EROSION CONTROL NOTES

1. ALL EROSION AND SILTATION CONTROL DEVICES ARE TO BE PLACED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORKS, AND ALL SILT TRAPS ARE TO HAVE DEPOSITED SILT REMOVED REGULARLY DURING CONSTRUCTION.
2. ALL TREES ARE TO BE PRESERVED UNLESS INDICATED OTHERWISE ON THE ARCHITECT'S OR LANDSCAPE ARCHITECT'S DRAWINGS. EXISTING GRASS COVER SHALL BE MAINTAINED EXCEPT IN AREAS CLEARED FOR BUILDINGS, PAVEMENTS ETC.
3. INSTALL TEMPORARY SEDIMENT BARRIERS TO ALL INLET PITS LIKELY TO COLLECT SILT LADDEN WATER, TO COUNCIL'S STANDARDS
4. NOT WITHSTANDING DETAILS SHOWN IT IS THE CONTRACTORS SOLE RESPONSIBILITY TO ENSURE THAT ALL SITE ACTIVITIES COMPLY WITH THE REQUIREMENTS OF THE CLEAN WATERS ACT.
5. ALL TOPSOIL TO BE CONSERVED FOR RE-USE ON SITE

NOTES

1. ALL LINES ARE TO BE Ø100 U.P.V.C @ MIN 1.0% GRADE UNLESS NOTED OTHERWISE. CHARGED LINES TO BE SEWER GRADE & SEALED.
2. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE & LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS.
3. ALL PIPES TO HAVE MIN 150mm COVER IF LOCATED WITHIN PROPERTY.
4. ALL PITS IN DRIVEWAYS TO BE 450x450 CONCRETE AND ALL PITS IN LANDSCAPED AREAS TO BE 450x450 PLASTIC.
5. PITS LESS THAN 600 DEEP MAY BE BRICK, PRECAST OR CONCRETE.
6. PITS DEEPER THAN 900 MUST BE 900x900 AND HAVE STEP RUNGS AT 300 CENTRES.
7. ALL BALCONIES AND ROOFS TO BE DRAINED AND TO HAVE SAFETY OVERFLOWS IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS.
8. ALL EXTERNAL SLABS TO BE WATERPROOFED.
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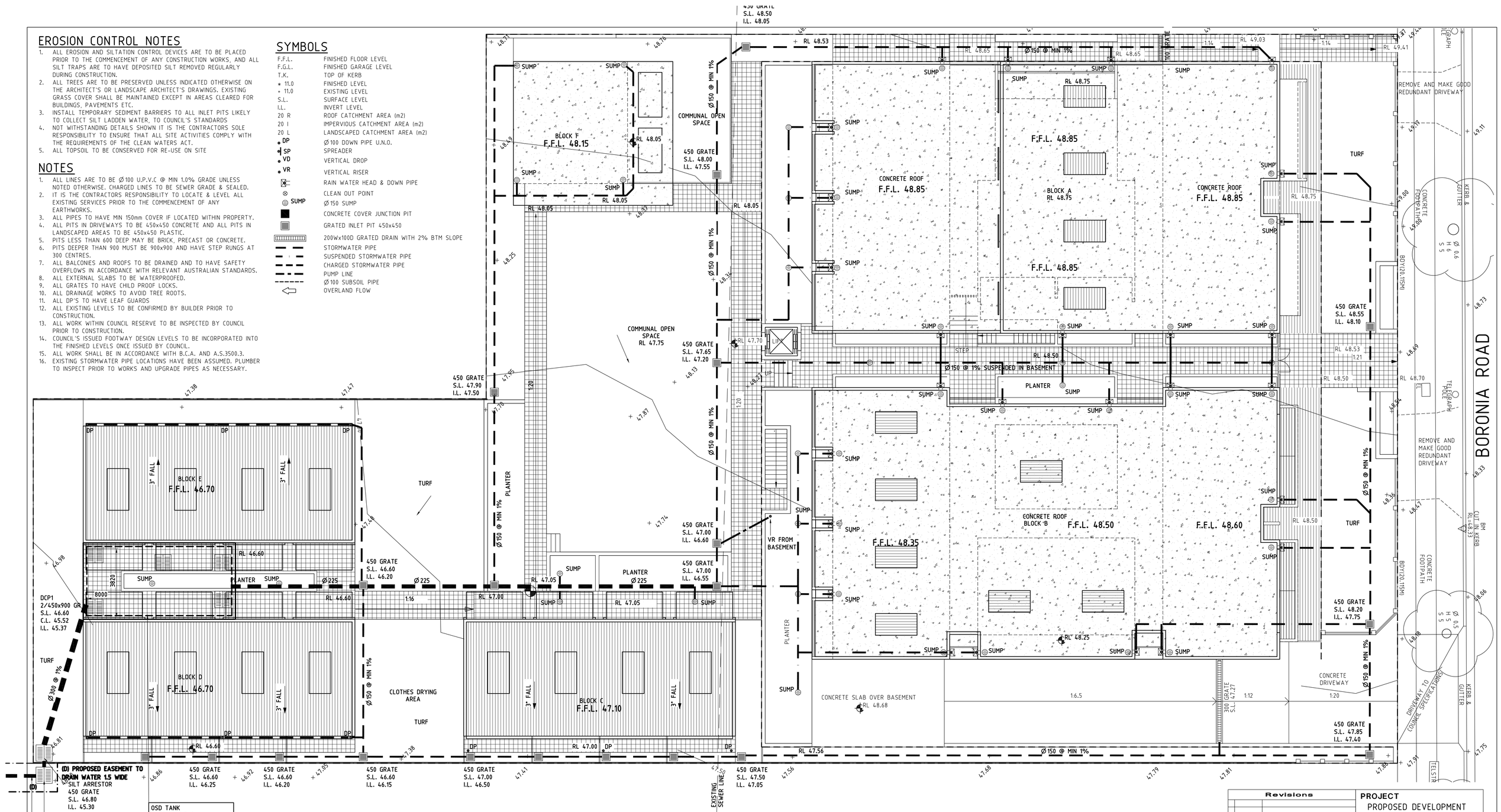
15. ALL WORK SHALL BE IN ACCORDANCE WITH B.C.A. AND A.S.3500.3.
16. EXISTING STORMWATER PIPE LOCATIONS HAVE BEEN ASSUMED. PLUMBER TO INSPECT PRIOR TO WORKS AND UPGRADE PIPES AS NECESSARY.

