GORDON RESIDENTIAL DEVELOPMENT
870 PACIFIC HIGHWAY, GORDON
STORMWATER DRAINAGE PLANS

LEGEND

CIVIL DRAINAGE SYMBOLS

- STW — STORMWATER DRAINAGE PIPE
- STWRM — STORMWATER RISING MAIN
- STORMWATER DRAINAGE CHANNEL
- RW — RAINWATER
- CO — SS — SUB SOIL DRAINAGE WITH CLEAN OUT
- SSRM — SUB SOIL RISING MAIN
- EB-LF — EARTH BANK LOW FLOW
- EB-HF — EARTH BANK HIGH FLOW
- EM — EXCAVATED MATERIAL
- FLUME
- DD — DIVERSION DRAIN
- DIVERSION DRAIN
- OFP — OVERFLOW PATH
- OFD — OVERFLOW DRAIN
- CLD — CONCRETE LINED DRAIN
- RLD — ROCK LINED DRAIN
- TD — TABLE DRAIN
- V DRAIN (L)
- V DRAIN (R)
- SWALE or SPEED HUMP
- OVERLAND FLOW DIRECTIONAL ARROW
- OVERLAND FLOW PATH
- DP — DOWN PIPE
- PAVED AREA DRAIN.
- DROP TO OR RISE FROM
- RISE TO OR DROP FROM
- TEE DROP
- TEE RISE
- VERT — VERTICAL RISER IN DRAINAGE
- FLOW DIRECTIONAL ARROWS ON ALL PIPING SERVICES
- PIPELINE TERMINATED WITH BLANK FLANGE
- PIPELINE PLUGGED OFF
- CO — CLEAROUT
- F.P. — FLUSHING POINT
- NEW PIPE
- RISER
- SERVICE
- SIZE
- DROPPER
- NON-RETURN FLAP VALVE ON INSIDE FACE OF PIT AT ALL DOWN PIPES & SUB SOIL DRAINAGE LINES TO OSD SYSTEM

CIVIL ABBREVIATIONS

DRAINAGE LEVELS

BWL	BOTTOM WATER LEVEL
IL	INVERT LEVEL
OL	OBVERT LEVEL
SL	SURFACE LEVEL
TWL	TOP WATER LEVEL

GRATES & COVERS

LD	LIGHT DUTY CLASS 'B'
MD	MEDIUM DUTY CLASS 'C'
HD	HEAVY DUTY CLASS 'D'
EHD	EXTRA HEAVY DUTY CLASS 'E'
MP	MULTI PART COVER OR GRATE

PITS

CDS	CDS TECHNOLOGIES, STORMWATER TRAPS
DCP	DISCHARGE CONTROL PIT
DGGP	DOUBLE GRATED GULLY PIT (CAST IRON)
GPT	GROSS POLLUTANT TRAP
JP	JUNCTION PIT
KEP	KERB ENTRY PIT
KEU	KERB ENTRY UNIT
MPC	MULTI PART COVER
MPG	MULTI PART GRATE
RR	RAINWATER REUSE
SGGP	SINGLE GRATED GULLY PIT (GMS)
SWP	STORMWATER PIT

DRAINAGE LINES

RW	RAIN WATER (REUSE)
SS	SUBSOIL DRAINAGE
STRM	STORMWATER RISING MAIN
STW	STORMWATER DRAIN
GD	GRATED DRAIN
OLD	OPEN LINED DRAIN
OUD	OPEN UNLINED DRAIN

FEATURES

CO	CLEAROUT
DP	DOWN PIPE
FP	FLUSHING POINT
IO	INSPECTION OPENING
OF	GUTTER OVERFLOW PIPE
RO	RAINWATER OUTLET
DTU	DRAINAGE TURNUP

OSD

OSD	ONSITE DETENTION
PSD	PERMISSIBLE SITE DISCHARGE
OFP	OVERFLOW PATH
SWMP	STORM WATER MANAGEMENT PLAN
ESCP	EROSION & SEDIMENT CONTROL PLAN

- OSD ABOVE GROUND
- KEP - KERB ENTRY PIT
- DOUBLE GRATED GULLY PIT
- JUNCTION PIT WITH COVER
- SURFACE INLET PIT (FLUSH/RAISED)
- SURFACE INLET PIT (DEPRESSED)
- GRATED TRENCH DRAIN

EROSION & SEDIMENTATION SYMBOLS

FENCES

- B — BARRIER FENCE
- X — SEDIMENT FENCE
- SILT FENCE ON LEVEL
- SILT FENCE ON GRADE
- W — WIND FENCE

BANKS

- DIVERSION CHANNEL/BANK
- LEVEL SPREADER
- EB — EARTH BANK
- EBLF — EARTH BANK LOW FLOW
- EBHF — EARTH BANK HIGH FLOW
- EM — EXCAVATED MATERIAL

TRAPS

- GEOTEXTILE SEDIMENT TRAP
- CHECK DAMS (STRAW BALE OR ROCK)
- CONCRETE ENERGY DISSIPATER
- ESTABLISHED CONSTRUCTION SITE VEHICLE ENTRY/EXIT GRID
- SEDIMENT TRAP
- GEOTEXTILE FILTER BAGS OR SOCK

ROAD LANE MARKING SYMBOLS

- C1 CONTINUITY LINE 1m, 3m, w0.200
- E1 EDGE LINE 35m, 1m, w0.120
- L1 LANE LINE 3m, 9m, w0.080
- S1 SEPARATION LINE 3m, 9m, w0.100
- S2 SEPARATION LINE 6m, 6m, w0.100
- S3 SEPARATION LINE 3m, 3m, w0.100
- T1 TURN LINE 0.6m, 0.6m, w0.100
- TB GIVEWAY LINE 0.6m, 0.6m, w0.200
- PAVEMENT MARKERS SQ, 1m CTS

LEGEND

SURVEY & MAPPING SYMBOLS

- PROPERTY BOUNDARY
- EASEMENT
- FENCE OFF BOUNDARY
- FENCE ALONG BOUNDARY
- FENCE ON BOUNDARY
- STATE BOUNDARY
- X — COUNTY BOUNDARY
- PARISH BOUNDARY
- +++ — SHIRE/MUNICIPLE BOUNDARY
- P — NATIONAL PARK BOUNDARY
- R — STATE RECREATION BOUNDARY
- STATE FOREST BOUNDARY
- TELSTRA EXCHANGE BOUNDARY

GENERAL ABBREVIATIONS

CTS	CENTERS
℄	CENTRE LINE
DIA	DIAMETER
DMR	DEPARTMENT OF MAIN ROADS
DWG	DRAWING
EX.	EXISTING
GALV	GALVANIZED
HD GALV	HOT DIPPED GALVANIZED
ID	INTERNAL DIAMETER
L.O.C.	LIMIT OF CONTRACT
MAX	MAXIMUM
MIN	MINIMUM
NB	NOMINAL BORE
N.I.C.	NOT IN CONTRACT
No.	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
REV	REVISION
RTA	ROADS AND TRAFFIC AUTHORITY
SQ	SQUARE
SRA	STATE RAIL AUTHORITY
STD	STANDARD
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL

LEVELS ABBREVIATIONS

CL	CEILING LEVEL
FFL	FINISHED FLOOR LEVEL
FGL	FINISHED GROUND LEVEL
GL	EXISTING GROUND LEVEL
HL	HIGH LEVEL
HP	HIGH POINT
LL	LOW LEVEL
ML	MID LEVEL
NS	NATURAL SURFACE LEVEL
PL	PLATFORM LEVEL
RL	REDUCED LEVEL
US	UNDER SIDE
USFL	UNDERSIDE FLOOR

ROAD PAVEMENT ABBREVIATIONS

AC	ASPHALTIC CONCRETE
CBR	CALIFORNIA BEARING RATIO
DGB	DENSELY GRADED BASE COURSE
DGS	DENSELY GRADED SUB BASE
DSL	DESIGN SUBGRADE LEVEL
F.C.R.	FINE CRUSHED ROCK
O.T.R.	OTHER THEN ROCK
RC	REINFORCED CONCRETE
SF	STRIP FOOTING
?	RECYCLED CONCRETE

JOINTS

BJ	BUTT JOINT
CIJ	CRACK INDUCED JOINT
CJ	CONSTRUCTION JOINT
CJ	CONTRACTION JOINT
CJ	CONTROL JOINT
DJ	DOWELLED JOINT
DKJ	DOWELLED KEY JOINT
EJ	EXPANSION JOINT
IJ	ISOLATION JOINT
KJ	KEYED JOINT
SC	SAW CUT
TJ	TOOL JOINT
TKJ	TOBY KEYED JOINT

FEATURES

JK	NEW JERSEY KERB BARRIER
LP	LIGHT POLE
NKL	NOMINAL KERB LINE
PP	POWER POLE
SL	STREET LIGHT
TL	TRAFFIC LIGHT

SURVEY ABBREVIATIONS

AHD	AUSTRALIAN HEIGHT DATUM
BK	BOTTOM OF KERB
BM	BENCH MARK
CL	CENTRE LINE
D.E.	DRAINAGE EASEMENT
DH&W	DRILL HOLE & WING
FD	FOUND
INV	INVERT
K & G	KERB & GUTTER
R.O.W.	RIGHT OF CARRIAGEWAY
SSM	STATE SURVEY MARK
TK	TOP OF KERB

- RL 165.40 — PROPOSED SURFACE LEVEL

SERVICES & UTILITIES SYMBOLS

- A — AIR
- C — CABLES
- D — DRAINS
- E — ELECTRICAL
- LV — LOW VOLTAGE
- HV — HIGH VOLTAGE
- V — TRANSMISSION POWER LINES
- EFF — COMMON EFFLUENT
- ERM — EFFLUENT RISING MAIN
- F — FUEL
- G — GAS
- G(HP) — GAS HIGH PRESSURE
- G(MP) — GAS MEDIUM PRESSURE
- G(LP) — GAS LOW PRESSURE
- GAS — GAS
- NG — NATURAL GAS
- H — HYDRAULIC POWER
- I — IRRIGATION
- RTA — RTA ROADS & TRAFFIC AUTHORITY
- SRA — SRA STATE RAIL SERVICE
- S — SEWER
- SRM — SEWER RISING MAIN
- T — TELECOMMUNICATIONS TELSTRA
- OF — OPTICAL FIBRE OF
- SMOF — OPTICAL FIBRE CABLE SMOF
- OP — OPTUS
- OCC — OVERHEAD COMMUNICATION CABLE
- W — WATER
- WRM — WATER RISING MAIN
- MS — MISCELLANEOUS SERVICE
- X — X
- Y — Y
- Z — Z
- DRAINAGE CULVERTS & PIPE SIZES GREATER THAN & INCLUDING 450 DIA TO BE SHOWN IN FULL WIDTH

NOTE:-
'e' ON SERVICE LINE REPRESENTS EXISTING SERVICE OR THE USE OF LOWER CASE LETTER.

'x' ON SERVICE LINE REPRESENTS SERVICE TO BE ABANDONED.

DRAFTING SYMBOLS

SCALE BARS — D — AMENDMENT No.

2 0 4 8 12m
SCALE 1:200

2000 0 4000 8000 12000mm
SCALE 1:200

SECTION SYMBOL

A / C-03 — SECTION No. / REFERENCE DRAWING

22 / 33 — PIT No. / LINE No.

WATER & SEWER ABBREVIATIONS

AC	ACCESS CHAMBER
BT	BOUNDARY TRAP
GM	GRAVITY MAIN
HYD	HYDRANT
IO	INSPECTION OUTLET
LH	LAMP HOLE
MH	MAN HOLE
PS	PUMP STATION
RM	RISING MAIN
SV	STOP VALVE
SWW	SYDNEY WATER WATERMAIN
WM	WATER METER

WATER & SEWER SYMBOLS

- S — PROPOSED SYDNEY WATER SEWER
- S — FUTURE SYDNEY WATER SEWER
- S — EXISTING SYDNEY WATER SEWER
- S — EXISTING SYDNEY WATER SEWER
- S — EXISTING SYDNEY WATER SEWER TO BE DISUSED.

