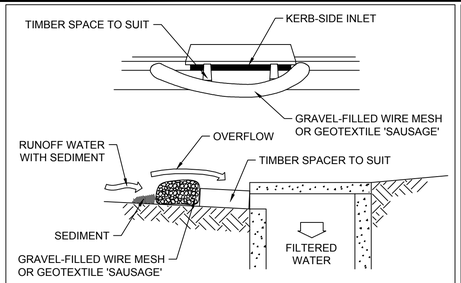



NOTE: THIS PRACTICE ONLY TO BE USED WHERE SPECIFIED IN AN APPROVED SWMP/ESCP.

## CONSTRUCTION NOTES

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.

2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm-50mm GRAVEL.

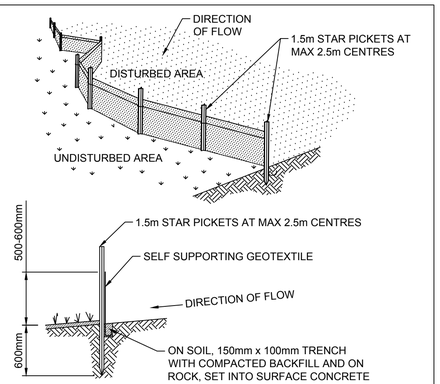
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.

4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.

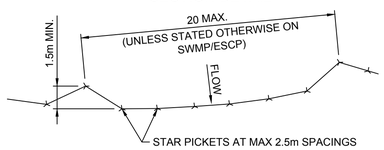
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BY-PASSING THE FILTER.

6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

# MESH & GRAVEL INLET FILTER SD6-11




## SECTION DETAIL




## PLAN

## CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS A SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.

2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.

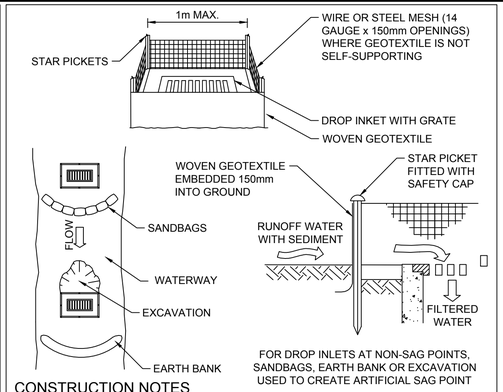
3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.

4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.

5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.

6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

# SEDIMENT FENCE SD6-8




FOR DROP INLETS AT NON-SAG POINTS, SANDBAGS, EARTH BANK OR EXCAVATION USED TO CREATE ARTIFICIAL SAG POINT

## CONSTRUCTION NOTES

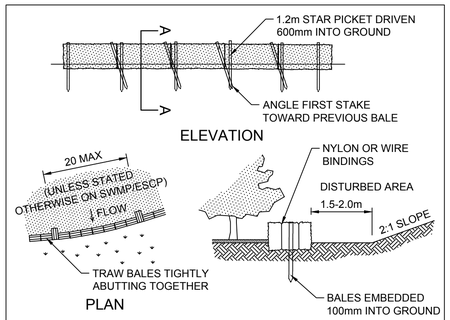
1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.

2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1m CENTRES.

3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.

4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

# GEOTEXTILE INLET FILTER SD6-12




PLAN SECTION A-A

## CONSTRUCTION NOTES

1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE.

2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS ARE TO BE PLACED PARALLEL TO GROUND.

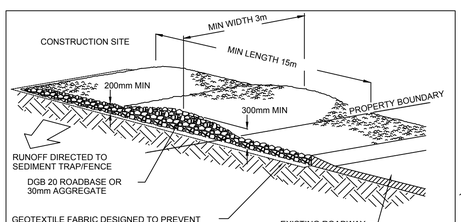
3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE.

4. EMBED EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH TWO 1.2m STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE. DRIVE THEM 600mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS.

5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE THE BALES ARE PLACED 1m TO 2m DOWNSLOPE FROM THE TOE.

6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.

# STRAW BALE FILTER SD6-7




## CONSTRUCTION NOTES

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15m LONG OR TO BUILDING ALIGNMENT AND AT LEAST 30m WIDE
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE

# STABILISED SITE ACCESS SD6-14

# SOIL AND WATER MANAGEMENT NOTES

## GENERAL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING REVEGETATION AND STORAGE OF SOIL AND TOPSOIL, SHALL BE IMPLEMENTED TO THE REQUIREMENTS OF THE "ENVIRONMENT PROTECTION AUTHORITY".

2. TOPSOIL FROM ALL AREAS TO BE DISTURBED SHALL BE STOCKPILED AND LATER RESPREAD TO AID REVEGETATION IN THOSE AREAS.

3. ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILIZED AS EARLY AS POSSIBLE DURING DEVELOPMENT.

4. ALL TAIL-OUT DRAINS SHALL BE COUCH GRASSED AND TRAPEZOIDAL IN SECTION. STRAW BALES SHALL BE PLACED AS A SEDIMENT CONTROL DEVICE WHERE REQUIRED.

5. VEHICULAR TRAFFIC SHALL BE CONTROLLED DURING DEVELOPMENT CONFINING ACCESS WHERE POSSIBLE TO PROPOSED OR EXISTING ROAD ALIGNMENTS. AREAS TO BE LEFT UNDISTURBED SHALL BE MARKED OFF.

6. ROADS SHALL BE PAVED AS EARLY AS POSSIBLE AFTER FORMATION.

7. DISTURBANCE OF VEGETATION SHALL BE LIMITED TO FILL AREAS, ROADWAYS AND DRAINAGE LINES. NO LOT GRADING SHALL BE CARRIED OUT IN UNDISTURBED AREAS WITHOUT CONSULTATION WITH COUNCIL'S ENGINEER.

8. ALL DISTURBED AREAS SHALL BE REVEGETATED AS SOON AS THE RELEVANT WORKS ARE COMPLETED.

9. ALL SEDIMENT BASINS AND TRAPS SHALL BE CLEANED WHEN THE STRUCTURES ARE A MAXIMUM 60% FULL OF SOLID MATERIALS, INCLUDING DURING THE MAINTENANCE PERIOD.

10. THE SOIL AND WATER MANAGEMENT PLAN IS TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS, AND COUNCIL'S WRITTEN GUIDELINES FOR THE DEVELOPMENT OF LAND.

11. CONTRACTORS SHALL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE UNDERTAKEN AS SPECIFIED ON THE PLAN AND IN ACCORDANCE WITH THE GUIDELINES SHOWN IN "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION 4TH EDITION" ("THE BLUE BOOK").

12. ALL CONTRACTORS AND SUBCONTRACTORS ARE RESPONSIBLE FOR REDUCING THE SOIL EROSION AND POLLUTION OF DOWNSLOPE AREAS.

13. THE SOIL EROSION HAZARD ON THE SITE IS TO BE KEPT AS LOW AS POSSIBLE AND GENERALLY IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

| LAND USE | LIMITATION | COMMENTS |
|---|---|---|
| CONSTRUCTION AREAS | DISTURBANCE TO BE NO FURTHER THAN 5m (PREF 2m) FROM THE EDGE OF ANY ESSENTIAL ENGINEERING ACTIVITY AS SHOWN ON THESE PLANS | ALL SITE WORKERS WILL CLEARLY RECOGNISE THESE ZONES - WHERE APPROPRIATE THE CONSTRUCTION AREAS ARE TO BE IDENTIFIED WITH BARRIER FENCING (DOWNSLOPE) OR SIMILAR MATERIAL. |
| ACCESS AREAS | LIMITED TO A MAXIMUM WIDTH OF 10m | THE SITE MANAGER SHALL DETERMINE AND MARK THE LOCATION OF THESE ZONES ONSITE. THEY CAN VARY IN POSITION TO BEST CONSERVE THE EXISTING VEGETATION AND PROTECT DOWNSTREAM AREAS WHILE BEING CONSIDERATE OF THE NEEDS OF EFFICIENT WORKS ACTIVITIES. ALL SITE WORKERS SHALL CLEARLY RECOGNISE THEIR BOUNDARIES. WHERE APPROPRIATE THE ACCESS AREAS ARE TO BE MARKED WITH BARRIER MESH, SEDIMENT FENCING OR SIMILAR MATERIALS. |
| REMAINING LANDS | ENTRY PROHIBITED EXCEPT FOR ESSENTIAL THINNING OF PLANT GROWTH | THINNING OF GROWTH MAY BE REQUIRED FOR FIRE HAZARD REDUCTION. |

NOTE:
WORKS WITHIN WATERWAYS AND CREEKS SHALL BE RESTRICTED AS DIRECTED - ALL LANDS WITHIN CREEKS AND WATERWAYS SHALL HAVE C-FACTORS BELOW 0.05 FROM 1st JANUARY TO 15th MAY USING MATERIALS THAT CAN CATER FOR CONCENTRATED FLOWS.

14. WORKS ARE TO BE UNDERTAKEN IN THE FOLLOWING SEQUENCE.EACH SUBSEQUENT STAGE IS NOT TO
COMMENCE UNTIL THE PREVIOUS ONE IS COMPLETE:-

a. INSTALL ALL BARRIER AND SEDIMENT FENCING WHERE SHOWN ON THE PLAN AND TO DETAIL(SD) 6-7.
b. CONSTRUCT STABILISED SITE ACCESS AS SHOWN ON THE PLAN AND TO DETAIL (SD) 5-7.
c. CONSTRUCT LOW FLOW EARTH BANKS WHERE SHOWN ON THE PLAN AND TO DETAIL (SD) 5-3.
d. PROVIDE TEMP. ACCESS TO THE SEDIMENT BASIN(S)AND PROTECT THIS WITH SEDIMENT FENCING (SD) 6-7 OR BARRIER FENCING AND EARTH BANKS (SD) 5-2.
e. PLACE SEDIMENT FENCING (SD) 6-7 DOWNSLOPE OF LANDS TO BE DISTURBED FOR CONSTRUCTION OF THE SEDIMENT BASINS.
f. CONSTRUCT SEDIMENT BASIN(S) GENERALLY IN ACCORDANCE WITH (SD) 6-4
g. STABILISE LAND SURFACES DISTURBED BY CONSTRUCTION OF THE SEDIMENT BASIN(S) AS SOON AS FINAL LEVELS ARE ESTABLISHED
h. CLEAR THE SITE AND STRIP AND STOCKPILE THE TOPSOIL IN THE LOCATIONS SHOWN ON THE PLAN OR AS DIRECTED BY THE SITE SUPERINTENDENT TO DETAIL (SD) 4-1.
i. UNDERTAKE ALL ESSENTIAL CONSTRUCTION WORKS.
j. GRADE LOT AREAS TO FINAL GRADES AND APPLY PERMANENT STABILISATION (LANDSCAPING) WITHIN 14 DAYS OF COMPLETION OF CONSTRUCTION WORKS.
k. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER THE PERMANENT LANDSCAPING HAS BEEN COMPLETED.

15. CLEARLY VISIBLE BARRIER FENCING SHALL BE INSTALLED WHERE DIRECTED BY THE SITE SUPERINTENDENT TO CONTROL AND PROHIBIT UNNECESSARY SITE DISTURBANCE

16. EARTH BATTERS SHALL BE CONSTRUCTED WITH AS LOW A GRADIENT AS PRACTICABLE BUT NO STEEPER THAN:-

a. 2(h) - 1(v) WHERE SLOPE LENGTH IS LESS THAN 7m
b. 2.5(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 7m AND 10m
c. 3(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 10m AND 12m
d. 4(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 12m AND 18m
e. 5(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 18m AND 27m
f. 6(h) - 1(v) WHERE SLOPE LENGTH IS GREATER THAN 27m

SLOPE LENGTHS CAN BE SHORTENED BY USING LOW FLOW EARTH BANKS AS CATCH DRAINS ABOVE THE EARTH BATTER AREA.

17. PROTECTION FROM EROSIVE FORCES SHALL BE UNDERTAKEN ON ALL LANDS TO MEET THE REQUIREMENTS OF TABLE J3-3 "MAXIMUM ACCEPTABLE C-FACTORS AT NOMINATED TIMES DURING WORKS" FROM "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION 4TH EDITION"

18. TEMPORARY GROUND COVER IN SHEET FLOW AREAS IS TO BE IN ACCORDANCE WITH TABLE J3-4 "PLANT SPECIES FOR GROUND COVER" FROM "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION 4TH EDITION" WHERE PRACTICAL FOOT AND VEHICULAR TRAFFIC SHALL BE KEPT AWAY FROM REHABILITATED AREAS

19. WHERE POSSIBLE THE CONSTRUCTION PROGRAM IS TO BE SCHEDULED SO THAT THE TIME FROM STARTING LAND DISTURBANCE ACTIVITIES TO STABILISATION IS A DURATION OF LESS THAN 6 MONTHS - THIS MEANS ACHIEVING A C-FACTOR OF LESS THAN 0.1 AND SETTING IN MOTION A PROGRAM THAT ENSURES THAT IT DROPS PERMANENTLY, (BY VEGETATION, PAVING, ARMOURING etc.) TO LESS THAN 0.05 WITHIN A FURTHER 60 DAYS. LOCAL WATER RESTRICTIONS PERMITTING, LANDS THAT HAVE BEEN NEWLY PLANTED WITH GRASS SPECIES SHALL BE WATERED REGULARLY UNTIL AN EFFECTIVE COVER HAS BEEN ESTABLISHED AND PLANTS ARE GROWING VIGOROUSLY. FOLLOW-UP SEED AND FERTILISER SHALL BE APPLIED AS NECESSARY IN AREAS OF MINOR SOIL EROSION AND/OR INADEQUATE VEGETATIVE PROTECTION. NOTWITHSTANDING THIS SCHEDULE WORKS SO THAT THE DURATION FROM THE CONCLUSION OF LAND SHAPING TO THE COMPLETION OF FINAL STABILISATION IS LESS THAN 20 WORKING DAYS.

20. SEDIMENT FENCES (SD) 6-7 SHALL:-

a. BE INSTALLED WHERE SHOWN ON THE PLAN AND AS DIRECTED AT THE DISCRETION OF THE SITE SUPERINTENDENT DURING THE COURSE OF CONSTRUCTION TO CONTAIN THE COARSER SEDIMENT FRACTIONS AS NEAR AS POSSIBLE TO THEIR SOURCE.
b. HAVE A CATCHMENT AREA NOT EXCEEDING 720sq.m, AND A STORAGE DEPTH OF AT LEAST 0.6m.
c. PROVIDE AN UPSLOPE RETURN OF 1m AT INTERVALS ALONG THE FENCE WHERE THE CATCHMENT AREA EXCEEDS 720sq.m. TO LIMIT THE DISCHARGE REACHING EACH SECTION TO 40litres/sec IN A MAX. 20yr Tc DISCHARGE.

21. STOCKPILES (SD) 4-1 SHALL BE LOCATED AS SHOWN ON THE PLANS AND AT THE DISCRETION OF THE SITE SUPERINTENDENT.

22. DURING WINDY WEATHER LARGE UNPROTECTED AREAS ARE TO BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL. IN THE EVENT WATER IS NOT AVAILABLE IN SUFFICIENT QUANTITIES SOIL BINDERS AND/OR DUST RETARDANTS SHALL BE USED OR THE SURFACE SHALL BE LEFT IN A CLODDY STATE THAT RESISTS REMOVAL BY WIND.

23. NOTWITHSTANDING NOTE 5d STOCKPILES SHALL NOT BE LOCATED WITHIN 5m OF HAZARD AREAS, INCLUDING LIKELY AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS OR DRIVEWAYS.