SYMBOLS

F.F.L.	FINISHED FLOOR LEVEL
F.G.L.	FINISHED GARAGE LEVEL
T.K.	TOP OF KERB
* 11.0	FINISHED LEVEL
+ 11.0	EXISTING LEVEL
S.L.	SURFACE LEVEL
I.L.	INVERT LEVEL
20 R	ROOF CATCHMENT AREA (m2)
20 I	IMPERVIOUS CATCHMENT AREA (m2)
20 L	LANDSCAPED CATCHMENT AREA (m2)
DP	Ø100 DOWN PIPE U.N.O.
SP	SPREADER
VD	VERTICAL DROP
VR	VERTICAL RISER
	RAIN WATER HEAD & DOWN PIPE
	CLEAN OUT POINT
SUMP	Ø150 SUMP
	CONCRETE COVER JUNCTION PIT
	GRATED INLET PIT 450x450
	200Wx100D GRATED DRAIN WITH 2% BTM SLOPE
	STORMWATER PIPE
	SUSPENDED STORMWATER PIPE
	CHARGED STORMWATER PIPE
	PUMP LINE
	Ø100 SUBSOIL PIPE
	OVERLAND FLOW



OSD TANK
AREA = 30.5m2
MAX WATER DEPTH = 0.88m
AVG WATER DEPTH = 0.84m
VOLUME = 25.62m3
TWL 46.40

SITE AND ROOF DRAINAGE PLAN

SCALE 1:100
NOTE:
1. MINIMUM ROOF FALL 1% TO OUTLETS
2. WATERPROOF ALL CONCRETE ROOFS
3. PROVIDE SAFETY OVERFLOW TO ALL ROOFS
4. ALL BALCONIES TO HAVE FLOOR WASTE AND 1% FALL WITH SAFETY OVERFLOW
5. ALL DOWNPIPES TO BE CONSTRUCTED OF ONE MATERIAL FOR AESTHETICS REASONS AND PAINTED TO PROTECT THEM AGAINST ULTRA-VIOLET LIGHT DAMAGE.

DESIGN SUMMARY

TOTAL SITE AREA = 2526m2
PRE DEV. IMP. AREA = 1650m2 (65%)
POST DEV. IMP. AREA = 1785m2 (70%)
OSD IS REQUIRED FOR THIS DEVELOPMENT AS PER BANKSTOWN CITY COUNCIL

PLUMBER TO INSPECT ANY EXISTING DRAINAGE TO BE RETAINED AND UPGRADE AS NECESSARY.

BASIX NOT REQUIRED FOR THIS DEVELOPMENT

Revisions		
C	23/11/18	UPDATED ARCHITECTURALS
B	23/08/18	CONCEPT FOR COUNCIL
A	16/04/18	CONCEPT FOR COUNCIL

ARCHITECT
CK design + project
73 HAMBROOK PARRIED PARK NSW 2150
P: +61 7420 8023 +61 2411 222 888
E: chris@ckdesign.net.au
W: www.ckdesign.net.au

PROJECT
PROPOSED DEVELOPMENT
144-146 BORONIA ROAD
GREENACRE, NSW

TITLE
SITE AND ROOF DRAINAGE PLAN

A.C.N. 090 572 973
UNITED

1m 0 1 2 3 4 5m
1 : 100 A1

FOR D.A. ONLY
CANTERBURY-BANKSTOWN COUNCIL

UNITED CONSULTING ENGINEERS PTY LTD
Civil/Structural Engineers
Shop 1, 147-153 Liverpool Rd,
Burwood NSW, 2134
Telephone: (02) 9715 5111
Facsimile: (02) 9715 6222
Mobile: 0411 453 012
Email: united_eng@bigpond.com

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North	Designed	Drawn
	MAB	A.U.
	Checked: MAB	Scale: 1:100 U.N.O.
	Drawing No: 18MB7697/D01	Sheet: 1 of 4 — Issue: C

DIAL 1100 BEFORE YOU DIG
NO SUBSURFACE INVESTIGATION HAS BEEN MADE
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	CHARGED STORMWATER PIPE
	PUMP LINE
	Ø100 SUBSOIL PIPE
	OVERLAND FLOW

PUMP WELL DETAILS

PUMP SIZE BASE ON 100 YEAR 5 MINUTE STORM
INTENSITY IS 242 mm/hr, AREA DRAINING TOWARDS SUMP IS 80m2
Q=CIA/3600 = 1.0x242x80/3600 = 5.38 l/s

SUMP SIZE BASE ON 50 YEAR 2 HOUR STORM
INTENSITY IS 46.9 mm/hr, AREA DRAINING TOWARDS SUMP IS 80m2
Q=CIA/3600 = 1.0x46.9x80/3600 = 1.04 l/s
VOLUME REQUIRED IS 1.04x(2x60x60) = 7488 litres
STORAGE PROVIDED 2500x2500x1200 = 7500 litres
THEREFORE ADEQUATE STORAGE PROVIDED

USE DUAL KPSS 400 PUMPS
TO BE INSTALLED IN SUMP AND CONNECTED TO CONTROL PANEL WHICH WILL ALLOW FOR THE PUMPS TO ACT ALTERNATIVELY AT 4.4m HEAD

PUMPS USED MUST BE CLASS ONE, ZONE 2.

