# RESIDENTIAL DEVELOPMENT

## 8 Oaks Avenue, DEE WHY NSW

### STORMWATER DRAINAGE NOTES:

#### GENERAL NOTES:

- D1. All levels are to Australian Height Datum (AHD), unless noted otherwise.
- D2. Dimensions shall not be scaled from drawings.
- D3. The Contractor must verify all dimensions on site prior to commencement of the works.
- D4. These plans shall be read in conjunction with the approved Architectural, Structural, Mechanical, Hydraulic, Electrical, Landscape & other Consultants drawings.
- D5. Where new work abuts existing, the Contractor shall ensure a smooth even profile free from abrupt changes.
- D6. The Contractor shall arrange for all survey setout & as-built to be performed by a Registered Surveyor.
- D7. Invert levels are given at critical locations. The Contractor/Drainer shall determine levels on minor drainage lines and confirm design
- D8. Stormwater drains min. fall 1:100, unless noted otherwise.
- D9. Advise Engineer for Inspection of all Stormwater works, pipes & pits, prior to covering. Provide as-built survey upon completion.
- D10. Construction of Drainage to conform with the requirements of the relevant Authority or Council.
- D11. Connections to new & existing drainage shall be neatly trimmed & cement rendered to a smooth finish.
- D12. All work shall be in accordance with AS3500 'National Plumbing & Drainage Code', unless noted otherwise.
- D13. The Contractor shall expose the full drainage route and point of discharge from the site and confirm levels prior to commencing

#### EXISTING SERVICES:

- D14. The Contractor shall excavate for, locate and co-ordinate with all services within & beyond the property line prior to the commencement of the Works
- D15. Existing services which are to remain shall be adjusted as necessary to suit the new Works.
- D16. Existing services no longer required shall be capped off and removed out of sight to the relevant authorities requirements.
- D17. Care is to be taken when excavating near existing services. Obtain services setout prior to works. Hand excavate as required to avoid damage to services.
- D18. Construct temporary services as required.

### DRAINAGE PIPES:

- D19. UPVC type pipes shall be used for pipes not greater than 300mm diameter, unless noted otherwise. UPVC pipes shall have solvent welded watertight joints.
- D20. Pipe diameter greater than 300mm shall be FRC type pipe Class '3', unless noted otherwise.
- D21. Pipe laying, bedding & backfill to be in accordance with the specification and the pipe manufacturer's requirements.
- D22. Where UPVC drainage pipes pass under slabs, sewer grade pipes shall be used.
- D23. Contractor shall supply & install all proprietary fittings for connections & junctions.
- D24. Additional subsoil drainage may be required where site conditions & groundwater dictate. Refer to Engineer for site inspection.
- D25. Pipes to be 100¢ unless noted otherwise.
- D26. Outlet pipes from pits shall have invert level at least 30mm lower than the invert level of the lowest pipe entering the pit.

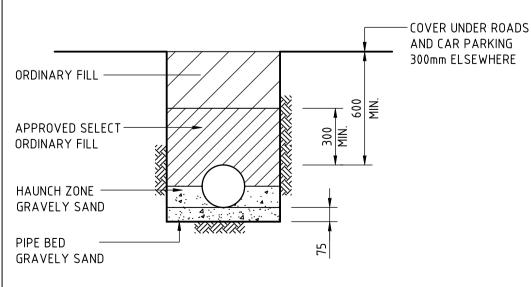
D27. Inspection openings or stormwater pits shall be located where shown

- on the drawings and at the following locations:

  a. Each point of connection

  b. Even spacing not more than 30m apart.

  c. Each and of any inclined jump our which exceeds 6m in 1
  - b. Even spacing not more than 30m apart.
     c. Each end of any inclined jump-up which exceeds 6m in length.
     d. Each connection to an existing stormwater drain.
     e. Any change of direction greater than 45°.
- D28. Inspection openings shall be min 150 $\phi$  and shall be plugged or capped in accordance with AS3500.
- D29. Planter boxes bases to be lined with 'Atlantis Drainage Cell' or approved equivalent wrapped in geotextile and draining to subsoil drainage pipes connected to the main stormwater system. Co-ordinate with requirements of Landscape Architect.
- D30. Junctions in stormwater drains shall be made by means of a proprietary coupler or for pipes of at least 350¢ opening cut as detailed on the drawings.





### DRAINAGE PITS:

- D31. All pits and arrestors shall be constructed to the relevant authorities
- D32. Minimum cover to all reinforcement in concrete to be 40mm.
- D33. Minimum Drainage pit size shall be as follows:

requirements. Provide local falls to pits.

Depth to Invert (mm)	Minimum Internal Dimensions (mm)			
	Rectangular		Circular	
	Width	Length	Diameter	
≪600	450	450	600	
>600 ≤ 900	600	600	900	
>900 ≤1200	600	900	1000	
>1200	900	900	1000	

- D34. All pits to have galvanised hinged lockable gratings equivalent to "Grate Drainage Products Pty Ltd" heelguard type.

  Use Class B in general areas and Class D in areas subject to
- D35. Drainage pit size may need to be increased over minimum to suit pipe size. Pit internal dimensions shall be of least 300mm greater than external diameter of corresponding pipe.
- D36. Pits deeper than 1000mm are to be fitted with step irons at 300mm centres. Contact Engineer for typical detail.
- D37. All exposed pit edges shall be rounded with 20mm radius or 20 x 20
- D38. Walls of cast insitu pits shall be 200mm (min.) thick concrete, grade N32, unless noted otherwise.
   D39. Pits shall be reinforced with SL81 fabric, central in walls & base slab

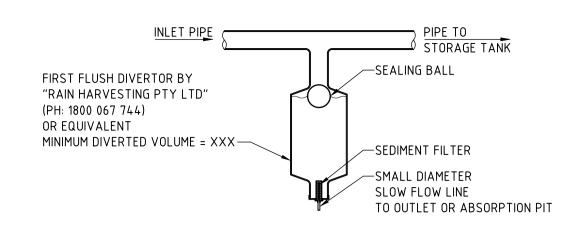
U.N.O. Mesh to be lapped 400mm. Lap mesh at corners or use N12-200

D40. Approved precast pits may be used.

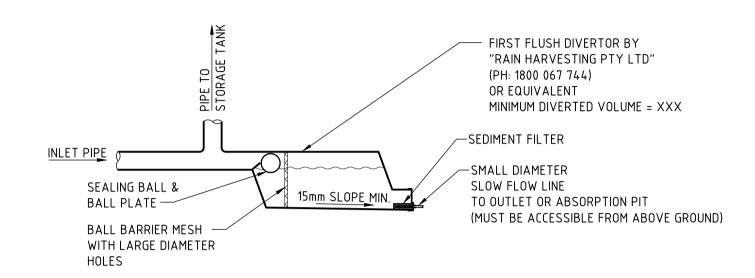
"L" bars lapping 400 each way.

D41. Bases of drainage pits shall be grouted to prevent ponding of water, unless noted otherwise.