MATERIALS

Br	BRASS
CI	CAST IRON
CICL	CAST IRON CEMENT LINED
CONC	CONCRETE
CP	CHROMIUM PLATED
Cu	COPPER
DICL	DUCTILE IRON CEMENT LINED
FRC	FIBRE REINFORCED CEMENT GALVANISED
GMS	MILD STEEL
MS	MILD STEEL
NY	NYLON
PE	POLYETHYLENE
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RHS	RECTANGULAR HOLLOW SECTION
SS	STAINLESS STEEL

CATCHMENT SYMBOLS

- X — PIT CATCHMENT
- XX — LINE CATCHMENT
- XXX — MAJOR CATCHMENT
- SUB CATCHMENT
- LIMIT OF CATCHMENT

CATCHMENT ABBREVIATIONS

P( )	PAVED CATCHMENT AREA
R( )	ROOFED CATCHMENT AREA
A( )	LANDSCAPE CATCHMENT AREA
T( )	TERRACE CATCHMENT AREA
ARI	AVERAGE RECURRENCE INTERVAL
CA	CATCHMENT AREA
Ha	HECTARE
L/s	LITRES PER SECOND (VELOCITY)
m/s	METRES PER SECOND (VELOCITY)
CUMECS	CUBIC METRES PER SECOND
Q	QUANTITY OF FLOW

DRAWING LIST

REFERENCE DRAWING LIST

ARCHITECT
BY NETTLE & TRIBE
PH: (02) 9431 6431

2838_00	COVER
2838_01	SITE ANALYSIS
2838_02	SITE ANALYSIS
2838_03	SITE ANALYSIS
2838_102	BASEMENT 03
2838_103	BASEMENT 02
2838_104	BASEMENT 01
2838_105	GROUND
2838_106	LEVEL 1-2
2838_107	LEVEL 3
2838_108	LEVEL 4-5
2838_109	LEVEL 6
2838_110	LEVEL 7

CLIENT: Alto Group

PROJECT MANAGER:

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Hydraulic Services I Civil Engineering I Fire Protection I Sydney Water Accredited • Water Servicing Co-ordinator • Design and Project Management

QUALITY ASSURED COMPANY ISO 9001 International Standards Certification
FS QAC/R61/0771

DEVELOPMENT APPLICATION

TITLE: TITLE, DRAWING LIST, LEGEND, ABBREVIATIONS & NOTES

DATE.	DRAWN BY.	APPROVED BY.
DECEMBER 2014	I.L.	M.C.

JOB No.	DRAWING No.	ISSUE.
4752000	C-01	D

Plot Date: Thursday, 11 December 2014 10:04:39 AM

NOTES

GENERAL

G1. DESIGN HEREIN HAS BEEN PREPARED BY WARREN SMITH AND PARTNERS PTY LTD CONSULTING CIVIL ENGINEERS, LEVEL 1, 123 CLARENCE ST, SYDNEY NSW 2000. TEL:- (02) 9299 1312, FAX:- (02) 9290 1295.

G2. THE DRAWINGS HEREIN SHALL BE READ AS REQUIRED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS BY NETTLETON TRIBE PARTNERSHIP Pty ltd
____
TEL:- (02) 9431 6431 FAX:- (02) 9439 7474

G3. ALL DIMENSIONS IN MILLIMETRES UNO. REDUCED LEVELS AND CHAINAGES ARE IN METRES. DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS.

G4. THE PROPOSED WORKS DETAILED HEREIN SHALL BE CONSTRUCTED TO THE REQUIREMENTS OF COUNCIL GENERALLY AS DETAILED HEREUNDER.

G5. ALL EXISTING SERVICES SHALL BE VERIFIED FOR DEPTH AND HORIZONTAL POSITION BY PHYSICAL MEANS PRIOR TO EXCAVATION. ANY DISCREPANCIES SHALL BE BROUGHT FORTHWITH TO THE PROJECT MANAGER'S ATTENTION.

STORMWATER & SUB-SOIL DRAINAGE

MATERIALS:

STW1. PIPES AND FITTINGS FOR STORMWATER DRAINAGE SHALL BE AS FOLLOWS UNO ON THE DRAWINGS:

A. POLYVINYL CHLORIDE (PVC) WITH SOLVENT WELDED JOINTS FOR BELOW GROUND DRAINAGE UP TO 225mm.

B. FIBRE REINFORCED CEMENT WITH RUBBER RINGS FOR PIPE DIA'S GREATER THAN 225mm. UNO.

C. REINFORCED CONCRETE WHERE REQUIRED BY AS 3500 FOR EXCESSIVE DEPTH.

D. INSTALL IN ACCORDANCE WITH AUSTRALIAN STANDARD AS3500 EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

STW2. PIPES & FITTINGS FOR SUBSOIL DRAINAGE SHALL BE SLOTTED POLYVINYL CHLORIDE (PVC) WITH SOLVENT WELDED JOINTS, MIN. 150mm DIAMETER.

STW3. IN GROUND DRAINAGE PIPEWORK SERVING DP's SHALL BE MINIMUM 150mm DIA. UNO.

STW4. GRATED DRAINS SHALL BE 150mm NOM.
A. 150mm NOM. WIDTH IN NON TRAFFICABLE AREAS.
B. 225mm NOM. WIDTH IN TRAFFICABLE AREAS.

STW5. STORMWATER PITS ARE AS SHOWN & SPECIFIED ON THE PLANS . PRECAST TYPE ACCEPTABLE WITH STEP IRONS FOR DEPTH GREATER THAN 1000.
BENCH ALL PITS MIN. 50mm & FORM SMOOTH TRANSITION FROM INLET TO OUTLET

STW6. SELECT FILL SHALL BE MATERIAL OBTAINED FROM EXCAVATION OF THE PIPE TRENCH OR IMPORTED WITH A PARTICLE SIZE FOR ROCK NOT GREATER THAN 75mm OR FOR OTHER THAN ROCK NOT GREATER THAN 150mm.

STW7. IMPORTED FILL SHALL BE EITHER, AND GENERALLY CONSIST OF SINGLE SIZED AGGREGATE WITH PARTICLE SIZE NOT GREATER THAN 5mm WRAPPED ALL ROUND WITH GEOTEXTILE FILTER FABRIC OR APPROVED HIGH COMPACTION SAND OR APPROVED CRUSHED ROAD GRAVEL CONFORMING TO RTA FORM 3051 OR SIMILAR.

STW8. STORMWATER PITS AND GRATES TO CONFORM WITH STANDARD COUNCIL REQUIREMENTS, WHERE ON PUBLIC LAND. GRATES TO BE SUPPLIED IN CLASS SHOWN ON THE DRAWINGS.

INSTALLATION REQUIREMENTS:

STW9. PIPES SHALL BE TRUE TO GRADES SHOWN AND ALIGNED SO THAT THE CENTRES OF THE INLET PIPES INTERSECT WITH THE CENTRE OF THE OUTLET PIPE AT THE DOWNSTREAM FACE OF THE PIT.

STW10. MINIMUM GRADES FOR GRAVITY STORMWATER DRAINAGE SHALL CONFORM TO AS3500 PART3 AS FOLLOWS, UNO:
1% FOR 100 AND 150 mm DIA.
0.5% FOR 225 mm DIA
0.4% FOR 300 mm DIA
0.35% FOR 375 mm DIA

STW11. MINIMUM DEPTH OF COVER SHALL BE :-
- 300mm IN PRIVATE PROPERTY (NON VEHICULAR TRAFFIC).
- 450mm IN PUBLIC AREAS.
- 600mm IN VEHICULAR TRAFFICABLE AREAS (FOOTWAY/ROADWAY).

STW12. BED ALL PIPES FIRMLY AND EVENLY ONTO IMPORTED BEDDING FILL MATERIAL.

STW13. LAY AND JOINT ALL PIPES IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND
AS 3725-1989 LOADS ON BURIED CONCRETE PIPES
AS 2566-1998 BURIED FLEXIBLE PIPELINES
AS 1597.2-1996 PRECAST REINFORCED CONCRETE BOX CULVERTS.
AS 3500-1990 NATIONAL PLUMBING & DRAINAGE CODE.
PART 2, SANITARY PLUMBING AND SANITARY DRAINAGE.
SYDNEY WATER REQUIREMENTS.

STW14. ALLOW TO TEST ALL PIPES AND PITS TO MANUFACTURERS REQUIREMENTS.

CONCRETE WORKS

C1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600, THE STANDARDS ASSOCIATION AUSTRALIA, STANDARDS CITED IN AS3600, THE DRAWINGS AND THE SPECIFICATION.

C2. ALL CONCRETE SHALL BE 80mm NOMINAL SLUMP, 20mm MAXIMUM AGGREGATE WITH NO ADMIXTURES OR FLY ASH, UNLESS OTHERWISE APPROVED.

ALL CONCRETE WORK IN CONTACT WITH SEWER TO HAVE TYPE SL PORTLAND CEMENT, OTHERWISE TYPE A CEMENT

FOR BRIDGE WORKS, A MAXIMUM 56 DAYS SHRINKAGE OF 600 MICROSTRAIN, A MINIMUM CEMENT CONTENT 350kg/m3 AND MAXIMUM WATER:CEMENT RATIO OF 0.40

C3. STRENGTH GRADE OF CONCRETE SHALL BE :
25 MPa (KERBS, EDGE STRIPS & CONCRETE ENCASEMENT) AND 32 MPa ELSEWHERE.

C4. CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND USED ONLY WHERE SHOWN OR APPROVED.
GENERALLY FOR HAND PLACED KERB & GUTTER 6mm THICK APPROVED BITUMINOUS MASTIC JOINTING MATERIAL SHALL BE PROVIDED AT INTERVALS NOT EXCEEDING 6m. FOR MACHINE PLACED KERB & GUTTER 6mm THICK APPROVED BITUMINOUS MASTIC JOINTING MATERIAL SHALL BE PROVIDED AT INTERVALS NOT EXCEEDING 12m & GUILLOTINED DUMMY GROOVED JOINTS, 25mm IN DEPTH, SHALL BE FORMED EVERY 3m OF GUTTER. JOINTS ARE ALSO REQUIRED AT EACH END OF GUTTER CROSSING AND GULLY PITS. JOINTS SHALL BE SET VERTICAL AND SQUARE TO THE KERB.

C5. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.

C6. WELDING OR SPLICES IN REINFORCEMENT SHALL BE USED ONLY IN POSITIONS APPROVED BY THE ENGINEER.

C7. CONCRETE CURING SHALL BE IN ACCORDANCE WITH AS3600. CURING SHALL BE COMMENCED WITHIN TWO HOURS OF FINISHING OPERATIONS AND SHALL BE CONTINUED FOR A MINIMUM OF SEVEN DAYS BY AN APPROVED PROPRIETARY COMPOUND OR BY KEEPING CONTINUOUSLY WET.

C8. FORMWORK SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH AS3610. FORMWORK SHALL NOT BE STRIPPED NOR PROPS REMOVED WITHOUT APPROVAL.

C9. FABRIC LAP DETAILS SHALL BE IN ACCORDANCE WITH FIG.13.2.4 OF AS3600.

C10. HOOKS, LAPS AND BENDS SHALL BE IN ACCORDANCE WITH AS3600 UNO.

C11. ALL CHEMICAL ANCHORS SHALL BE EITHER 'CHEMSET' BY "RAMSET" WITH THE GLASS CAPSULE SYSTEM INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS
OR
HILTI HVU ADHESIVE ANCHOR WITH FOIL CAPSULE SYSTEM INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTION. ALL CHEMICAL ANCHORS SHALL BE HOT DIPPED GALVANIZED AND BE MIN M16 DIA. U.N.O.

GENERAL EARTHWORKS, SITEWORKS & FILLING:

FILLING:

SGE1. THESE CLAUSES SHALL BE READ IN CONJUNCTION WITH THE GEOTECHNICAL INVESTIGATION

SGE2. THE RECOMMENDATIONS CONTAINED IN THE GEOTECH REPORT SHALL OVERRIDE THE CLAUSES PRESENTED HEREIN.

SGE3. STRIP ALL TOPSOIL AND UNDERLYING FILL AND STOCKPILE TOPSOIL FOR LATER REUSE FOR LANDSCAPING PURPOSES.

SGE4. NEW FILL REQUIRED TO REINSTATE CUT LEVELS TO PROPOSED BENCHING LEVELS SHALL BE SOURCED FROM OTHER PARTS OF THE EXCAVATION AS SELECT FILL OR IMPORTED FILL AS SPECIFIED BELOW IN SGE 4 AND SGE 5.

SGE5. SELECT FILL SHALL CONSIST OF LOCALLY DERIVED OR CUT NATURAL CLAYS.