COMPONENTS

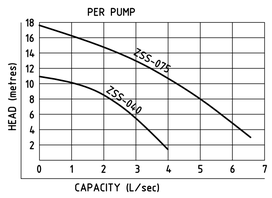
1. TWO(2) PUMPS OMEGA SUBMERSIBLE PUMPS (240v)
2. ONE(1) PUMPS START CONTROL PANEL (CONTROL DESIGN TO ALTERNATE PUMPS ON START ON CONSECUTIVE START OPERATION)
3. TWO(2) GATE VALVES (BRONZE)
4. TWO(2) CHECK VALVES (SWING TYPE) (BRONZE)
5. TWO(2) SETS OF DISCHARGE HOSES WITH KAMLOK QUICK RELEASE COUPLINGS
6. ALL IN TANK PIT/PIPE AND PIPE FITTINGS, BRACKETS/SUPPORTS, HD GAL. CHAINS
7. FOUR(4) KWIK START KENRAHN MERCURY LEVEL FLOAT REGULATORS
8. INSTALLATION IN PROVIDED TANK/PIT

OPTIONS

1. TANK PACKAGE/COVERS/MANHOLE, ALARM BELL, LOW LEVEL ALARM REGULATOR

MODEL - ALINE	OUTLET SIZE	MAX FLOW	MAX HEAD	MOTOR SIZE	WEIGHT	POWER
OMEGA ZSS-040	50mm	3.9 L/sec	11m	0.40 kW	11 kg	240v
OMEGA ZSS-075	50mm	6.6 L/sec	18m	0.75 kW	18 kg	240v

PUMP SPECIFICATIONS



PUMP PERFORMANCE CURVES

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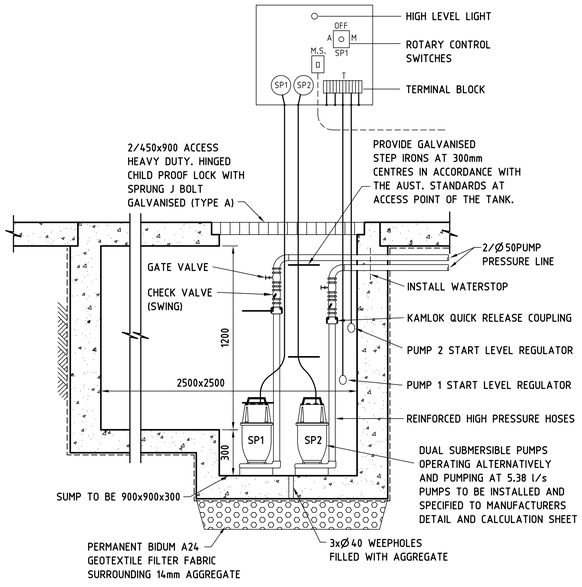

SECTION THROUGH PUMP WELL

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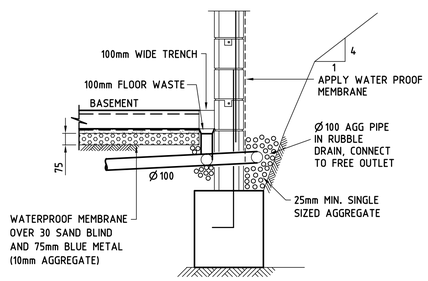

SECTION 1

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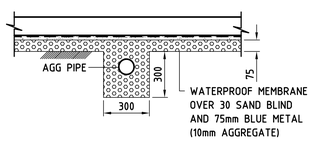