24. THE SEDIMENT RETENTION BASINS (SD) 6-4 SHALL:-

a. BE CONSTRUCTED WHERE SHOWN ON THE PLANS.
b. BE FLOCCULATED (APPENDIX E MANAGING URBAN STORMWATER SOILS & CONSTRUCTION 4TH ED.) BEFORE DISCHARGE OCCURS (UNLESS THE DESIGN STORM EVENT IS EXCEEDED)
c. HAVE ONE OR MORE PEGS PLACED ON THE FLOOR TO CLEARLY INDICATE THE LEVEL AT WHICH DESIGN CAPACITY OCCURS AND WHEN SEDIMENT SHALL BE REMOVED.

25. STORED CONTENTS OF THE BASINS SHALL BE TREATED WITH GYPSUM (APPENDIX E MANAGING URBAN STORMWATER SOILS & CONSTRUCTION 4TH ED.) OR OTHER FLOCCULATING AGENTS WHERE THEY CONTAIN MORE THAN 50mg/litre OF SUSPENDED SOLIDS. TREATMENT SHALL BE AS FOLLOWS:-

a. LOWER SUSPENDED SOLIDS TO LESS THAN 50mg/litre WITHIN 24hrs OF FILLING
b. THE BASINS SHALL THEN BE ALLOWED TO STAND 36 TO 48hrs FOR FLOCCULATED PARTICLES TO SETTLE
c. THE BASINS SHALL THEN BE DRAINED SO THAT FULL STORAGE CAPACITY IS REGAINED WITHOUT
d. DISCHARGING SEDIMENT FROM THE SITE.

26. SEDIMENT REMOVED FROM ANY TRAPPING DEVICE SHALL BE DISPOSED IN LOCATIONS WHERE FURTHER EROSION AND CONSEQUENT POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS SHALL NOT OCCUR.

27. WATER SHALL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE (ie THE CATCHMENT HAS BEEN LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN TREATED IN AN APPROVED DEVICE) NEVERTHELESS STORMWATER INLETS SHALL BE PROTECTED (SD) 6-8 & 6-9.

28. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES SHALL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE STABILISED.

29. ACCEPTABLE BINS SHALL BE PROVIDED FOR ANY CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHTWEIGHT WASTE MATERIALS AND LITTER. CLEARANCE SERVICES SHALL BE PROVIDED AT LEAST ONCE A WEEK.

## STOCKPILE NOTES:

1. SPOIL AN TOPSOIL STOCKPILES SHALL BE LOCATED AWAY FROM DRAINAGE LINES AND AREAS WHERE WATER MAY CONCENTRATE.

2. IF STOCKPILES ARE TO BE IN PLACE FOR LONGER THAN 14 DAYS THEN THEY SHALL BE STABILIZED BY COVERING WITH A MULCH OR WITH TEMPORARY VEGETATION.

3. FOLLOWING CONSTRUCTION, TOPSOIL SHALL BE RESPREAD TO A MINIMUM DEPTH OF 100mm ON THE BARE SOIL SURFACES AND REVEGETATE.

## SEDIMENTATION CONTROL DEVICES

1. ALL STRAW BALES SHALL BE BOUND WITH WIRE. STRAW BALES SHALL BE PLACED END TO END IN A SINGLE ROW AND EMBEDDED INTO THE SOIL TO A DEPTH OF 100mm. EACH BALE SHALL BE SECURELY ANCHORED WITH TWO STEEL STAKES DRIVEN 450mm INTO THE GROUND AND LOCKED ON THE BALE CENTRELINE.

2. SILT FENCES SHALL BE CONSTRUCTED BY STRETCHING A FILTER FABRIC (PROPEX OR SIMILAR) BETWEEN POSTS AT 2m CENTRES. FABRIC SHALL BE BURIED 150mm ALONG IT'S LOWER EDGE.

3. PROVIDE STRIP OF TURF MIN. 300mm WIDE BEHIND KERB + 1m WIDE AROUND ALL SURFACE INLET PITS

## SITE INSPECTION AND MAINTENANCE

1. A SELF-AUDITING PROGRAM SHALL BE ESTABLISHED BASED ON A CHECK SHEET. A SITE INSPECTION USING THE CHECK SHEET SHALL BE MADE BY THE SITE MANAGER:-

a. AT LEAST WEEKLY
b. IMMEDIATELY BEFORE SITE CLOSURE
c. IMMEDIATELY FOLLOWING RAINFALL EVENTS IN EXCESS OF 5mm IN ANY 24hr PERIOD.

THE SELF AUDIT SHALL INCLUDE:-

a. RECORDING THE CONDITION OF EVERY 'BEST MANAGEMENT PRACTICE' EMPLOYED
b. RECORDING MAINTENANCE REQUIREMENTS (IF ANY) FOR EACH 'BEST MANAGEMENT PRACTICE'
c. RECORDING THE VOLUMES OF SEDIMENT REMOVED FROM SEDIMENT RETENTION SYSTEMS WHERE APPLICABLE
d. RECORDING THE SITE WHERE SEDIMENT IS DISPOSED
e. FORWARDING A SIGNED DUPLICATE OF THE COMPLETED CHECK SHEET TO THE PROJECT MANAGER/DEVELOPER FOR THEIR INFORMATION.

2. IN ADDITION A SUITABLY QUALIFIED PERSON SHALL BE RESPONSIBLE FOR OVERSEEING THE INSTALLATION AND MAINTENANCE OF ALL SOIL AND WATER MANAGEMENT WORKS ON THE SITE. THE PERSON SHALL BE REQUIRED TO SPEND A MINIMUM OF:-

a. 2hrs ONSITE EACH FORTNIGHT UP UNTIL COMPLETION OF ROAD AND DRAINAGE WORKS AND/OR THE COMMISSIONING OF SEDIMENT BASIN(S)/WATER QUALITY CONTROL FACILITIES, AND DURING THE DECOMMISSIONING OF SAME AND/OR FINAL SITE STABILISATION. TO PROVIDE A SHORT MONTHLY WRITTEN REPORT.
b. ONE HOUR ONSITE EACH 2 MONTHS DURING THAT PHASE WHERE THE DEVELOPERS RESPONSIBILITIES ARE LIMITED TO MAINTENANCE OF THE SDS DEVICES AND/OR SEDIMENT BASINS (ie DURING THE STAGE WHEN BUILDING WORKS CAN BE UNDERTAKEN) TO PROVIDE A SHORT WRITTEN REPORT EACH 4 MONTHS

THE RESPONSIBLE PERSON SHALL ENSURE THAT:-

a. THIS PLAN IS BEING IMPLEMENTED CORRECTLY
b. REPAIRS ARE BEING UNDERTAKEN AS REQUIRED
c. ESSENTIAL MODIFICATIONS TO THIS PLAN ARE BEING MADE IF AND WHEN NECESSARY EACH REPORT SHALL CERTIFY THAT WORKS HAVE BEEN CARRIED OUT ACCORDING TO THE APPROVED PLANS.

3. WASTE BINS SHALL BE EMPTIED AS NECESSARY, DISPOSAL OF WASTE SHALL BE IN A MANNER APPROVED BY THE SITE SUPERINTENDENT

4. PROPER DRAINAGE OF THE SITE SHALL BE MAINTAINED. TO THIS END DRAINS (INCLUDING INLET AND OUTLET WORKS) SHALL BE CHECKED TO ENSURE THAT THEY ARE OPERATING AS INTENDED,ESPECIALLY THAT:-

a. NO LOW POINTS EXIST WHICH CAN OVERTOP IN A LARGE STORM EVENT.
b. AREAS OF EROSION ARE REPAIRED (e.g LINED WITH SUITABLE MATERIAL) AND/OR VELOCITY OF FLOW IS REDUCED APPROPRIATELY THROUGH CONSTRUCTION OF SMALL CHECK DAMS OR INSTALLING ADDITIONAL DIVERSIONS UPSLOPE
c. BLOCKAGES ARE CLEARED (THESE MIGHT OCCUR BECAUSE OF SEDIMENT POLLUTION, SAND/SOIL/SPOIL BEING DEPOSITED IN OR TOO CLOSE TO THEM, BREACHED BY VEHICLE WHEELS etc)

5. SAND/SOIL/SPOIL MATERIALS PLACED CLOSER THAN 2m FROM HAZARD AREAS SHALL BE REMOVED SUCH HAZARD AREAS INCLUDE ANY AREAS OF HIGH VELOCITY WATER FLOWS (eg WATERWAYS AND GUTTERS) PAVED AREAS AND DRIVEWAYS.

6. RECENTLY STABILISED LANDS SHALL BE CHECKED TO ENSURE THAT THE EROSION HAZARD HAS BEEN EFFECTIVELY REDUCED. ANY REPAIRS SHALL BE INITIATED AS APPROPRIATE.

7. EXCESSIVE VEGETATIVE GROWTH SHALL BE CONTROLLED THROUGH MOWING OR SLASHING.

8. ALL SEDIMENT DETENTION SYSTEMS SHALL BE KEPT IN GOOD WORKING CONDITION. IN PARTICULAR ATTENTION SHALL BE GIVEN TO:-

a. RECENT WORKS TO ENSURE THAT THEY HAVE NOT RESULTED IN DIVERSION OF SEDIMENT LADEN WATER AWAY FROM THEM.
b. DEGRADABLE PRODUCTS TO ENSURE THAT THEY ARE REPLACED AS REQUIRED
c. SEDIMENT REMOVAL TO ENSURE THE DESIGN CAPACITY OR LESS REMAINS IN THE SETTLING ZONE.

9. ADDITIONAL EROSION AND/OR SEDIMENT CONTROL WORKS SHALL BE CONSTRUCTED AS MIGHT BECOME NECESSARY TO ENSURE THE DESIRED PROTECTION IS GIVEN TO DOWNSLOPE LANDS AND WATERWAYS (ie MAKE ONGOING CHANGES TO THIS PLAN WHERE IT PROVES INADEQUATE IN PRACTICE OR IS SUBJECTED TO CHANGES IN CONDITIONS AT THE WORKS SITE OR ELSEWHERE IN THE CATCHMENT.

10. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN A FUNCTIONING CONDITION UNTIL ALL EARTHWORKS ACTIVITIES ARE COMPLETED AND THE SITE STABILISED.

11. WATERS IN SEDIMENT RETENTION BASIN(S) THAT OCCUPY MORE THAN 1/4 OF THE DESIGN CAPACITY DURING THAT STAGE OF THE WORKS UP UNTIL COMMISSIONING OF THE BASIN(s) SHALL BE:-

a. TREATED WITH A FLOCCULATING AGENT (APPENDIX E MANAGING URBAN STORMWATER SOILS & CONSTRUCTION 4TH ED.)
b. DISCHARGED WITHIN 5 days FROM THE CONCLUSION OF ANY STORM EVENT LARGE ENOUGH TO FILL THE BASIN TO THAT LEVEL.

12. LITTER, DEBRIS AND COARSE SEDIMENT SHALL BE REMOVED FROM THE GROSS POLLUTANT TRAPS AND TRASH RACKS AS REQUIRED.

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| A | ISSUED FOR DEVELOPMENT APPLICATION | AS | AS | DJH | MS | 28/08/12 |
| | AMENDMENT | DES | DRN | CKD | APR | DATE |

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AZIMUTH:
AHD
DATUM:
ORIGIN:

Western Sydney Parklands

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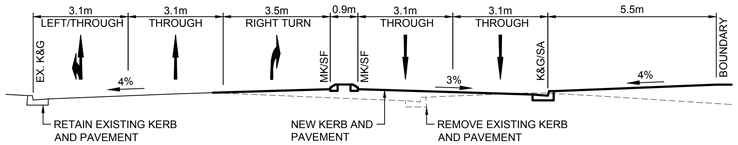
NOT FOR CONSTRUCTION

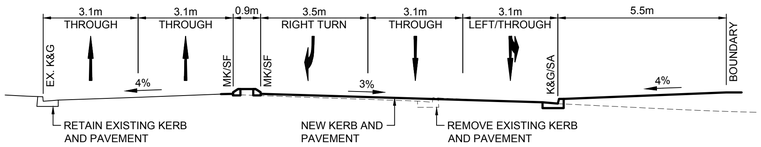
EASTERN CREEK BUSINESS HUB

SOIL AND WATER MANAGEMENT NOTES AND DETAILS

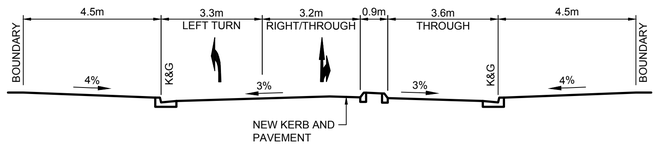
PLAN No: 8801/DA14 A
FILE No: 8801DA14
SHEET SIZE: A1 ORIGINAL



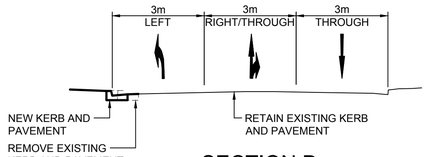

## SECTION A
1:100 NAT




## SECTION B
1:100 NAT




## SECTION C
1:100 NAT




## SECTION D
1:100 NAT




## PLAN
1:500

1:100 (AT A1) 2 1 0 1 2 3 4 5 6 7 8 9 10 METRES

1:500 (AT A1) 10 0 10 20 30 40 50 METRES

| | | | | | | |
|---|---|---|---|---|---|---|
| A | ISSUED FOR DEVELOPMENT APPLICATION | AS | AS | DJH | MS | 28/08/12 |
| | AMENDMENT | DES | DRN | CKD | APR | DATE |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AZIMUTH:
DATUM: AHD
ORIGIN:

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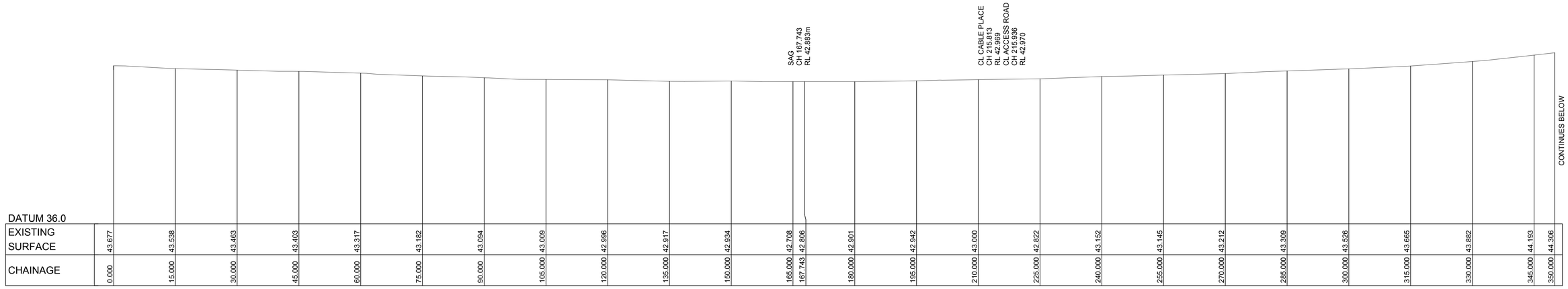
# EASTERN CREEK BUSINESS HUB