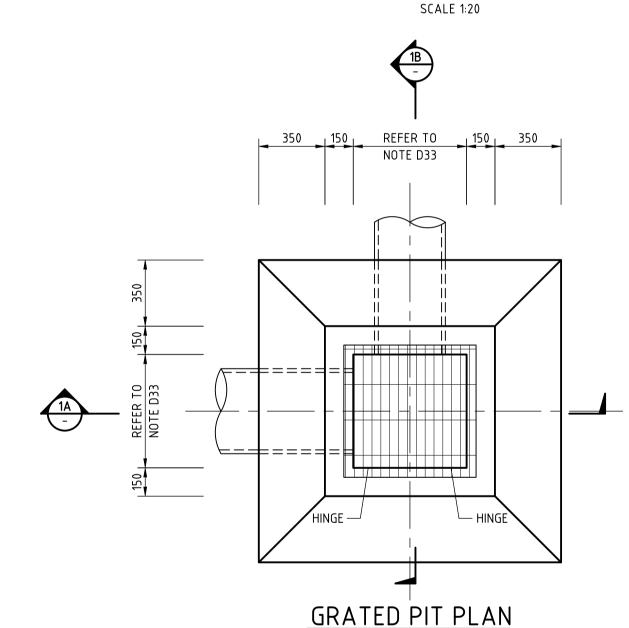
LEGEND					
LEGEND					
	Denotes stormwater pipe.				
100ø	Denotes subsoil drain.				
EP	Denotes pipe diameter in mm.				
	Denotes existing pipe				
1:100	Pipe grade as a percentage (min)				
I.L.139.50	Denotes invert level.				
G.L.139.50	Denotes ground level.				
R.L.139.50	Denotes reduced level.				
<b>—</b>	Denotes stormwater pit.				
<b>—</b> —	Denotes grated stormwater pit.				
K.I.	Denotes kerb entry & roadway pit system (900 x 600)				
	Denotes 100 wide x 100 min. depth grated drain type "ACO KS100" with Class A antislip stainless steel heelguard grates U.N.O. Grated drains in areas subject to vehicle loads to be K100 and have Class D "ACO" perforated steel grating.				
o <sup>D.P</sup>	Denotes downpipes.				
<del>-0</del>	Denotes downpipe with spreader				
<b>⊜</b> RW0	Represents 100mm round outlet, modelTIA100/90F by speciality plumbing supplier. Cast iron RWO with galvanised heavy duty flat grate.				
<b>⊜</b> вр	Represents smart drain with ø65 outlet pipe cast in slab and connected to surface drainage				
<b>⊜</b> PD	Planter drain. 'Specialty Plumbing Supplies' 100mm RWO (TIA 100/90PB) with planter box insert				

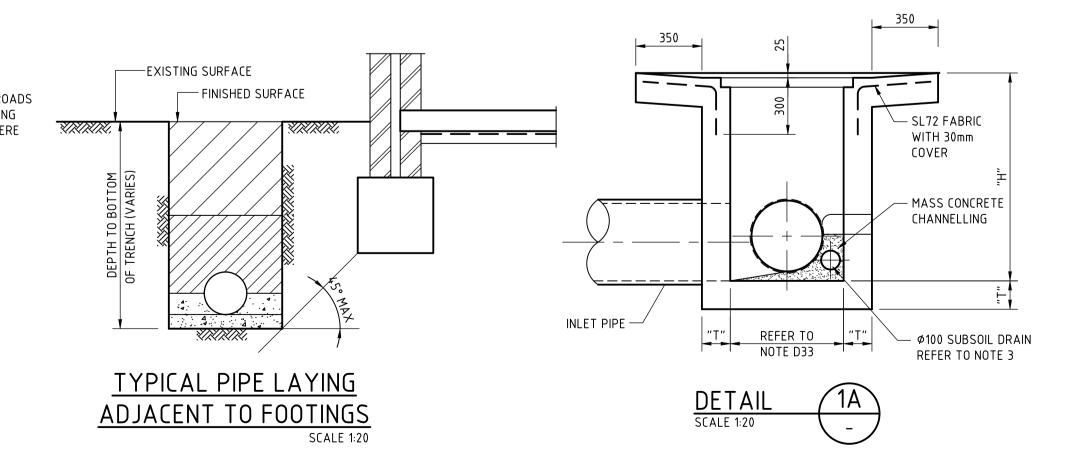


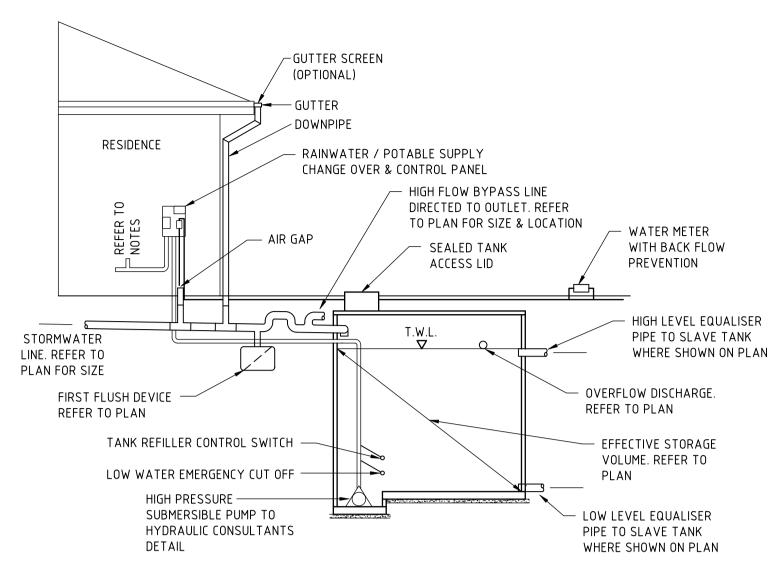
# TYPICAL ABOVE GROUND FIRST FLUSH DIVERTOR SCHEMATIC



# TYPICAL 'INGROUND' FIRST FLUSH DIVERTOR SCHEMATIC



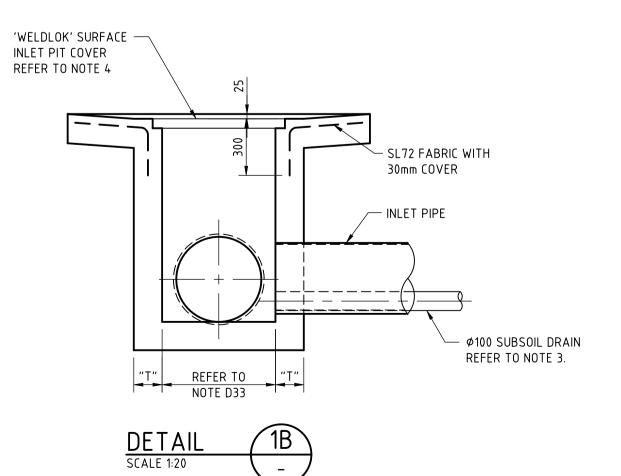




IN GROUND RAINWATER REUSE CYCLE SCHEMATIC

## SAG INLET PIT NOTES:

- COMPRESSIVE STRENGTH OF CONCRETE TO BE A MINIMUM OF 20MPa AT 28 DAYS.
- 2. TOP OF BENCHING SHALL BE 1/2 OF OUTLET PIPE DIAMETER.
- 3. Ø100 SUBSOIL DRAINAGE PIPE 3m LONG WRAPPED IN FABRIC SOCK TO BE PROVIDED AT INVERT LEVEL EITHER SIDE OF INLET PIPES.
- 4. PIT GRATE TO BE 'WELDLOK' OR APPROVED EQUIVALENT
- 5. PROVIDE STEP IRONS WHERE PIT IS DEEPER THAN 1200





SW10 STORMWATER NOTES & DRAWING SCHEDULE

SW11 BASEMENT LEVEL 4 DRAINAGE CONCEPT PLAN

SW12 GROUND FLOOR DRAINAGE CONCEPT PLAN

SW13 ROOF LEVEL DRAINAGE CONCEPT PLAN

SW14 DRAINAGE DETAILS SHEET 1

SW15 DRAINAGE DETAILS SHEET 2

SW16 SEDIMENT CONTROL PLAN

SW17 SEDIMENT & EROSION CONTROL DETAILS

D E M L A K I A N

Demlakian Strata & Remedial Pty Limited T/A Demlakian Consulting Engineers ABN 42 651 771 142 Level 2, 5 Ridge Street North Sydney NSW 2060 T: (02) 9955 4485 F: (02) 9955 6122 P.O. Box 6553 North Sydney 2059 E-mail: info@demlakian.com.au

ENGINEERING
Intelligent Thinking in Engineering

ORIGINAL: A1 DWG

Р3	06.11.18	SITE ADDRESS AMENDED	RAL	
P2	10.10.18	PRELIMINARY ISSUE	RAL	
REV.No	DATE	REVISION	BY	

NOTE: This drawing must be read in conjunction with ALL other drawings for this project including but not limited to all construction notes.