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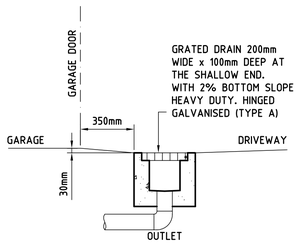
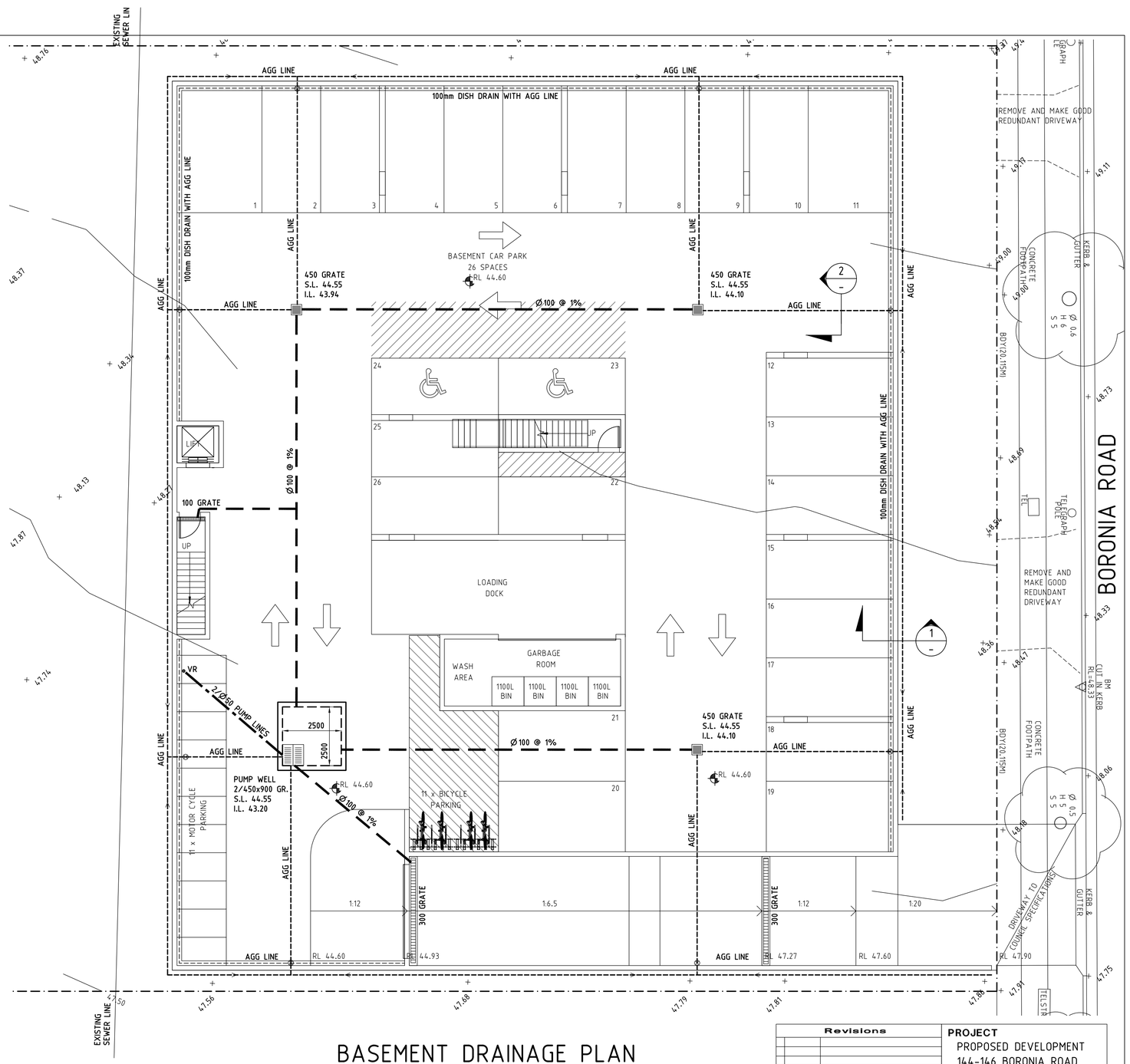


TYPICAL GRATE SECTION

SCALE 1:20



BASEMENT DRAINAGE PLAN

SCALE 1:100
NOTE: MINIMUM BASEMENT FALL 0.7% TOWARD PITS

Revisions		
C	23/11/18	UPDATED ARCHITECTURALS
B	23/08/18	CONCEPT FOR COUNCIL
A	16/04/18	CONCEPT FOR COUNCIL

PROJECT
PROPOSED DEVELOPMENT
144-146 BORONIA ROAD
GREENACRE, NSW

TITLE
BASEMENT DRAINAGE PLAN

ARCHITECT
CK design + project
73 HAMBEN LTD. KAMBB PARK NSW 2150
P: +61 7622 8420 +61 2401 2220 888
E: info@ckdesignproject.au
W: www.ckdesignproject.au

A.C.N. 090 572 973
UNITED

1m 0 1 2 3 4 5m
1 : 100 A1

FOR D.A. ONLY
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UNITED CONSULTING ENGINEERS PTY LTD
Civil/Structural Engineers
Shop 1, 147-153 Liverpool Rd,
Burwood NSW, 2134
Telephone: (02) 9715 5111
Facsimile: (02) 9715 6222
Mobile: 0411 453 012
Email: united_eng@bigpond.com

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Approved: *Mark Anthony Boudib MIEAust, CPEng, NPER*

North	Designed	Drawn
	MAB	A.U.
	Checked	Scale
	MAB	1:100 U.N.O.
	Drawing No.	Sheet / Issue
	18MB7697/D02	2 of 4 / C

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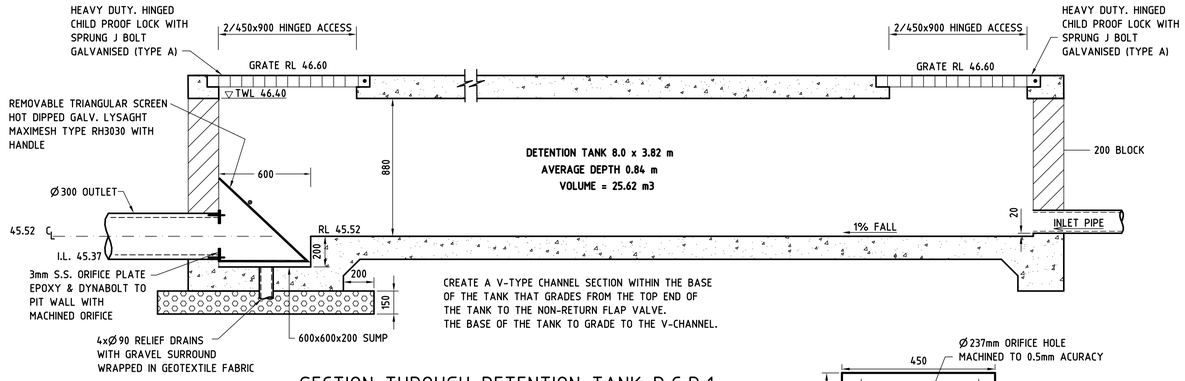
	CHARGED STORMWATER PIPE
	PUMP LINE
	Ø100 SUBSOIL PIPE
	OVERLAND FLOW

SUMMARY CALCULATIONS

TOTAL SITE AREA = 2526m2
PSD RESTRICTED TO PRE DEVELOPMENT MODELED 70% PERVIOUS
REFER TO DRAINS FILE FOR DETAILED CALCULATIONS