EXTERNAL INTERSECTION LAYOUT PLAN

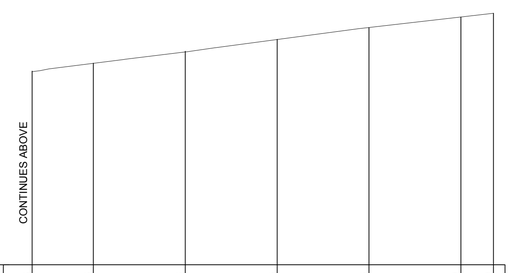
PLAN No: 8801/DA15 A
FILE No: 8801DA15
SHEET SIZE: A1 ORIGINAL




| DATUM 36.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EXISTING SURFACE | 43.677 | 43.538 | 43.463 | 43.403 | 43.317 | 43.182 | 43.094 | 43.009 | 42.996 | 42.917 | 42.934 | 42.708 | 42.806 | 42.901 | 42.942 | 43.000 | 42.822 | 43.152 | 43.145 | 43.212 | 43.309 | 43.526 | 43.665 | 43.882 | 44.193 | 44.306 | | | | |
| CHAINAGE | 0.000 | 15.000 | 30.000 | 45.000 | 60.000 | 75.000 | 90.000 | 105.000 | 120.000 | 135.000 | 150.000 | 165.000 | 167.743 | 180.000 | 195.000 | 210.000 | 225.000 | 240.000 | 255.000 | 270.000 | 285.000 | 300.000 | 315.000 | 330.000 | 345.000 | 350.000 | | | | |

LONGITUDINAL SECTION - EXISTING ROOTY HILL ROAD SOUTH

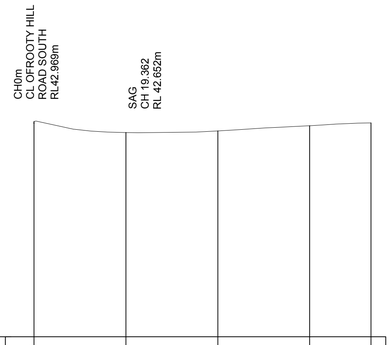
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100




| DATUM 38.0 | | | | | | | |
|---|---|---|---|---|---|---|---|
| EXISTING SURFACE | 44.306 | 44.576 | 44.946 | 45.353 | 45.746 | 46.089 | 46.210 |
| CHAINAGE | 350.000 | 360.000 | 375.000 | 390.000 | 405.000 | 420.000 | 425.317 |

LONGITUDINAL SECTION - EXISTING ROOTY HILL ROAD SOUTH

HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100




| DATUM 36.0 | | | | | |
|---|---|---|---|---|---|
| EXISTING SURFACE | 43.028 | 42.672 | 42.721 | 42.891 | 42.981 |
| CHAINAGE | 0.000 | 15.000 | 30.000 | 45.000 | 55.000 |

LONGITUDINAL SECTION - EXISTING CABLE PLACE

HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100

H 1:500 (AT A1) 10 0 10 20 30 40 50 METRES

V 1:100 (AT A1) 2 1 0 1 2 3 4 5 6 7 8 9 10 METRES

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A | ISSUED FOR DEVELOPMENT APPLICATION | AS | AS | DJH | MS | 28/08/12 |
| | AMENDMENT | DES | DRN | CKD | APR | DATE |

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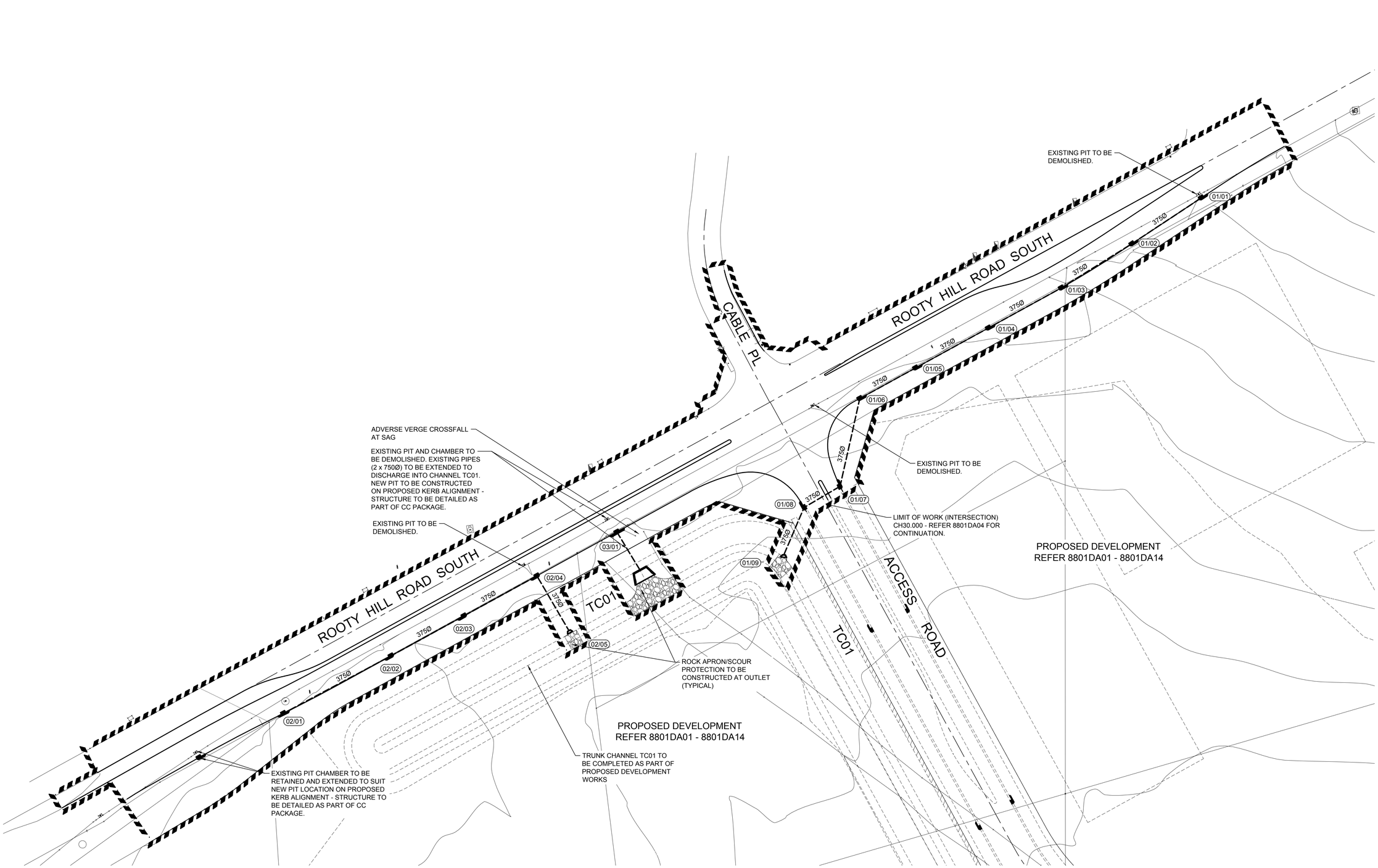
EXTERNAL INTERSECTION
LONGITUDINAL SECTIONS

PLAN No: 8801/DA16 A
FILE No: 8801DA16
SHEET SIZE: A1 ORIGINAL




PLAN
1:500

1:500 (AT A1)

10 0 10 20 30 40 50
METRES

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| | | | | | | |
|---|---|---|---|---|---|---|
| A | ISSUED FOR DEVELOPMENT APPLICATION | AS | AS | DJH | MS | 28/08/12 |
| | AMENDMENT | DES | DRN | CKD | APR | DATE |


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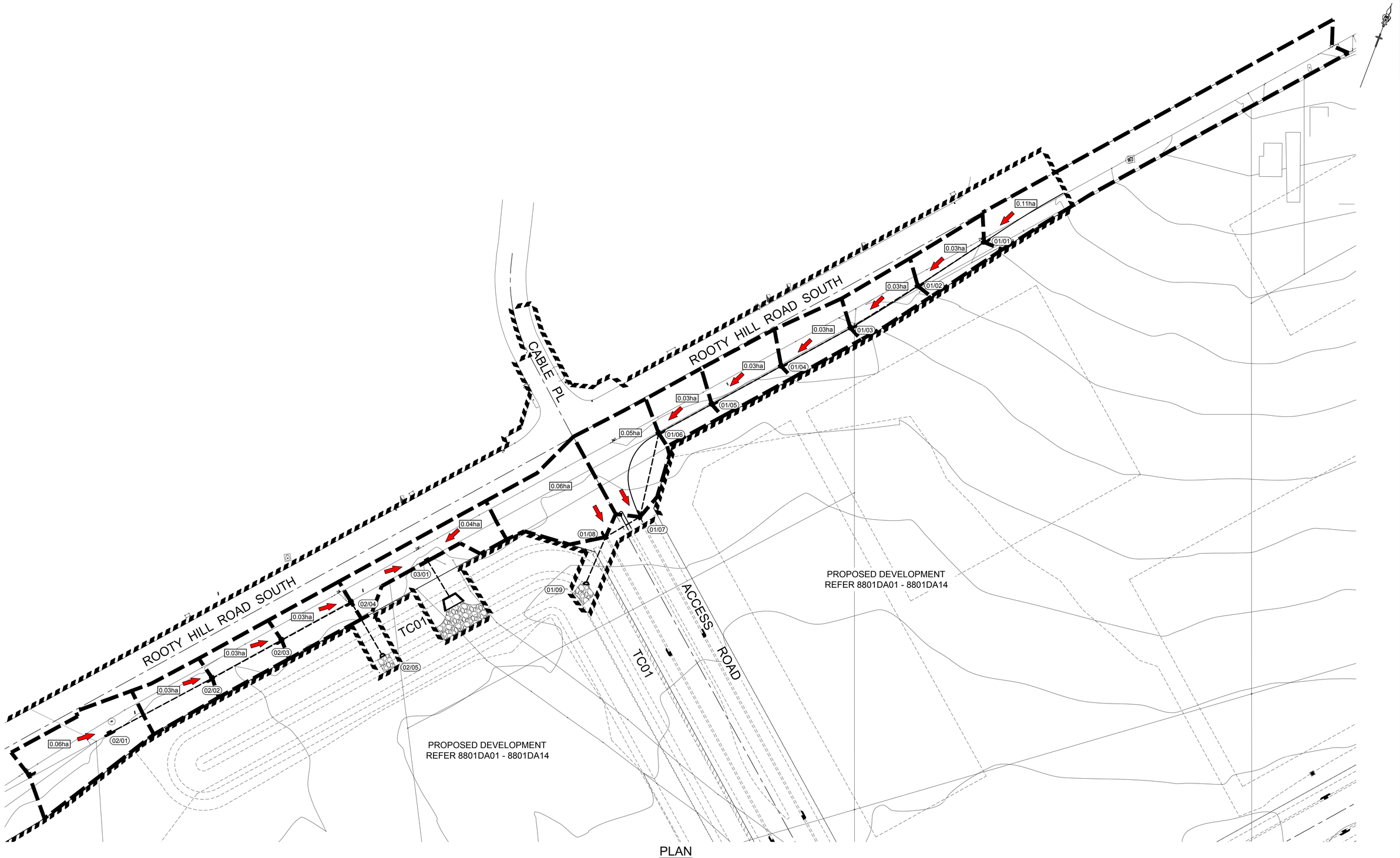
EASTERN CREEK BUSINESS HUB

EXTERNAL INTERSECTION DRAINAGE PLAN

PLAN No: 8801/DA17 A
FILE No: 8801DA17
SHEET SIZE: A1 ORIGINAL




PLAN
1:500

1:500 (AT A1)

10 0 10 20 30 40 50
METRES

Plotted: 28 August , 2012 11:28:57 AM File Name: J:\8801DIDA - Development Application Approval Plans\8801DA18.dwg

| | | | | | | |
|---|---|---|---|---|---|---|
| A | ISSUED FOR DEVELOPMENT APPLICATION | AS | AS | DJH | MS | 28/08/12 |
| | AMENDMENT | DES | DRN | CKD | APR | DATE |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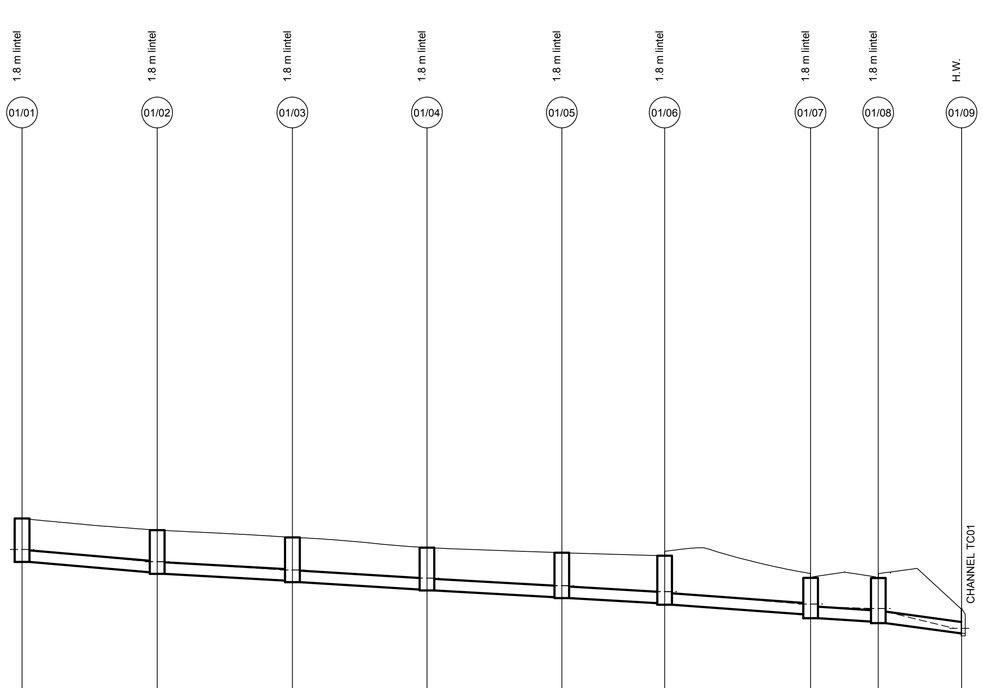
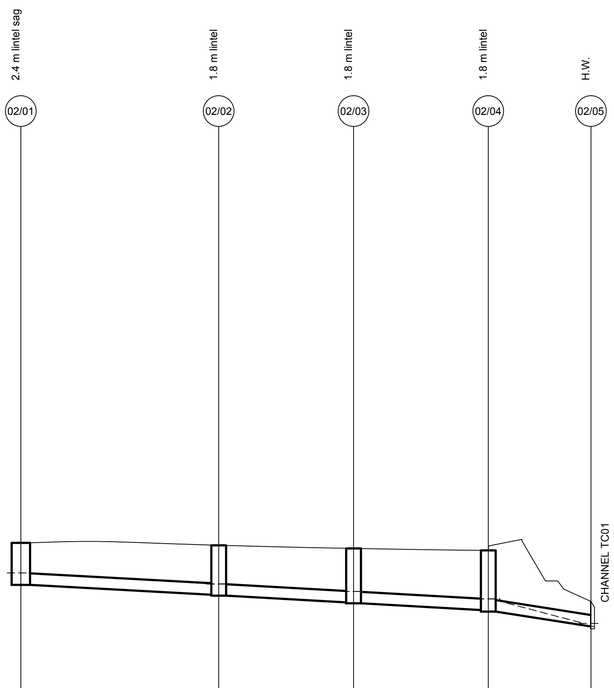
EXTERNAL INTERSECTION CATCHMENT PLAN