SGE6. IMPORTED FILL SHALL CONSIST OF RIPPED SANDSTONE OR SHALE OR SIMILAR MATERIAL WITH MAXIMUM PARTICLE SIZE NOT GREATER THAN 120mm AND A MOISTURE CONTENT WITHIN 2-3% OF STANDARD OPTIMUM.

SGE7. ALL FILL (COHESIVE SOIL) SHALL BE PLACED IN LAYERS OF 200mm MAXIMUM THICKNESS, COMPACTED BY MACHINE ROLLING TO ACHIEVE A DRY DENSITY RATIO OF NOT LESS THAN 98% STANDARD MAXIMUM AT A CORRESPONDING MOISTURE CONTENT WITHIN 2-3% OF STANDARD OPTIMUM.

SGE8. IN AREAS WHERE HIGH IMPACT ROLLING IS USED TEST EACH FINAL LAYER OF NOT GREATER THAN 300mm TO 400mm TO ACHIEVE A DRY DENSITY RATIO OF NOT LESS THAN 98% STANDARD MAXIMUM AT A CORRESPONDING MOISTURE CONTENT WITHIN 2-3% OF STANDARD OPTIMUM.

EXCAVATION BATTERS:

SGE8. ALL TEMPORARY BATTERS CUT IN CLAY SUBSTRATE SHALL BE 1 HORIZ : 1 VERT.
ALL LONG TERM EXPOSED BATTERS CUT IN CLAY SUBSTRATE SHALL BE 2 HORIZ : 1 VERT.
ALL DETENTION BASIN BATTERS IN CLAY SUBSTRATE SHALL BE 3 HORIZ : 1 VERT.
ALL DETENTION BASIN BATTERS IN ROCK SUBSTRATE SHALL BE NEAR VERTICAL.

SGE9. GEOTECHNICAL TESTING IS TO BE UNDERTAKEN TO AT LEAST LEVEL 1 CONTROL OF FILL COMPACTION STANDARD, AS DEFINED IN AS. 3738 AS FOLLOWS

- FOR GENERAL FILL OR CUT AREAS OVER THE AREA PROVIDE ONE (1) TEST PER 200mm LAYER, OVER AN AREA NOT GREATER THAN 500 m².
- FOR GENERAL FILL AREAS IN CONCENTRATED AREAS ADJACENT TO AND BEHIND THE STRUCTURE AND ADJACENT TO AND BEHIND RETAINING WALLS PROVIDE ONE (1) TEST PER 200mm LAYER, OVER AN AREA NOT GREATER THAN 50m².

SGE10. SUBMIT ALL GEOTECHNICAL TEST RESULTS TO WARREN SMITH & PARTNERS FOR REVIEW PRIOR TO CONTINUATION WITH SUBSEQUENT SECTION OF WORK.

EARTH WORKS FOR SERVICES

E1. EXCAVATE TRENCHES AND STOCKPILE ALL MATERIAL FOR INSPECTION WITH REGARD TO RE-USE FOR TRENCH BACKFILL. REMAINING MATERIAL TO BE REMOVED FROM SITE.

E2. BEDDING MATERIAL SHALL CONSIST OF IMPORTED FILL ONLY. THICKNESS OF BEDDING LAYER SHALL BE 75mm IN O.T.R. AND 200mm IN ROCK.

E3. EMBED ALL PIPES WITH IMPORTED FILL. PROVIDE 200mm SIDE SUPPORT AND 150mm OVERLAY ABOVE PIPE CROWN.

E4. TRENCH FILL ABOVE THE EMBEDMENT ZONE TO THE UNDERSIDE OF THE ROAD PAVEMENT OR FOOTWAY FILL MATERIAL SHALL BE AS FOLLOWS :

UNDER ROADWAY
TRENCH FILL MATERIAL SHALL CONSIST OF IMPORTED FILL AS SPECIFIED HEREIN OF EITHER HIGH GRADE COMPACTION SAND OR APPROVED CRUSHED ROAD GRAVEL CONFORMING TO RTA FORM 3051 OR SIMILAR.

OTHER THAN ROADWAY
TRENCH FILL MATERIAL EXCAVATED SHALL CONSIST OF SELECT FILL AS SPECIFIED HEREIN AND SHALL NOT CONTAIN MORE THAN 20% OF STONES OF SIZE BETWEEN 75mm & 150mm AND NONE LARGER THAN 150mm.
PRIOR TO THE USE OF THE EXCAVATED MATERIAL IT SHALL BE INSPECTED AND APPROVED BY THE CONSULTANT.

E5. COMPACT BEDDING, EMBEDMENT AND TRENCH FILL MATERIALS AS FOLLOWS:

EMBEDMENT:-
FOR GRANULAR FILL MATERIAL (NON-COHESIVE SOILS) EG. COARSE AGGREGATE FILL, HIGH GRADE COMPACTION SAND, THE DENSITY INDEX (ID) SHALL BE NOT LESS THAN 70%.

TRENCH FILL:-
FOR GRANULAR MATERIAL (NON-COHESIVE SOILS), THE DENSITY INDEX (ID) SHALL BE NOT LESS THAN 70%.

FOR NON-GRANULAR FILL MATERIAL (COHESIVE SOILS), THE DRY DENSITY RATIO (RD) SHALL BE NOT LESS THAN 95%.

E6. MEASURE OF COMPACTION:-
THE DEGREE OF COMPACTION SHALL BE MEASURED BY ONE OF THE FOLLOWING PARAMETERS :-

GRANULAR FILL (NON-COHESIVE SOILS). THE DENSITY INDEX (ID) DETERMINED IN ACCORDANCE WITH AS 1289.E6.1 BASED ON THE MAXIMUM AND MINIMUM DRY DENSITIES IN ACCORDANCE WITH AS 1289.E5.1 AND THE FIELD DRY DENSITY IN ACCORDANCE WITH AS 1289.5.3.2, AS 1289.E3.5 OR AS 1289.E8.1.

NON-GRANULAR FILL (COHESIVE SOILS). THE DRY DENSITY RATION (RD) DETERMINED IN ACCORDANCE WITH AS 1289.5.4.1 BASED ON THE FIELD DRY DENSITY IN ACCORDANCE WITH AS 1289.5.3.2 AND THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289.5.1.1

E7. GEOTECHNICAL TESTING IS TO BE UNDERTAKEN TO AT LEAST LEVEL 1 CONTROL OF FILL COMPACTION STANDARD, AS DEFINED IN AS. 3738 AS FOLLOWS

- TEST EACH 300mm LAYER ABOVE PIPE CROWN.
- TEST BASE & SUB-BASE LAYERS WHERE APPLICABLE.
- TESTS SHALL BE REQUIRED AT EACH 50m CENTRES WHERE THE LENGTH OF TRENCH IS WITHIN THE 50m REQUIREMENT.

E8. SUBMIT ALL GEOTECHNICAL TEST RESULTS TO WARREN SMITH & PARTNERS FOR REVIEW PRIOR TO CONTINUATION WITH SUBSEQUENT SECTION OF WORK.

RESTORATION:

RES1. RESTORE ALL TRAFFIC AREAS TO PRE EXISTING CONDITION.

RES2. FOR ALL SURFACES OTHER THAN IN TRAFFIC AREAS RESTORE DISTURBED SURFACES TO PRE-EXISTING CONDITIONS AND COMPACT AS SPECIFIED.

RES3. RESTORE ALL AUTHORITY OWNED AREAS TO COUNCIL STANDARDS

ROAD WORKS, DRIVEWAYS & CARPARKS

R1. ALLOW FOR LEVEL 2 TESTING AND SUB-GRADE CONDITIONS & PAVEMENT THICKNESS TO BE VERIFIED BY GEOTECHNICAL CONSULTANT AFTER INSPECTION OF PRELIMINARY BOXING.

R2. ALLOW FOR ANY SUB-GRADE REPLACEMENT WORK TO BE DETERMINED AS REQUIRED BY GEOTECHNICAL CONSULTANT AT THE TIME OF PAVEMENT CONSTRUCTION.

R3. MINIMUM DRY DENSITY RATIOS (AS 1289 3.4.1-1993) TO BE:

BASECOURSE	98% MODIFIED
SUB-BASE	95% MODIFIED
SUB-GRADE	100% STANDARD
SUB-GRADE REPLACEMENT	100% STANDARD

R4. PAVEMENT MATERIALS TO COMPLY WITH RTA SPECIFICATION No. 3051 OR SIMILAR AS APPROVED BY GEOTECHNICAL CONSULTANT.

R5. PROVIDE (1) TEST FOR EACH LAYER NOT EXCEEDING 250mm THICK BEING BASECOURSE, SUB-BASE & SUB-GRADE OVER AN AREA NOT GREATER THAN $500m^2$

R6. SUBMIT ALL GEOTECHNICAL TEST RESULTS TO WARREN SMITH & PARTNERS FOR REVIEW PRIOR TO CONTINUATION WITH SUBSEQUENT SECTION OF WORK.

APPROVALS

A1. THE AS CONSTRUCTED WORKS SHALL BE INSPECTED BY DESIGN CONSULTANT. MINIMUM 48 HOURS NOTICE SHALL APPLY TO ALL INSPECTIONS.

A2. THE DESIGN PLANS HEREIN ARE SUBJECT TO COUNCIL APPROVAL PRIOR TO CONSTRUCTION. OBTAIN EXPRESS (WRITTEN) ADVICE TO PROCEED FROM PROJECT MANAGER PRIOR TO COMMENCEMENT.

A3. SUBMIT WORK-AS-EXECUTED DRAWINGS IN CIVILCAD OR DXF DIGITAL FORMAT AND HARD COPY FORMAT. VERIFY ALL CONSTRUCTION WORKS SHOWN HEREON.

A4. CERTIFY THAT THE AS CONSTRUCTED SYSTEM HAS BEEN BUILT IN ACCORDANCE WITH THE APPROVED PLANS ISSUED FOR CONSTRUCTION.

SERVICES UNDER ROAD SURFACES

S1. ALL OTHER SERVICES INCLUDING BUT NOT LIMITED TO WATER, HYDRANT, GAS, SEWER, ELECTRICAL AND COMMUNICATIONS CONDUITS OR CABLES SHALL BE LAID WITH MINIMUM 600mm U.N.O. COVER BELOW PROPOSED ROAD SURFACE OR APPROVED OTHER MEANS TO PROTECT DURING CONSTRUCTION.

ROAD SIGNS & LINE MARKING

RS1. ALL SIGNS AND LINEMARKING SHALL BE TO ROADS & TRAFFIC AUTHORITY STANDARDS AND SPECIFICATIONS AND AS.1742, MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES

RS2. ALL LINEMARKING SHALL BE AUGMENTED BY RETROREFLECTIVE RAISED PAVEMENT MARKERS (RRPMs) AND ALL SHALL BE TO AS 1742.2 - 1994 AND AS 1742.2 /AMDT 1/1997-10-05

RS3. ALL ROAD SIGNS AND POSTS SHALL BE TO AS 1742.2 - 1994 AND AS 1742.2 /AMDT 1/1997-10-05

HYDRAULIC SERVICES

H1. ALL WORKS CARRIED OUT SHALL COMPLY WITH AS-3500, SYDNEY WATER & COUNCIL REQUIREMENTS. OBTAIN NECESSARY AUTHORITIES APPROVALS PRIOR TO COMMENCING WORKS.

H2. PRIOR TO COMMENCING WORKS SURVEY & INSPECT SITE & CONFIRM LOCATION & LEVELS OF ALL HYDRAULIC SERVICES PIPEWORK. NO CLAIMS FOR ADDITIONAL COSTS RESULTING FROM THE LACK OF KNOWLEDGE OF SITE CONDITIONS RELATING TO WORKS TO BE DONE OR LOCATIONS AND LEVELS OF EXISTING AND NEW SERVICES WILL BE ACCEPTED.

H3. PRIOR TO CAPPING OFF & REMOVAL OF REDUNDANT SERVICES CONFIRM ON SITE THAT SERVICE IS NOT SUPPLYING EXISTING BUILDINGS OR AMENITIES.

H4. COLD WATER PIPEWORK SHALL CONSIST OF COPPER TUBE & FITTINGS IN ACCORDANCE WITH AS 1432 TYPE B. PIPES AND FITTINGS SHALL BE JOINTED WITH 15% SILVER SOLDER.

H5. ALL NEW UNDERGROUND METAL PIPEWORK SHALL BE INSTALLED WITH POLYETHYLENE SLEEVING OBTAINED FROM "TYCO WATER AUST" AND INSTALLED TO MANUFACTURE'S REQUIREMENTS.