SEE DRAINS FILES				
ARI	PRE	POST	TWL	VOL
5	69	69	45.84	12
20	102	89	46.10	17.5
100	126	109	46.40	25



SECTION THROUGH DETENTION TANK D.C.P.1

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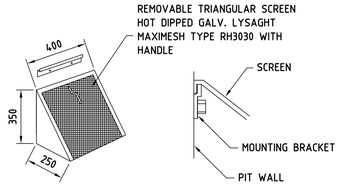

MULTI PURPOSE FILTER SCREEN

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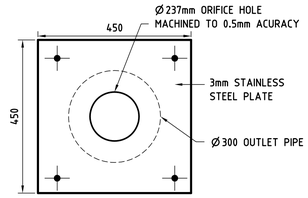
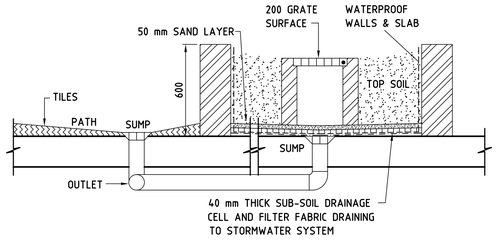


ORIFICE PLATE ELEVATION

SCALE 1:10



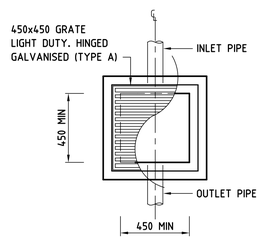
TYPICAL PLANTER BOX DETAIL

SCALE 1:20

PITS DEEPER THAN 900mm TO HAVE STEP RUNGS AND A CHILD PROOF LOCK WITH SPRUNG J BOLT

TYPICAL PIT SECTION

SCALE 1:20



STANDARD PIT

SCALE 1:20

DANGER
CONFINED SPACE
NO ENTRY WITHOUT CONFINED SPACE TRAINING

CONFINED SPACE WARNING SIGN

A CONFINED SPACE DANGER SIGN SHALL BE PROVIDED AT EACH ACCESS GRATE OF THE BELOW GROUND DETENTION TANK

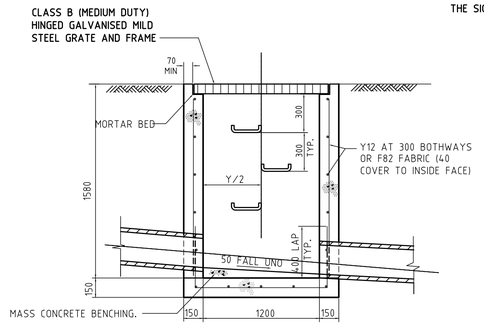
COLOURS:-
"DANGER" AND BACKGROUND - WHITE
ELLIPTICAL AREA - RED
RECTANGLE CONTAINING ELLIPSE - BLACK
OTHER LETTING AND BORDER - BLACK

A. A CONFINED SPACE DANGER SIGN SHALL BE POSITIONED IN A LOCATION AT ALL ACCESS POINTS, SUCH THAT IT IS CLEARLY VISIBLE TO PERSONS PROPOSING TO ENTER THE BELOW GROUND TANK/S CONFINED SPACE.

B. MINIMUM DIMENSIONS OF THE SIGN - 300mm x 450mm (LARGE ENTRIES, SUCH AS DOORS)
- 250mm x 180mm (SMALL ENTRIES SUCH AS GATES & MANHOLES)

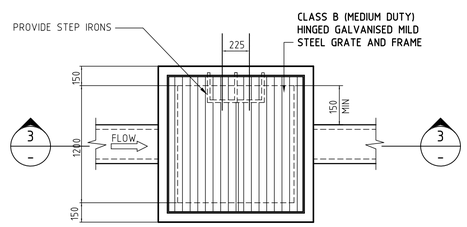
C. THE SIGN SHALL BE MANUFACTURED FROM COLOUR BONDED ALUMINIUM OR POLYPROPYLENE.

D. SIGN SHALL BE AFFIXED USING SCREWS AT EACH CORNER OF THE SIGN AND/OR SUITABLE EPOXY GLUE/CEMENT.



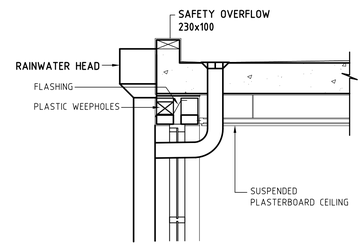
SECTION 3

SCALE 1:20



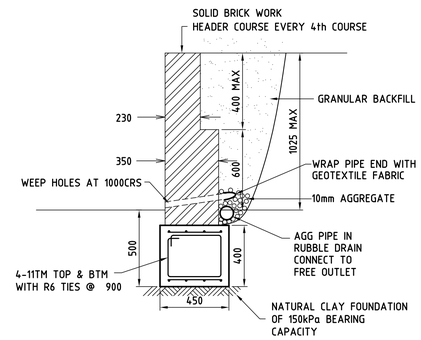
PLAN

SURFACE INLET



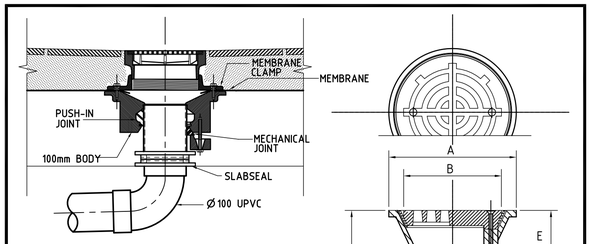
ROOF SUMP DETAIL

SCALE 1:20



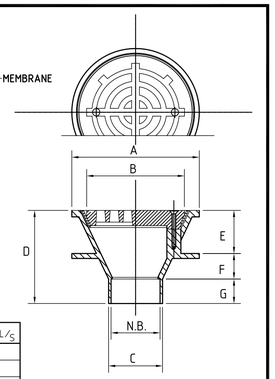
TYPICAL RETAINING WALL

SCALE 1:20
R.W. EXCEEDING 600 TO BE DESIGNED BY STRUCTURAL ENGINEER



BALCONY OUTLET-100Ø

N.T.S.