PLAN No: 8801/DA18 A
FILE No: 8801DA18
SHEET SIZE: A1 ORIGINAL




| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| DATUM (m) | 33.00 | | | | | | | |
| PEAK FLOW (L/s) | 42 | 59 | 70 | 81 | 94 | 103 | 122 | 143 |
| CAPACITY FLOW (L/s) | 282 | 228 | 238 | 228 | 228 | 262 | 228 | 359 |
| PIPE SIZE (mm) | 375 | 375 | 375 | 375 | 375 | 375 | 375 | 375 |
| PIPE CLASS | RRJ2 | RRJ2 | RRJ2 | RRJ2 | RRJ2 | RRJ2 | RRJ2 | RRJ2 |
| PIPE GRADE (%) | 1.5 | 1.0 | 1.1 | 1.0 | 1.0 | 1.3 | 1.0 | 2.5 |
| PIPE COVER MINIMUM | 1.00 | 1.04 | 1.01 | 1.01 | 1.10 | 1.00 | 1.00 | 0.38 |
| FULL PIPE VELOCITY (m/s) | 0.38 | 0.53 | 0.64 | 0.74 | 0.85 | 0.94 | 1.11 | 1.30 |
| HGL GRADE (%) | 1.67 | 1.13 | 1.12 | 0.99 | 0.99 | 1.48 | 0.52 | 4.01 |
| 20YR ARI HYDRAULIC GRADE LINE | 42.829 | 42.461 / 42.44 | 42.19 / 42.169 | 41.924 / 41.899 | 41.681 / 41.649 | 41.484 / 41.431 | 41.079 / 40.992 | 40.935 / 40.831 / 40.286 |
| INVERT LEVEL | 42.454 | 42.115 / 42.065 | 41.844 / 41.794 | 41.554 / 41.524 | 41.304 / 41.274 | 41.106 / 41.056 | 40.743 / 40.617 | 40.506 / 40.456 / 40.121 / 40.121 |
| DESIGN SURFACE LEVEL | 43.873 | 43.492 | 43.254 | 42.921 | 42.755 | 42.656 | 41.933 | 41.929 / 40.496 |
| ROAD CHAINAGE | 341.97 | 320.00 | 65.98 | 44.70 | 21.74 | 4.95 | | |
| PIPE CHAINAGE | 0 | 22.059 | 44.128 | 66.096 | 88.105 | 104.895 | 128.721 | 139.77 / 153.374 |

LINE 01




| | | | | |
|---|---|---|---|---|
| DATUM (m) | 33.00 | | | |
| PEAK FLOW (L/s) | 28 | 38 | 49 | 59 |
| CAPACITY FLOW (L/s) | 228 | 228 | 228 | 389 |
| PIPE SIZE (mm) | 375 | 375 | 375 | 375 |
| PIPE CLASS | RRJ2 | RRJ2 | RRJ2 | RRJ2 |
| PIPE GRADE (%) | 1.0 | 1.0 | 1.0 | 2.9 |
| PIPE COVER MINIMUM | 1.00 | 1.26 | 1.41 | 0.38 |
| FULL PIPE VELOCITY (m/s) | 0.25 | 0.34 | 0.44 | 0.54 |
| HGL GRADE (%) | 1.07 | 1.08 | 1.08 | 4.53 |
| 20YR ARI HYDRAULIC GRADE LINE | 42.035 | 41.69 / 41.682 | 41.444 / 41.432 | 41.194 / 41.162 / 40.403 |
| INVERT LEVEL | 41.66 | 41.337 / 41.307 | 41.087 / 41.057 | 40.837 / 40.787 / 40.304 / 40.304 |
| DESIGN SURFACE LEVEL | 43.03 | 42.951 | 42.849 | 42.784 / 40.679 |
| ROAD CHAINAGE | 63.63 | 95.71 | 117.71 | 139.71 |
| PIPE CHAINAGE | 0 | 32.304 | 54.311 | 76.305 / 93.061 |

LINE 02

H 1:500 (AT A1) 10 0 10 20 30 40 50 METRES

V 1:100 (AT A1) 2 1 0 1 2 3 4 5 6 7 8 9 10 METRES

| | AMENDMENT | DES | DRN | CKD | APR | DATE |
|---|---|---|---|---|---|---|
| A | ISSUED FOR DEVELOPMENT APPLICATION | AS | AS | DJH | MS | 28/08/12 |

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EXTERNAL INTERSECTION
DRAINAGE LONGITUDINAL SECTIONS

PLAN No: 8801/DA19 A
FILE No: 8801DA19
SHEET SIZE: A1 ORIGINAL

## DESIGN STORM 1:20yr ARI HYDROLOGICAL RESULTS

| PIT NAME | PIT TYPE | CATCHMENT AREA | IMPERVIOUS PERCENTAGE | RUNOFF C | IMPERVIOUS TIME Tc | IMPERVIOUS INTENSITY I | PERVIOUS TIME Tc | PERVIOUS INTENSITY I | FULL AREA TIME Tc | FULL AREA INTENSITY I | FULL AREA CATCHMENT FLOW Qc | PARTIAL AREA TIME Tc | PARTIAL AREA INTENSITY I | PARTIAL AREA CATCHMENT FLOW Qc | TOTAL CATCHMENT FLOW Qc | DIRECT FLOW Qd | APPROACH FLOW Qa | FLOODED DEPTH d | FLOODED WIDTH w | FLOODED (vxd) | ROAD GRADE | ROAD XFALL | CHOKE FACTOR | INLET FLOW Qg | BYPASS FLOW Qb | BYPASS PIT | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (-) | (-) | (ha) | (%) | (-) | (min) | (mm/hr) | (min) | (mm/hr) | (min) | (mm/hr) | (L/s) | (min) | (mm/hr) | (L/s) | (L/s) | (L/s) | (L/s) | (m) | (m) | (sq.m/s) | (%) | (%) | (-) | (L/s) | (L/s) | (-) | |
| 01/01 | 1.8 m lintel | 0.115 | 95 | 0.893 | 5 | 175.1 | 5 | 175.1 | 5 | 175.1 | 50 | 5 | 175.1 | 50 | 50 | 0 | 50 | 0.08 | 1.55 | 0.08 | 2.2 | 4 | 1 | 42 | 8 | 01/02 | |
| 01/02 | 1.8 m lintel | 0.027 | 95 | 0.892 | 5 | 175.1 | 5 | 175.1 | 5 | 175.1 | 12 | 5 | 175.1 | 12 | 12 | 0 | 20 | 0.06 | 1.12 | 0.04 | 1.3 | 4 | 1 | 18 | 2 | 01/03 | |
| 01/03 | 1.8 m lintel | 0.027 | 95 | 0.892 | 5 | 175.1 | 5 | 175.1 | 5 | 175.1 | 12 | 5 | 175.1 | 12 | 12 | 0 | 14 | 0.06 | 1.03 | 0.03 | 1 | 4 | 1 | 12 | 1 | 01/04 | |
| 01/04 | 1.8 m lintel | 0.029 | 95 | 0.893 | 5 | 175.1 | 5 | 175.1 | 5 | 175.1 | 13 | 5 | 175.1 | 13 | 13 | 0 | 14 | 0.06 | 0.98 | 0.03 | 1.2 | 4.1 | 1 | 13 | 1 | 01/05 | |
| 01/05 | 1.8 m lintel | 0.032 | 95 | 0.893 | 5 | 175.1 | 5 | 175.1 | 5 | 175.1 | 14 | 5 | 175.1 | 14 | 14 | 0 | 15 | 0.07 | 1.18 | 0.03 | 0.7 | 4 | 1 | 14 | 2 | 01/06 | |
| 01/06 | 1.8 m lintel | 0.025 | 95 | 0.892 | 5 | 175.1 | 5 | 175.1 | 5 | 175.1 | 11 | 5 | 175.1 | 11 | 11 | 0 | 12 | 0.06 | 1.11 | 0.03 | 0.5 | 4 | 1 | 11 | 1 | 01/07 | |
| 01/07 | 1.8 m lintel | 0.053 | 95 | 0.892 | 5 | 175.1 | 5 | 175.1 | 5 | 175.1 | 23 | 5 | 175.1 | 23 | 23 | 0 | 24 | 0.07 | 1.54 | 0.04 | 1.4 | | 1 | 22 | 2 | LOST | |
| 01/08 | 1.8 m lintel | 0.061 | 95 | 0.893 | 5 | 175.1 | 5 | 175.1 | 5 | 175.1 | 26 | 5 | 175.1 | 26 | 26 | 0 | 26 | 0.07 | 1.57 | 0.04 | 1.2 | | 1 | 24 | 3 | LOST | |
| 01/09 | H.W. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02/01 | 2.4 m lintel sag | 0.065 | 95 | 0.893 | 5 | 175.1 | 5 | 175.1 | 5 | 175.1 | 28 | 5 | 175.1 | 28 | 28 | 0 | 28 | 0.01 | | | | | 1 | 28 | 0 | | |
| 02/02 | 1.8 m lintel | 0.027 | 95 | 0.893 | 5 | 175.1 | 5 | 175.1 | 5 | 175.1 | 12 | 5 | 175.1 | 12 | 12 | 0 | 12 | 0.06 | 1.07 | 0.03 | 0.5 | 4 | 1 | 10 | 1 | 02/03 | |
| 02/03 | 1.8 m lintel | 0.027 | 95 | 0.892 | 5 | 175.1 | 5 | 175.1 | 5 | 175.1 | 12 | 5 | 175.1 | 12 | 12 | 0 | 13 | 0.07 | 1.21 | 0.03 | 0.4 | 4 | 1 | 12 | 1 | 02/04 | |
| 02/04 | 1.8 m lintel | 0.027 | 95 | 0.893 | 5 | 175.1 | 5 | 175.1 | 5 | 175.1 | 12 | 5 | 175.1 | 12 | 12 | 0 | 13 | 0.07 | 1.38 | 0.02 | 0.2 | 4 | 1 | 12 | 1 | LOST | |
| 02/05 | H.W. | | | | | | | | | | | | | | | | | | | | | | | | | | |

## DESIGN STORM 1:20yr ARI HYDRAULIC RESULTS

| PIPE NAME (-) | PIPE TYPE (-) | PIPE DIAMETER (mm) | PIPE LENGTH (m) | PIPE SLOPE (%) | PIPE AREA Af (sq.m) | FULL AREA TIME Tc (min) | FULL AREA INTENSITY I (mm/hr) | FULL AREA SUM CA (ha) | FULL AREA FLOW Qc (L/s) | PART-AREA TIME Tc (min) | PART-AREA INTENSITY I (mm/hr) | PART-AREA SUM CA (ha) | PART-AREA FLOW Qc (L/s) | DIRECT PIPE FLOW Qp (L/s) | PEAK FLOW Qrat (L/s) | NET BYPASS FLOW Qb (L/s) | PIPE FLOW Q (L/s) | FLOW CAP. Qcap (L/s) | Q/Qcap RATIO (-) | FULL PIPE VELOCITY (m/s) | NORM. DEPTH VELOCITY (m/s) | CRIT. DEPTH VELOCITY (m/s) | U/S PIT GRATE RL (m) | PIPE U/S IL (m) | PIPE D/S IL (m) | PIPE D/S DROP (m) | U/S PIT Ku (-) | U/S PIT Kw (-) | PIPE V'HEAD (m) | PIT LOSS (Ku.V'head) (m) | WSE LOSS (Kw.V'head) (m) | TOTAL PIPE LOSS (m) | U/S PIT HGL (m) | U/S PIPE HGL (m) | D/S PIPE HGL (m) | HGL GRADE (%) | MIN. COVER (m) | U/S FREEBOARD (m) | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01/01 to 01/02 | RRJ2 | 375 | 22.06 | 1.53 | 0.11 | 5 | 175.1 | 0.102 | 49.8 | 5 | 175.1 | 0.1 | 49.8 | 0 | 49.8 | -8 | 41.9 | 282.5 | 0.15 | 0.38 | 1.83 | 1.04 | 43.873 | 42.454 | 42.115 | 0.05 | 4.5 | | 0.01 | 0.03 | 0.03 | 0.37 | 42.862 | 42.829 | 42.461 | 1.67 | 1 | 1.01 | |
| 01/02 to 01/03 | RRJ2 | 375 | 22.07 | 1 | 0.11 | 5.18 | 172.9 | 0.126 | 60.7 | 5 | 175.1 | 0.12 | 59.6 | 0 | 60.7 | -2 | 58.7 | 228 | 0.26 | 0.53 | 1.73 | 1.15 | 43.492 | 42.065 | 41.844 | 0.05 | 1.45 | | 0.01 | 0.02 | 0.02 | 0.25 | 42.461 | 42.44 | 42.19 | 1.13 | 1.04 | 1.03 | |
| 01/03 to 01/04 | RRJ2 | 375 | 21.97 | 1.09 | 0.11 | 5.37 | 170.7 | 0.151 | 71.5 | 5.18 | 172.9 | 0.15 | 70.6 | 0 | 71.5 | -1.4 | 70.2 | 238.3 | 0.29 | 0.64 | 1.88 | 1.22 | 43.254 | 41.794 | 41.554 | 0.03 | 1 | | 0.02 | 0.02 | 0.02 | 0.25 | 42.19 | 42.169 | 41.924 | 1.12 | 1.01 | 1.06 | |
| 01/04 to 01/05 | RRJ2 | 375 | 22.01 | 1 | 0.11 | 5.55 | 168.7 | 0.177 | 82.8 | 5.37 | 170.7 | 0.17 | 82.1 | 0 | 82.8 | -1.4 | 81.4 | 228 | 0.36 | 0.74 | 1.89 | 1.29 | 42.921 | 41.524 | 41.304 | 0.03 | 0.89 | | 0.03 | 0.02 | 0.02 | 0.22 | 41.924 | 41.899 | 41.681 | 0.99 | 1.01 | 1 | |
| 01/05 to 01/06 | RRJ2 | 375 | 16.79 | 1 | 0.11 | 5.73 | 166.7 | 0.206 | 95.2 | 5.55 | 168.7 | 0.2 | 94.6 | 0 | 95.2 | -1.5 | 93.7 | 228 | 0.41 | 0.85 | 1.96 | 1.36 | 42.755 | 41.274 | 41.106 | 0.05 | 0.86 | | 0.04 | 0.03 | 0.03 | 0.17 | 41.681 | 41.649 | 41.484 | 0.99 | 1.1 | 1.07 | |
| 01/06 to 01/07 | RRJ2 | 375 | 23.83 | 1.32 | 0.11 | 5.87 | 165.2 | 0.228 | 104.6 | 5.69 | 167.2 | 0.22 | 104.1 | 0 | 104.6 | -1.2 | 103.3 | 261.7 | 0.39 | 0.94 | 2.23 | 1.41 | 42.656 | 41.056 | 40.743 | 0.126 | 1.17 | 1.2 | 0.04 | 0.05 | 0.05 | 0.35 | 41.485 | 41.431 | 41.079 | 1.48 | 1 | 1.17 | |
| 01/07 to 01/08 | RRJ2 | 375 | 11.05 | 1 | 0.11 | 6.07 | 163.2 | 0.275 | 124.6 | 5.89 | 165.1 | 0.27 | 124.3 | 0 | 124.6 | -2.4 | 122.2 | 228 | 0.54 | 1.11 | 2.1 | 1.51 | 41.933 | 40.617 | 40.506 | 0.05 | 1.39 | 1.41 | 0.06 | 0.09 | 0.09 | 0.06 | 41.08 | 40.992 | 40.935 | 0.52 | 1 | 0.85 | |
| 01/08 to 01/09 | RRJ2 | 375 | 13.6 | 2.47 | 0.11 | 6.16 | 162.3 | 0.329 | 148.2 | 5.98 | 164.1 | 0.33 | 148.2 | 0 | 148.2 | -5 | 143.2 | 359.4 | 0.4 | 1.3 | 3.06 | 1.62 | 41.929 | 40.456 | 40.121 | 0 | 1.21 | | 0.09 | 0.1 | 0.1 | 0.15 | 40.935 | 40.831 | 40.286 | 4.01 | 0.38 | 0.99 | |
| 02/01 to 02/02 | RRJ2 | 375 | 32.3 | 1 | 0.11 | 5 | 175.1 | 0.058 | 28.1 | 5 | 175.1 | 0.06 | 28.1 | 0 | 28.1 | 0 | 28.1 | 228 | 0.12 | 0.25 | 1.4 | 0.92 | 43.03 | 41.66 | 41.337 | 0.03 | 4.5 | | 0 | 0.01 | 0.01 | 0.34 | 42.05 | 42.035 | 41.69 | 1.07 | 1 | 0.98 | |
| 02/02 to 02/03 | RRJ2 | 375 | 22.01 | 1 | 0.11 | 5.27 | 171.9 | 0.082 | 39 | 5 | 175.1 | 0.08 | 38.2 | 0 | 39 | -1.2 | 37.8 | 228 | 0.17 | 0.34 | 1.53 | 1.01 | 42.951 | 41.307 | 41.087 | 0.03 | 1.35 | | 0.01 | 0.01 | 0.01 | 0.24 | 41.69 | 41.682 | 41.444 | 1.08 | 1.26 | 1.26 | |
| 02/03 to 02/04 | RRJ2 | 375 | 21.99 | 1 | 0.11 | 5.45 | 169.8 | 0.106 | 49.8 | 5.18 | 172.9 | 0.1 | 49.2 | 0 | 49.8 | -1.3 | 48.5 | 228 | 0.21 | 0.44 | 1.64 | 1.09 | 42.849 | 41.057 | 40.837 | 0.05 | 1.21 | | 0.01 | 0.01 | 0.01 | 0.24 | 41.444 | 41.432 | 41.194 | 1.08 | 1.41 | 1.41 | |
| 02/04 to 02/05 | RRJ2 | 375 | 16.76 | 2.88 | 0.11 | 5.64 | 167.7 | 0.13 | 60.5 | 5.37 | 170.7 | 0.13 | 60.1 | 0 | 60.5 | -1.3 | 59.2 | 388.8 | 0.15 | 0.54 | 2.53 | 1.16 | 42.784 | 40.787 | 40.304 | 0.265 | 2.16 | 2.62 | 0.01 | 0.03 | 0.04 | 0.45 | 41.201 | 41.162 | 40.403 | 4.53 | 0.38 | 1.58 | |