PRELIMINARY
NOT FOR CONSTRUCTION

ARCHITECT: CRAWFORD ARCHITECTS

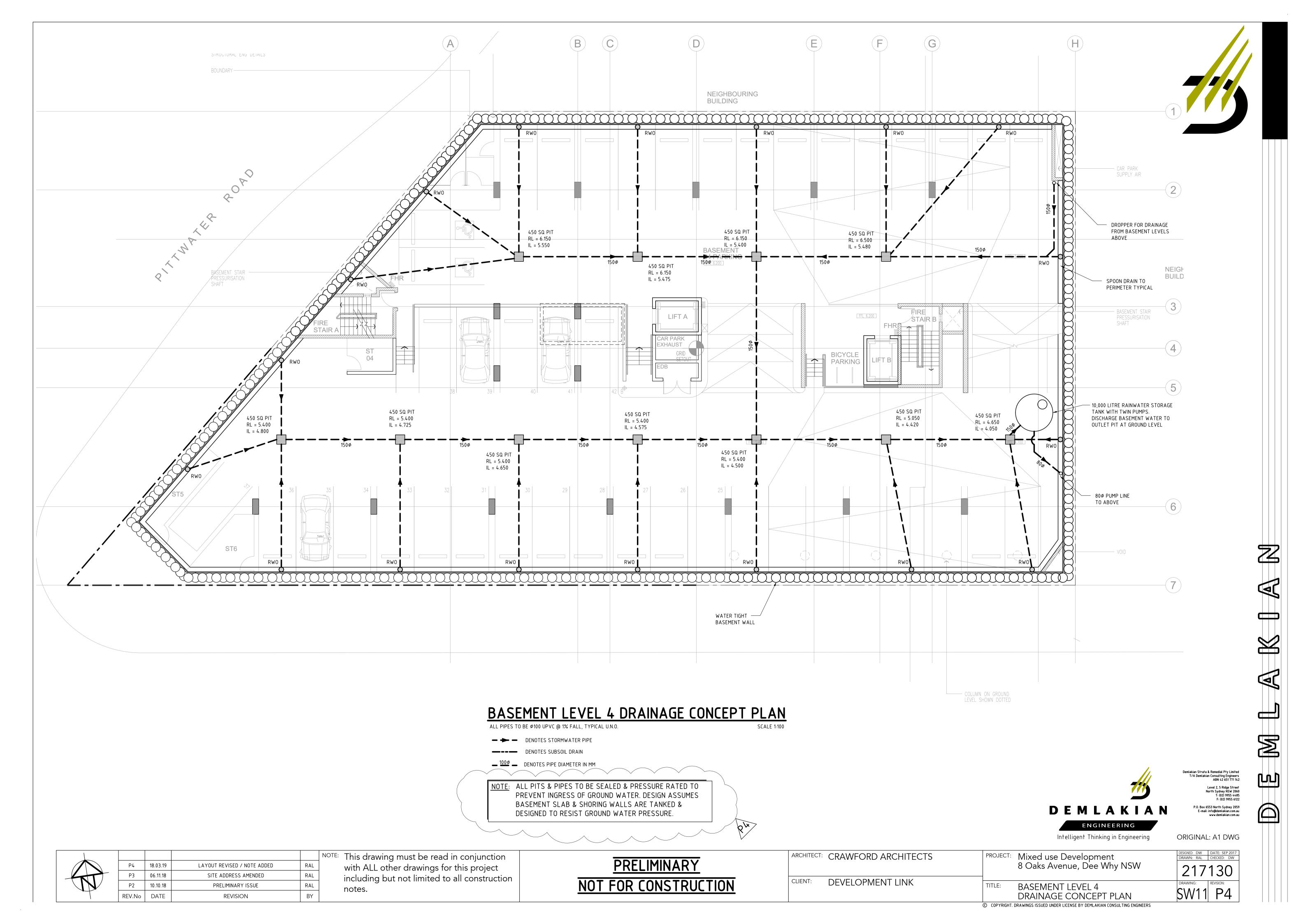
CLIENT: DEVELOPMENT LINK

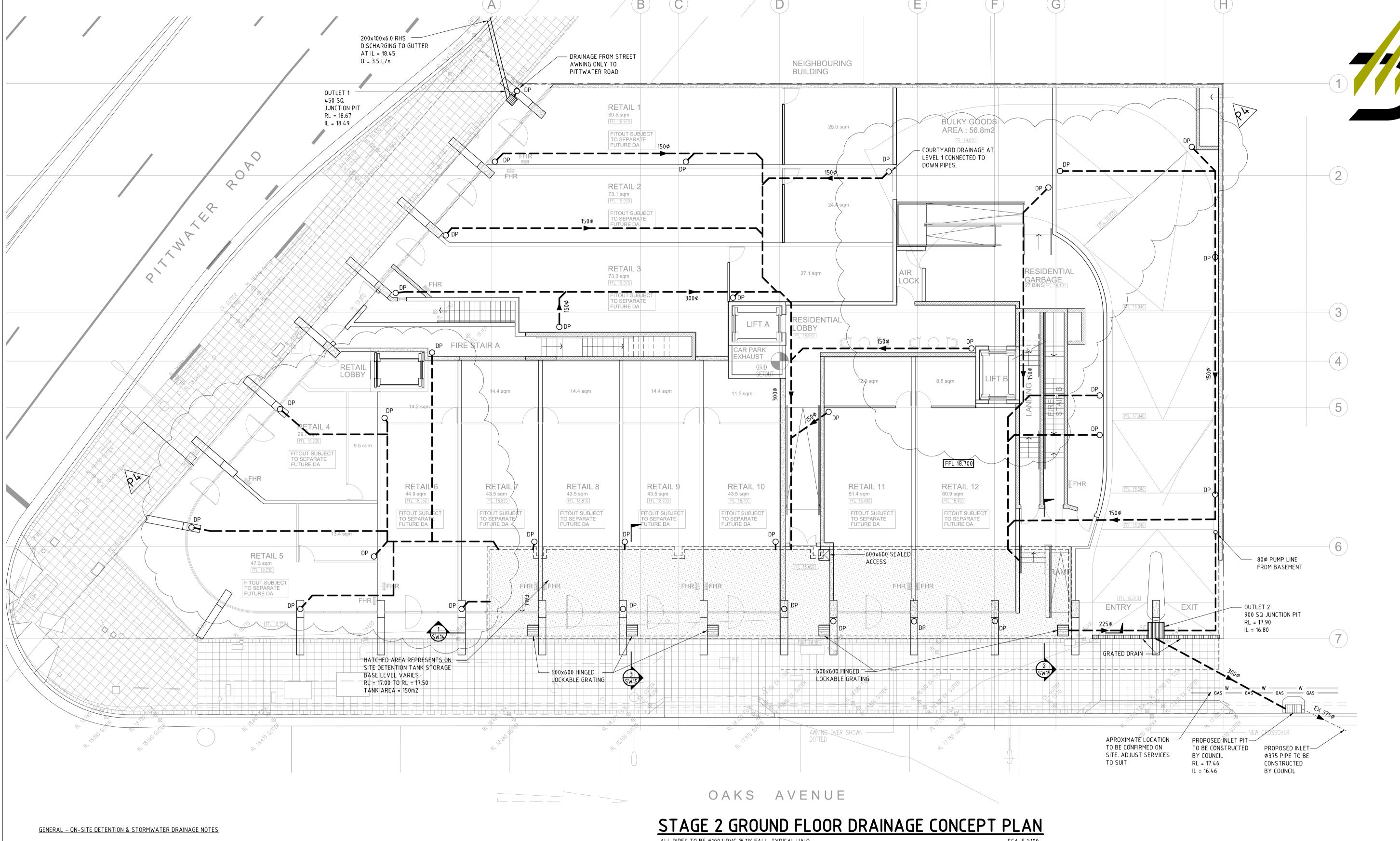
PROJECT: Mixed use Development 8 Oaks Avenue, Dee Why NSW DESIGNED: DW DATE: SEP 2
DRAWN: RAL CHECKED: E