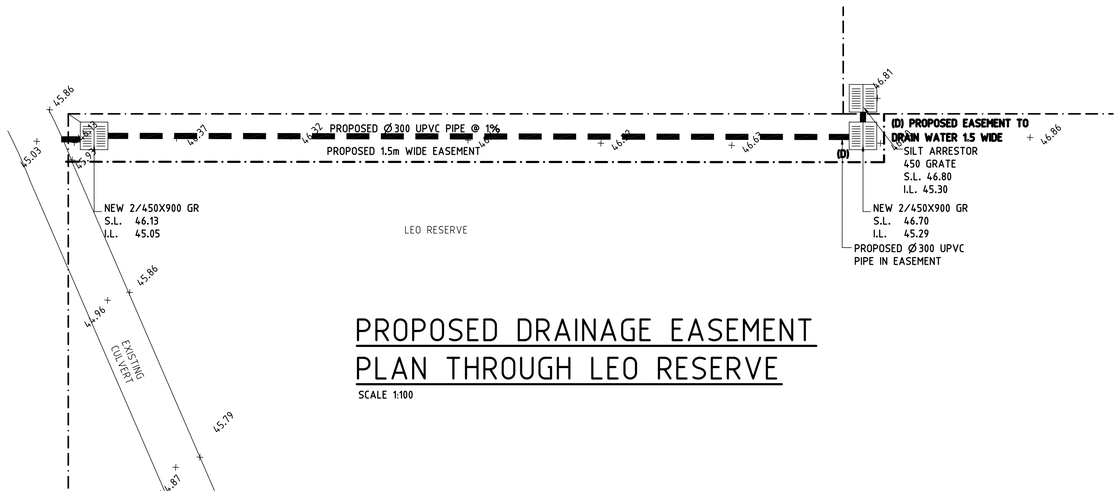
DIMENSIONAL DATA

N.B.	A	B	C	D	E	F	G	FLOW RATE L/S
50	160	110	58	72	31	14	27	
80	200	150	85	80	33	22	25	
100	260	200	110	95	44	26	25	8.2
150	260	200	160	110	46	6	38	10.2
SUPERFLO	400	300	160	143	66	39	38	17

BASED ON 50mm HEAD OF WATER ABOVE SURFACE LEVEL.
FOR FURTHER DATA REFER TO FLOW RATE CHARTS.

USPS TRUFLO FLAT GRATE

N. T. S.



PROPOSED DRAINAGE EASEMENT PLAN THROUGH LEO RESERVE

SCALE 1:100

Revisions		
C	23/11/18	UPDATED ARCHITECTURALS
B	23/08/18	CONCEPT FOR COUNCIL
A	16/04/18	CONCEPT FOR COUNCIL

ARCHITECT
CK design + project
73 HAMPDEN ST, HAMPDEN PARK NSW 2100
P: +61 7422 8023 +61 0411 222 088
E: chris@ckdesignproject.au
W: www.ckdesignprojects.com

PROJECT
PROPOSED DEVELOPMENT
144-146 BORONIA ROAD
GREENACRE, NSW

TITLE
EASEMENT AND DRAINAGE DETAILS PLAN

A.C.N. 090 572 973
UNITED

1m 0 1 2 3 4 5m
1 : 100 A1

FOR D.A. ONLY
CANTERBURY-BANKSTOWN COUNCIL

UNITED CONSULTING ENGINEERS PTY LTD
Civil/Structural Engineers
Shop 1, 147-153 Liverpool Rd,
Burwood NSW, 2134
Telephone: (02) 9715 5111
Facsimile: (02) 9715 6222
Mobile: 0411 453 012
Email: united_eng@bigpond.com

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North	Designed	Drawn	
	MAB	A.U.	
	Checked	Scale	
	MAB	1:100 U.N.O.	
	Drawing No.	Sheet	Issue
	18MB7697/D03	3 of 4	C

DIAL 1100 BEFORE YOU DIG
NO SUBSURFACE INVESTIGATION HAS BEEN MADE IT IS YOUR RESPONSIBILITY TO OBTAIN SERVICE DIAGRAMS FROM RELEVANT AUTHORITIES