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| | AMENDMENT | DES | DRN | CKD | APR | DATE |


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THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

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EASTERN CREEK BUSINESS HUB

EXTERNAL INTERSECTION CALCULATION SHEETS

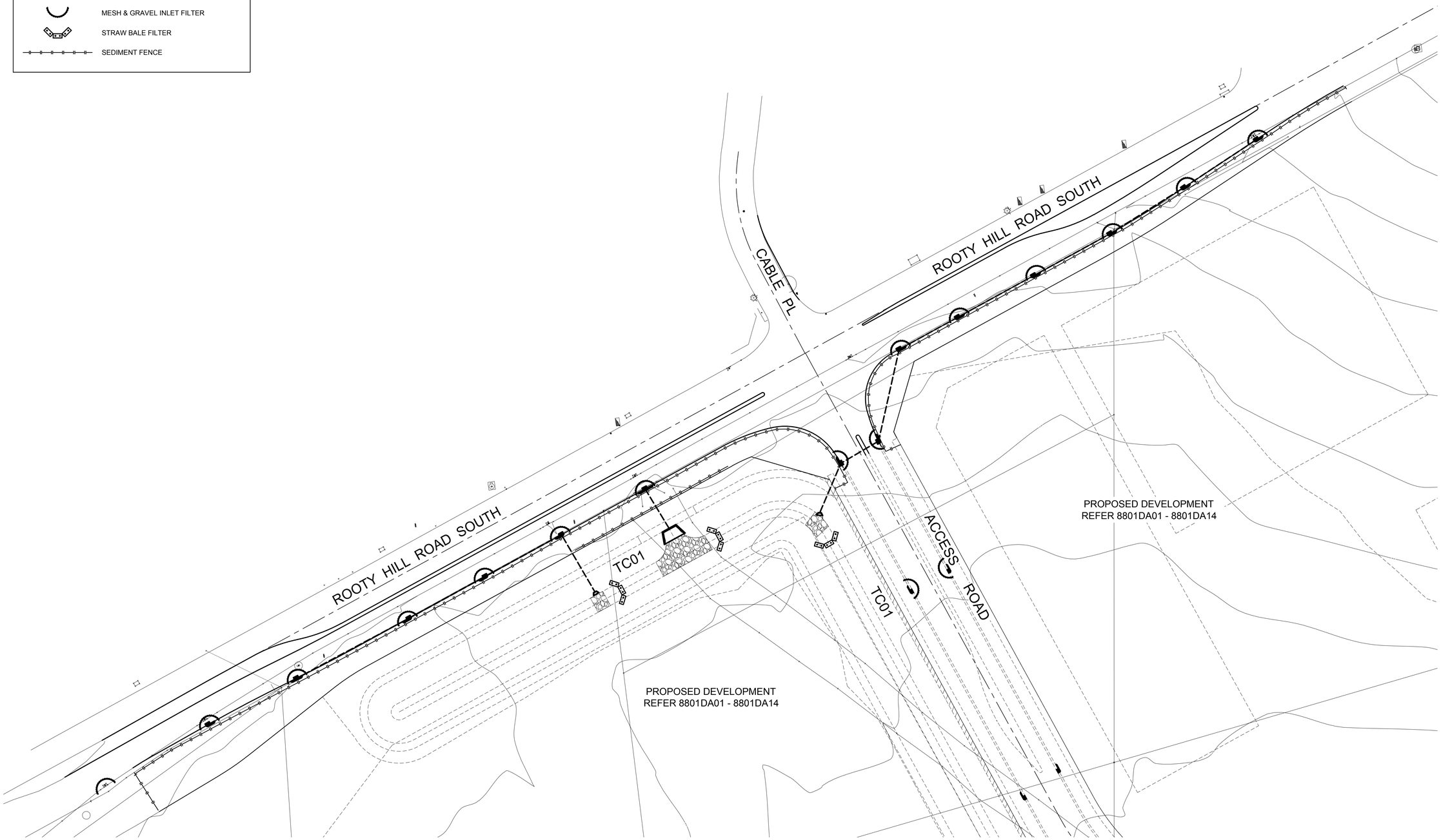
PLAN No: 8801/DA20 A

FILE No: 8801DA20

SHEET SIZE: A1 ORIGINAL

## LEGEND

- MESH & GRAVEL INLET FILTER
- STRAW BALE FILTER
- SEDIMENT FENCE

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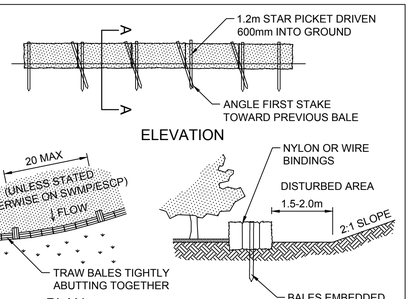
EXTERNAL INTERSECTION
SOIL AND WATER MANAGEMENT PLAN

PLAN No: 8801/DA21 A
FILE No: 8801DA21
SHEET SIZE: A1 ORIGINAL


Plotted: 28 August, 2012 11:29:22 AM File Name: J:\8801D\DA - Development Application Approval Plans\8801DA21.dwg




## CONSTRUCTION NOTES

1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE.

2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS ARE TO BE PLACED PARALLEL TO GROUND.

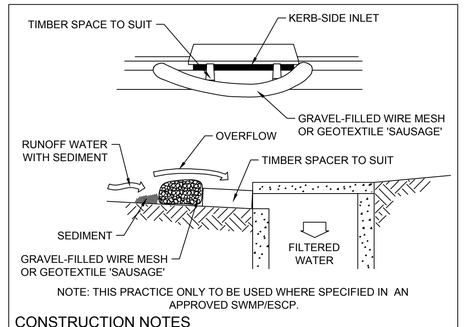
3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE.

4. EMBED EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH TWO 1.2m STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE. DRIVE THEM 600mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS.

5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE THE BALES ARE PLACED 1m TO 2m DOWNSLOPE FROM THE TOE.

6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.

## STRAW BALE FILTER SD6-7




NOTE: THIS PRACTICE ONLY TO BE USED WHERE SPECIFIED IN AN APPROVED SWMP/ESCP.

## CONSTRUCTION NOTES

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.

2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm-50mm GRAVEL.

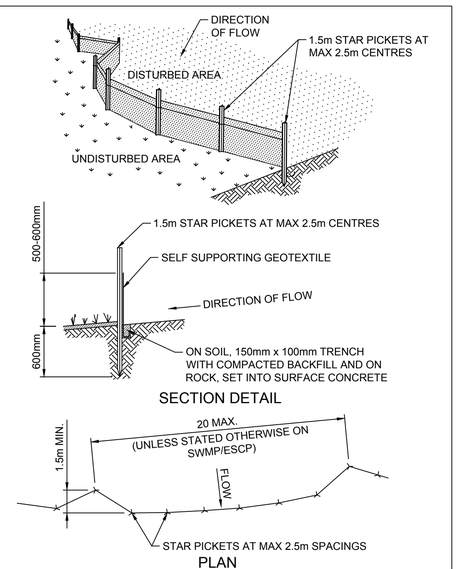
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.

4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.

5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BY-PASSING THE FILTER.

6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

## MESH & GRAVEL INLET FILTER SD6-11




## CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS A SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.

2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.

3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.

4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.

5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.

6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

## SEDIMENT FENCE SD6-8

# SOIL AND WATER MANAGEMENT NOTES

## GENERAL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING REVEGETATION AND STORAGE OF SOIL AND TOPSOIL, SHALL BE IMPLEMENTED TO THE REQUIREMENTS OF THE "ENVIRONMENT PROTECTION AUTHORITY".

2. TOPSOIL FROM ALL AREAS TO BE DISTURBED SHALL BE STOCKPILED AND LATER RESPREAD TO AID REVEGETATION IN THOSE AREAS.

3. ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILIZED AS EARLY AS POSSIBLE DURING DEVELOPMENT.

4. ALL TAIL-OUT DRAINS SHALL BE COUCH GRASSED AND TRAPEZOIDAL IN SECTION. STRAW BALES SHALL BE PLACED AS A SEDIMENT CONTROL DEVICE WHERE REQUIRED.

5. VEHICULAR TRAFFIC SHALL BE CONTROLLED DURING DEVELOPMENT CONFINING ACCESS WHERE POSSIBLE TO PROPOSED OR EXISTING ROAD ALIGNMENTS. AREAS TO BE LEFT UNDISTURBED SHALL BE MARKED OFF.

6. ROADS SHALL BE PAVED AS EARLY AS POSSIBLE AFTER FORMATION.

7. DISTURBANCE OF VEGETATION SHALL BE LIMITED TO FILL AREAS, ROADWAYS AND DRAINAGE LINES. NO LOT GRADING SHALL BE CARRIED OUT IN UNDISTURBED AREAS WITHOUT CONSULTATION WITH COUNCIL'S ENGINEER.

8. ALL DISTURBED AREAS SHALL BE REVEGETATED AS SOON AS THE RELEVANT WORKS ARE COMPLETED.

9. ALL SEDIMENT BASINS AND TRAPS SHALL BE CLEANED WHEN THE STRUCTURES ARE A MAXIMUM 60% FULL OF SOLID MATERIALS, INCLUDING DURING THE MAINTENANCE PERIOD.

10. THE SOIL AND WATER MANAGEMENT PLAN IS TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS, AND COUNCIL'S WRITTEN GUIDELINES FOR THE DEVELOPMENT OF LAND.

11. CONTRACTORS SHALL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE UNDERTAKEN AS SPECIFIED ON THE PLAN AND IN ACCORDANCE WITH THE GUIDELINES SHOWN IN "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION 4TH EDITION" ("THE BLUE BOOK").

12. ALL CONTRACTORS AND SUBCONTRACTORS ARE RESPONSIBLE FOR REDUCING THE SOIL EROSION AND POLLUTION OF DOWNSLOPE AREAS.

13. THE SOIL EROSION HAZARD ON THE SITE IS TO BE KEPT AS LOW AS POSSIBLE AND GENERALLY IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

| LAND USE | LIMITATION | COMMENTS |
|---|---|---|
| CONSTRUCTION AREAS | DISTURBANCE TO BE NO FURTHER THAN 5m (PREF 2m) FROM THE EDGE OF ANY ESSENTIAL ENGINEERING ACTIVITY AS SHOWN ON THESE PLANS | ALL SITE WORKERS WILL CLEARLY RECOGNISE THESE ZONES - WHERE APPROPRIATE THE CONSTRUCTION AREAS ARE TO BE IDENTIFIED WITH BARRIER FENCING (DOWNSLOPE) OR SIMILAR MATERIAL. |
| ACCESS AREAS | LIMITED TO A MAXIMUM WIDTH OF 10m | THE SITE MANAGER SHALL DETERMINE AND MARK THE LOCATION OF THESE ZONES ONSITE. THEY CAN VARY IN POSITION TO BEST CONSERVE THE EXISTING VEGETATION AND PROTECT DOWNSTREAM AREAS WHILE BEING CONSIDERATE OF THE NEEDS OF EFFICIENT WORKS ACTIVITIES. ALL SITE WORKERS SHALL CLEARLY RECOGNISE THEIR BOUNDARIES. WHERE APPROPRIATE THE ACCESS AREAS ARE TO BE MARKED WITH BARRIER MESH, SEDIMENT FENCING OR SIMILAR MATERIALS. |
| REMAINING LANDS | ENTRY PROHIBITED EXCEPT FOR ESSENTIAL THINNING OF PLANT GROWTH | THINNING OF GROWTH MAY BE REQUIRED FOR FIRE HAZARD REDUCTION. |

NOTE:
WORKS WITHIN WATERWAYS AND CREEKS SHALL BE RESTRICTED AS DIRECTED - ALL LANDS WITHIN CREEKS AND WATERWAYS SHALL HAVE C-FACTORS BELOW 0.05 FROM 1st JANUARY TO 15th MAY USING MATERIALS THAT CAN CATER FOR CONCENTRATED FLOWS.