5VV I U

© COPYRIGHT. DRAWINGS ISSUED UNDER LICENSE BY DEMLAKIAN CONSULTING ENGINEERS

STORMWATER NOTES &





- 1. ORIGIN OF LEVELS SHOWN ARE TO AUSTRALIAN HEIGHT DATUM (AHD)
- UNLESS NOTED OTHERWISE ON THE DRAWING(S) 2. PIPED STORMWATER DRAINAGE DESIGN CRITERIA:
- (a) TOTAL SITE AREA=1571sqm
- DEVELOPMENT SITE AREA=1571sqm UNDEVELOPED SITE AREA =0sqm
- (b) PRE-DEVELOPMENT FLOWS FROM DEVELOPMENT AREA PERMISSIBLE SITE DISCHARGE (5 Yr ARI)=29 l/s (20 Yr ARI)=47 l/s
- 100 Yr ARI SITE DISCHARGE=77 l/s (c) POST DEVELOPMENT FLOWS WITH OSD
- TOTAL 5 Yr ARI DISCHARGE=29 l/s TOTAL 20 Yr ARI DISCHARGE=35 l/s TOTAL 100 Yr ARI DISCHARGE=70 l/s

REFER TO DRAINS INPUT & OUTPUT FILES

- (d) OSD TANK
- PORTION DRAINING TO TANK = 100%
- MAXIMUM 100 yr ARI WL=18.10
- WEIR OVERFLOW LEVEL=18.10 150 sqm x 0.9m DEEP
- ALL DPs & HARD PAVED AREAS EXCLUDING BASEMENT GARAGE DIRECTED TO OSD TANK
- REQUIRED STORAGE VOLUME=60 m³, (100 Yr ARI) ORIFICE SIZE=160 DIA
- 3. CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES, AND GRADES SHOWN ARE NOT TO BE REDUCED, LEVELS ARE NOT TO BE ALTERED,
- WITHOUT THE APPROVAL OF THE DESIGNER
- 4. 100 YEAR TOTAL SITE RUNOFF = 77L/s OSD OVERFLOW WEIR CAPACITY = 99L/s

ALL PIPES TO BE Ø100 UPVC @ 1% FALL, TYPICAL U.N.O.

→ → DENOTES STORMWATER PIPE

DENOTES SUBSOIL DRAIN

\_\_ 100♥ \_\_ DENOTES PIPE DIAMETER IN MM

WHERE DETENTION STORAGE EXTENDS UNDER RETAIL SPACES A DOUBLE SLAB & AIR GAP HAS BEEN PROVIDE TO PREVENT DAMPNESS. REFER TO SECTION 3 ON DRAWING SW15



Demlakian Strata & Remedial Pty Limited T/A Demlakian Consulting Engineers ABN 42 651 771 142 Level 2, 5 Ridge Street North Sydney NSW 2060 T: (02) 9955 4485 P.O. Box 6553 North Sydney 2059

E-mail: info@demlakian.com.au www.demlakian.com.au

ENGINEERING Intelligent Thinking in Engineering

ORIGINAL: A1 DWG

RAL P4 18.03.19 LAYOUT AMENDED SITE ADDRESS AMENDED 06.11.18 RAL P2 10.10.18 PRELIMINARY ISSUE REVISION REV.No DATE

NOTE: This drawing must be read in conjunction with ALL other drawings for this project including but not limited to all construction notes.

