE
PIT R2	36.92	KIP	900x900	2400 LINTEL ON GRADE
PIT R3	36.49	KIP	900x900	2400 LINTEL ON GRADE
PIT R4	36.44	KIP	900x900	2400 LINTEL ON GRADE
PIT R5	34.96	KIP	900x900	2400 LINTEL SAG
PIT R6	35.01	KIP	900x900	2400 LINTEL SAG
PIT R7	35.10	KIP	900x900	2400 LINTEL ON GRADE
PIT R8	35.20	KIP	900x900	2400 LINTEL ON GRADE
PIT R9	35.51	KIP	900x900	2400 LINTEL ON GRADE
PIT R10	35.56	KIP	900x900	2400 LINTEL ON GRADE
PIT R11	35.15	KIP	900x900	2400 LINTEL ON GRADE

LEGEND:

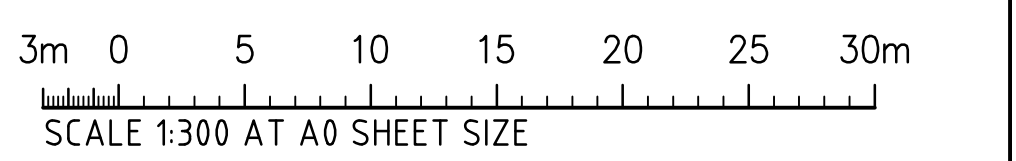
LEVELS DATUM IS AHD.

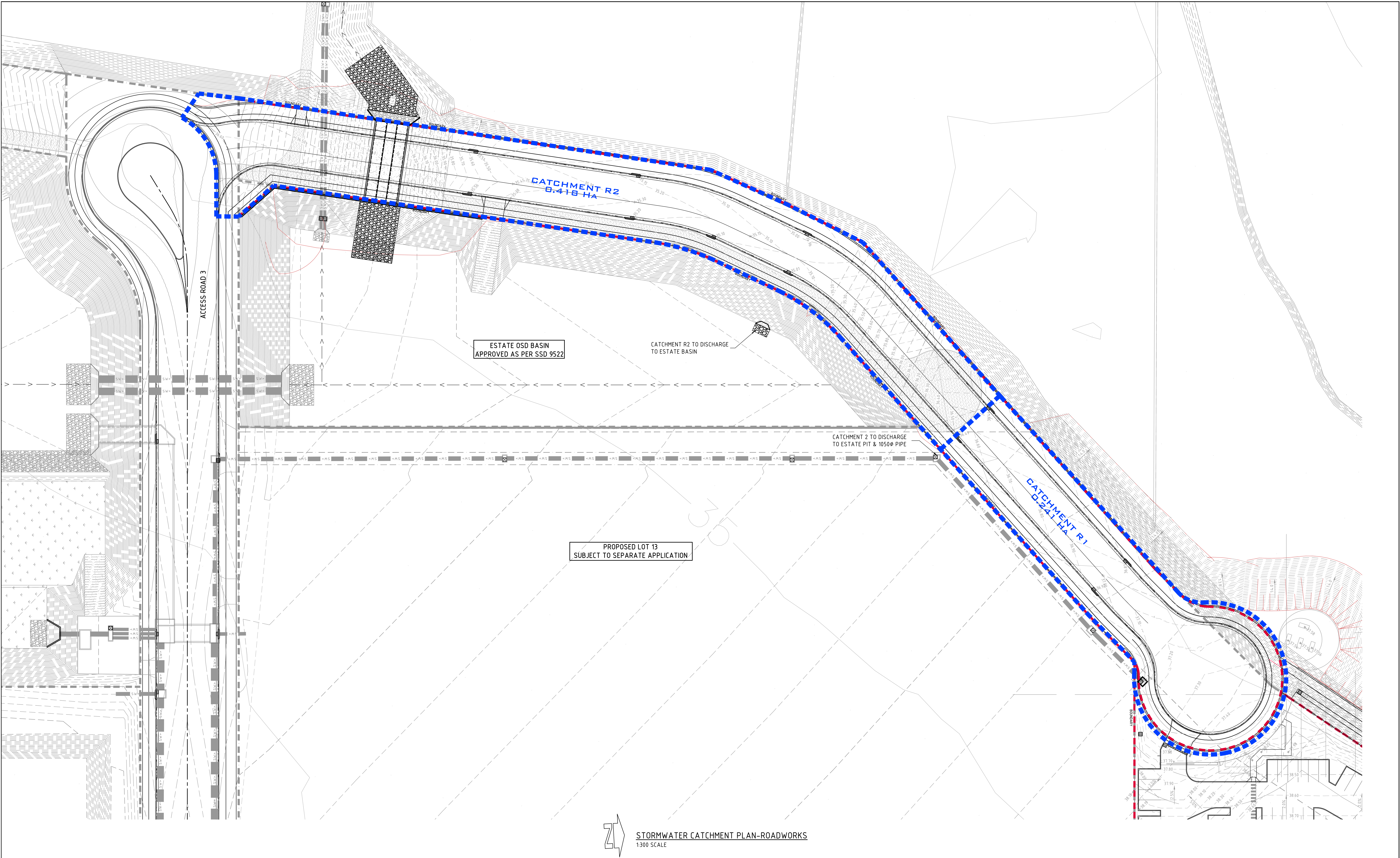
EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY BOXAL SURVEYORS DATED 02.09.20.

- SGGP, SINGLE GRATED GULLY PIT
- SJP, SEALED JUNCTION PIT
- KIP, KERB INLET PIT
- GD, GRATED DRAIN (300W x 225D UNO)
- PROPOSED DRAINAGE LINE
- EXISTING DRAINAGE LINE
- SUBSOIL LINE
- OVERLAND FLOW DIRECTION
- FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
- FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS
- FINISHED PAVEMENT SPOT HEIGHT
- ESTATE UNDERGROUND ELEC
- ESTATE WATER MAIN
- ESTATE RECYCLED WATER MAIN
- ESTATE TELECOMMUNICATIONS
- ESTATE SEWER