14. WORKS ARE TO BE UNDERTAKEN IN THE FOLLOWING SEQUENCE.EACH SUBSEQUENT STAGE IS NOT TO
COMMENCE UNTIL THE PREVIOUS ONE IS COMPLETE:-

a. INSTALL ALL BARRIER AND SEDIMENT FENCING WHERE SHOWN ON THE PLAN AND TO DETAIL(SD) 6-7.
b. CONSTRUCT STABILISED SITE ACCESS AS SHOWN ON THE PLAN AND TO DETAIL (SD) 5-7.
c. CONSTRUCT LOW FLOW EARTH BANKS WHERE SHOWN ON THE PLAN AND TO DETAIL (SD) 5-3.
d. PROVIDE TEMP. ACCESS TO THE SEDIMENT BASIN(S)AND PROTECT THIS WITH SEDIMENT FENCING (SD) 6-7 OR BARRIER FENCING AND EARTH BANKS (SD) 5-2.
e. PLACE SEDIMENT FENCING (SD) 6-7 DOWNSLOPE OF LANDS TO BE DISTURBED FOR CONSTRUCTION OF THE SEDIMENT BASINS.
f. CONSTRUCT SEDIMENT BASIN(S) GENERALLY IN ACCORDANCE WITH (SD) 6-4
g. STABILISE LAND SURFACES DISTURBED BY CONSTRUCTION OF THE SEDIMENT BASIN(S) AS SOON AS FINAL LEVELS ARE ESTABLISHED
h. CLEAR THE SITE AND STRIP AND STOCKPILE THE TOPSOIL IN THE LOCATIONS SHOWN ON THE PLAN OR AS DIRECTED BY THE SITE SUPERINTENDENT TO DETAIL (SD) 4-1.
i. UNDERTAKE ALL ESSENTIAL CONSTRUCTION WORKS.
j. GRADE LOT AREAS TO FINAL GRADES AND APPLY PERMANENT STABILISATION (LANDSCAPING) WITHIN 14 DAYS OF COMPLETION OF CONSTRUCTION WORKS.
k. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER THE PERMANENT LANDSCAPING HAS BEEN COMPLETED.

15. CLEARLY VISIBLE BARRIER FENCING SHALL BE INSTALLED WHERE DIRECTED BY THE SITE SUPERINTENDENT TO CONTROL AND PROHIBIT UNNECESSARY SITE DISTURBANCE

16. EARTH BATTERS SHALL BE CONSTRUCTED WITH AS LOW A GRADIENT AS PRACTICABLE BUT NO STEEPER THAN:-

a. 2(h) - 1(v) WHERE SLOPE LENGTH IS LESS THAN 7m
b. 2.5(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 7m AND 10m
c. 3(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 10m AND 12m
d. 4(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 12m AND 18m
e. 5(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 18m AND 27m
f. 6(h) - 1(v) WHERE SLOPE LENGTH IS GREATER THAN 27m

SLOPE LENGTHS CAN BE SHORTENED BY USING LOW FLOW EARTH BANKS AS CATCH DRAINS ABOVE THE EARTH BATTER AREA.

17. PROTECTION FROM EROSIVE FORCES SHALL BE UNDERTAKEN ON ALL LANDS TO MEET THE REQUIREMENTS OF TABLE J3-3 "MAXIMUM ACCEPTABLE C-FACTORS AT NOMINATED TIMES DURING WORKS" FROM "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION 4TH EDITION"

18. TEMPORARY GROUND COVER IN SHEET FLOW AREAS IS TO BE IN ACCORDANCE WITH TABLE J3-4 "PLANT SPECIES FOR GROUND COVER" FROM "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION 4TH EDITION" WHERE PRACTICAL FOOT AND VEHICULAR TRAFFIC SHALL BE KEPT AWAY FROM REHABILITATED AREAS

19. WHERE POSSIBLE THE CONSTRUCTION PROGRAM IS TO BE SCHEDULED SO THAT THE TIME FROM STARTING LAND DISTURBANCE ACTIVITIES TO STABILISATION IS A DURATION OF LESS THAN 6 MONTHS - THIS MEANS ACHIEVING A C-FACTOR OF LESS THAN 0.1 AND SETTING IN MOTION A PROGRAM THAT ENSURES THAT IT DROPS PERMANENTLY, (BY VEGETATION, PAVING, ARMOURING etc.) TO LESS THAN 0.05 WITHIN A FURTHER 60 DAYS. LOCAL WATER RESTRICTIONS PERMITTING, LANDS THAT HAVE BEEN NEWLY PLANTED WITH GRASS SPECIES SHALL BE WATERED REGULARLY UNTIL AN EFFECTIVE COVER HAS BEEN ESTABLISHED AND PLANTS ARE GROWING VIGOROUSLY. FOLLOW-UP SEED AND FERTILISER SHALL BE APPLIED AS NECESSARY IN AREAS OF MINOR SOIL EROSION AND/OR INADEQUATE VEGETATIVE PROTECTION. NOTWITHSTANDING THIS SCHEDULE WORKS SO THAT THE DURATION FROM THE CONCLUSION OF LAND SHAPING TO THE COMPLETION OF FINAL STABILISATION IS LESS THAN 20 WORKING DAYS.

20. SEDIMENT FENCES (SD) 6-7 SHALL:-

a. BE INSTALLED WHERE SHOWN ON THE PLAN AND AS DIRECTED AT THE DISCRETION OF THE SITE SUPERINTENDENT DURING THE COURSE OF CONSTRUCTION TO CONTAIN THE COARSER SEDIMENT FRACTIONS AS NEAR AS POSSIBLE TO THEIR SOURCE.
b. HAVE A CATCHMENT AREA NOT EXCEEDING 720sq.m, AND A STORAGE DEPTH OF AT LEAST 0.6m.
c. PROVIDE AN UPSLOPE RETURN OF 1m AT INTERVALS ALONG THE FENCE WHERE THE CATCHMENT AREA EXCEEDS 720sq.m. TO LIMIT THE DISCHARGE REACHING EACH SECTION TO 40litres/sec IN A MAX. 20yr Tc DISCHARGE.

21. STOCKPILES (SD) 4-1 SHALL BE LOCATED AS SHOWN ON THE PLANS AND AT THE DISCRETION OF THE SITE SUPERINTENDENT.

22. DURING WINDY WEATHER LARGE UNPROTECTED AREAS ARE TO BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL. IN THE EVENT WATER IS NOT AVAILABLE IN SUFFICIENT QUANTITIES SOIL BINDERS AND/OR DUST RETARDANTS SHALL BE USED OR THE SURFACE SHALL BE LEFT IN A CLODDY STATE THAT RESISTS REMOVAL BY WIND.

23. NOTWITHSTANDING NOTE 5d STOCKPILES SHALL NOT BE LOCATED WITHIN 5m OF HAZARD AREAS, INCLUDING LIKELY AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS OR DRIVEWAYS.

24. THE SEDIMENT RETENTION BASINS (SD) 6-4 SHALL:-

a. BE CONSTRUCTED WHERE SHOWN ON THE PLANS.
b. BE FLOCCULATED (APPENDIX E MANAGING URBAN STORMWATER SOILS & CONSTRUCTION 4TH ED.) BEFORE DISCHARGE OCCURS (UNLESS THE DESIGN STORM EVENT IS EXCEEDED)
c. HAVE ONE OR MORE PEGS PLACED ON THE FLOOR TO CLEARLY INDICATE THE LEVEL AT WHICH DESIGN CAPACITY OCCURS AND WHEN SEDIMENT SHALL BE REMOVED.

25. STORED CONTENTS OF THE BASINS SHALL BE TREATED WITH GYPSUM (APPENDIX E MANAGING URBAN STORMWATER SOILS & CONSTRUCTION 4TH ED.) OR OTHER FLOCCULATING AGENTS WHERE THEY CONTAIN MORE THAN 50mg/litre OF SUSPENDED SOLIDS. TREATMENT SHALL BE AS FOLLOWS:-

a. LOWER SUSPENDED SOLIDS TO LESS THAN 50mg/litre WITHIN 24hrs OF FILLING
b. THE BASINS SHALL THEN BE ALLOWED TO STAND 36 TO 48hrs FOR FLOCCULATED PARTICLES TO SETTLE
c. THE BASINS SHALL THEN BE DRAINED SO THAT FULL STORAGE CAPACITY IS REGAINED WITHOUT
d. DISCHARGING SEDIMENT FROM THE SITE.

26. SEDIMENT REMOVED FROM ANY TRAPPING DEVICE SHALL BE DISPOSED IN LOCATIONS WHERE FURTHER EROSION AND CONSEQUENT POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS SHALL NOT OCCUR.

27. WATER SHALL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE (ie THE CATCHMENT HAS BEEN LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN TREATED IN AN APPROVED DEVICE) NEVERTHELESS STORMWATER INLETS SHALL BE PROTECTED (SD) 6-8 & 6-9.

28. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES SHALL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE STABILISED.

29. ACCEPTABLE BINS SHALL BE PROVIDED FOR ANY CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHTWEIGHT WASTE MATERIALS AND LITTER. CLEARANCE SERVICES SHALL BE PROVIDED AT LEAST ONCE A WEEK.

## STOCKPILE NOTES:

1. SPOIL AN TOPSOIL STOCKPILES SHALL BE LOCATED AWAY FROM DRAINAGE LINES AND AREAS WHERE WATER MAY CONCENTRATE.

2. IF STOCKPILES ARE TO BE IN PLACE FOR LONGER THAN 14 DAYS THEN THEY SHALL BE STABILIZED BY COVERING WITH A MULCH OR WITH TEMPORARY VEGETATION.

3. FOLLOWING CONSTRUCTION, TOPSOIL SHALL BE RESPREAD TO A MINIMUM DEPTH OF 100mm ON THE BARE SOIL SURFACES AND REVEGETATE.

## SEDIMENTATION CONTROL DEVICES

1. ALL STRAW BALES SHALL BE BOUND WITH WIRE. STRAW BALES SHALL BE PLACED END TO END IN A SINGLE ROW AND EMBEDDED INTO THE SOIL TO A DEPTH OF 100mm. EACH BALE SHALL BE SECURELY ANCHORED WITH TWO STEEL STAKES DRIVEN 450mm INTO THE GROUND AND LOCKED ON THE BALE CENTRELINE.

2. SILT FENCES SHALL BE CONSTRUCTED BY STRETCHING A FILTER FABRIC (PROPEX OR SIMILAR) BETWEEN POSTS AT 2m CENTRES. FABRIC SHALL BE BURIED 150mm ALONG IT'S LOWER EDGE.

3. PROVIDE STRIP OF TURF MIN. 300mm WIDE BEHIND KERB + 1m WIDE AROUND ALL SURFACE INLET PITS

## SITE INSPECTION AND MAINTENANCE

1. A SELF-AUDITING PROGRAM SHALL BE ESTABLISHED BASED ON A CHECK SHEET. A SITE INSPECTION USING THE CHECK SHEET SHALL BE MADE BY THE SITE MANAGER-:

a. AT LEAST WEEKLY
b. IMMEDIATELY BEFORE SITE CLOSURE
c. IMMEDIATELY FOLLOWING RAINFALL EVENTS IN EXCESS OF 5mm IN ANY 24hr PERIOD.

THE SELF AUDIT SHALL INCLUDE:-

a. RECORDING THE CONDITION OF EVERY 'BEST MANAGEMENT PRACTICE' EMPLOYED
b. RECORDING MAINTENANCE REQUIREMENTS (IF ANY) FOR EACH 'BEST MANAGEMENT PRACTICE'
c. RECORDING THE VOLUMES OF SEDIMENT REMOVED FROM SEDIMENT RETENTION SYSTEMS WHERE APPLICABLE
d. RECORDING THE SITE WHERE SEDIMENT IS DISPOSED
e. FORWARDING A SIGNED DUPLICATE OF THE COMPLETED CHECK SHEET TO THE PROJECT MANAGER/DEVELOPER FOR THEIR INFORMATION.

2. IN ADDITION A SUITABLY QUALIFIED PERSON SHALL BE RESPONSIBLE FOR OVERSEEING THE INSTALLATION AND MAINTENANCE OF ALL SOIL AND WATER MANAGEMENT WORKS ON THE SITE. THE PERSON SHALL BE REQUIRED TO SPEND A MINIMUM OF:-

a. 2hrs ONSITE EACH FORTNIGHT UP UNTIL COMPLETION OF ROAD AND DRAINAGE WORKS AND/OR THE COMMISSIONING OF SEDIMENT BASIN(S)/WATER QUALITY CONTROL FACILITIES, AND DURING THE DECOMMISSIONING OF SAME AND/OR FINAL SITE STABILISATION. TO PROVIDE A SHORT MONTHLY WRITTEN REPORT.
b. ONE HOUR ONSITE EACH 2 MONTHS DURING THAT PHASE WHERE THE DEVELOPERS RESPONSIBILITIES ARE LIMITED TO MAINTENANCE OF THE SDS DEVICES AND/OR SEDIMENT BASINS (ie DURING THE STAGE WHEN BUILDING WORKS CAN BE UNDERTAKEN) TO PROVIDE A SHORT WRITTEN REPORT EACH 4 MONTHS

THE RESPONSIBLE PERSON SHALL ENSURE THAT:-

a. THIS PLAN IS BEING IMPLEMENTED CORRECTLY
b. REPAIRS ARE BEING UNDERTAKEN AS REQUIRED
c. ESSENTIAL MODIFICATIONS TO THIS PLAN ARE BEING MADE IF AND WHEN NECESSARY EACH REPORT SHALL CERTIFY THAT WORKS HAVE BEEN CARRIED OUT ACCORDING TO THE APPROVED PLANS.

3. WASTE BINS SHALL BE EMPTIED AS NECESSARY, DISPOSAL OF WASTE SHALL BE IN A MANNER APPROVED BY THE SITE SUPERINTENDENT

4. PROPER DRAINAGE OF THE SITE SHALL BE MAINTAINED. TO THIS END DRAINS (INCLUDING INLET AND OUTLET WORKS) SHALL BE CHECKED TO ENSURE THAT THEY ARE OPERATING AS INTENDED,ESPECIALLY THAT:-

a. NO LOW POINTS EXIST WHICH CAN OVERTOP IN A LARGE STORM EVENT.
b. AREAS OF EROSION ARE REPAIRED (e.g LINED WITH SUITABLE MATERIAL) AND/OR VELOCITY OF FLOW IS REDUCED APPROPRIATELY THROUGH CONSTRUCTION OF SMALL CHECK DAMS OR INSTALLING ADDITIONAL DIVERSIONS UPSLOPE
c. BLOCKAGES ARE CLEARED (THESE MIGHT OCCUR BECAUSE OF SEDIMENT POLLUTION, SAND/SOIL/SPOIL BEING DEPOSITED IN OR TOO CLOSE TO THEM, BREACHED BY VEHICLE WHEELS etc)

5. SAND/SOIL/SPOIL MATERIALS PLACED CLOSER THAN 2m FROM HAZARD AREAS SHALL BE REMOVED SUCH HAZARD AREAS INCLUDE ANY AREAS OF HIGH VELOCITY WATER FLOWS (eg WATERWAYS AND GUTTERS) PAVED AREAS AND DRIVEWAYS.

6. RECENTLY STABILISED LANDS SHALL BE CHECKED TO ENSURE THAT THE EROSION HAZARD HAS BEEN EFFECTIVELY REDUCED. ANY REPAIRS SHALL BE INITIATED AS APPROPRIATE.

7. EXCESSIVE VEGETATIVE GROWTH SHALL BE CONTROLLED THROUGH MOWING OR SLASHING.

8. ALL SEDIMENT DETENTION SYSTEMS SHALL BE KEPT IN GOOD WORKING CONDITION. IN PARTICULAR ATTENTION SHALL BE GIVEN TO:-

a. RECENT WORKS TO ENSURE THAT THEY HAVE NOT RESULTED IN DIVERSION OF SEDIMENT LADEN WATER AWAY FROM THEM.
b. DEGRADABLE PRODUCTS TO ENSURE THAT THEY ARE REPLACED AS REQUIRED
c. SEDIMENT REMOVAL TO ENSURE THE DESIGN CAPACITY OR LESS REMAINS IN THE SETTLING ZONE.