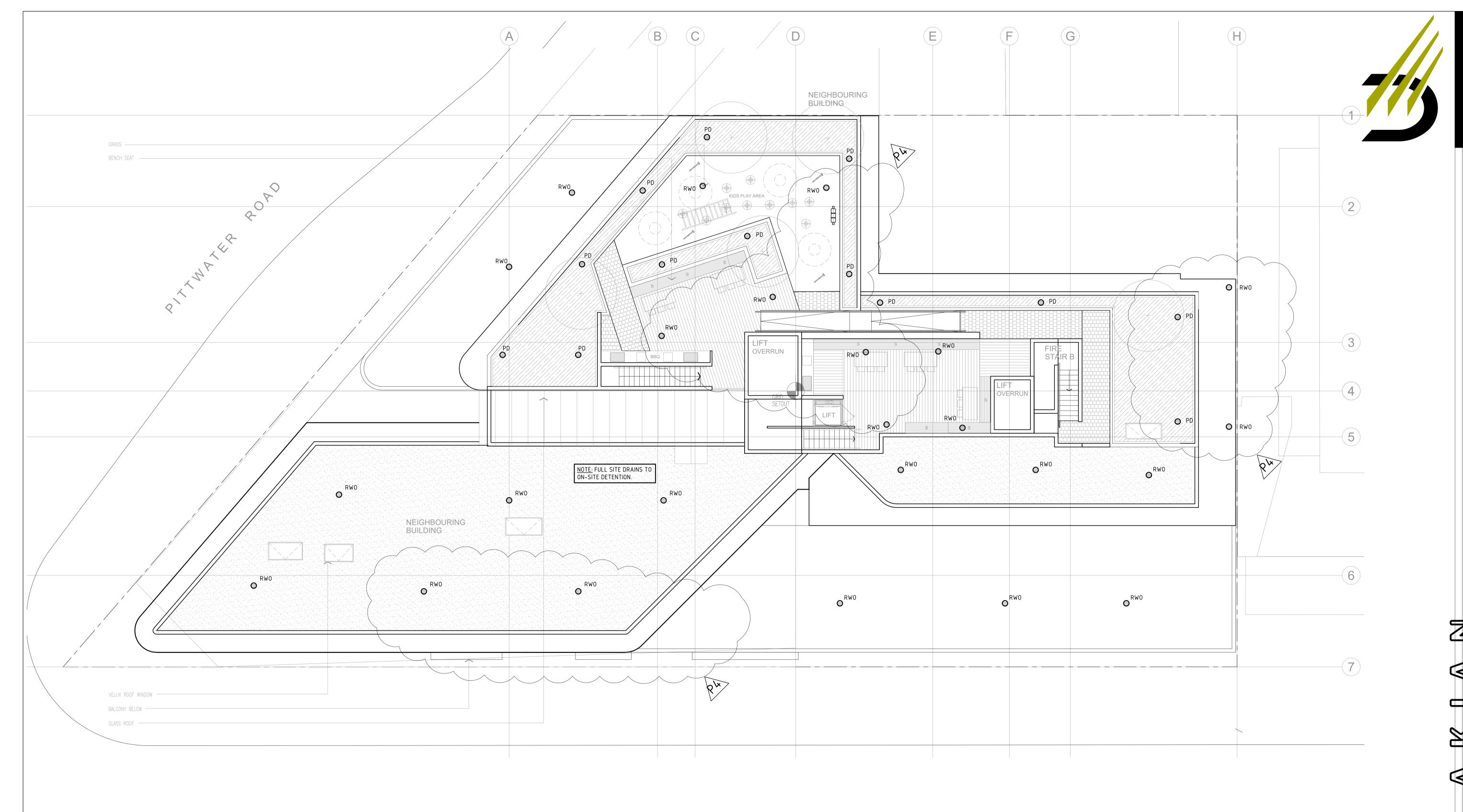
## **PRELIMINARY** NOT FOR CONSTRUCTION

ARCHITECT:	CRAWFORD ARCHITECTS	PROJECT:	}
CLIENT:	DEVELOPMENT LINK	TITI F	_

Mixed use Development 8 Oaks Avenue, Dee Why NSW GROUND FLOOR DRAINAGE

SW12 P4

CONCEPT PLAN © COPYRIGHT. DRAWINGS ISSUED UNDER LICENSE BY DEMLAKIAN CONSULTING ENGINEERS



OAKS AVENUE

## ROOF LEVEL DRAINAGE CONCEPT PLAN

ALL PIPES TO BE Ø150 UPVC @ 1% FALL, TYPICAL U.N.O.

→ → DENOTES STORMWATER PIPE

 $-\frac{100\phi}{}$  DENOTES PIPE DIAMETER IN MM

RWO SUPERFLO OUTLET



P.O. Box 6553 North Sydney 2059 E-mail: info@demlakian.com.au www.demlakian.com.au

Intelligent Thinking in Engineering

ORIGINAL: A1 DWG

_
F

P4 18.03.19 LAYOUT AMENDED P3 06.11.18 SITE ADDRESS AMENDED P2 10.10.18 PRELIMINARY ISSUE REV.No DATE **REVISION** 

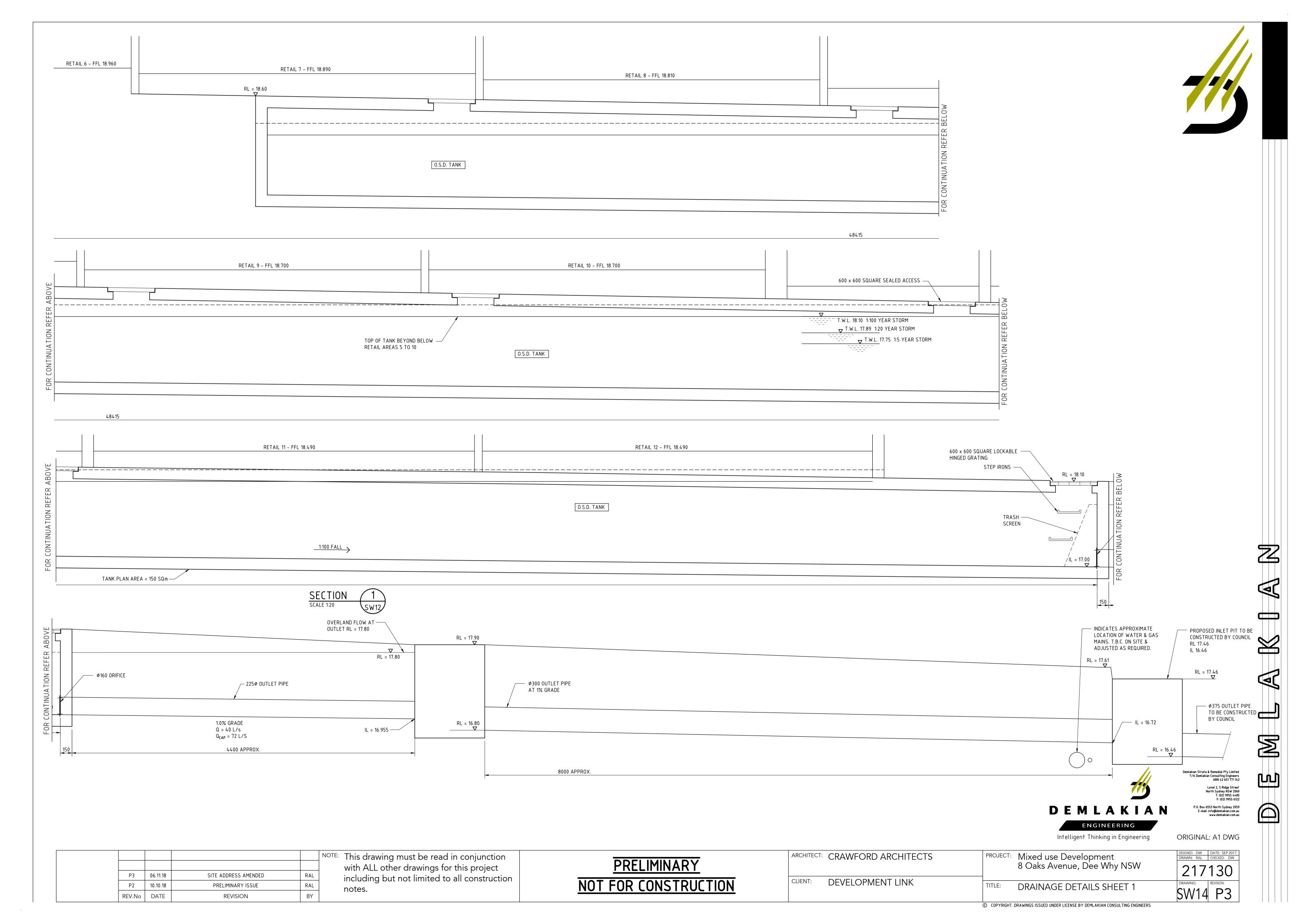
NOTE: This drawing must be read in conjunction with ALL other drawings for this project including but not limited to all construction notes.

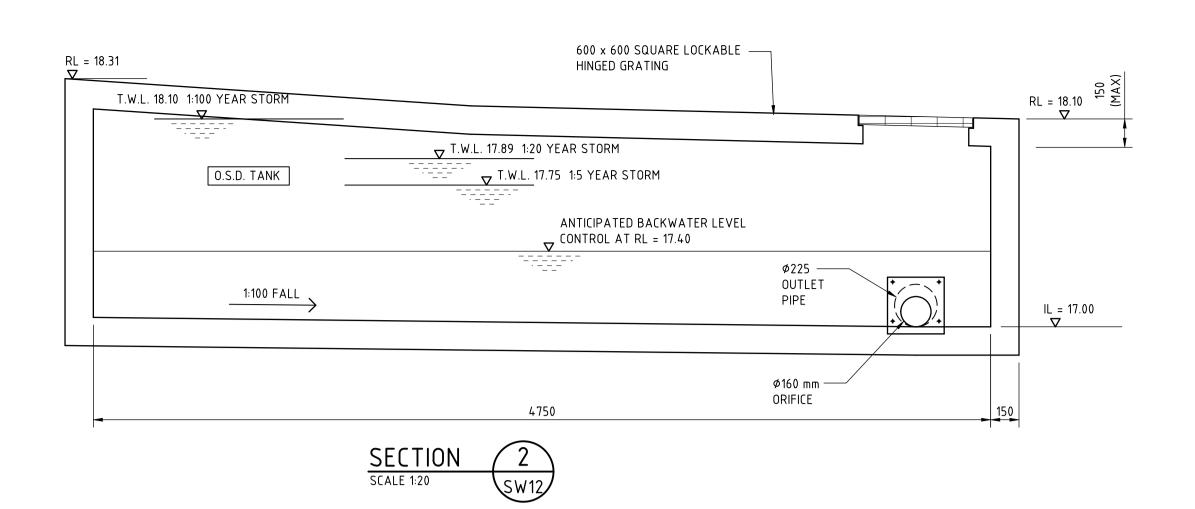
**PRELIMINARY** NOT FOR CONSTRUCTION ARCHITECT: CRAWFORD ARCHITECTS DEVELOPMENT LINK