H6. LANDSCAPE IRRIGATION WATERING PIPEWORK SHALL CONSIST OF MEDIUM DENSITY POLYETHYLENE PIPE CLASS PN16 WITH ELECTRO FUSION JOINTS OR EQUAL TO EXISTING PIPEWORK.

PROTECTION OF FLORA - REFER SPECIFICATION

1. ANY TRENCHES WITHIN 3m OF TREES SHALL BE HAND DUG TO AVOID DAMAGE TO TREE ROOTS.
2. THE SEWERAGE WORKS HAVE BEEN LOCATED TO MINIMISE CLEARING AND DAMAGE TO THE EXISTING FLORA ENVIRONMENT. NO TREES ARE PERMITTED TO BE REMOVED OR DAMAGED UNO. CONSTRUCTION OF THE SEWER GRAVITY OR RISING MAIN IN THE VICINITY OF EXISTING TREES SHALL BE HAND EXCAVATED ONLY, ENSURING IRREVERSIBLE DAMAGE OF THE ROOT SYSTEM DOES NOT OCCUR.
3. IF IT IS CONSIDERED NECESSARY TO PERFORM ANY WORK ON TREES, INCLUDING TRIMMING, LOPPING, ROOT CUTTING, REPAIR AND REMOVAL, APPLICATION IN WRITING SHALL BE MADE BY THE CONTRACTOR TO THE SUPERINTENDENT.
ANY WORK PERMITTED TO BE DONE ON TREES TO BE RETAINED SHALL BE PERFORMED BY AN APPROVED TREE SURGEON.
4. NO MATURE TREES OR SHRUBS ARE TO BE REMOVED FOR THE PURPOSES OF THE WORKS WITHOUT PRIOR APPROVAL OF THE BLACKTOWN CITY COUNCIL.

COUNCIL STANDARDS

LGA 1. THE DRAWINGS HEREIN SHALL BE READ IN CONJUNCTION WITH COUNCIL'S STANDARDS & SPECIFICATIONS WHICH SHALL OVERRIDE SPECIAL DETAILS SHOWN ON THE DRAWINGS.

TRAFFIC NOTE:

1. A TRAFFIC CONTROL PLAN IS TO BE PREPARED BY AN ACCREDITED RTA TRAFFIC CONTROLLER AND SUBMITTED TO COUNCIL. THIS TRAFFIC PLAN IS TO BE CERTIFIED BY AND IMPLEMENTED TO THE SATISFACTION OF AN ACCREDITED RTA TRAFFIC CONTROLLER PRIOR TO COMMENCEMENT OF WORK
2. ALL TRAFFIC CONTROL WORKS SHALL ONLY BE CARRIED OUT BY ACCREDITED RTA TRAFFIC CONTROLLERS.

CLOSED CIRCUIT COLOUR TV (CCTV)

CCTV 1. UNDERTAKE A CCTV INSPECTION OF ALL THE COMPLETED DRAINAGE IN ACCORDANCE WITH THE GUIDELINES OF THE AUSTRALIAN CONDUIT CONDITION EVALUATION MANUAL (ACCEM)

CCTV 2. APPLY THE FOLLOWING REQUIREMENTS TO THE CCTV INSPECTION:-

A. USE DATA CAPTURE SOFTWARE APPROVED BY SYDNEY WATER

B. USE CERTIFIED CCTV OPERATORS

C. THE CCTV VIDEOTAPE SHALL BE OF QUALITY TO ALLOW ACCURATE ASSESSMENT OF THE INTERNAL CONDITION OF THE PIPE.

CCTV 3. FURNISH TO THE DESIGN CONSULTANT:-
A. TWO (2) VIDEO TAPES
B. ONE SET OF SURVEY DATA ON 3 1/2 DISKETTE
C. ONE HARD COPY PRINTOUT OF THE SURVEY DATA.

REINFORCED CONCRETE

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600, THE SAA STANDARDS CITED IN AS3600, THE DRAWINGS AND THE SPECIFICATION.
2. ALL CONCRETE SHALL BE 80mm SLUMP, 20mm MAXIMUM AGGREGATE WITH NO ADMIXTURES OR FLY ASH, UNLESS APPROVED BY THE ENGINEER. ALL CONCRETE TO HAVE TYPE SL PORTLAND CEMENT WITH NO FLY ASH.
3. CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND USED ONLY WHERE SHOWN OR APPROVED BY THE ENGINEER.
4. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.
5. WELDING OR SPLICES IN REINFORCEMENT SHALL BE USED ONLY IN POSITIONS APPROVED BY THE ENGINEER.
6. CONCRETE CURING SHALL BE IN ACCORDANCE WITH AS3600. CURING SHALL BE COMMENCED WITHIN TWO HOURS OF FINISHING OPERATIONS AND SHALL BE CONTINUED FOR A MINIMUM OF SEVEN DAYS BY AN APPROVED PROPRIETARY COMPOUND OR BY KEEPING CONTINUOUSLY WET.
7. FORMWORK SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH AS3610. FORMWORK SHALL NOT BE STRIPPED NOR PROPS REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.
8. FABRIC LAP DETAILS SHALL BE IN ACCORDANCE WITH DRAWINGS
9. HOOKS, LAPS AND BENDS SHALL BE IN ACCORDANCE WITH AS3600 UNO.
10. THE CONCRETE STRENGTH SHALL COMPLY WITH THE FOLLOWING:

ELEMENT	MIN CEMENT CONTENT (kg/m^3)	SLUMP (mm)	NOM MAX AGGREGATE SIZE (mm)	GRADE DESIGNATION (Mpa)
REINFORCED CONCRETE	360	80	20	SL32
MASS CONCRETE	260	80	20	N20
PILES	360	80	20	N40

11. NO PENETRATIONS, RECESSES OR CHASES OTHER THAN THOSE SHOWN ON THE DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS
12. ALL EDGES TO HAVE 20mm CHAMFERS, WHERE VISIBLE IN THE FINISHED WORK.

ALL CHEMICAL ANCHORS SHALL BE EITHER 'CHEMSET' BY "RAMSET" WITH THE GLASS CAPSULE SYSTEM INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS
OR
HILTI HVU ADHESIVE ANCHOR WITH FOIL CAPSULE SYSTEM INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTION. ALL CHEMICAL ANCHORS SHALL BE HOT DIPPED GALVANIZED AND BE MIN M16 DIA. U.N.O.

SPRAYED CONCRETE FOR STABILISATION OF BATTERS 1 TO 1 OR STEEPER, INCLUDING AREAS OF UNSOUND ROCK

S1 SPRAYED CONCRETE APPLICATION SHALL BE EITHER A WET OR DRY PROCESS. A SOUND HOMOGENEOUS PRODUCT SHALL BE PROVIDED WITH SURFACE FINISH REASONABLY UNIFORM IN TEXTURE AND FREE FROM BLEMISHES.

S2 THE MINIMUM DEPTH OF SPRAYED CONCRETE TO BE APPLIED SHALL BE 100mm.

S3 RF 62 MESH SHALL BE USED AS REINFORCEMENT FOR THE CONCRETE, LAPPED AS SPECIFIED ELSEWHERE.

S4 A CUT OFF [ANCHORAGE] TRENCH, MINIMUM 600 DEEP X 300mm WIDE, SHALL BE CONSTRUCTED AT THE UPPER END OF BATTERS, TO STABILISE THE SPRAYED CONCRETE. REINFORCEMENT SHALL BE BENT INTO THE TRENCH, FOR FULL DEPTH.

S5 SPRAYED CONCRETE SHALL HAVE A MINIMUM CEMENT CONTENT OF 380 KG/m3 AS DISCHARGED FROM THE NOZZLE AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25 MPa AT 28 DAYS WHEN TESTED BY MEANS OF 75mm DIAMETER CORES TAKEN FROM IN-PLACE SPRAYED CONCRETE.

S6 CORES SHALL BE SECURED, ACCEPTED, CURED, CAPPED AND TESTED IN ACCORDANCE WITH AS 1012.9 AND AS 1012.14. EQUIPMENT AND FACILITIES SHALL BE PROVIDED BY THE CONTRACTOR FOR THE TAKING OF CORES FROM THE WORK. THE CONTRACTOR SHALL ARRANGE FOR A LABORATORY WITH APPROPRIATE NATA REGISTRATION FOR THE CURING AND TESTING OF THE CORES. COPIES OF TEST RESULTS SHALL BE FORWARDED TO THE SUPERINTENDENT.

S7 THE COST OF ALL WORK AND MATERIAL REQUIRED IN THE TAKING, HANDLING, DELIVERY AND TESTING OF CORES SHALL BE BORNE BY THE CONTRACTOR.

S8 CONCRETE THE CONTRACTOR SHALL SUBMIT TO THE SUPERINTENDENT DETAILS OF HIS PROPOSED PROCEDURE, PLANT, MATERIALS AND MIX PROPORTIONS. MATERIALS SHALL COMPLY WITH AS 3600.

S9 EARTH SURFACES SHALL BE GRADED, TRIMMED AND COMPACTED AND SHALL BE DAMPENED PRIOR TO APPLYING THE SPRAYED CONCRETE. THE CONTRACTOR SHALL TAKE ANY PRECAUTIONS NECESSARY TO PREVENT EROSION WHEN THE SPRAYED CONCRETE IS APPLIED.

S10 THE CONTRACTOR SHALL REMOVE FREE WATER AND PREVENT THE FLOW OF WATER, WHICH COULD ADVERSELY AFFECT THE QUALITY OF THE SPRAYED CONCRETE.

S11 APPLICATION SHALL BEGIN AT THE BOTTOM OF THE AREA BEING SPRAYED AND SHALL BE BUILT UP MAKING SEVERAL PASSES OF THE NOZZLE OVER THE WORKING AREA. THE NOZZLE SHALL BE HELD SO THAT THE STREAM OF MATERIAL SHALL IMPINGE AS NEARLY AS POSSIBLE PERPENDICULAR TO THE SURFACE BEING COATED. THE VELOCITY OF DISCHARGE FROM THE NOZZLE, THE DISTANCE OF THE NOZZLE FROM THE SURFACE AND THE AMOUNT OF WATER IN THE MIX SHALL BE REGULATED SO AS TO PRODUCE A DENSE COATING WITH MINIMUM REBOUND OF THE MATERIAL AND NO SAGGING. REBOUND MATERIAL SHALL BE REMOVED BY AIR JET OR OTHER SUITABLE MEANS FROM THE SURFACE AS WORK PROCEEDS AND DISPOSED OF.

S12 SPRAYING SHALL BE DISCONTINUED IF WIND CAUSES SEPARATION OF THE NOZZLE STREAM.

S13 CONCRETE SHALL NOT BE SPRAYED IN AIR TEMPERATURES LESS THAN 5°C.

S14 CONSTRUCTION JOINTS SHALL BE KEPT TO A MINIMUM. A JOINT SHALL BE FORMED BY PLACING OR TRIMMING THE SPRAYED CONCRETE TO AN ANGLE BETWEEN 300 AND 450 TO THE SPRAYED CONCRETE SURFACE. THE JOINT EDGE SHALL BE CLEANED AND WETTED BY AIR-WATER JET BEFORE RECOMMENCING CONCRETE SPRAYING.

S15 WHEN SPRAYING AROUND REINFORCEMENT, CONCRETE IS TO BE SPRAYED BEHIND THE REINFORCEMENT BEFORE CONCRETE IS ALLOWED TO ACCUMULATE ON THE FACE OF THE REINFORCEMENT.

S16 ADJOINING SURFACES NOT REQUIRING SPRAYED CONCRETE SHALL BE PROTECTED FROM SPLASH AND SPRAY REBOUND. SPLASH OR REBOUND MATERIAL ON THESE ADJOINING SURFACES SHALL BE REMOVED BY AIR-WATER JET OR OTHER SUITABLE MEANS AS WORK PROCEEDS.

S17 CURING SHALL COMMENCE WITHIN ONE HOUR OF THE APPLICATION OF SPRAYED CONCRETE AND MAY BE BY WATER OR BY COLOURLESS WAX EMULSION CURING COMPOUND COMPLYING WITH AS 3799 AND APPLIED AT 0.2 LITRES PER SQUARE METRE.

S18 IN WATER CURING, THE SURFACE OF THE SPRAYED CONCRETE SHALL BE KEPT CONTINUOUSLY WET FOR AT LEAST SEVEN DAYS.