STORMWATER DRAINAGE NOTES:
REFER TO DRAWING DA41 FOR NOTES

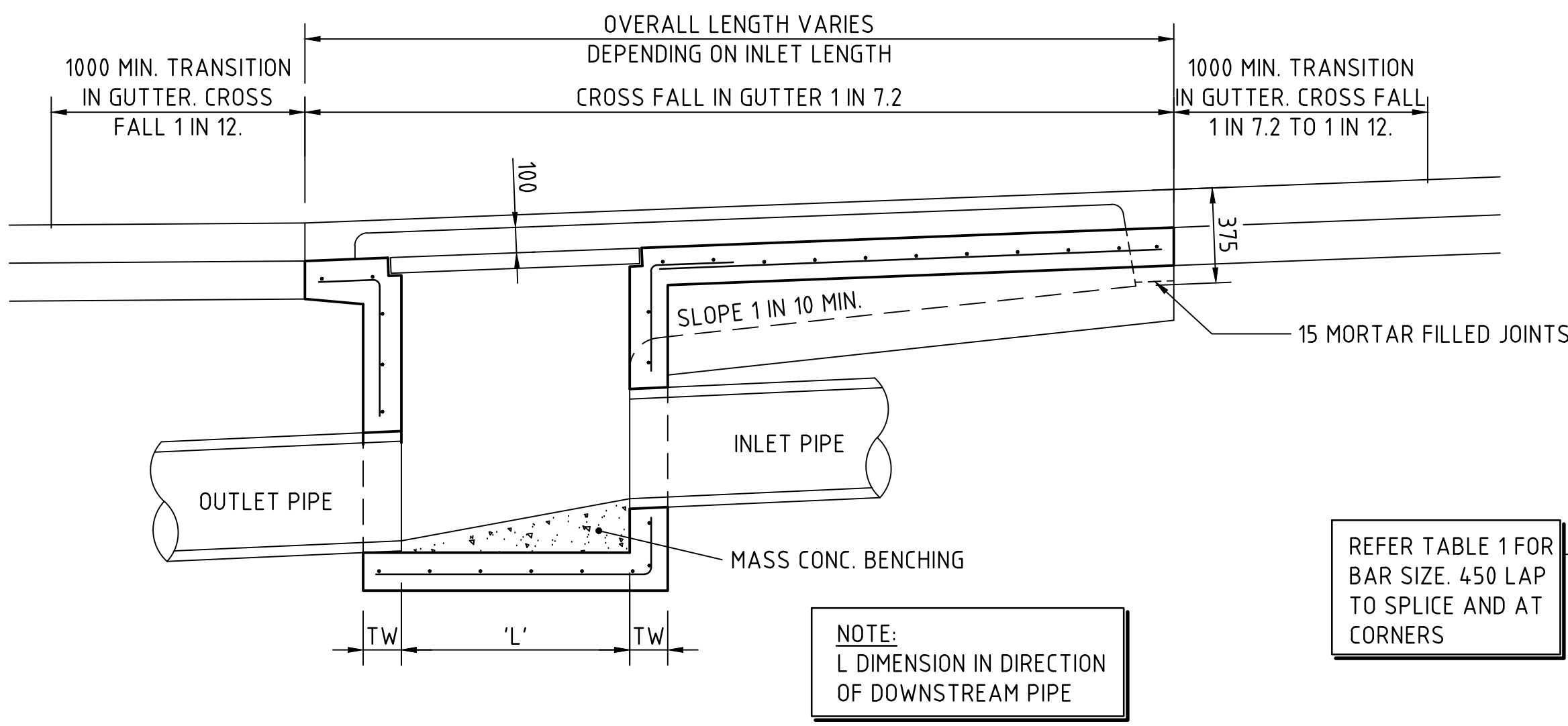
FOR DEVELOPMENT APPLICATION



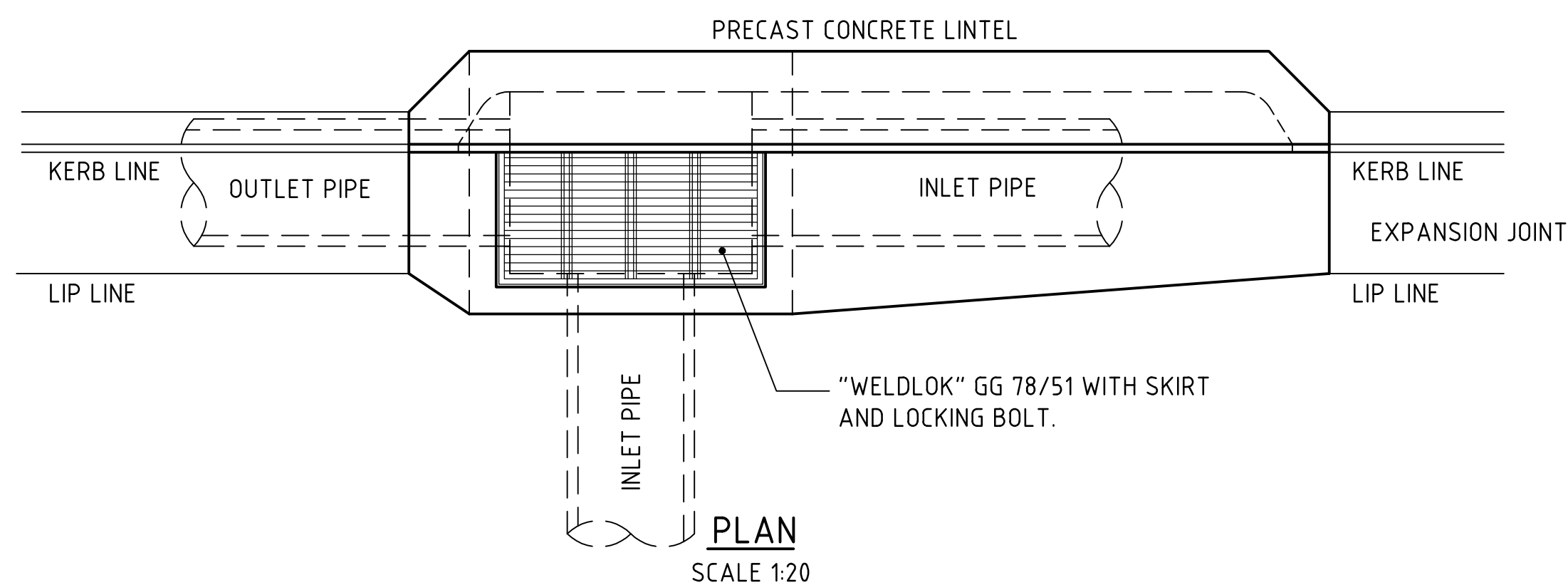


FOR DEVELOPMENT APPLICATION

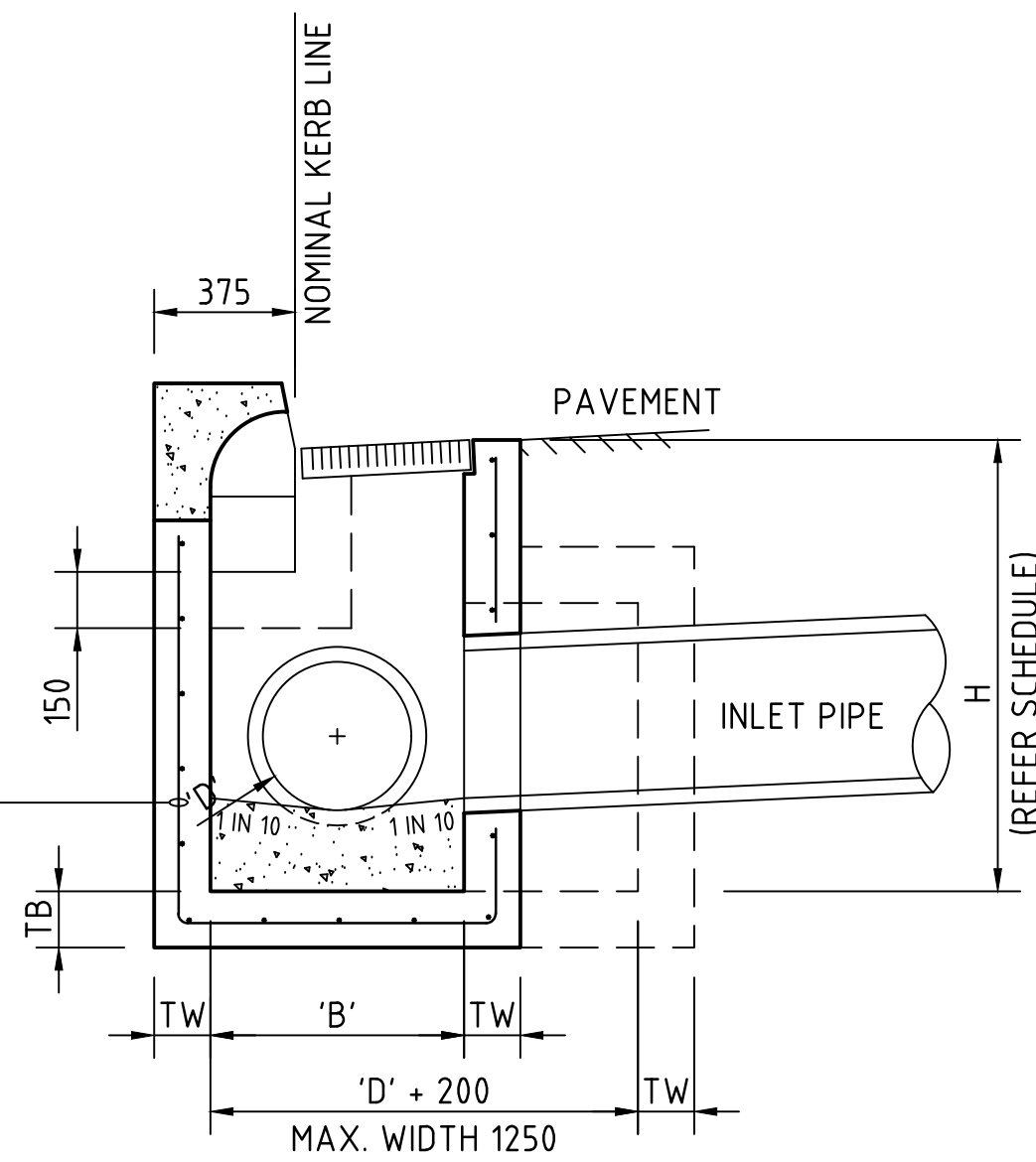
ISSUED FOR DEVELOPMENT APPLICATION				14.06.23				C			
ISSUED FOR DEVELOPMENT APPLICATION				24.11.22				B			
ISSUED FOR DEVELOPMENT APPLICATION				19.08.22				A			
AMENDMENTS				DATE	ISSUE	AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE
ARCHITECT				hla architects				CLIENT			
PROJECT				PROBIOTEC FACILITY LOT 14, THE YARDS KEMPS CREEK, 2178, NSW				CONSULT			
DESIGNED				DATE	CHECKED	SCALE	CAD REF.	Costin Roe Consulting Pty Ltd. ABN 50 003 696 446 PO Box N419 Sydney NSW 1220 Level 4 & 8 Woodmill Street, Millers Point NSW 2000 p: +61 2 9251 7699 e: mail@costinroe.com.au w: costinroe.com.au			
DRAWN				MC	MW	A0	1013362.09-R41	CRC COSTIN ROE CONSULTING			
DRAWING TITLE				STORMWATER CATCHMENT PLAN ROADWORKS				CIVIL & STRUCTURAL ENGINEERS			
DRAWING No.				C013362.09-R41				ISSUE			
								C			



LONG SECTION
SCALE 1:20



PLAN
SCALE 1:20



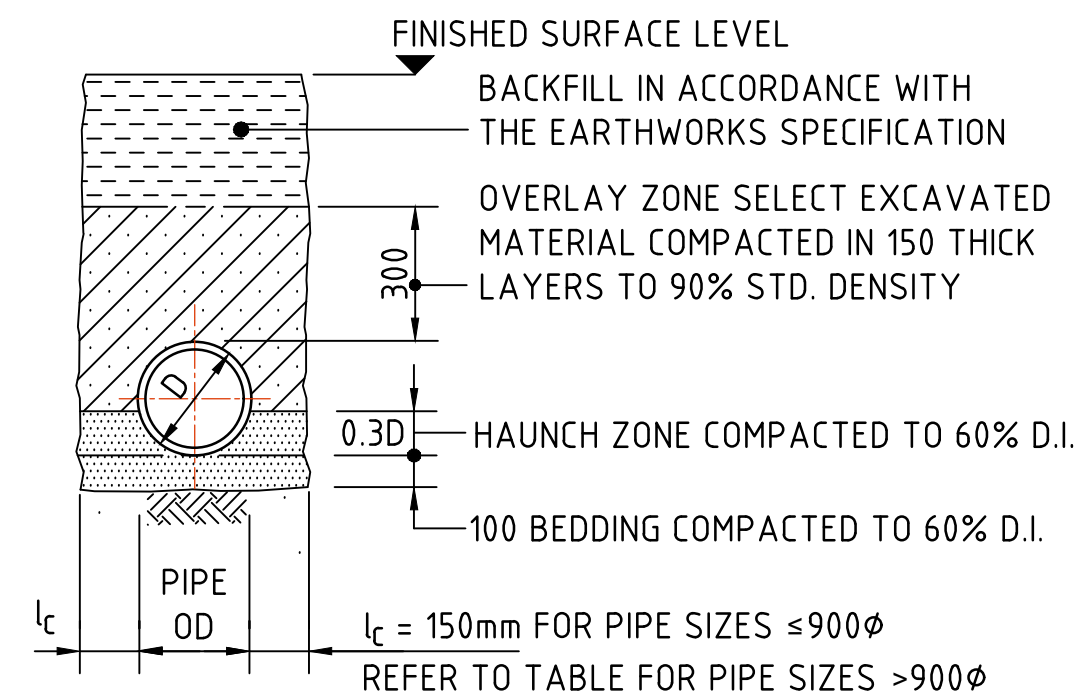
CROSS SECTION
SCALE 1:20

TABLE 3 - CLASS D <1200mm SQUARE PIT REINFORCEMENT & WALL THICKNESS				
DEPTH 'H'	WALL THICKNESS 'TW'	WALL REINFORCEMENT	BASE THICKNESS 'TB'	BASE REINFORCEMENT
< 1.0m	150mm	-	150mm	-
1.0m-3.0m	150mm	N12-200 EACH WAY	150mm	N12-200 EACH WAY
3.0m-4.5m	200mm	N12-200 EACH WAY	200mm	N12-200 EACH WAY
4.5-6.0	200mm	N16-200 EACH WAY	200mm	N16-200 EACH WAY