9. ADDITIONAL EROSION AND/OR SEDIMENT CONTROL WORKS SHALL BE CONSTRUCTED AS MIGHT BECOME NECESSARY TO ENSURE THE DESIRED PROTECTION IS GIVEN TO DOWNSLOPE LANDS AND WATERWAYS (ie MAKE ONGOING CHANGES TO THIS PLAN WHERE IT PROVES INADEQUATE IN PRACTICE OR IS SUBJECTED TO CHANGES IN CONDITIONS AT THE WORKS SITE OR ELSEWHERE IN THE CATCHMENT.

10. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN A FUNCTIONING CONDITION UNTIL ALL EARTHWORKS ACTIVITIES ARE COMPLETED AND THE SITE STABILISED.

11. WATERS IN SEDIMENT RETENTION BASIN(S) THAT OCCUPY MORE THAN 1/4 OF THE DESIGN CAPACITY DURING THAT STAGE OF THE WORKS UP UNTIL COMMISSIONING OF THE BASIN(s) SHALL BE:-

a. TREATED WITH A FLOCCULATING AGENT (APPENDIX E MANAGING URBAN STORMWATER SOILS & CONSTRUCTION 4TH ED.)
b. DISCHARGED WITHIN 5 days FROM THE CONCLUSION OF ANY STORM EVENT LARGE ENOUGH TO FILL THE BASIN TO THAT LEVEL.

12. LITTER, DEBRIS AND COARSE SEDIMENT SHALL BE REMOVED FROM THE GROSS POLLUTANT TRAPS AND TRASH RACKS AS REQUIRED.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A | ISSUED FOR DEVELOPMENT APPLICATION | AS | AS | DJH | MS | 28/08/12 |
| | AMENDMENT | DES | DRN | CKD | APR | DATE |

J. WYNDHAM PRINCE
CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
PO Box 4366 PENRITH WESTFIELD NSW 2750
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AZIMUTH:
DATUM:
ORIGIN:

Western Sydney Parklands

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

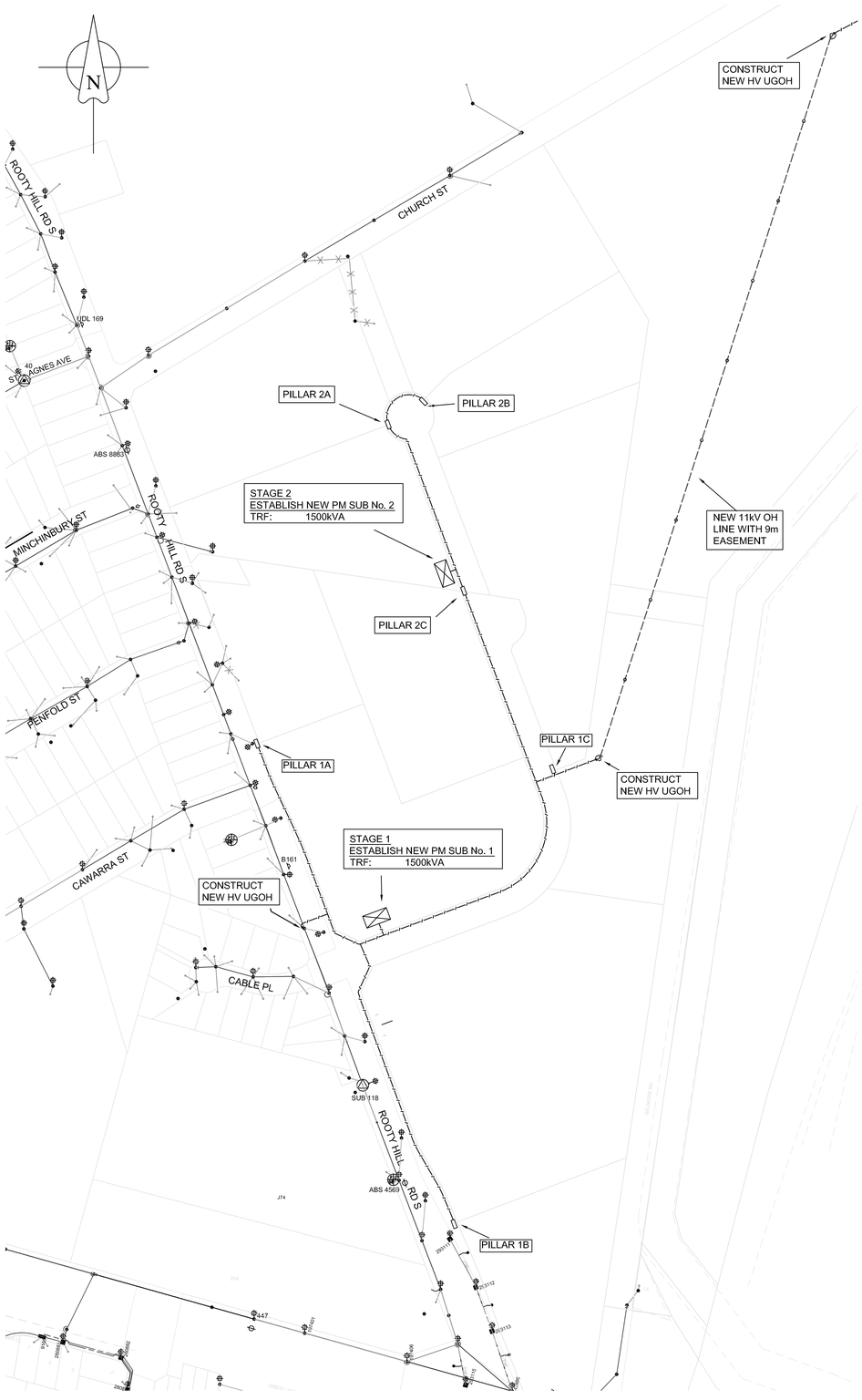
ISSUED FOR DA APPROVAL
NOT FOR CONSTRUCTION

EASTERN CREEK BUSINESS HUB

EXTERNAL INTERSECTION
SOIL AND WATER MANAGEMENT NOTES & DETAILS

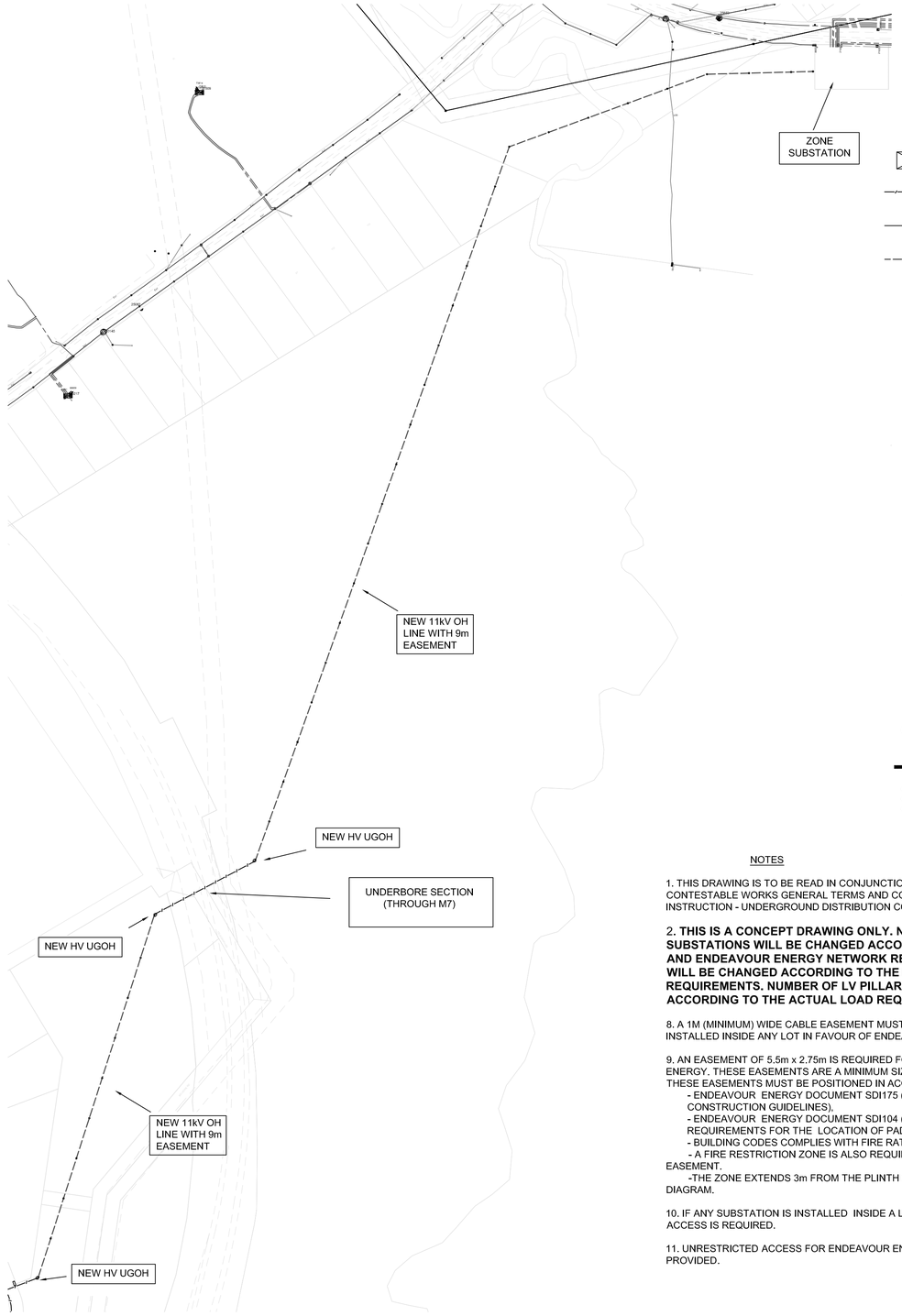
PLAN No: 8801/DA22 A
FILE No: 8801DA22
SHEET SIZE: A1 ORIGINAL

Plotted: 28 August , 2012 11:29:28 AM File Name: J:\8801DIDA - Development Application Approval Plans\8801DA22.dwg




## SITE PLAN

**SCALE 1:2000**




## PROPOSED NEW 11kV FEEDER FROM THE ZONE SUB

**SCALE 1:4000**

**ESTIMATE ROUTE LENGTH ~ 2.3 km**

## LEGEND

- NEW PADMOUNT SUBSTATION
- HIGH VOLTAGE TRENCHING
- EXISTING OVERHEAD(OH) MAINS
- PROPOSED OVERHEAD MAINS
- REMOVE POLE
- EXISTING POLE LOCATION
- REPLACE POLE LOCATION
- NEW POLE LOCATION
- AIR BRAKE SWITCH CLOSED
- AIR BRAKE SWITCH OPEN
- UGOH
- DUCT WITH NEW CABLE
- SPARE DUCT
- EXISTING LANTERN
- NEW PILLAR LOCATION
- EXISTING PILLAR LOCATION
- EXISTING COLUMN LOCATION
- STRAIGHT THROUGH JOINT
- EXISTING DUCTS
- DOUBLE LINK INDUSTRIAL PILLAR

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ENDEAVOUR ENERGY NETWORK CONNECTIONS CONTESTABLE WORKS GENERAL TERMS AND CONDITIONS, AND MCI0006 (MAINS CONSTRUCTION INSTRUCTION - UNDERGROUND DISTRIBUTION CONSTRUCTION STANDARDS MANUAL).

2. **THIS IS A CONCEPT DRAWING ONLY. NUMBER, CAPACITY AND LOCATION OF PM SUBSTATIONS WILL BE CHANGED ACCORDING TO THE DEVELOPMENT REQUIREMENTS AND ENDEAVOUR ENERGY NETWORK REQUIREMENTS. SIZE AND TYPE OF THE CABLES WILL BE CHANGED ACCORDING TO THE LOAD AND ENDEAVOUR ENERGY REQUIREMENTS. NUMBER OF LV PILLARS AND THEIR LOCATIONS WILL BE CHANGED ACCORDING TO THE ACTUAL LOAD REQUIREMENTS OF EACH BLOCK.**

8. A 1M (MINIMUM) WIDE CABLE EASEMENT MUST BE CREATED IF HV AND LV CABLES NEED TO BE INSTALLED INSIDE ANY LOT IN FAVOUR OF ENDEAVOUR ENERGY.

9. AN EASEMENT OF 5.5m x 2.75m IS REQUIRED FOR EACH PM SUBSTATIONS IN FAVOUR OF ENDEAVOUR ENERGY. THESE EASEMENTS ARE A MINIMUM SIZE ONLY AND MUST BE FREE OF ALL OTHER SERVICES. THESE EASEMENTS MUST BE POSITIONED IN ACCORDANCE WITH THE FOLLOWING:
- ENDEAVOUR ENERGY DOCUMENT SDI175 (SUBSTATION DESIGN INSTRUCTION - SUBSTATION CONSTRUCTION GUIDELINES),
- ENDEAVOUR ENERGY DOCUMENT SDI104 (SUBSTATION DESIGN INSTRUCTION - SPECIFICATION OF REQUIREMENTS FOR THE LOCATION OF PADMOUNT SUBSTATIONS).
- BUILDING CODES COMPLIES WITH FIRE RATINGS.
- A FIRE RESTRICTION ZONE IS ALSO REQUIRED EXTERNAL TO THE BOUNDARIES OF THE SUBSTATION EASEMENT.
-THE ZONE EXTENDS 3m FROM THE PLINTH OF THE SUBSTATION. REFER TO SUBSTATION BOUNDARIES DIAGRAM.