NORTH POINT

NOTES
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ISSUE	AMENDMENT	DATE	ISSUE	AMENDMENT	DATE
A	DEVELOPMENT APPLICATION ISSUE	24.03.14			
B	DA REVISED ISSUE	09.05.14			
C	DA REVISED ISSUE	09.12.14			
D	DA REVISED ISSUE	13.07.15			

CLIENT
Alto Group

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• Design and Project Management

TITLE
SPECIFICATION NOTES

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
N.T.S.	I.L.	I.L.	M.C.	M.C.

DATE	DRAWING No.	ISSUE
DECEMBER 2014	C-02	D

JOB No. 4752000

STATUS DEVELOPMENT APPLICATION

Xrefs: 4752000_A1H Plot Date: 13.07.2015@14:06:30 Login Name: nmeo Cad File: T:\4752000\CAD\Civil\4752000-C-02.dwg

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 SHEET SIZE: A1

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TITLE

EXISTING SURVEY PLAN

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
1:250	I.L.	I.L.	M.C.	M.C.

DATE: DECEMBER 2014
DRAWING No.: C-03
ISSUE: D
JOB No.: 4752000
STATUS: DEVELOPMENT APPLICATION

SHEET SIZE: A1

PACIFIC
HIGHWAY
BOUNDARY LINE
RL 110.800
RL 111.36
600 SQ CLASS C GRATED PIT RL 112.17 IL 111.35
600 SQ CLASS C GRATED PIT RL 112.17 IL 111.20
600 SQ CLASS C GRATED PIT RL 112.17 IL 111.00
600 SQ CLASS C GRATED PIT RL 112.17 IL 111.26
600 SQ CLASS C GRATED PIT RL 112.17 IL 111.40
600 SQ CLASS C GRATED PIT RL 112.17 IL 111.54
450 SQ CLASS C GRATED PIT RL 112.17 IL 111.67
600 SQ CLASS D GRATED PIT RL 110.54 IL 109.94
600 SQ CLASS C GRATED PIT RL 112.17 IL 111.47
SUB-SOIL PUMPOUT PIT CLASS D GRATES RL 110.54 IL 109.76
600 SQ CLASS D GRATED PIT RL 110.54 IL 109.94
600 SQ CLASS D GRATED PIT RL 111.55 IL 110.95
600 SQ CLASS D GRATED PIT RL 112.24 IL 111.64
ACO KS300 SLOPED CHANNEL WITH STAINLESS 5 STAR HEELSAFE ANTISLIP CLASS 'D' GRATE
PANEL CONNECTION
PUMP CONTROL PANEL
600 SQ CLASS C GRATED PIT RL 112.17 IL 111.57
600 SQ CLASS C GRATED PIT RL 112.14 IL 111.54
65Ø RISING MAIN TO OSD TANK
BUILDING STORMWATER DRAINAGE TO BE DESIGNED BY HYDRAULIC CONSULTANT AT DETAIL DESIGN STAGE
RR TANK
OSD TANK
RL 110.54
FALL 9.9%
RL 111.36
RL 110.60
STREET
NEW KERB LINE INDICATIVE ONLY
PROPOSED KEP WITH CLASS D GRATE RL 113.0 IL 112.10
EXISTING STW PIT TO BE REMOVED
STW 375
EXISTING KERB LINE
EXISTING PIT TO BE RECONSTRUCTED AND GRATE AND LINTEL TO BE REPLACED WITH CLASS D COVER RL 112.90 IL 111.87
FITZSIMONS
LANE
ACO KS300 SLOPED CHANNEL WITH STAINLESS 5 STAR HEELSAFE ANTISLIP CLASS 'D' GRATE
EXISTING KERB LINE
900 SQ CLASS C GRATED PIT RL 110.74 IL 109.84
EXISTING STW PIT TO BE REMOVED
OSD TO BE FITTED WITH STORMWATER 360 'PSORB STORMFILTER' PRECAST SYSTEM WITH 2 ENVIROPODS AND 10 x 240mm CARTRIDGES (OR EQUAL APPROVED)
STW 150
STW 225
ACO KS100 SLOPED CHANNEL WITH STAINLESS 5 STAR HEELSAFE ANTISLIP CLASS 'B' GRATE
MERRIWA
PROPOSED KEP WITH CLASS D GRATE RL 109.95 IL 108.49
EXISTING PIT TO BE RECONSTRUCTED AND GRATE AND LINTEL TO BE REPLACED WITH CLASS D COVER RL 109.26 IL 108.00
NEW KERB LINE INDICATIVE ONLY
EXISTING KERB LINE
PROPOSED KEP WITH CLASS D GRATE RL 110.25
EXISTING PIT TO BE RECONSTRUCTED AND GRATE AND LINTEL TO BE REPLACED WITH CLASS D COVER RL 109.23
LEGEND:
MIN 25Ø OVERFLOW SPITTER @ 2m C/C TO BE PROVIDED AT FLOOR LEVEL TO PREVENT INUNDATION IN THE EVENT OF BLOCKAGE
FALL
100Ø OUTLET
2000 0 4000 8000 12000mm
SCALE 1:200

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NOTES

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D	DA REVISED ISSUE	13.07.15

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TITLE

STORMWATER DRAINAGE
BASEMENT 03 PLAN

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
1:200	I.L.	I.L.	M.C.	M.C.

DATE: DECEMBER 2014
DRAWING No.: C-04
ISSUE: D
JOB No.: 4752000
STATUS: DEVELOPMENT APPLICATION

SHEET SIZE: A1

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TITLE
STORMWATER DRAINAGE BASEMENT 02 PLAN

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
1:200	I.L.	I.L.	M.C.	M.C.

DATE	DRAWING No.	ISSUE
DECEMBER 2014	C-05	D

JOB No. 4752000

STATUS DEVELOPMENT APPLICATION

SHEET SIZE: A1

PACIFIC HIGHWAY

STREET

MERRIWA

FIT□SIMONS LANE

NEW KERB LINE INDICATIVE ONLY

EXISTING KERB LINE

P_{22} = 17.2 m²
$^{20}Q_5$ = 0.96 L/s
STW 100
DP 100Ø

P_{22} = 13.3 m²
$^{20}Q_5$ = 0.75 L/s
STW 100
DP 100Ø

P_{22} = 17.1 m²
$^{20}Q_5$ = 0.95 L/s
STW 100
DP 100Ø

DP 150Ø

P_{22} = 24.9 m²
$^{20}Q_5$ = 1.39 L/s
STW 100
DP 100Ø

P_{22} = 17.2 m²
$^{20}Q_5$ = 0.96 L/s
STW 100
DP 100Ø

DP 150Ø
STW 100

P_{22} = 28.3 m²
$^{20}Q_5$ = 1.58 L/s

118.240

LEGEND:

- MIN 25Ø OVERFLOW SPITTER @ 2m C/C TO BE PROVIDED AT FLOOR LEVEL TO PREVENT INUNDATION IN THE EVENT OF BLOCKAGE
- FALL
- 100Ø OUTLET

2000 0 4000 8000 12000mm

SCALE 1:200

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LicQAC/R61/0751

TITLE
STORMWATER DRAINAGE
BASEMENT 01 PLAN

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
1:200	I.L.	I.L.	M.C.	M.C.
DATE: DECEMBER 2014	DRAWING No. C-06		ISSUE D	
JOB No. 4752000	STATUS: DEVELOPMENT APPLICATION			

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SHEET SIZE: A1

Xrefs: 4752000 A1H_XARCH BASEMENT 01
Plot Date: 14.07.2015@14:27:08 Login Name: rmeo Cad File: T:\4752000\CAD\Civil\4752000-C-06.dwg

PACIFIC HIGHWAY

FIT□SIMONS LANE

MERRIWA STREET

EXISTING KERB LINE

NEW KERB LINE INDICATIVE ONLY

CONNECT TO BASEMENT 03 DRAINAGE

300SQ SWP CLASS B GRATE

DP 100Ø

STW 100

SS 100

DP 150Ø

121.540

12.28

P_{22} = 17.2 m² $^{20}Q_5$ = 0.96 L/s

P_{22} = 17.2 m² $^{20}Q_5$ = 0.96 L/s

P_{22} = 13.1 m² $^{20}Q_5$ = 0.73 L/s

P_{22} = 13.1 m² $^{20}Q_5$ = 0.73 L/s

P_{22} = 17.2 m² $^{20}Q_5$ = 0.96 L/s

P_{22} = 17.1 m² $^{20}Q_5$ = 0.95 L/s

P_{22} = 13.64m² $^{20}Q_5$ = 0.76 L/s

P_{22} = 13.3 m² $^{20}Q_5$ = 0.75 L/s

P_{22} = 17.1 m² $^{20}Q_5$ = 0.95 L/s

P_{22} = 24.9 m² $^{20}Q_5$ = 1.39 L/s

P_{22} = 17.2 m² $^{20}Q_5$ = 0.96 L/s

P_{22} = 28.3 m² $^{20}Q_5$ = 1.58 L/s

P_{22} = 17.2 m² $^{20}Q_5$ = 0.96 L/s

P_{22} = 19.0 m² $^{20}Q_5$ = 1.06 L/s

P_{22} = 18.9 m² $^{20}Q_5$ = 1.06 L/s

P_{22} = 19.0 m² $^{20}Q_5$ = 1.06 L/s

P_{22} = 11.9 m² $^{20}Q_5$ = 0.66 L/s

LEGEND:

MIN 25Ø OVERFLOW SPITTER @ 2m C/C TO BE PROVIDED AT FLOOR LEVEL TO PREVENT INUNDATION IN THE EVENT OF BLOCKAGE

FALL

100Ø OUTLET

2000 0 4000 8000 12000mm

SCALE 1:200

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ISSUE	AMENDMENT	DATE	ISSUE	AMENDMENT	DATE
A	DEVELOPMENT APPLICATION ISSUE	24.03.14			
B	DA REVISED ISSUE	09.05.14			
C	DA REVISED ISSUE	09.12.14			
D	DA REVISED ISSUE	13.07.15			

CLIENT
Alto Group

PROJECT
GORDON RESIDENTIAL DEVELOPMENT
870 PACIFIC HIGHWAY
GORDON

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TITLE
STORMWATER DRAINAGE
GROUND FLOOR PLAN

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
1:200	I.L.	I.L.	M.C.	M.C.

DATE	DRAWING No.	ISSUE
DECEMBER 2014	C-07	D

JOB No. 4752000

STATUS: DEVELOPMENT APPLICATION

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SHEET SIZE: A1

Xrefs: 4752000_A1H_X-ARCH (GROUND LP01 Ground Floor
Plot Date: 14.07.2015@14:28:05 Login Name: mmco Cad File: T:\4752000\CAD\Cvil\4752000-C-07.dwg

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TITLE
STORMWATER DRAINAGE LEVEL 1-4 PLAN

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
1:200	I.L.	I.L.	M.C.	M.C.

DATE	DRAWING No.	ISSUE
DECEMBER 2014	C-08	D

JOB No. 4752000

STATUS DEVELOPMENT APPLICATION

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SHEET SIZE: A1

Xrefs: 4752000_A1H_X-REFS-LEVEL 1-4
Plot Date: 14.07.2015@14:25:24 Login Name: mmeo Cad File: T:\4752000\CAD\Civil\4752000-C-08.dwg

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D	DA REVISED ISSUE	13.07.15			

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TITLE
STORMWATER DRAINAGE LEVEL 5 PLAN

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
1:200	I.L.	I.L.	M.C.	M.C.