CONCRETE QUALITY					
ELEMENT	SLUMP	AGGREGATE (MAX. SIZE)	CEMENT TYPE	ADMIXTURE	F'c (MPa)
PIT	80	20	GP	NIL	32

NOTES:

- WHERE GULLY PIT IS LOCATED ON KERB RETURNS OR BULB OF CUL-DE-SACS PROVIDE CURVED PRECAST CONCRETE LINTELS.
- SAG PITS SHALL HAVE LINTEL PLACED CENTRALLY ABOUT THE GRATE.
- ALL REINFORCING TO HAVE 30 MIN. CLEAR CONCRETE COVER.
- FOR PITS DEEPER THAN 1200mm CLIMB RAILS SHALL BE PROVIDED.

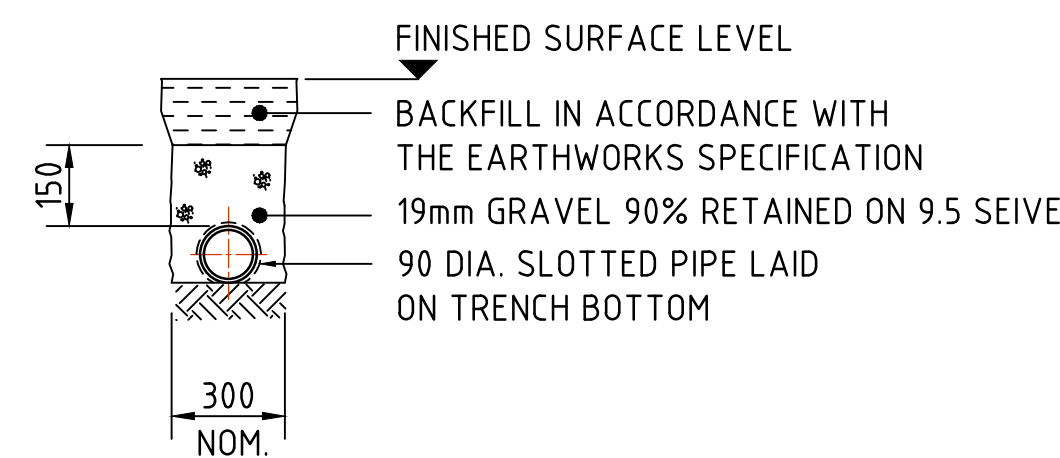


TYPE H1 SUPPORT TO CONCRETE PIPES AT LANDSCAPED AREAS
SCALE 1:20

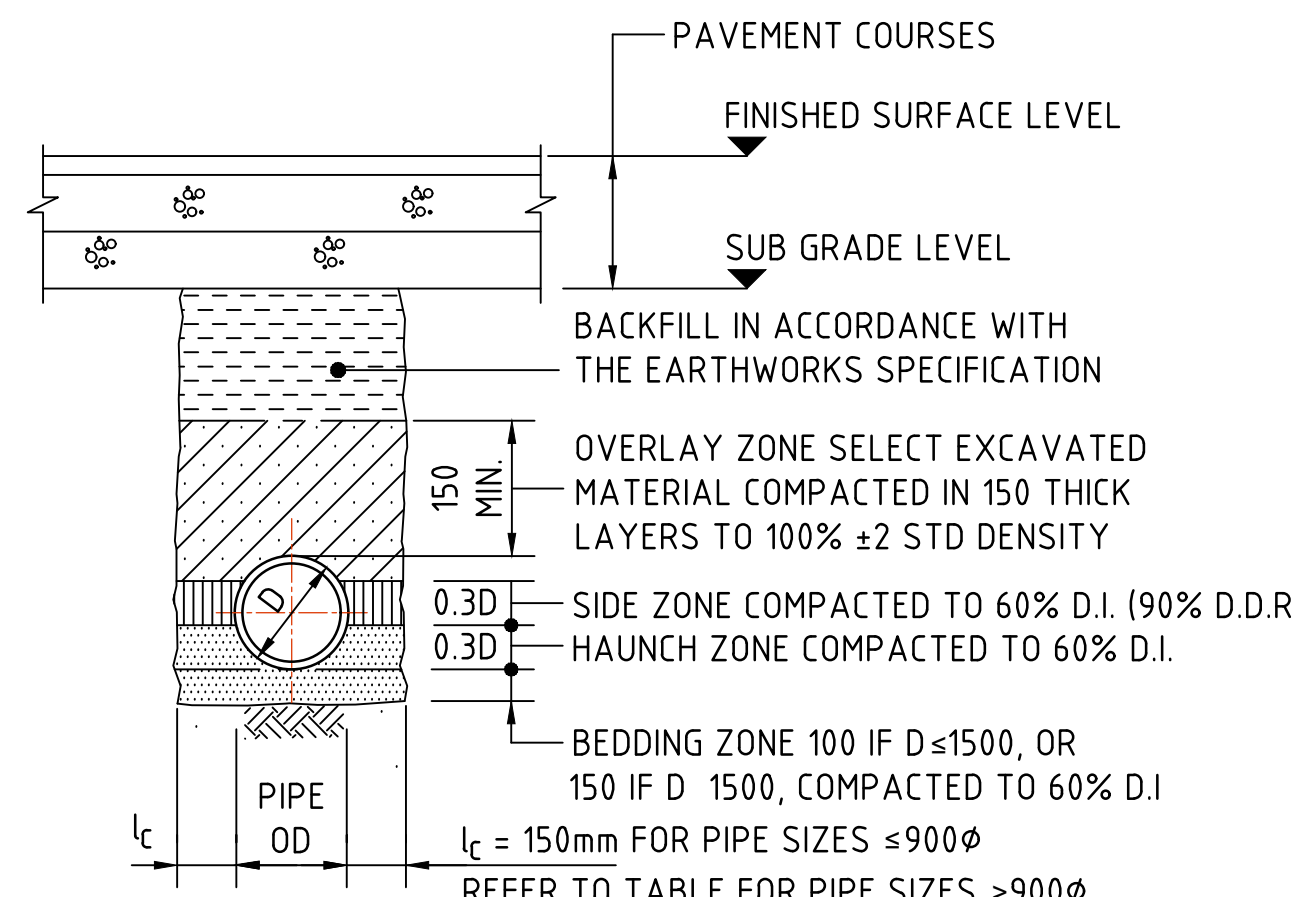
BEDDING & HAUNCH MATERIAL GRADING	
SIEVE SIZE (mm)	WEIGHT PASSING (%)
19.0	100
2.36	100 TO 50
0.60	90 TO 50
0.30	60 TO 10
0.15	25 TO 0
0.075	10 TO 0