EROSION CONTROL NOTES

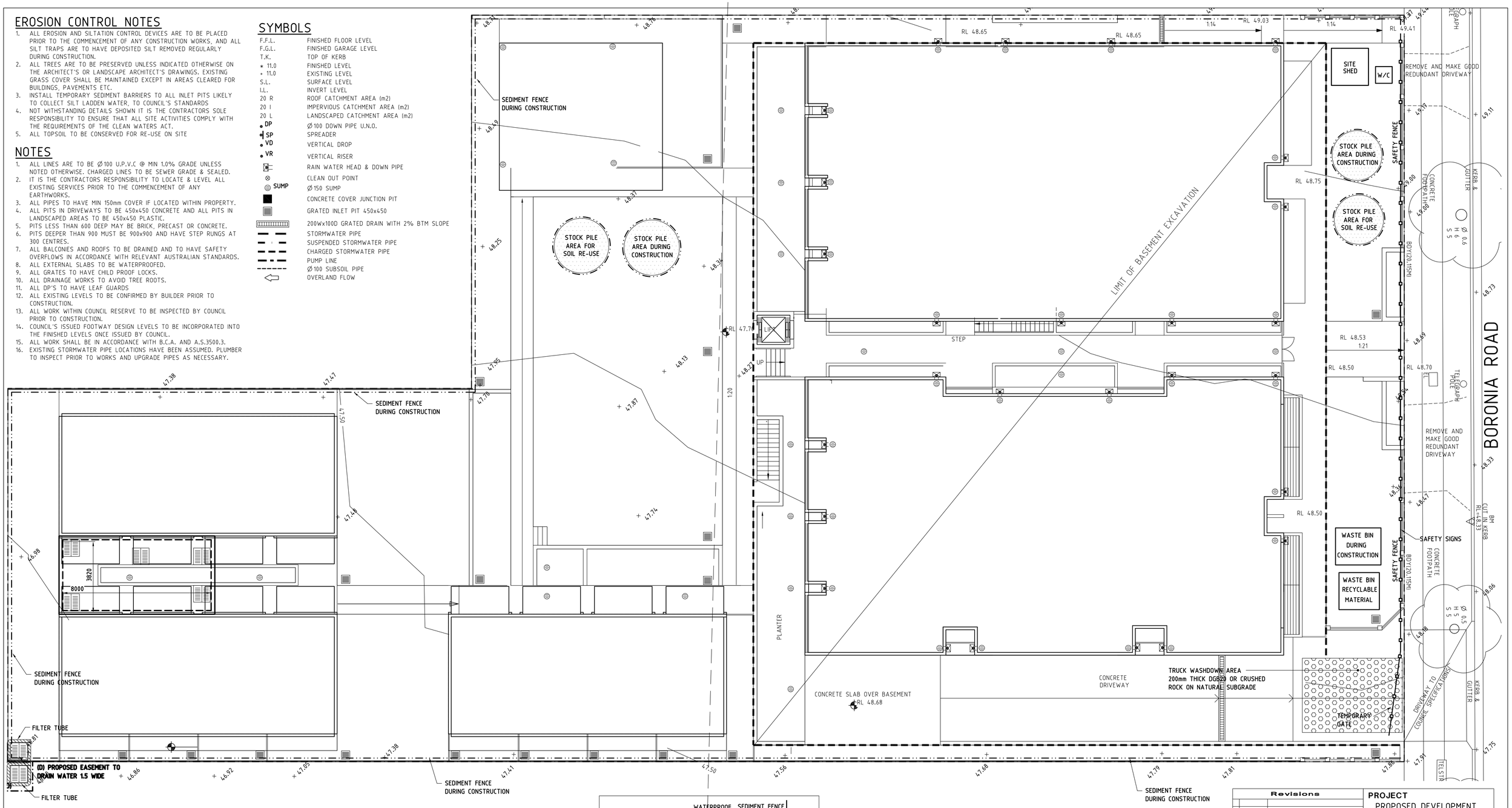
1. ALL EROSION AND SILTATION CONTROL DEVICES ARE TO BE PLACED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORKS, AND ALL SILT TRAPS ARE TO HAVE DEPOSITED SILT REMOVED REGULARLY DURING CONSTRUCTION.
2. ALL TREES ARE TO BE PRESERVED UNLESS INDICATED OTHERWISE ON THE ARCHITECT'S OR LANDSCAPE ARCHITECT'S DRAWINGS. EXISTING GRASS COVER SHALL BE MAINTAINED EXCEPT IN AREAS CLEARED FOR BUILDINGS, PAVEMENTS ETC.
3. INSTALL TEMPORARY SEDIMENT BARRIERS TO ALL INLET PITS LIKELY TO COLLECT SILT LADDEN WATER, TO COUNCIL'S STANDARDS
4. NOT WITHSTANDING DETAILS SHOWN IT IS THE CONTRACTORS SOLE RESPONSIBILITY TO ENSURE THAT ALL SITE ACTIVITIES COMPLY WITH THE REQUIREMENTS OF THE CLEAN WATERS ACT.
5. ALL TOPSOIL TO BE CONSERVED FOR RE-USE ON SITE

NOTES

1. ALL LINES ARE TO BE Ø100 U.P.V.C @ MIN 1.0% GRADE UNLESS NOTED OTHERWISE. CHARGED LINES TO BE SEWER GRADE & SEALED.
2. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE & LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS.
3. ALL PIPES TO HAVE MIN 150mm COVER IF LOCATED WITHIN PROPERTY.
4. ALL PITS IN DRIVEWAYS TO BE 450x450 CONCRETE AND ALL PITS IN LANDSCAPED AREAS TO BE 450x450 PLASTIC.
5. PITS LESS THAN 600 DEEP MAY BE BRICK, PRECAST OR CONCRETE.
6. PITS DEEPER THAN 900 MUST BE 900x900 AND HAVE STEP RUNGS AT 300 CENTRES.
7. ALL BALCONIES AND ROOFS TO BE DRAINED AND TO HAVE SAFETY OVERFLOWS IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS.
8. ALL EXTERNAL SLABS TO BE WATERPROOFED.
9. ALL GRATES TO HAVE CHILD PROOF LOCKS.
10. ALL DRAINAGE WORKS TO AVOID TREE ROOTS.
11. ALL DP'S TO HAVE LEAF GUARDS
12. ALL EXISTING LEVELS TO BE CONFIRMED BY BUILDER PRIOR TO CONSTRUCTION.
13. ALL WORK WITHIN COUNCIL RESERVE TO BE INSPECTED BY COUNCIL PRIOR TO CONSTRUCTION.
14. COUNCIL'S ISSUED FOOTWAY DESIGN LEVELS TO BE INCORPORATED INTO THE FINISHED LEVELS ONCE ISSUED BY COUNCIL.
15. ALL WORK SHALL BE IN ACCORDANCE WITH B.C.A. AND A.S.3500.3.
16. EXISTING STORMWATER PIPE LOCATIONS HAVE BEEN ASSUMED. PLUMBER TO INSPECT PRIOR TO WORKS AND UPGRADE PIPES AS NECESSARY.