DATE	DRAWING No.	ISSUE
DECEMBER 2014	C-09	D

JOB No. 4752000

STATUS DEVELOPMENT APPLICATION

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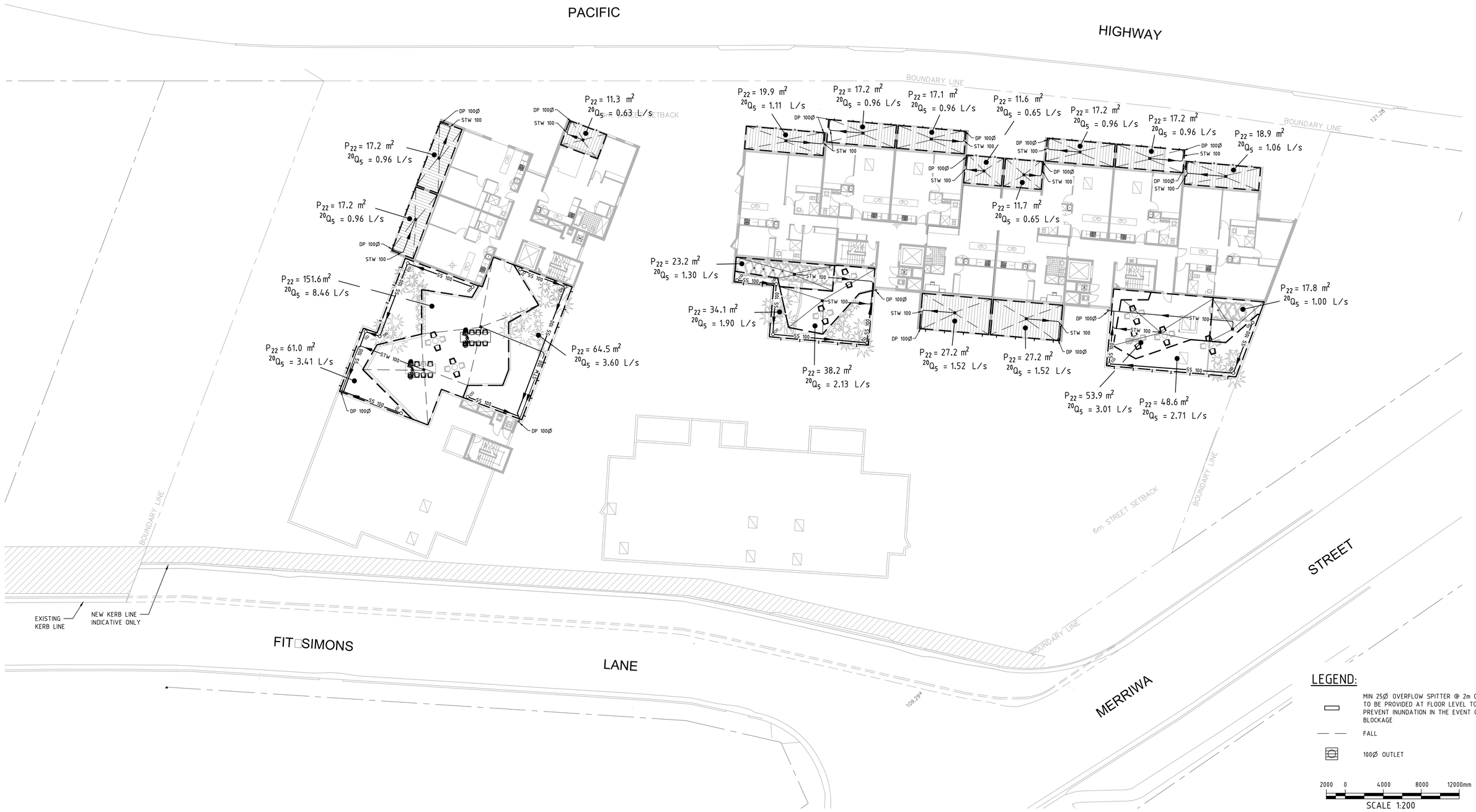
SHEET SIZE: A1



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Lic/QAC/Rel.0751

TITLE
STORMWATER DRAINAGE LEVEL 6 PLAN

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
1:200	I.L.	I.L.	M.C.	M.C.

DATE	DRAWING No.	ISSUE
DECEMBER 2014	C-10	D

JOB No. 4752000

STATUS DEVELOPMENT APPLICATION

SHEET SIZE: A1

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Xrefs: 4752000_A1H_XARCH LEVEL 6 | DPS LEVEL 6
Plot Date: 14.07.2015@14:31:29 Login Name: rmeo
Cad File: T:\4752000\CAD\Civil\4752000-C-10.dwg

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TITLE
STORMWATER DRAINAGE
ROOF PLAN

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
1:200	I.L.	I.L.	M.C.	M.C.

DATE	DRAWING No.	ISSUE
DECEMBER 2014	C-11	D

JOB No. 4752000

STATUS DEVELOPMENT APPLICATION

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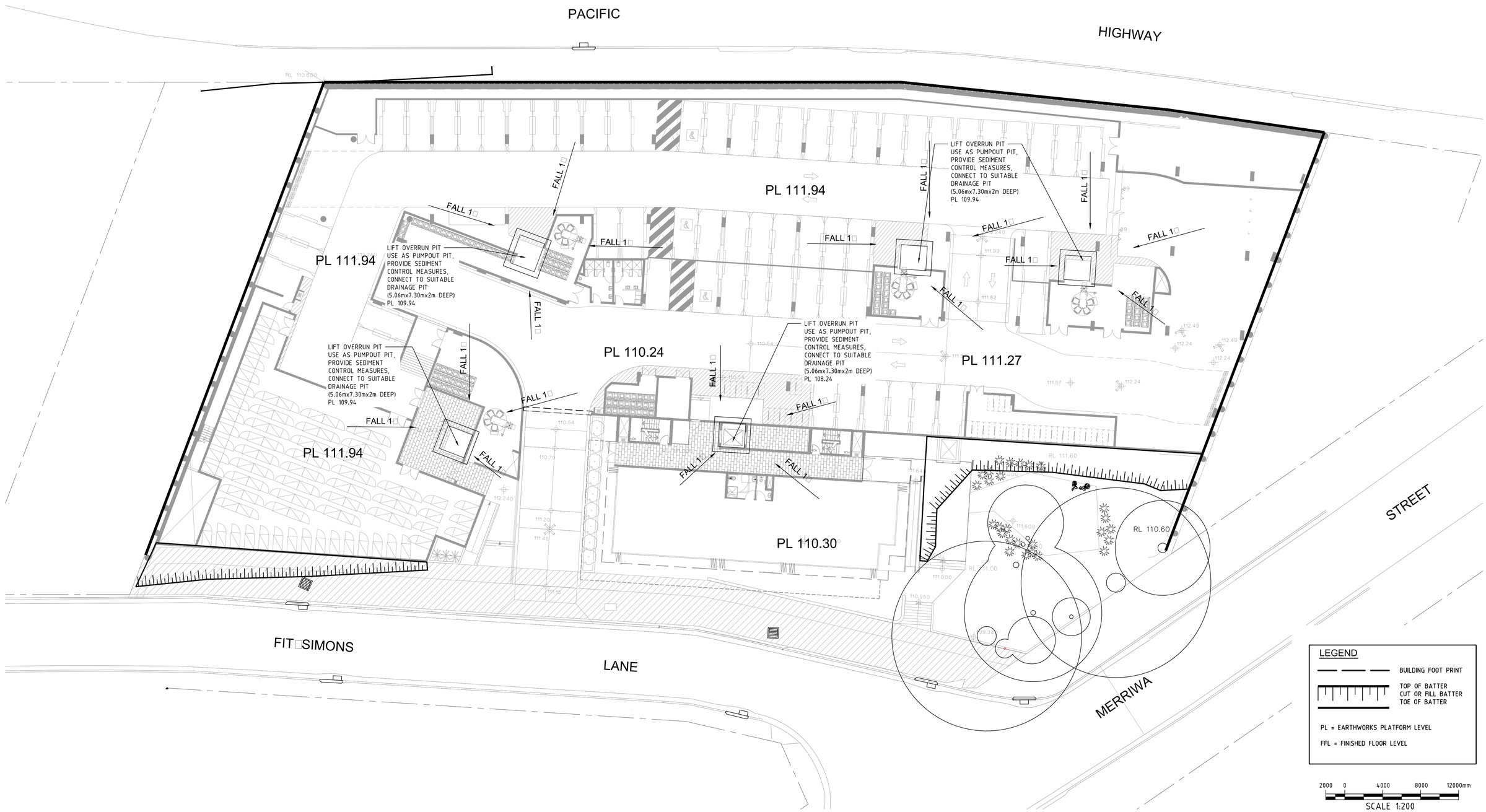

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TITLE
EXCAVATION PLAN

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
1:200	I.L.	I.L.	M.C.	M.C.

DATE	DRAWING No.	ISSUE
DECEMBER 2014	C-12	D

JOB No. 4752000

STATUS
DEVELOPMENT APPLICATION

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SHEET SIZE: A1

Xrefs: 4752000_ASK_KARCH BASEMENT 03
Plot Date: 14.07.2015@15:46:41 Login Name: mmio
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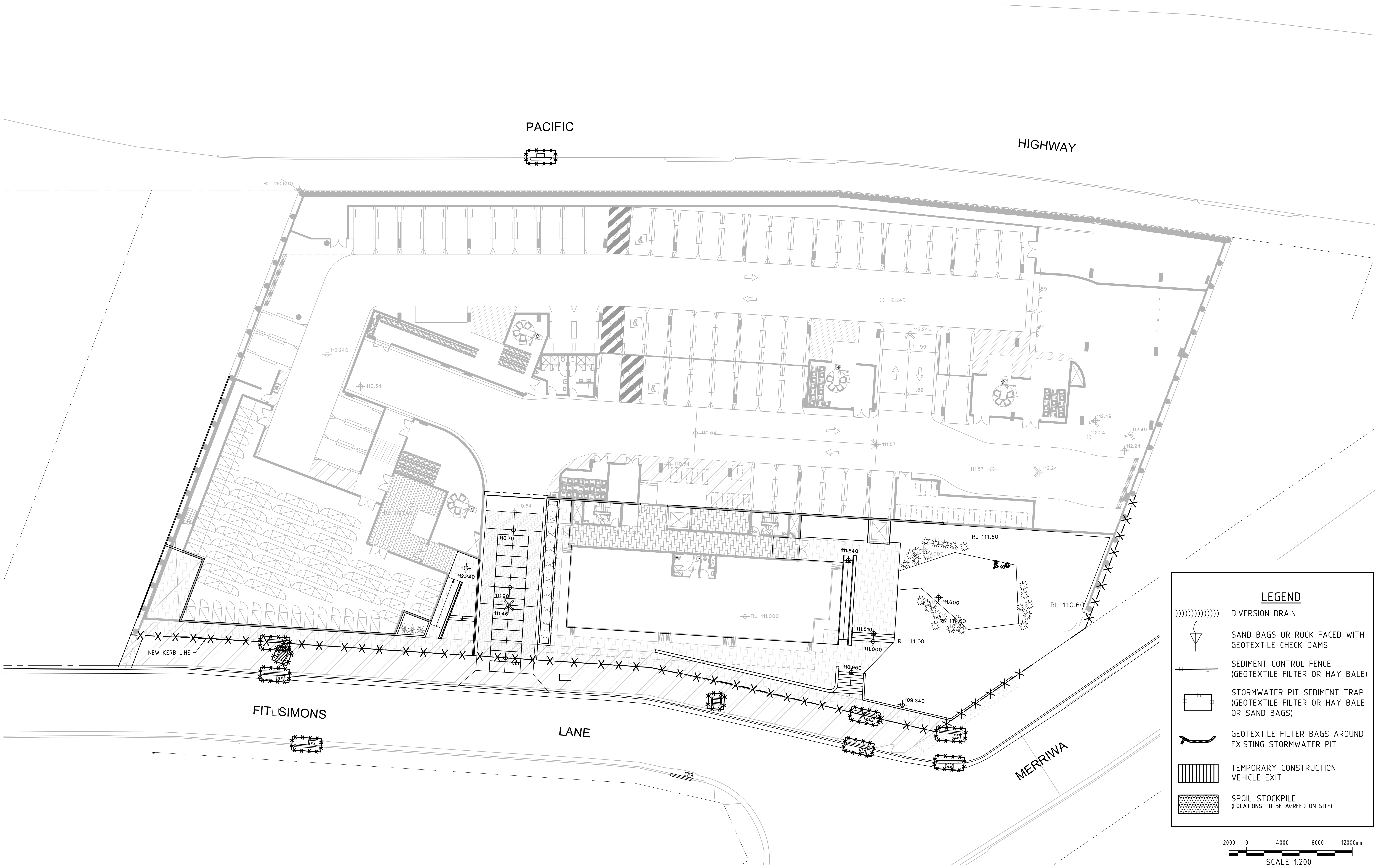

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Plot Date: 14.07.2015@14:37:57 Login Name: nmeo

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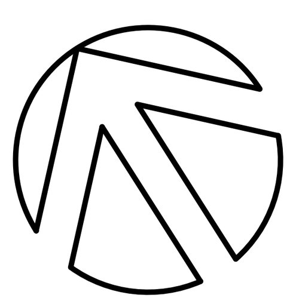

NOTES

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TITLE
EROSION AND SEDIMENT CONTROL PLAN

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
1:200	I.L.	I.L.	M.C.	M.C.