SIDE ZONE WIDTH	
PIPE SIZE (mm)	L (mm)
< 900	150
1050	175
1200	200
1350	225
1500	250
1650	275
1800	300

ENGINEER TO SPECIFY TRENCH WIDTHS FOR PIPE SIZES GREATER THAN 1800



SUPPORT TO AGRICULTURAL DRAIN
FOR USE UNDER CAR PARK PAVEMENTS/LANDSCAPED AREAS
SCALE 1:20



TYPE HS2 SUPPORT TO CONCRETE PIPES UNDER PAVEMENT

SCALE 1:20
D <1350, MAX FILL = 4.0m
D >1350, MAX FILL = 3.0m

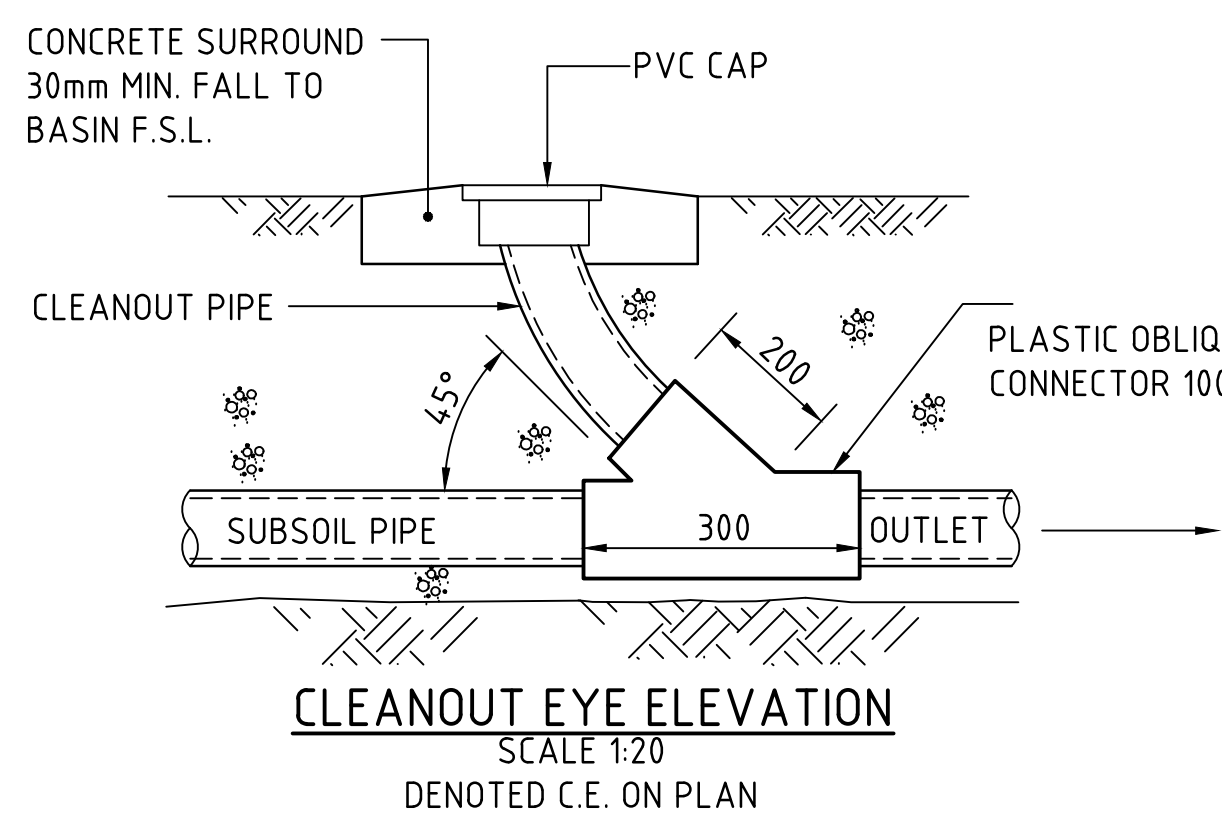
BEDDING & HAUNCH MATERIAL GRADING	
SIEVE SIZE (mm)	WEIGHT PASSING (%)
19.0	100
2.36	100 TO 50
0.60	90 TO 50
0.30	60 TO 10
0.15	25 TO 0
0.075	10 TO 0

SIDE ZONE WIDTH	
PIPE SIZE (mm)	L (mm)
< 900	150
1050	175
1200	200
1350	225
1500	250
1650	275
1800	300

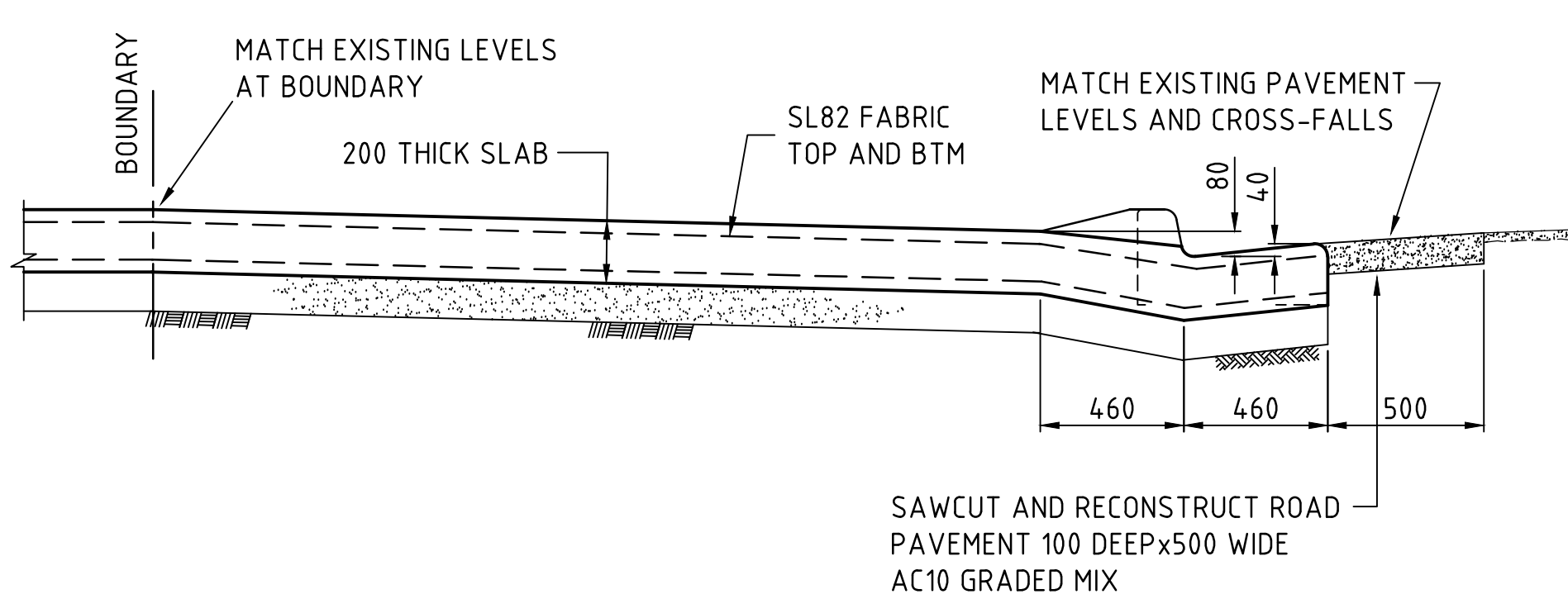
ENGINEER TO SPECIFY TRENCH WIDTHS FOR PIPE SIZES GREATER THAN 1800

SIDE ZONE MATERIAL GRADING	
SIEVE SIZE (mm)	WEIGHT PASSING (%)
75.0	100
9.5	100 TO 50
2.36	100 TO 50
0.60	50 TO 15
0.075	25 TO 0