SYMBOLS

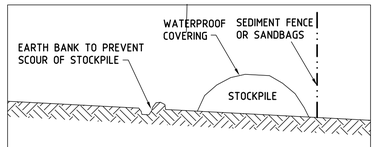
F.F.L.	FINISHED FLOOR LEVEL
F.G.L.	FINISHED GARAGE LEVEL
T.K.	TOP OF KERB
* 11.0	FINISHED LEVEL
+ 11.0	EXISTING LEVEL
S.L.	SURFACE LEVEL
I.L.	INVERT LEVEL
20 R	ROOF CATCHMENT AREA (m2)
20 I	IMPERVIOUS CATCHMENT AREA (m2)
20 L	LANDSCAPED CATCHMENT AREA (m2)
DP	Ø100 DOWN PIPE U.N.O.
SP	SPREADER
VD	VERTICAL DROP
VR	VERTICAL RISER
	RAIN WATER HEAD & DOWN PIPE
	CLEAN OUT POINT
SUMP	Ø150 SUMP
	CONCRETE COVER JUNCTION PIT
	GRATED INLET PIT 450x450
	200Wx100D GRATED DRAIN WITH 2% BTM SLOPE
	STORMWATER PIPE
	SUSPENDED STORMWATER PIPE
	CHARGED STORMWATER PIPE
	PUMP LINE
	Ø100 SUBSOIL PIPE
	OVERLAND FLOW



SOIL & WATER MANAGEMENT PLAN

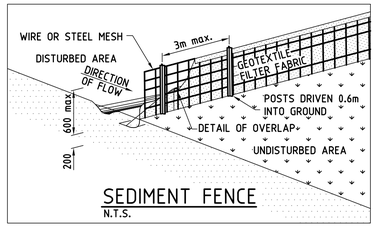
SCALE 1:100

NOTE: CONNECT DOWN PIPES AS SOON AS ROOF IS ON.



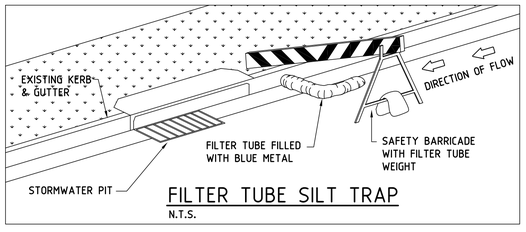
BUILDING MATERIAL STOCKPILES

N.T.S.



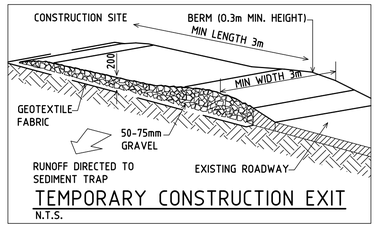
SEDIMENT FENCE

N.T.S.



FILTER TUBE SILT TRAP

N.T.S.



TEMPORARY CONSTRUCTION EXIT

N.T.S.

SEDIMENT CONTROL NOTES

1. ALL EROSION AND SEDIMENTATION CONTROL MEASURES, INCLUDING REVEGETATION AND STORAGE OF SOIL, SHALL BE IMPLEMENTED TO THE STANDARDS OF SOIL CONSERVATION N.S.W.
2. ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILIZED AS EARLY AS POSSIBLE DURING DEVELOPMENT.
3. SEDIMENT TRAPS SHALL BE CONSTRUCTED AROUND ALL INLET PITS, CONSISTING OF 300mm WIDE x 300mm DEEP TRENCH.
4. ALL SEDIMENT BASINS AND TRAPS SHALL BE CLEANED WHEN THE STRUCTURES ARE A MINIMUM OF 60% FULL OF SOIL MATERIALS, INCLUDING DURING THE MAINTENANCE PERIOD.
5. ALL DISTURBED AREAS SHALL BE REVEGETATED AS SOON AS THE RELEVANT WORKS ARE COMPLETED.
6. SOIL AND STOCKPILES SHALL BE LOCATED AWAY FROM DRAINAGE LINES AND AREAS WHERE WATER MAY CONCENTRATE.
7. FILTER SHALL BE CONSTRUCTED BY STRETCHING A FILTER FABRIC (PROPEX OR APPROVED EQUIVALENT BETWEEN POST AT 3.0M CENTERS. FABRIC SHALL BE BURIED 150 mm ALONG ITS LOWER EDGE.
8. CONTROL SURFACE WATER FLOW IN A MANNER THAT:
   - A- DIVERTS RUN-OFF AROUND DISTURBED AREAS
   - B- MINIMISES SLOPE AND FLOW DISTANCE WITHIN DISTURBED AREAS
   - C- ENSURES SURFACE RUN-OFF OCCURS AT NON-ERODABLE VELOCITIES
   - D- ENSURES DISTURBED AREAS ARE PROMPTLY REHABILITATED

Revisions

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B	23/08/18	CONCEPT FOR COUNCIL
A	16/04/18	CONCEPT FOR COUNCIL

PROJECT
PROPOSED DEVELOPMENT
144-146 BORONIA ROAD
GREENACRE, NSW

TITLE
SOIL AND WATER MANAGEMENT PLAN

ARCHITECT
CK design
design + process
73 HAMBROS ST, WARRIEWOOD NSW 2102
P: +61 (02) 9997 4055 F: +61 (0)9 2102 0889
E: CK@CKdesignpartner.au
W: www.CKdesignpartner.au

A.C.N. 090 572 973
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CANTERBURY-BANKSTOWN COUNCIL

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Burwood NSW, 2134
Telephone: (02) 9715 5111
Facsimile: (02) 9715 6222
Mobile: 0411 453 012
Email: united_eng@bigpond.com

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	Checked	Scale
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	Drawing No.	Sheet / Issue
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