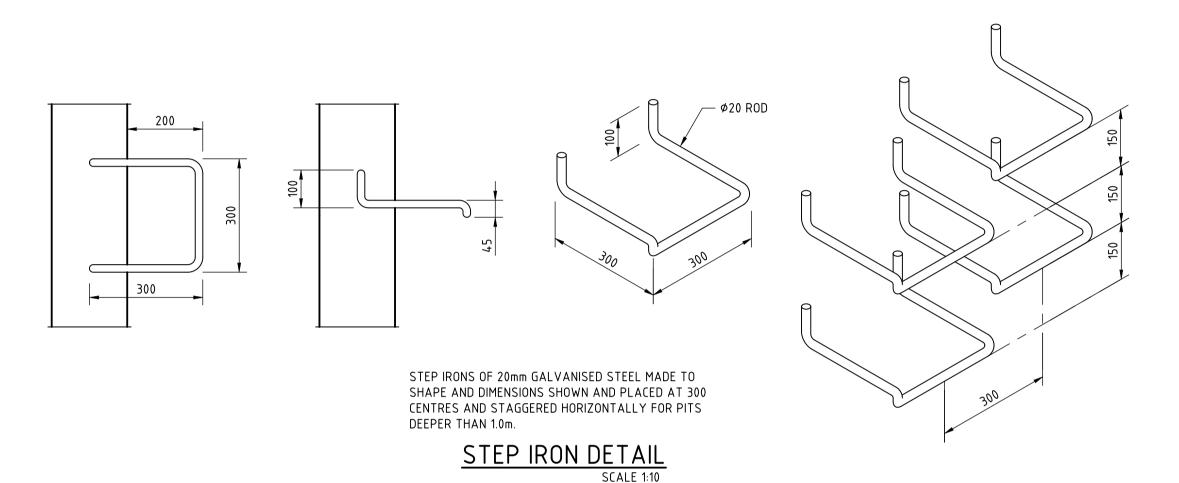
PROJECT: Mixed use Development 8 Oaks Avenue, Dee Why NSW ROOF LEVEL DRAINAGE

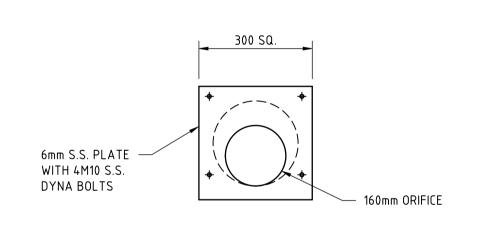
DESIGNED: DW DATE: SEP 2017
DRAWN: RAL CHECKED: DW 217130 SW13 P4

CONCEPT PLAN © COPYRIGHT. DRAWINGS ISSUED UNDER LICENSE BY DEMLAKIAN CONSULTING ENGINEERS

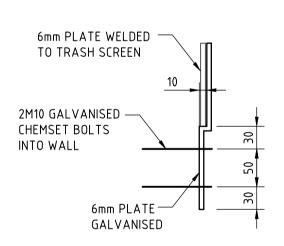




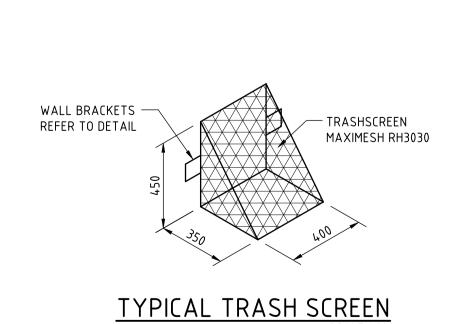


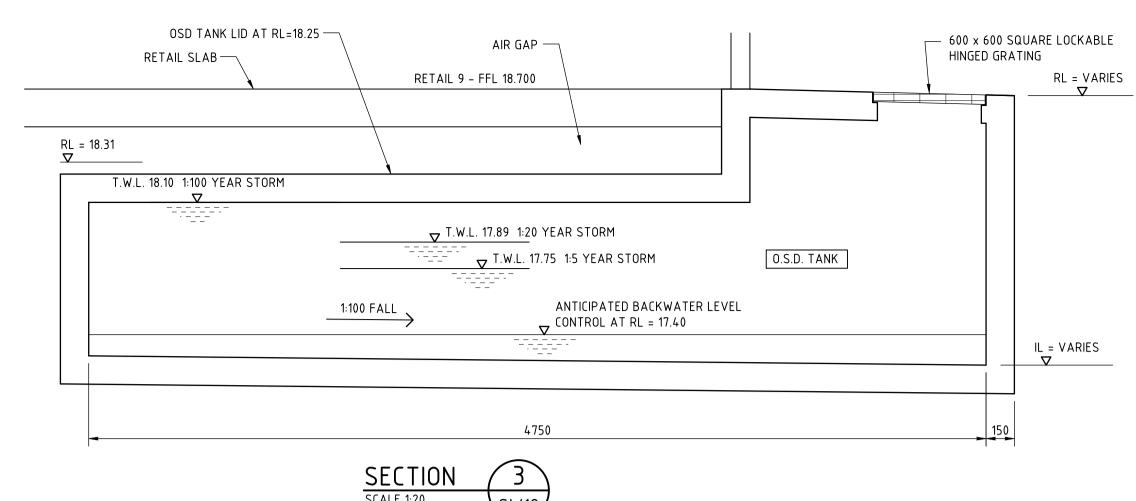


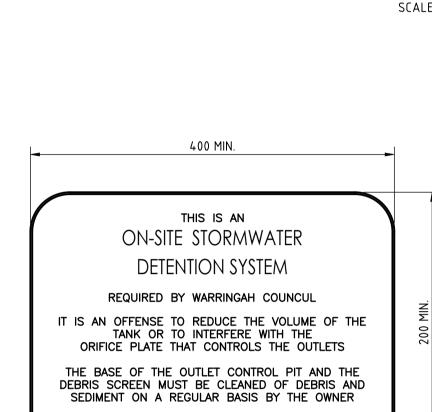




TRASH SCREEN WALL BRACKET DETAIL







## MARKER PLATE

THIS PLATE MUST NOT BE REMOVED

MARKER PLATE TO BE INSTALLED IN A PERMANENT PROMINENT POSITION PLATE TO BE MADE OF NON CORROSIVE METAL OR 4mm THICK LAMINATED PLASTIC

	STORMWATER DISCHA	RGE RATES		
	PRE DEVELOPED POST DEVELOPED			
5уг	29 L/s	29 L/s		
20уг	47 L/s	35 L/s		
100уг	77 L/s	70 L/s		



P.O. Box 6553 North Sydney 2059 E-mail: info@demlakian.com.au www.demlakian.com.au