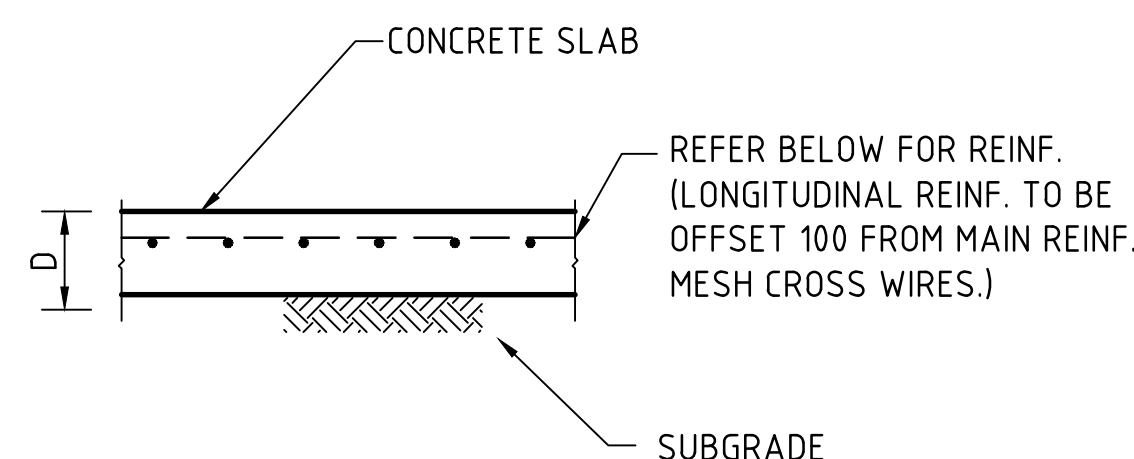
SELECT FILL MATERIAL IN ACCORDANCE WITH TABLE 1 AS 3725



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

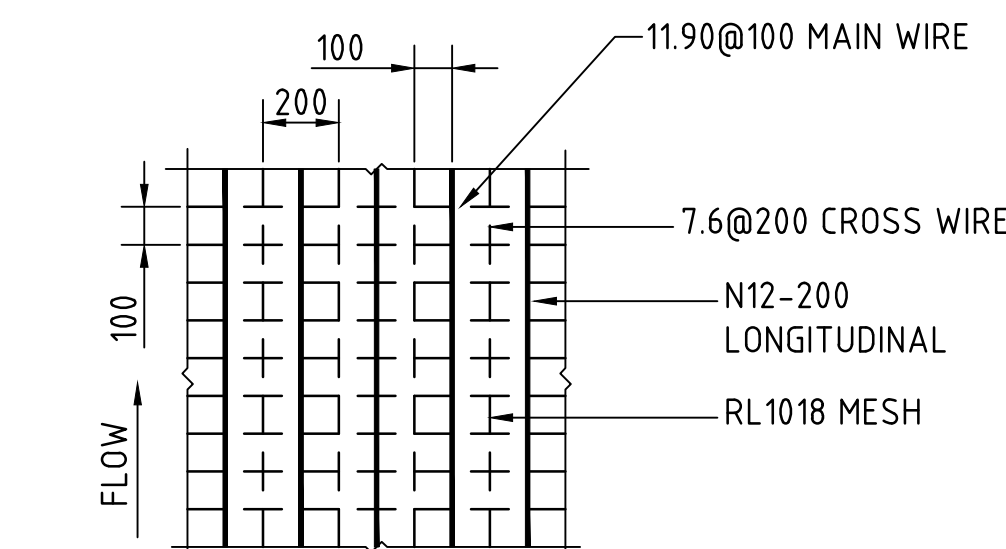


INDUSTRIAL VEHICULAR CROSS OVER DETAIL - IVC
SCALE 1:20

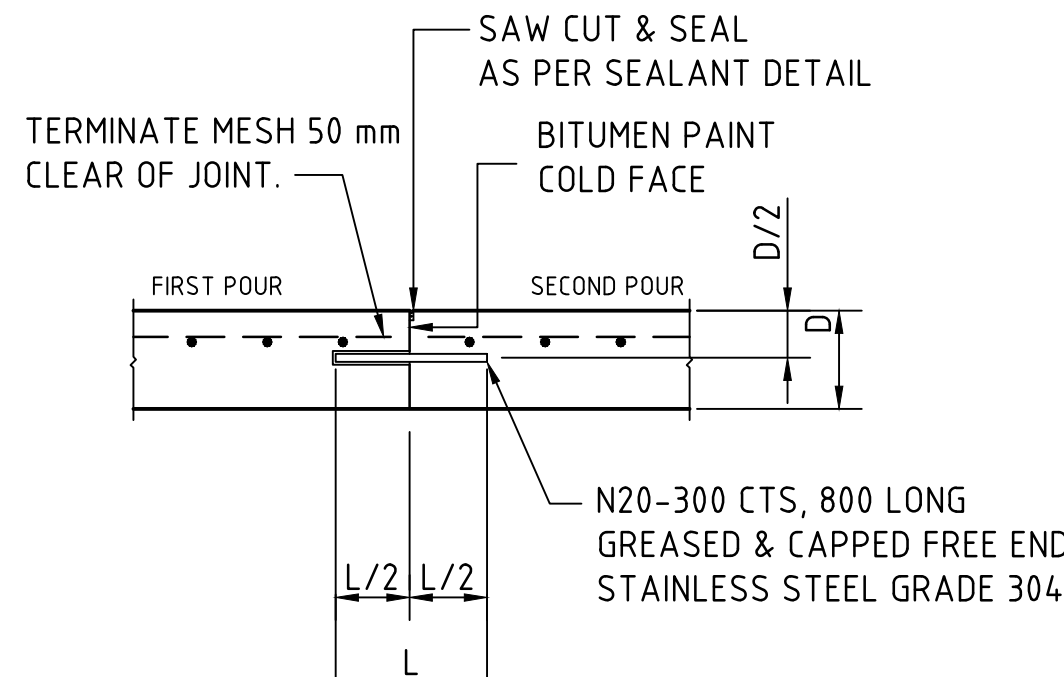


BASE SLAB SECTION

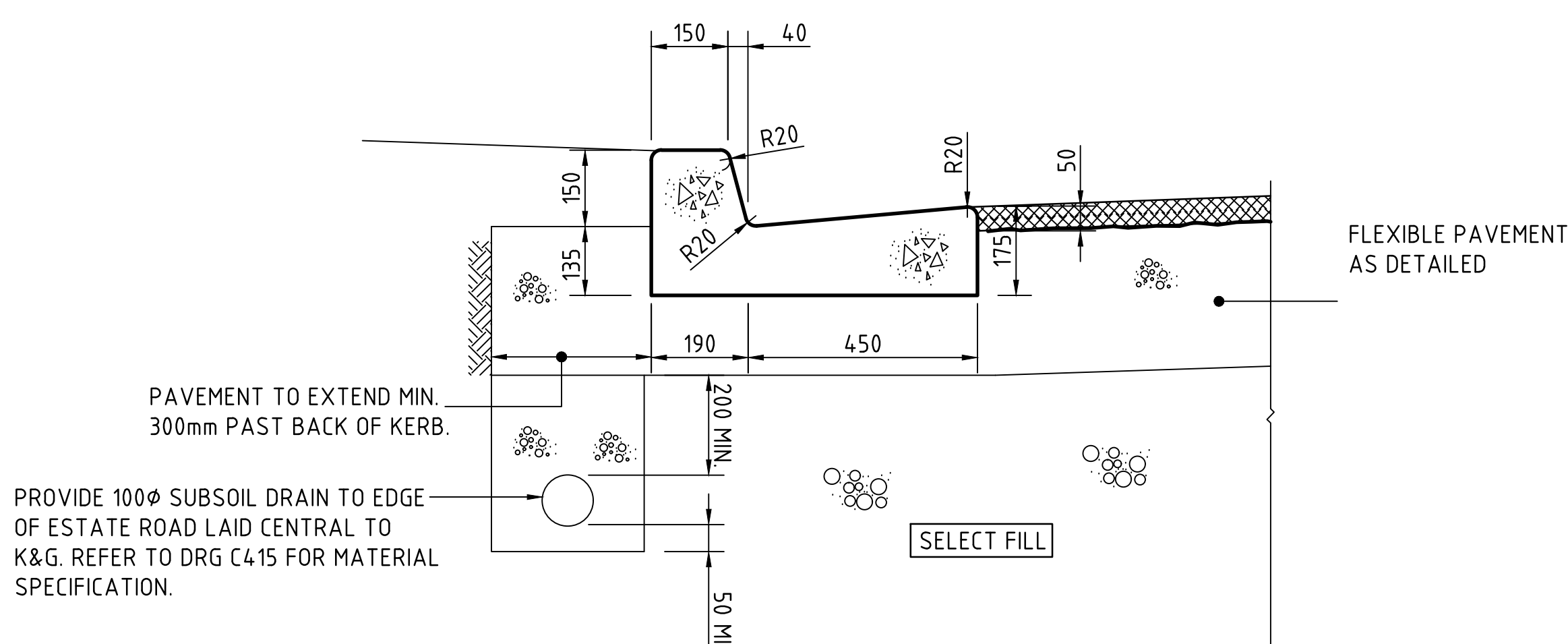
SCALE 1:20
CULVERT SLAB TO BE 220 THICK SLAB ON GROUND, RL1018 MESH WITH MAIN BARS PERPENDICULAR TO FLOW SECONDARY N12-200 CTS ALONG THE FLOW TIED TO UNDERSIDE OF MESH 70mm TOP COVER TO ALL REINFORCEMENT U.N.O.



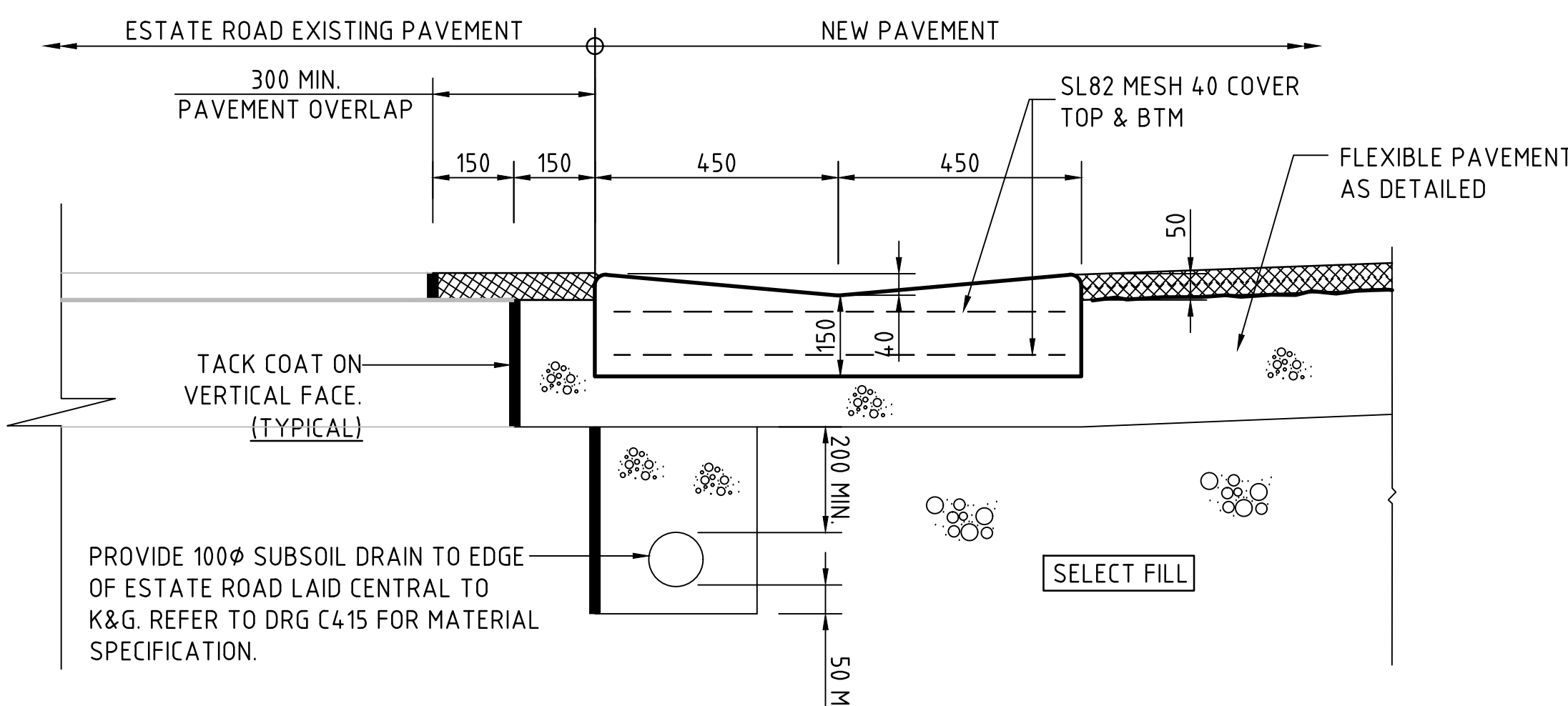
BASE SLAB REINFORCEMENT PLAN
SCALE 1:20



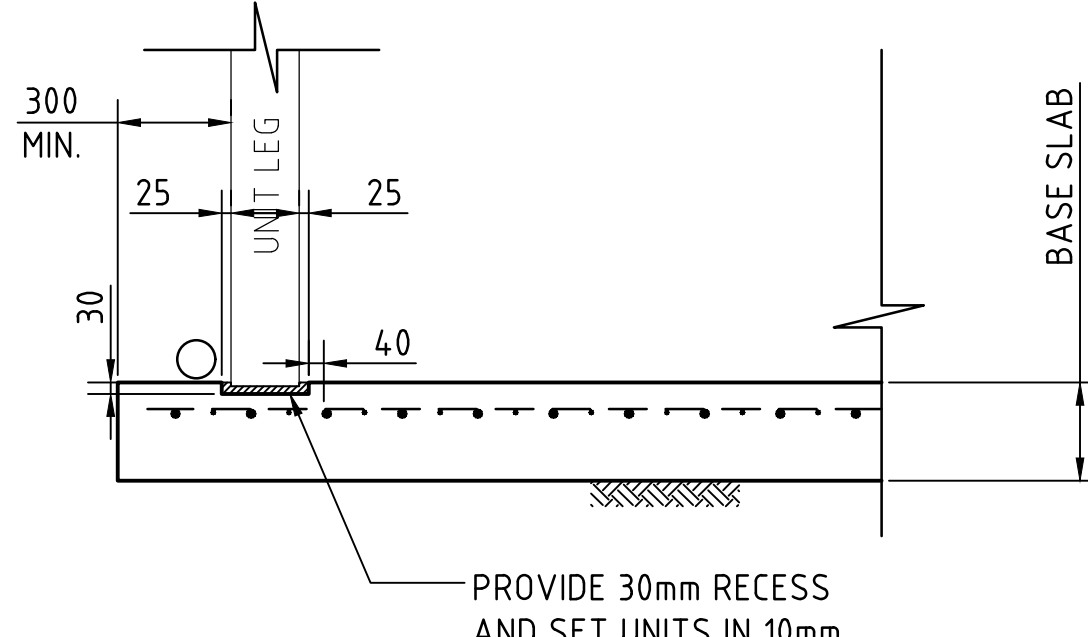
CONSTRUCTION JOINT - CJ
FIXED JOINT
SCALE 1:20