DATE: DECEMBER 2014
DRAWING No.: C-13
ISSUE: D
JOB No.: 4752000
STATUS: DEVELOPMENT APPLICATION

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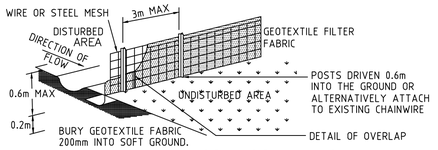
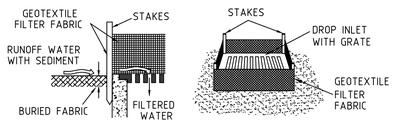


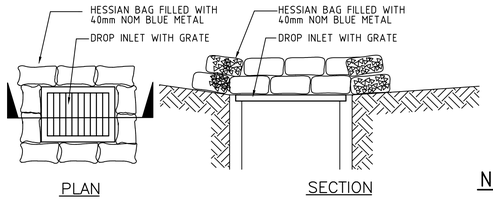
SEDIMENT CONTROL FENCE

NTS



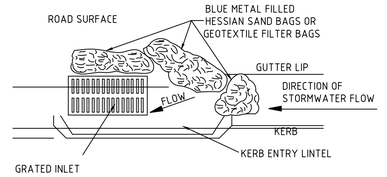
GEOTEXTILE FILTER FABRIC DROP INLET SEDIMENT TRAP

NTS



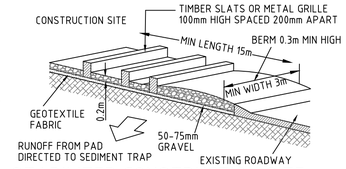
HESSIAN BAG DROP INLET SEDIMENT TRAP

N.T.S.



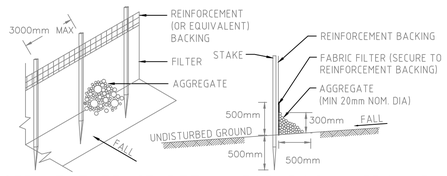
NEW/EXISTING GRATED KERB ENTRY PIT SEDIMENT CONTROL BARRIER

NTS



STABILIZED CONSTRUCTION SITE VEHICLE ENTRY/EXIT

NTS

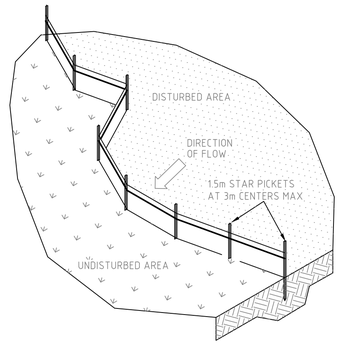


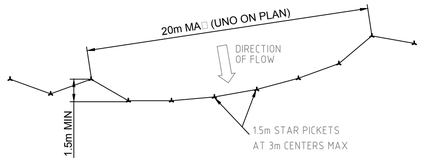
SEDIMENT FENCE DETAIL FOR ROCKY GROUND

NTS

SEDIMENT FENCE NOTES:-

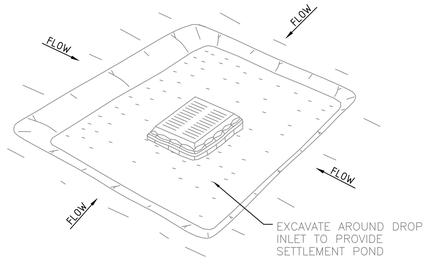
1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE OR AT THE TOE OF A SLOPE.
2. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND SUFFICIENT TO PROVIDE RIGID SUPPORT, 3 METERS APART. WHERE THERE IS INSUFFICIENT SOIL DEPTH OVER ROCK, HOLES ARE TO BE DRILLED INTO ROCK TO ACCEPT THE STAR PICKETS.
3. ON SOFT GROUND MATERIALS, DIG A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
4. BACKFILL TRENCH OVER BASE OF FABRIC & COMPACT.
5. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES OR AS RECOMMENDED BY THE GEOTEXTILE MANUFACTURER. USE A REINFORCEMENT BACKING WITH NON SELF-SUPPORTING GEOTEXTILE FABRIC.
6. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
7. ON HARD OR ROCKY GROUND, SMOOTH A 500mm WIDE STRIP UPSLOPE OF THE FENCE LINE. TURN THE BOTTOM 500mm OF THE FABRIC UPSLOPE AND ANCHOR IN PLACE WITH SUITABLE AGGREGATE.
8. WHERE A SEDIMENT FENCE IS CONSTRUCTED DOWN SLOPE FROM A DISTURBED BATTER THE FENCE SHOULD BE LOCATED 1.5 TO 2.0 METERS DOWN SLOPE FROM THE TOE OF THE BATTER.





SEDIMENT FENCE LAYOUT PLAN

NTS

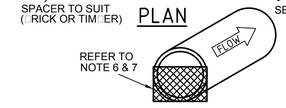


EXCAVATED SEDIMENT TRAP

NTS

EXCAVATED SEDIMENT TRAP NOTES:-

1. REMOVE THE SEDIMENT WHEN IT HAS ACCUMULATED TO HALF THE DESIGN DEPTH OF THE TRAP AND RESTORE THE TRAP TO ITS ORIGINAL DIMENSIONS.
2. PROVIDE 50 cu.m/Ha OF SEDIMENT STORAGE VOLUME.
3. REFER TO THE MAINTENANCE REQUIREMENTS.



GEOTEXTILE FILTER BAGS

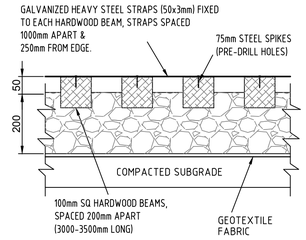
NTS

SEDIMENT BARRIER FOR PITS & PIPES, NOTES:-

1. SLEEVES ARE TO BE MADE FROM GEOTEXTILE FABRIC LONGER THEN THE LENGTH OF THE INLET PIT.
2. FILL SLEEVE WITH 5 OR 10mm CLEAN GRAVEL.
3. PLACE THE SLEEVE AT THE OPENING OF THE KERB INLET LEAVING A 100mm GAP TO ACT AS AN EMERGENCY OVERFLOW.
4. SLEEVE MUST BE PLACED AGAINST THE KERB TO PREVENT BYPASS.
5. FIT SLEEVE TO ALL INLETS DOWNSTREAM OF THE WORKS.
6. FOR DRAINAGE WORKS FIT GEOTEXTILE FABRIC OR GEO BAGS TO UPSTREAM FACE OF ALL OPEN PIPES.
7. MAINTAIN AN OPENING AT THE TOP OF THE PIPE OF 1/3 OF THE PIPE DIAMETER.
8. THE FILTERS ARE TO BE CLEANED AND MAINTAINED DAILY.
9. ALL CARE SHOULD BE TAKEN TO MINIMIZE SEDIMENT REACHING THE STORMWATER SYSTEM BY MINIMIZING EXCAVATION WORKS AND PREVENTING EXCESS WATER FLOW THROUGH WORKS.

SITE ENTRY/EXIT NOTES:-

1. ALL VEHICLE ENTRANCES & EXITS TO THE CONSTRUCTION SITE MUST BE STABILIZED TO PREVENT THEM BECOMING A SOURCE OF SEDIMENT, BY PROVIDING A VEHICLE SHAKE AREA. THIS MAY CONSIST OF A TIMBER, CONCRETE OR STEEL SHAKER GRID OR RUBBLE AREA.
2. THE VEHICLE EXIT AREA IS TO BE MAINTAINED IN A CLEAN & SERVICEABLE CONDITION DURING THE TOTAL TIME OF USAGE.
3. ANY UNSEALED ROAD BETWEEN THE DEVICE AND COUNCILS ROADWAY IS TO BE TOPPED WITH 100mm THICK, 40mm NOMINAL SIZE AGGREGATE.
4. PUBLIC ROADS MUST BE KEPT FREE OF DIRT AND MUD. SEDIMENT TRACKED ONTO THE PUBLIC ROADWAY BY VEHICLES LEAVING THE CONSTRUCTION SITE IS TO BE SWEPT UP IMMEDIATELY.
5. FENCES SHOULD BE ERECTED TO ENSURE VEHICLES CAN NOT BYPASS THE STABILIZED ACCESS POINTS, UNLESS COMING FROM A STABILIZED AREA.

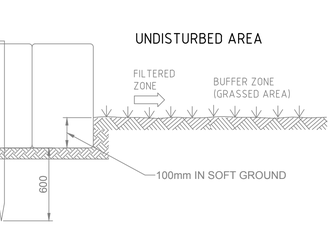


VEHICLE SHAKER GRID

NTS

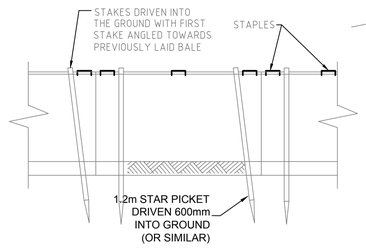
SITE ENTRY/EXIT CONSTRUCTION NOTES:-

1. STRIP TOP SOIL & LEVEL SITE. PROVIDE CATCH DRAIN AT SIDES TO DIRECT RUNOFF WATER TO SEDIMENT TRAPS.
2. COMPACT SUBGRADE AND REMOVE ANY HIGH POINTS.
3. COVER AREA WITH GEOTEXTILE FABRIC. THIS MAY BE WOVEN OR NEEDLE PUNCHED PRODUCT WITH A MINIMUM CBR BURST STRENGTH (AS3706.4-90) OF 2500 N.
4. CONSTRUCT 200mm THICK RUBBLE PAD OVER GEOTEXTILE USING ROAD BASE OR 30-40mm AGGREGATE. MINIMUM LENGTH 15 METRES OR TO BUILDING ALIGNMENT. MINIMUM WIDTH 3 METRES. CONSTRUCT 300mm HIGH HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT TRAP.
5. WHERE GRIDS ARE USED FIRST CONSTRUCT A 150 THICK PAD OVER GEOTEXTILE FABRIC. LEVEL THIS IN BOTH DIRECTIONS. LOWER GRID ON TO THE PREPARED BASE AND ENSURE THAT NO PART IS SITTING ON ANY HIGH POINTS. BACKFILL THE SPACES BETWEEN THE GRIDS TO WITHIN 50mm OF THE TOP.
6. PROVIDE RAMPS AT ENDS AND SIDE OF GRIDS. IF DEPRESSIONS OCCUR IN THE RAMPS DURING USE. ADD ADDITIONAL MATERIAL.



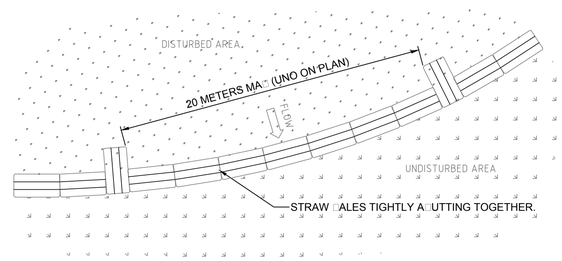
TYPICAL STRAW BALE SECTION

NTS



TYPICAL STRAW BALE DETAIL

NTS

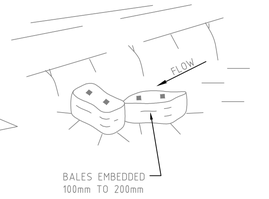


TYPICAL STRAW BALE LAYOUT PLAN

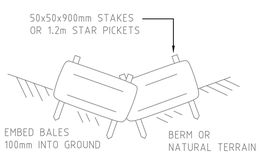
NTS

STRAW BALE NOTES:-

1. CONSTRUCT STRAW BALE FILTER AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE OR AT THE TOE OF A SLOPE.
2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS TO BE PLACED PARALLEL TO GROUND.
3. MAXIMUM HEIGHT OF FILTER IS ONE BALE.
4. ON SOFT MATERIALS, EMBED EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH TWO 1.2 METRE STAR PICKETS. ANGLE THE FIRST STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BAIL. DRIVE STAKES 600mm INTO THE GROUND AND FLUSH WITH THE TOP OF THE BALES.
5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWN SLOPE FROM A DISTURBED BATTER THE BALES SHOULD BE LOCATED 1.5 TO 2.0 METERS DOWN SLOPE FROM THE TOE OF THE BATTER.
6. WHERE REQUIRED WRAP GEOTEXTILE FILTER FABRIC AROUND BALES AND STAPLE IN POSITION.