ENGINEERING Intelligent Thinking in Engineering

ORIGINAL: A1 DWG

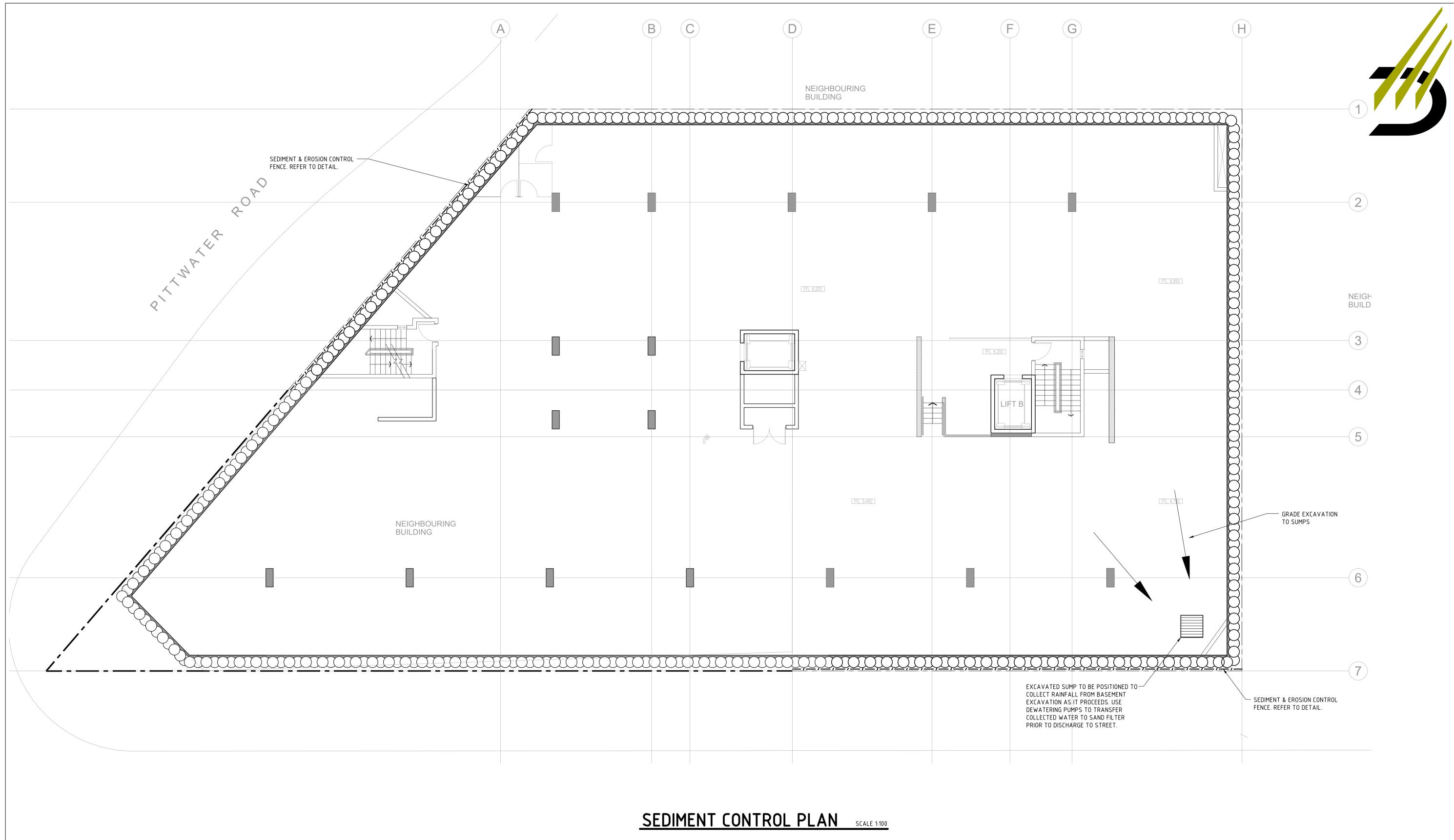
SW15 P3

				N
P3	06.11.18	SITE ADDRESS AMENDED	RAL	
P2	10.10.18	PRELIMINARY ISSUE	RAL	
RFV.No	DATE	REVISION	BY	

NOTE: This drawing must be read in conjunction with ALL other drawings for this project including but not limited to all construction notes.

**PRELIMINARY** NOT FOR CONSTRUCTION

ARCHITECT:	CRAWFORD ARCHITECTS	PROJECT:	Mixed use Development 8 Oaks Avenue, Dee Why NSW
CLIENT			
CLIENT:	DEVELOPMENT LINK	TITLE:	DRAINAGE DETAILS SHEET 2



— /— /— INDICATES SEDIMENT FENCE

INDICATES HAY BALE WALL

INDICATES TYPICAL DISTURBED CONSTRUCTION ZONE

## EROSION & SEDIMENT CONTROL NOTES

- 1. ALL EROSION & SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED AS SHOWN ON THE DRAWINGS.
- DUST SHALL BE CONTROLLED BY REGULAR MOISTENING OF EXCAVATED SERVICES AND STOCKPILES.

D E M L A K I A N

akian Strata & Remedial Pty Limited T/A Demlakian Consulting Engineers ABN 42 651 771 142 Level 2, 5 Ridge Street North Sydney NSW 2060 T: (02) 9955 4485 F: (02) 9955 6122 P.O. Box 6553 North Sydney 2059 E-mail: info@demlakian.com.au www.demlakian.com.au

ENGINEERING
Intelligent Thinking in Engineering

ORIGINAL: A1 DWG

DESIGNED: DW DATE: SEP 2017
DRAWN: RAL CHECKED: DW

217130

-	
$\mathcal{A}$	
	\

P4	19.03.19	LAYOUT REVISED	RAL
P3	06.11.18	SITE ADDRESS AMENDED	RAL
P2	10.10.18	PRELIMINARY ISSUE	RAL
REV.No	DATE	REVISION	BY

NOTE: This drawing must be read in conjunction with ALL other drawings for this project including but not limited to all construction notes.