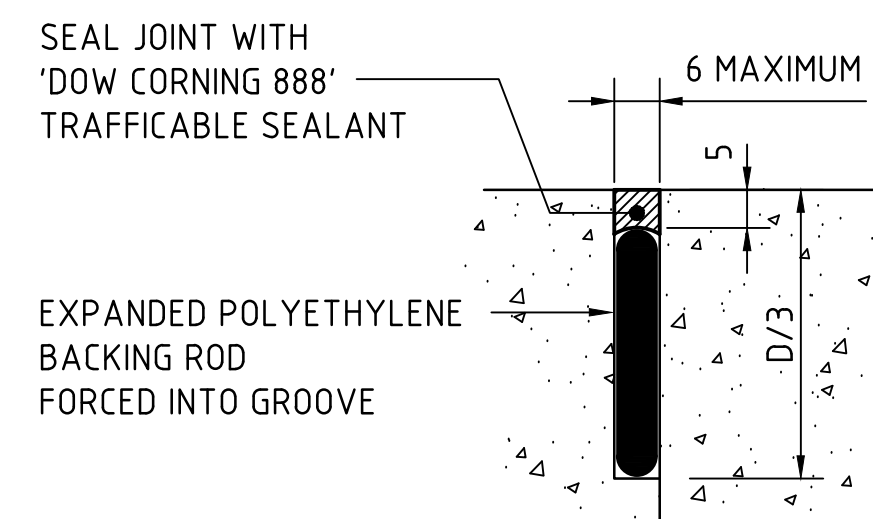
PENRITH CITY COUNCIL KERB & GUTTER
SCALE 1:10



DISHED DRAIN/PAVEMENT INTERFACE
SCALE 1:10

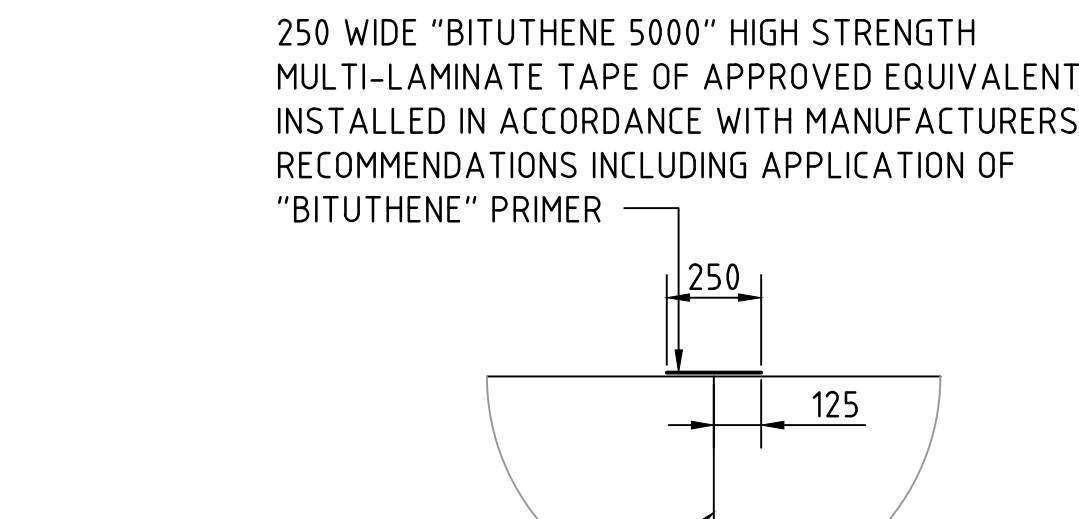


SECTION 1:20
PART SECTION B



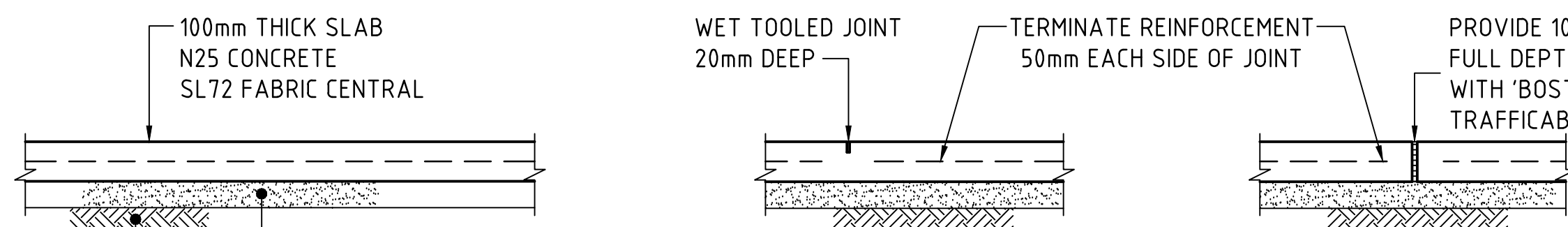
BASE SLAB
JOINT SEALANT DETAIL
N.T.S.

NOTE: JOINT SEALANT IS TO BE USED AND INSTALLED IN ACCORDANCE WITH RMS QA SPECIFICATION B312.