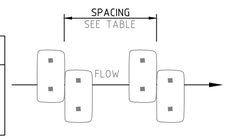


VIEW OF CHECK DAM



CHECK DAM SECTION

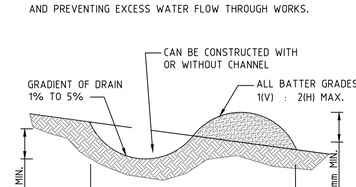
CHECK DAM SPACING TABLE	
LONGITUDINAL GRADE (%)	SPACING (METERS)
0 - 5	40
5 -10	30
10 - 15	20
GREATER THAN 15	10



CHECK DAM PLAN

STRAW BALE CHECK DAM DETAILS

NTS



DIVERSION DRAIN (LOW FLOW)

NTS

DIVERSION DRAIN NOTES:-

1. CONSTRUCT WITH GRADIENT OF 1 PER CENT TO 5 PER CENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE.
3. DRAINS TO BE OF CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTION NOT V-SHAPED.
4. EARTH BANKS TO BE ADEQUATELY COMPACTED IN ORDER TO PREVENT FAILURE.
5. PERMANENT OR TEMPORARY STABILIZATION OF THE EARTH BANK TO BE COMPLETED WITHIN 10 DAYS OF CONSTRUCTION.
6. ALL OUTLETS FROM DISTURBED LANDS ARE TO FEED INTO A SEDIMENT BASIN OR SIMILAR.
7. DISCHARGE RUN OFF COLLECTED FROM UNDISTURBED LANDS ONTO EITHER A STABILIZED OR AN UNDISTURBED DISPOSAL SITE WITHIN THE SAME SUBCATCHMENT AREA FROM WHICH THE WATER ORIGINATED.
8. COMPACT BANK WITH A SUITABLE IMPLEMENT IN SITUATIONS WHERE THEY ARE REQUIRED TO FUNCTION FOR MORE THAN FIVE DAYS.
9. EARTH BANKS TO BE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT WILL IMPEDE NORMAL FLOW.

MAINTENANCE REQUIREMENTS:-

1. ACCUMULATED SILT & SEDIMENT MUST BE REMOVED AT REGULAR INTERVALS AND AFTER EACH MAJOR STORM.
2. SILT & SEDIMENT MUST BE REMOVED FROM OFF THE SITE OR TO A COUNCIL APPROVED LOCATION WITHIN THE SITE, WHERE IT WILL NOT ERODE.
3. THE SEDIMENT FENCES, BALES & TRAPS SHALL BE REGULARLY INSPECTED, ESPECIALLY AFTER RAIN AND KEPT IN GOOD REPAIR AND FUNCTIONING CONDITION AT ALL TIMES.
4. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT SEDIMENT, EROSION & WATER POLLUTION SHALL BE MINIMIZED.
5. THE SEDIMENT TRAPS SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE CONSTRUCTION AREA HAS BEEN PROPERLY STABILIZED.

NORTH POINT

NOTES
FOR TITLE, DRAWING LIST, LEGEND, ABBREVIATIONS & NOTES REFER TO DRAWING C-01 & C-02

ISSUE	AMENDMENT	DATE	ISSUE	AMENDMENT	DATE
A	DEVELOPMENT APPLICATION ISSUE	24.03.14			
B	DA REVISED ISSUE	09.05.14			
C	DA REVISED ISSUE	09.12.14			
D	DA REVISED ISSUE	13.07.15			

CLIENT: Alto Group

PROJECT: GORDON RESIDENTIAL DEVELOPMENT
870 PACIFIC HIGHWAY
GORDON

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Hydraulic Services I Civil Engineering I Fire Protection I Sydney Water Accredited •Water Servicing Co-ordinator
Lic:QAC/R61/0771 • Design and Project Management

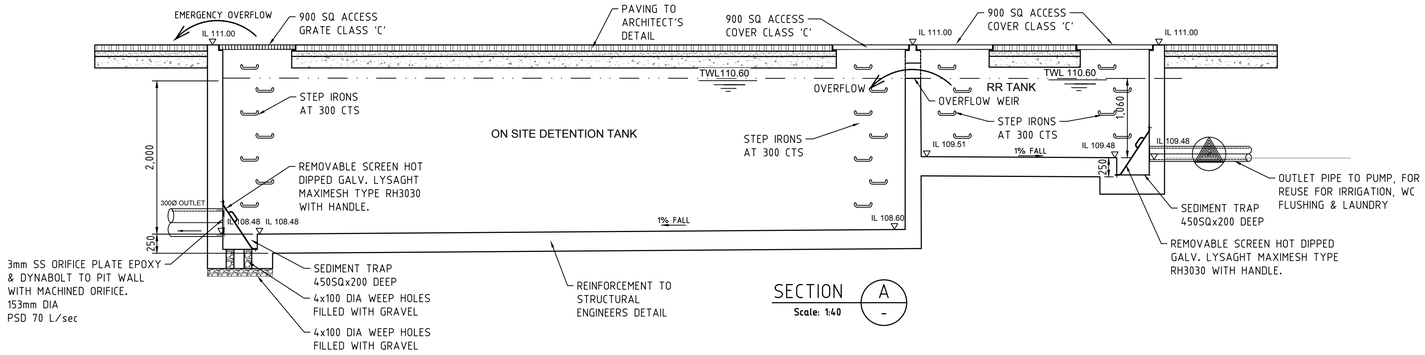
TITLE: EROSION AND SEDIMENT CONTROL DETAILS

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
N.T.S.	I.L.	I.L.	M.C.	M.C.

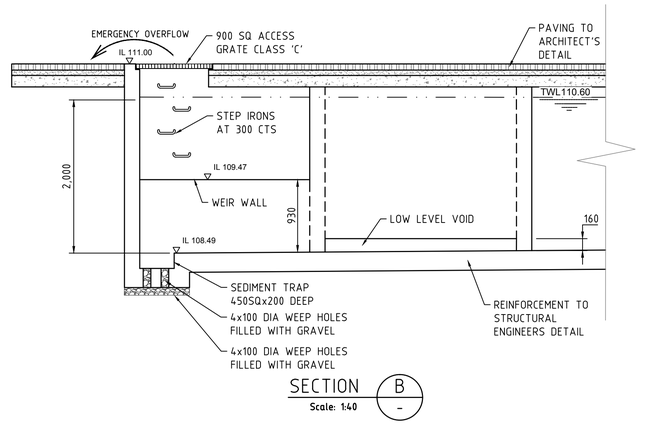
DATE: DECEMBER 2014
JOB No: 4752000
DRAWING No.: C-14
ISSUE: D
STATUS: DEVELOPMENT APPLICATION

SHEET SIZE: A1

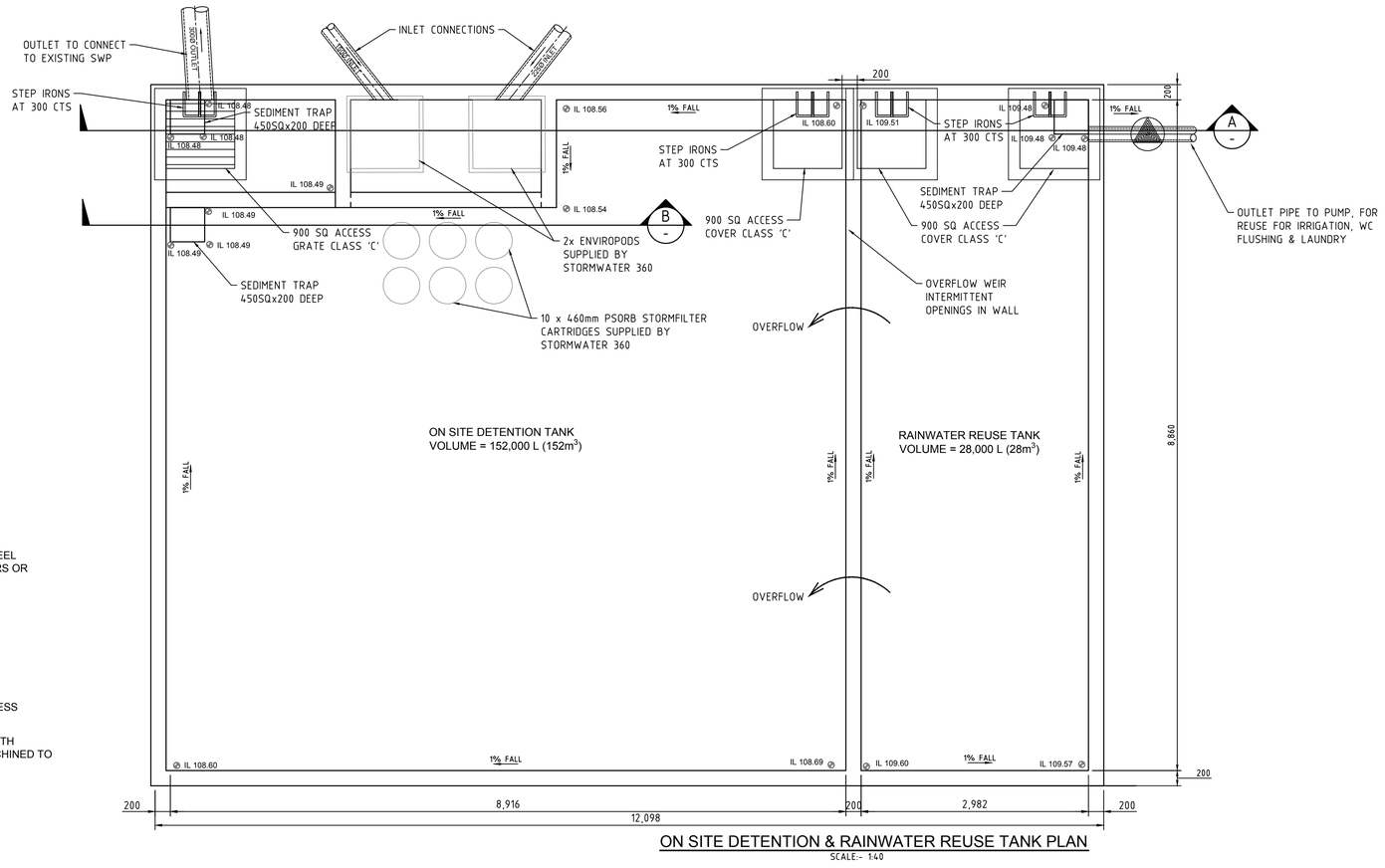
Cad File: T:\4752000\CADCivil\4752000-C-14.dwg
Login Name: mmo
Xrefs: 4752000_A1H
Plot Date: 13.07.2015@14:24:44



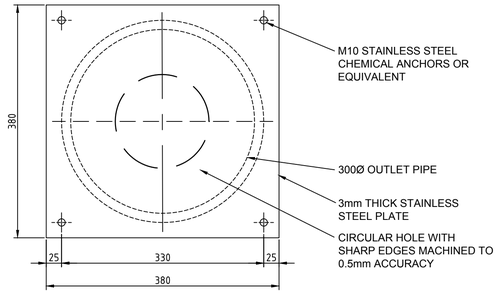
SECTION A
Scale: 1:40



SECTION B
Scale: 1:40



ON SITE DETENTION & RAINWATER REUSE TANK PLAN
SCALE:- 1:40



ORIFICE PLATE DETAIL
SCALE 1:5

400 0 800 1600 2400mm
SCALE 1:40

DO NOT SCALE FROM DRAWINGS, CHECK & VERIFY ALL DIMENSIONS & LEVELS BEFORE COMMENCEMENT OF ANY WORK.

THIS DRAWING IS NOT TO BE COPIED IN PART OR WHOLE WITHOUT WRITTEN PERMISSION FROM WARREN SMITH AND PARTNERS.

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PROJECT
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LicQAC/Q61/0771

TITLE
STORMWATER DRAINAGE
ON SITE DETENTION & RAINWATER RESUE TANK PLAN & DETAILS

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
1:40	I.L.	I.L.	M.C.	M.C.

DATE	DRAWING No.	ISSUE
DECEMBER 2014	C-15	D

JOB No: 4752000

STATUS: DEVELOPMENT APPLICATION

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
SHEET SIZE: A1

Cad File: T:\4752000\CAD\Civil\4752000-C-15.dwg
Xrefs: 4752000_A1H-2, 4752000_A1H
Plot Date: 14.07.2015@15:49:21 Login Name: LShaughnessy