PRELIMINARY

NOT FOR CONSTRUCTION

ARCHITECT: CRAWFORD ARCHITECTS

PROJECT: Mix 8 C

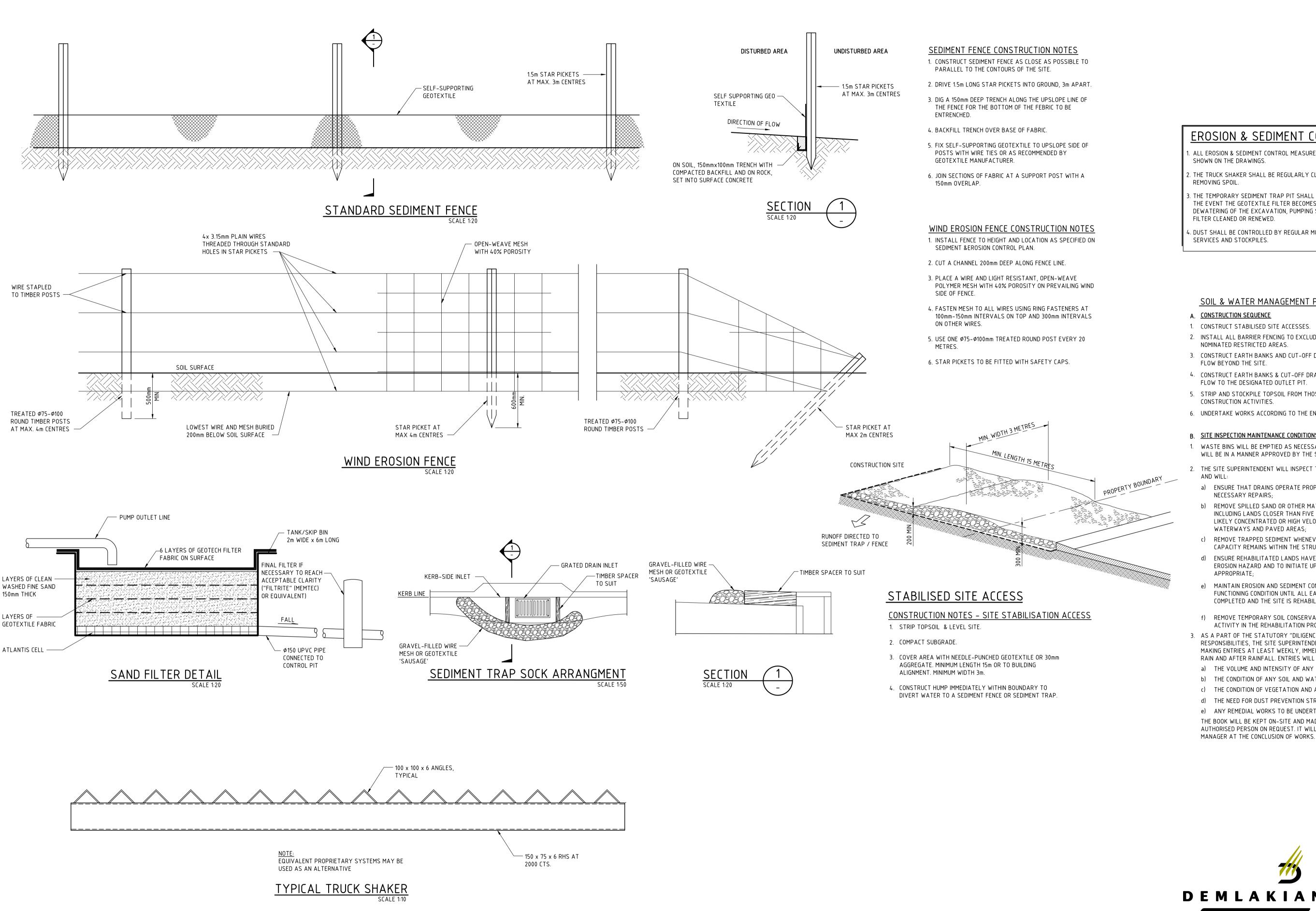
CLIENT: DEVELOPMENT LINK

PROJECT: Mixed use Development 8 Oaks Avenue, Dee Why NSW

SW16 P4

© COPYRIGHT. DRAWINGS ISSUED UNDER LICENSE BY DEMLAKIAN CONSULTING ENGINEERS

SEDIMENT CONTROL PLAN





### **EROSION & SEDIMENT CONTROL NOTES**

- . ALL EROSION & SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED AS SHOWN ON THE DRAWINGS.
- 2. THE TRUCK SHAKER SHALL BE REGULARLY CLEANED BY LIFTING, DISLODGING &
- B. THE TEMPORARY SEDIMENT TRAP PIT SHALL BE CLEANED REGULARLY. IN THE EVENT THE GEOTEXTILE FILTER BECOMES CLOGGED DURING DEWATERING OF THE EXCAVATION, PUMPING SHALL BE STOPPED AND THE
- +. DUST SHALL BE CONTROLLED BY REGULAR MOISTENING OF EXCAVATED SERVICES AND STOCKPILES.

#### SOIL & WATER MANAGEMENT PLAN NOTES

- A. <u>CONSTRUCTION SEQUENCE</u>
- 1. CONSTRUCT STABILISED SITE ACCESSES.
- 2. INSTALL ALL BARRIER FENCING TO EXCLUDE ACCESS TO THE NOMINATED RESTRICTED AREAS.
- 3. CONSTRUCT EARTH BANKS AND CUT-OFF DRAINS TO DIRECT OVERLAND FLOW BEYOND THE SITE.
- 4. CONSTRUCT EARTH BANKS & CUT-OFF DRAINS TO DIRECT OVERLAND FLOW TO THE DESIGNATED OUTLET PIT.
- 5. STRIP AND STOCKPILE TOPSOIL FROM THOSE LANDS TO BE EXPOSED TO
- CONSTRUCTION ACTIVITIES.
- 6. UNDERTAKE WORKS ACCORDING TO THE ENGINEERING PLANS.

#### B. SITE INSPECTION MAINTENANCE CONDITIONS

- 1. WASTE BINS WILL BE EMPTIED AS NECESSARY. DISPOSAL OF WASTE WILL BE IN A MANNER APPROVED BY THE SITE SUPERINTENDENT.
- 2. THE SITE SUPERINTENDENT WILL INSPECT THE SITE AT LEAST WEEKLY
  - a) ENSURE THAT DRAINS OPERATE PROPERLY AND TO EFFECT ANY NECESSARY REPAIRS;
  - b) REMOVE SPILLED SAND OR OTHER MATERIALS FROM HAZARD AREAS, INCLUDING LANDS CLOSER THAN FIVE METRES FROM AREAS OF LIKELY CONCENTRATED OR HIGH VELOCITY FLOWS ESPECIALLY WATERWAYS AND PAVED AREAS;
  - c) REMOVE TRAPPED SEDIMENT WHENEVER LESS THAN DESIGN CAPACITY REMAINS WITHIN THE STRUCTURE;
  - d) ENSURE REHABILITATED LANDS HAVE EFFECTIVELY REDUCED THE EROSION HAZARD AND TO INITIATE UPGRADING OR REPAIR AS
  - e) MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES IN A FULLY FUNCTIONING CONDITION UNTIL ALL EARTHWORK ACTIVITIES ARE COMPLETED AND THE SITE IS REHABILITATED; AND
  - f) REMOVE TEMPORARY SOIL CONSERVATION STRUCTURES AS THE LAST ACTIVITY IN THE REHABILITATION PROGRAM.
- 3. AS A PART OF THE STATUTORY "DILIGENCE AND CARE" RESPONSIBILITIES, THE SITE SUPERINTENDENT WILL KEEP A LOG BOOK, MAKING ENTRIES AT LEAST WEEKLY, IMMEDIATELY BEFORE FORECAST
- RAIN AND AFTER RAINFALL. ENTRIES WILL INCLUDE:
- a) THE VOLUME AND INTENSITY OF ANY RAINFALL EVENTS;
- b) THE CONDITION OF ANY SOIL AND WATER MANAGEMENT WORKS:
- c) THE CONDITION OF VEGETATION AND ANY NEED TO IRRIGATE:
- d) THE NEED FOR DUST PREVENTION STRATEGIES; AND
- e) ANY REMEDIAL WORKS TO BE UNDERTAKEN.
- THE BOOK WILL BE KEPT ON-SITE AND MADE AVAILABLE TO ANY AUTHORISED PERSON ON REQUEST. IT WILL BE GIVEN TO THE PROJECT



T/A Demlakian Consulting Engineers ABN 42 651 771 142 Level 2, 5 Ridge Street North Sydney NSW 2060 T: (02) 9955 4485 P.O. Box 6553 North Sydney 2059

E-mail: info@demlakian.com.au www.demlakian.com.au

 $\mathbb{Z}$ 

ENGINEERING

Intelligent Thinking in Engineering

© COPYRIGHT. DRAWINGS ISSUED UNDER LICENSE BY DEMLAKIAN CONSULTING ENGINEERS

ORIGINAL: A1 DWG

NOTE: This drawing must be read in conjunction PROJECT: Mixed use Development ARCHITECT: CRAWFORD ARCHITECTS **PRELIMINARY** 8 Oaks Avenue, Dee Why NSW with ALL other drawings for this project RAL P3 | 06.11.18 SITE ADDRESS AMENDED including but not limited to all construction DEVELOPMENT LINK NOT FOR CONSTRUCTION REVISION: RAL PRELIMINARY ISSUE SEDIMENT & EROSION 10.10.18 notes. SW17 P3 CONTROL DETAILS REV.No DATE **REVISION**