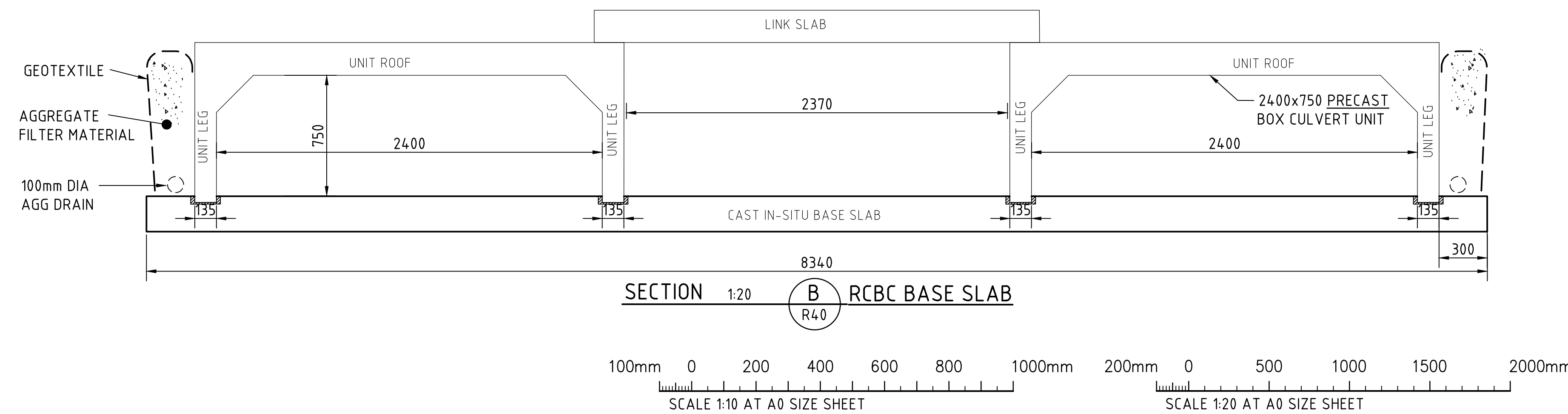


TYPICAL PCBC JOINT DETAIL
SCALE 1:20

PRE-CAST BOX CULVERT JOINT DETAILS TO BE IN ACCORDANCE WITH PENRITH CITY COUNCIL STANDARDS AND REQUIREMENTS



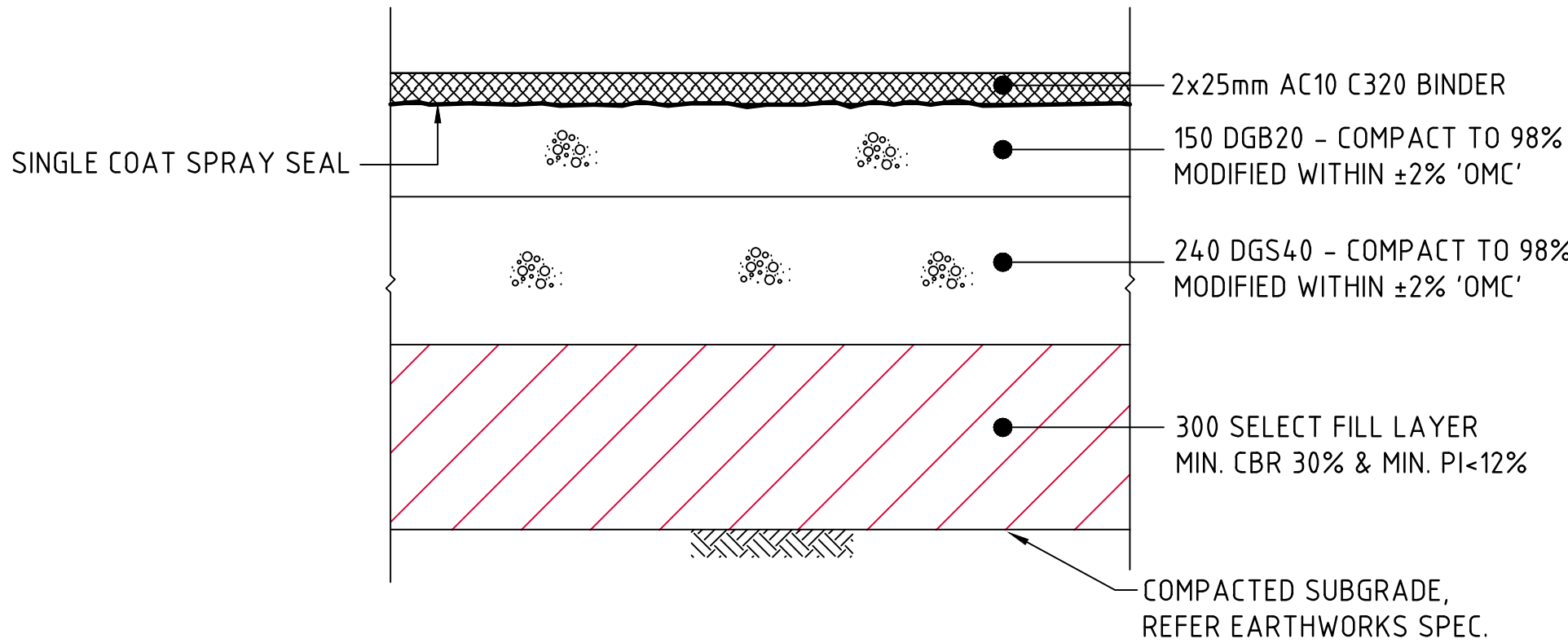
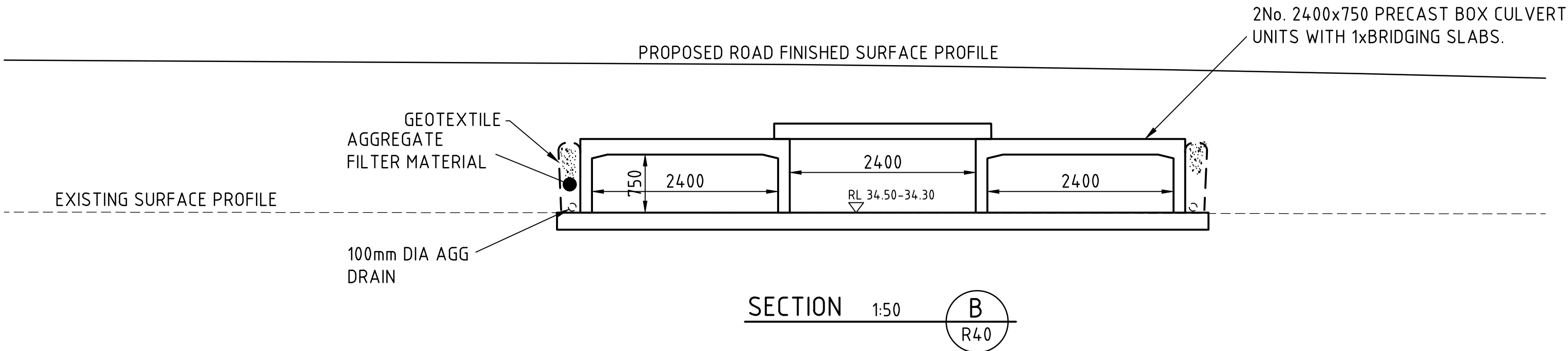
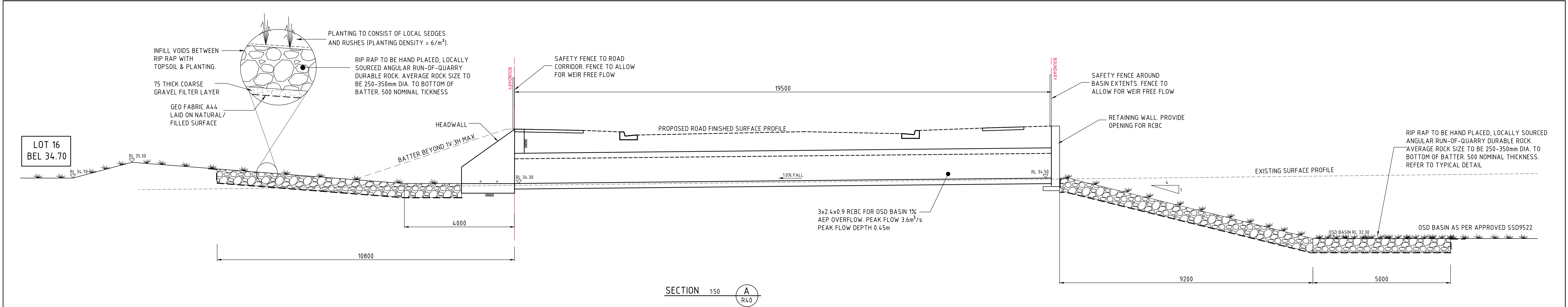
PEDESTRIAN SLAB DETAILS



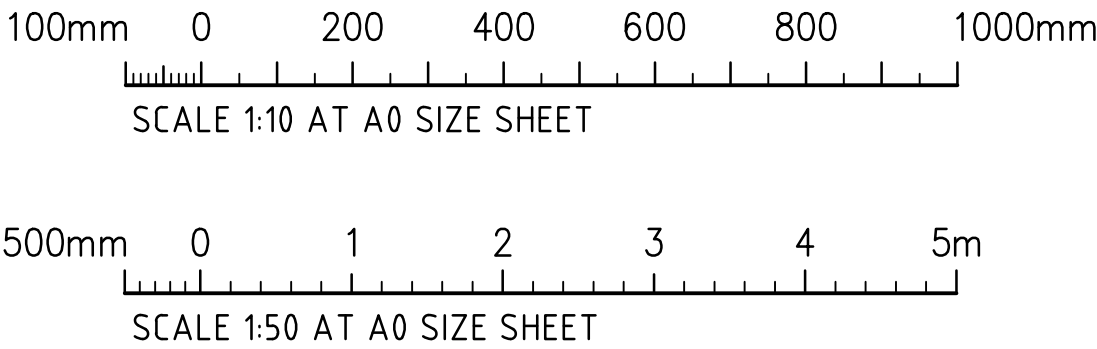
SECTION 1:20
RCBC BASE SLAB

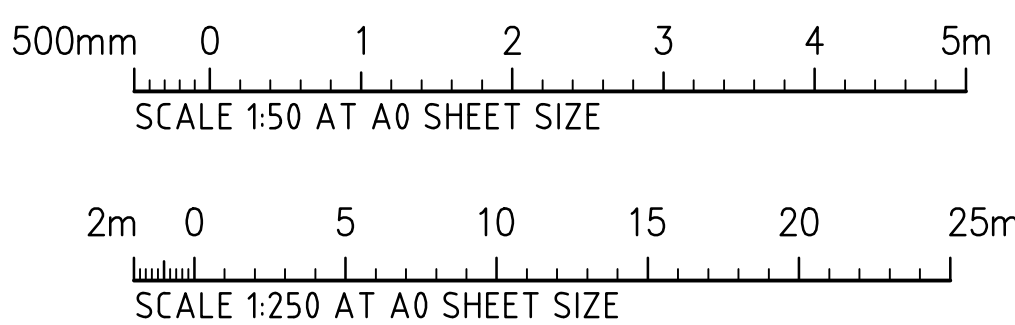
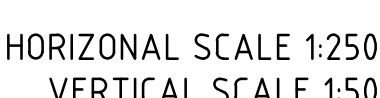
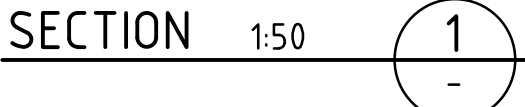
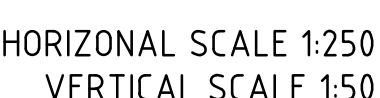
FOR DEVELOPMENT APPLICATION

																				PROJECT PROBIOTEC FACILITY LOT 14, THE YARDS KEMPS CREEK, 2170, NSW DESIGNED MW DRAWN MC DATE AUG 22 CHECKED MW SIZE A3 SCALE AS SHOWN CAD REF: C013362-09 - R45				 Costin Roe Consulting Pty Ltd. ABN 50 005 696 445 PO Box 1419 Sydney NSW 1520 Level 4 & 5 Windmill Street, Millers Point NSW 2000 p: +61 2 9251 7699 f: +61 2 9241 3731 e: mail@costinroe.com.au w: costinroe.com.au				 CIVIL & STRUCTURAL ENGINEERS				DRAWING TITLE CONCEPT ROADWORKS DETAILS - SHEET 1 DRAWING NO C013362-09 - R45 ISSUE C																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
ISSUED FOR DEVELOPMENT APPLICATION				14.06.23				C																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			



SCALE 1:10
DESIGN TRAFFIC 2x10⁶ ESA's
DESIGN CBR VALUE OF 22%
NOTE: FINAL DESIGN SUBJECT TO
FURTHER TESTING TO CONFIRM
CBR VALUE





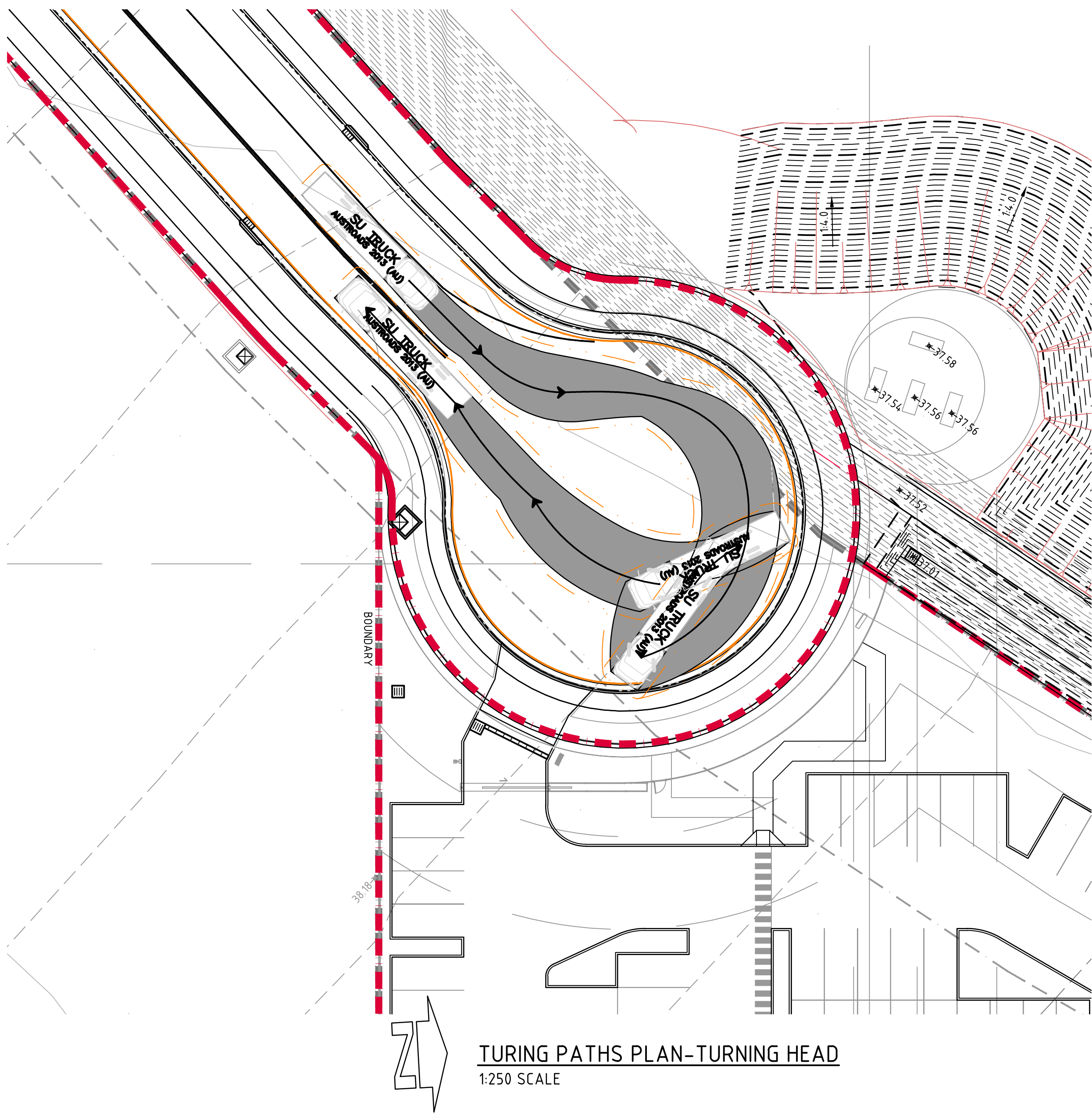
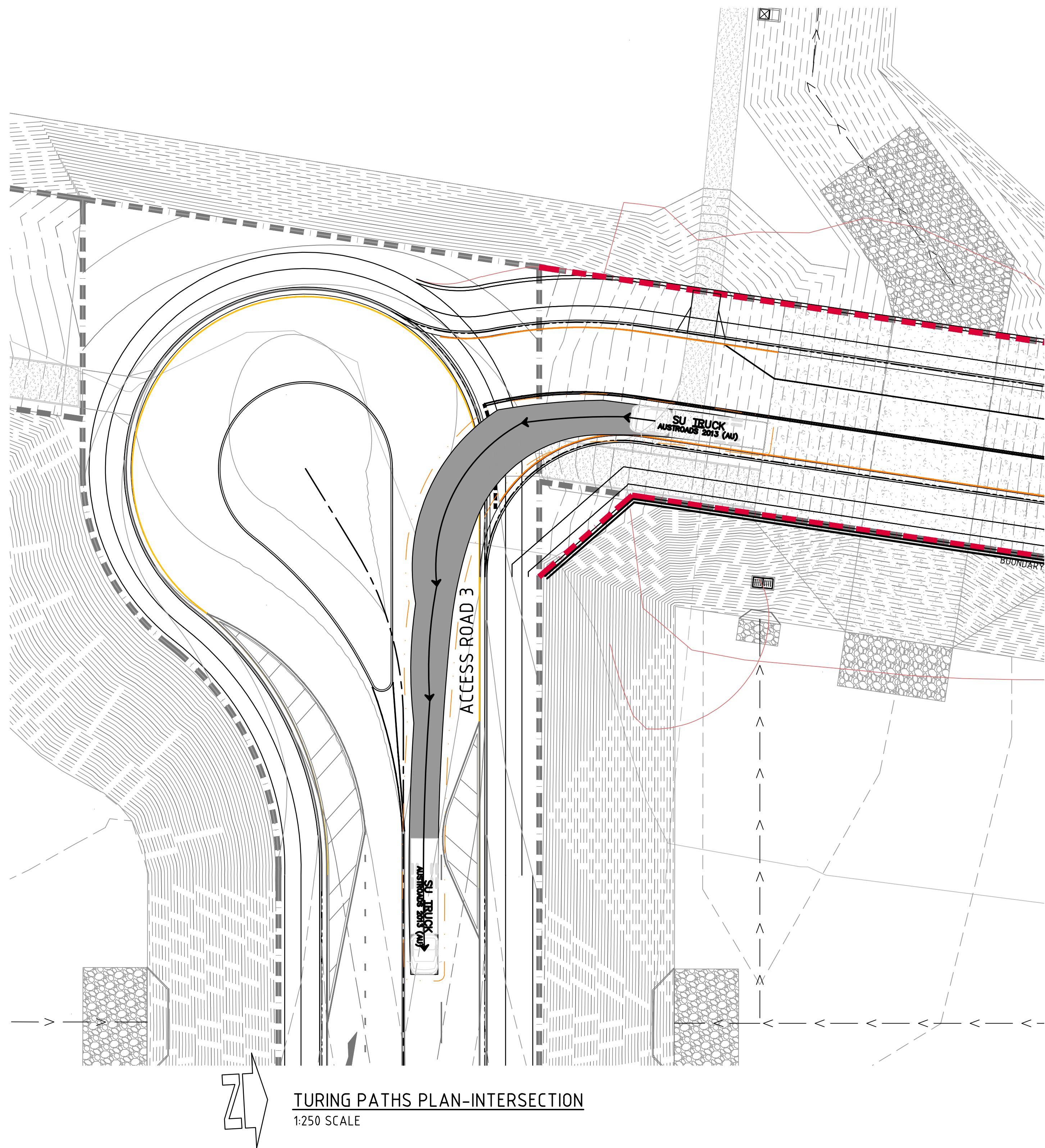
ESU
F

REMOVE ALL EXISTING LINEMARKING AS REQUIRED TO ALLOW FOR MARKING OF NEW INTERSECTION LAYOUTS. LINEMARKING REMOVAL TO BE PERFORMED IN ACCORDANCE WITH RMS STANDARDS

SIGNAGE AND LINEMARKING PLAN
1:300 SCALE

3m 0 5 10 15 20 25 30m
SCALE 1:300 AT A0 SHEET SIZE

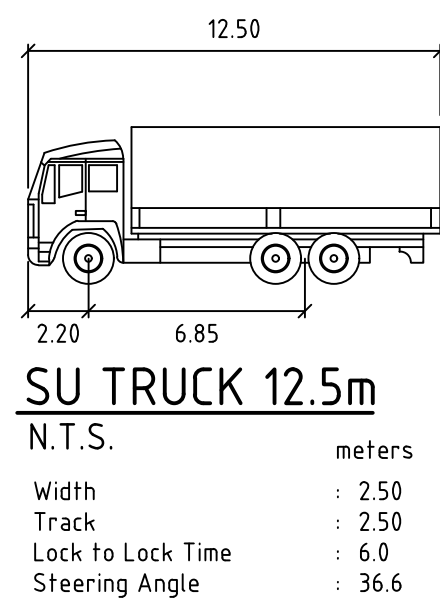
[illegible]



SWEPT PATH NOTE:
DESIGN SPEED 15km/h.

— VEHICLE BODY PATH
- - - VEHICLE BODY PATH
600mm CLEARANCE

NOTE:
THIS PLAN HAS BEEN PRODUCED USING VEHICLE MODELLING
COMPUTER SOFTWARE AUTOTURN .
THE VEHICLES ADOPTED ARE BASED UPON VEHICLE DATA
PROVIDED BY THE SOFTWARE FOR AUSTRADS & AS2890.



FOR DEVELOPMENT APPLICATION

ISSUED FOR DEVELOPMENT APPLICATION				14.06.23				B			
ISSUED FOR DEVELOPMENT APPLICATION				24.11.22				A			
AMENDMENTS				DATE	ISSUE	AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE

ARCHITECT	CLIENT	PROJECT	DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF.
hla architects	FRASERS PROPERTY	PROBIOTEC FACILITY LOT 14, THE YARDS KEMPS CREEK, 2178, NSW	MW	MC	AUG 22	MW	A0	AS SHOWN	C013362.09-R90

Costin Roe Consulting Pty Ltd.	CRC	CIVIL & STRUCTURAL ENGINEERS
ABN 50 003 696 446 PO Box N419 Sydney NSW 1220 Level 4, 8 Woodhill Street, Millers Point NSW 2000 p: +61 2 9251 7699 e: mail@costinroe.com.au w: costinroe.com.au		

DRAWING TITLE	DRAWING No.	ISSUE
TURNING PATHS PLAN ROADWORKS	C013362.09-R90	B