10. IF ANY SUBSTATION IS INSTALLED INSIDE A LOT AWAY FROM FROUNT PROPERTY LINE, RIGHT OF ACCESS IS REQUIRED.

11. UNRESTRICTED ACCESS FOR ENDEAVOUR ENERGY 24 HOURS PER DAY 7 DAYS PER WEEK MUST BE PROVIDED.

CONCEPT ONLY
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AMENDMENTS
ORIGINAL ISSUE
A


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13A/26 BALOOK DRIVE
BERESFIELD, NSW 2322
PH: (02) 9018 9118 FAX: (02) 8088 1032
admin@allianceporweranddata.com.au


| REFERENCE DRAWING'S | | WORK ORDERS | | CAP / SAMP No. | xxx |
|---|---|---|---|---|---|
| | | | | AM PROJ. No. | |
| | | GENERAL | | HV SWITCHING | |
| | | OVERHEAD | | UBD/PENGUIN REF | 187 H6 |
| | | UNDERGROUND | | GIS MAP No | 482608 |
| | | SUBSTATIONS | | HV OP DIAGRAM | ROOTY HILL-ALICE ST-T889 |
| | | | | LOCAL GOV AREA | |

| | |
|---|---|
| ORIGINAL SCALE | AS SHOWN |
| DRAWN | HG |
| DATE | 20/08/2012 |
| CH'D | |
| DESIGN | HG |

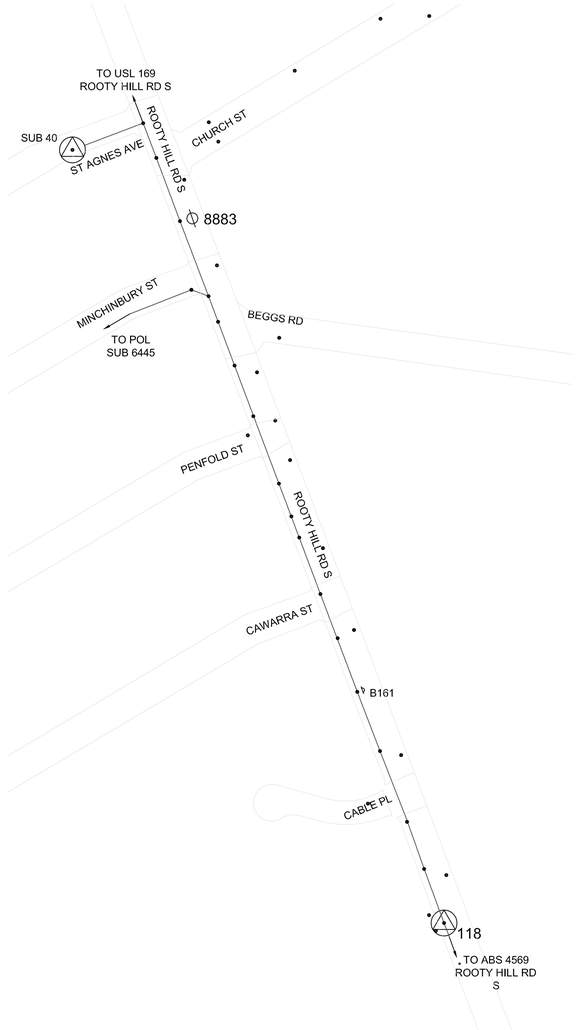
DO NOT SCALE
DIMENSIONS IN METRES

EASTERN CREEK - BUSINESS HUB
ELECTRICAL CONCEPT

Endeavour Energy

A1 | 1435 | A

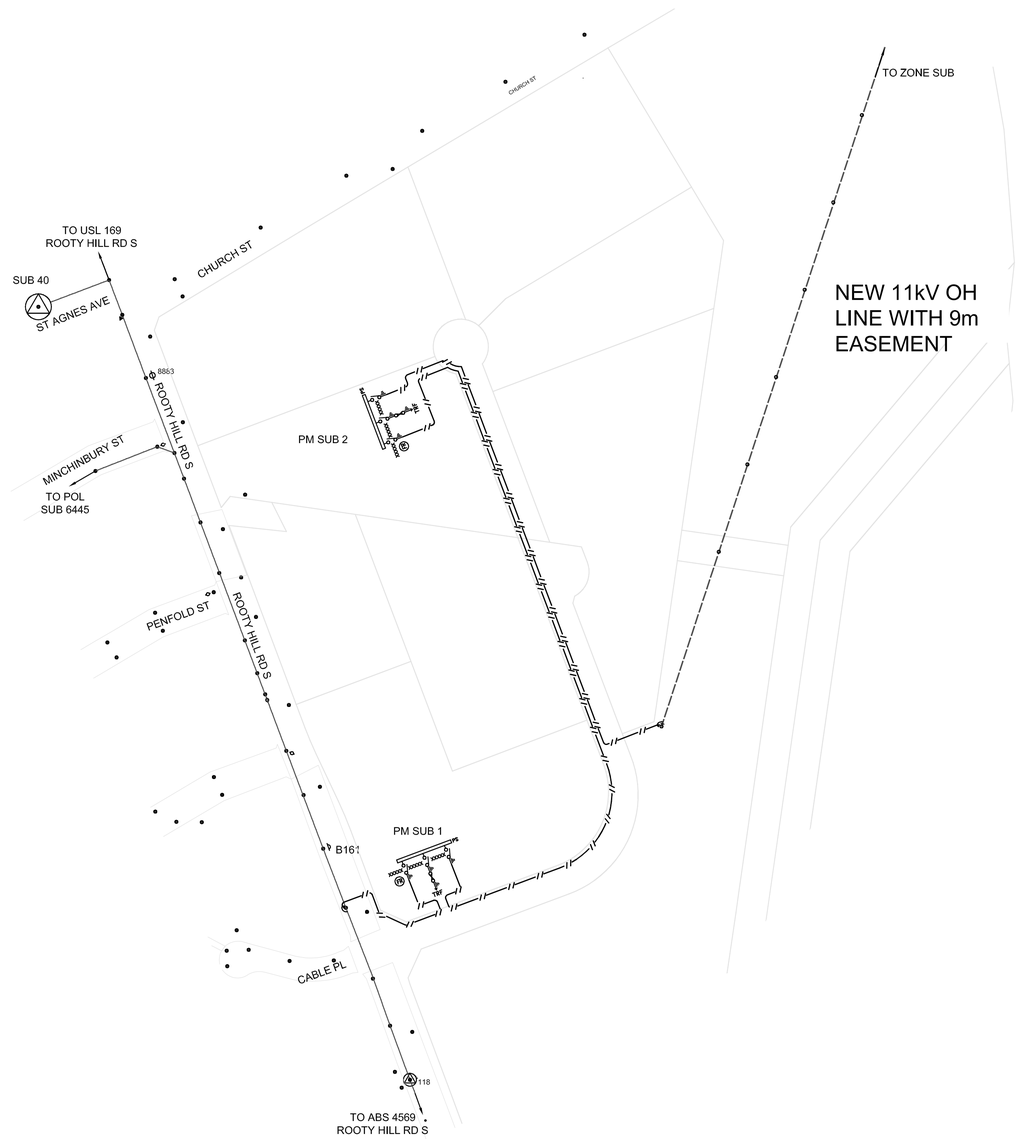
SHEET No 1 OF 3 SHEETS




## EXISTING H.V. CIRCUIT

NOT TO SCALE

EXISTING HV OH MAINS (19/3.25 AAC)




CONCEPT ONLY
NOT FOR CERTIFICATION
OR CONSTRUCTION

## FINAL H.V. CIRCUIT

NOT TO SCALE

EXISTING HV OH MAINS (19/3.25 AAC)

INSTALL 240mm² CU. 3C 11kV XLPE/PVC/HDPE CABLE

PROPOSED OH MAINS

AMENDMENTS

| | |
|---|---|
| A | ORIGINAL ISSUE |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|---|---|---|---|---|---|
| | | | | AM PROJ. No. | |
| | | GENERAL | | HV SWITCHING | |
| | | OVERHEAD | | UBD/PENGUIN REF | 187 H6 |
| | | UNDERGROUND | | GIS MAP No | 482608 |
| | | SUBSTATIONS | | HV OP DIAGRAM | ROOTY HILL-ALICE ST-T889 |
| | | | | LOCAL GOV AREA | |

| | |
|---|---|
| ORIGINAL SCALE | AS SHOWN |
| DRAWN | HG |
| DATE | 20/08/2012 |
| CH'D | |
| DESIGN | HG |

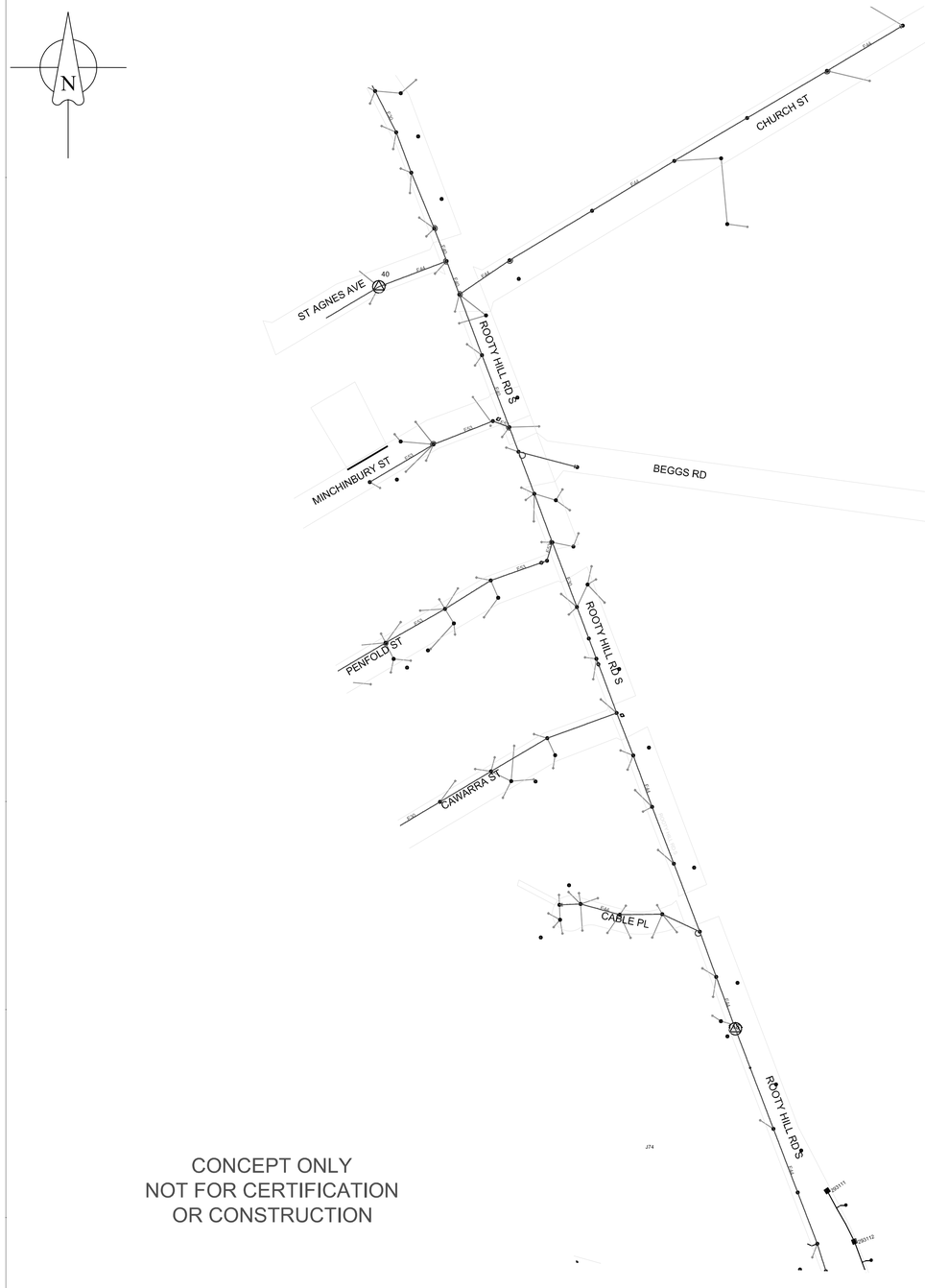
DO NOT SCALE
DIMENSIONS IN METRES

EASTERN CREEK - BUSINESS HUB
ELECTRICAL CONCEPT

Endeavour Energy

A1 | 1435 | A

SHEET No 2 OF 3 SHEETS

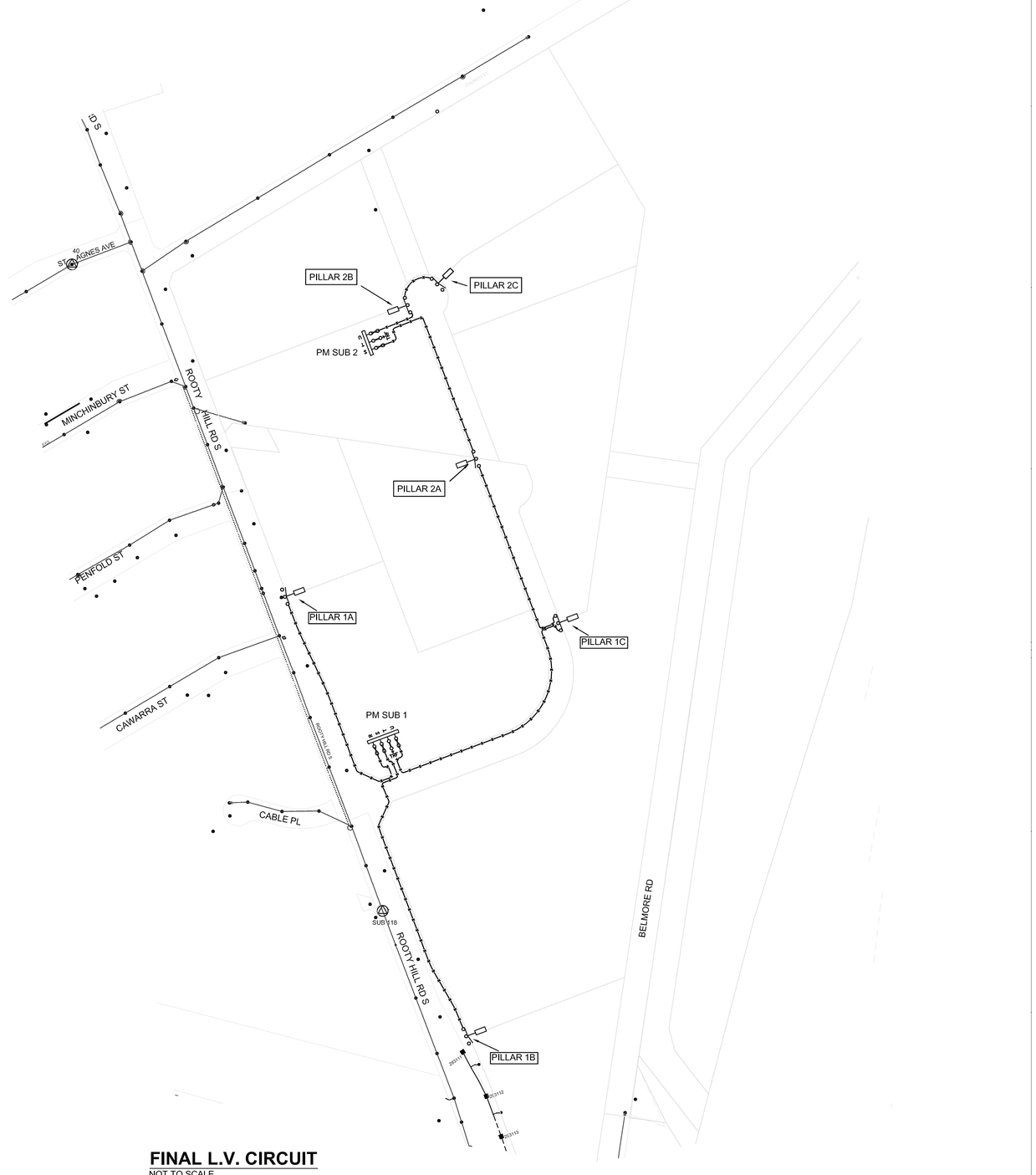



CONCEPT ONLY
NOT FOR CERTIFICATION
OR CONSTRUCTION

## EXISTING L.V. CIRCUIT

NOT TO SCALE

EXISTING LV OH MAINS




## FINAL L.V. CIRCUIT

NOT TO SCALE

LEVEL 2 ASP TO INSTALL SERVICE MAINS TO CUSTOMERS MSB

INSTALL 240mm² AL. 4C LV XLPE/PVC/HDPE CABLE

AMENDMENTS
A ORIGINAL ISSUE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| | | GENERAL | | HV SWITCHING | |
| | | OVERHEAD | | UBD/PENGUIN REF | 187 H6 |
| | | UNDERGROUND | | GIS MAP No | 482608 |
| | | SUBSTATIONS | | HV OP DIAGRAM | ROOTY HILL-ALICE ST-T889 |
| | | | | LOCAL GOV AREA | |

ORIGINAL SCALE AS SHOWN

| | |
|---|---|
| DRAWN | HG |
| DATE | 20/08/2012 |
| CH'D | |
| DESIGN | HG |

DO NOT SCALE
DIMENSIONS IN METRES

EASTERN CREEK - BUSINESS HUB
ELECTRICAL CONCEPT

Endeavour Energy

A1 | 1435 | A

SHEET No 3 OF 3 SHEETS

A1

LAY DN225 MAIN
LAY DN225 MAIN
LAY DN150 MAIN
LAY DN225 MAIN
DISCONNECT MAIN FROM 'A'–'B'
LAY DN225 MAIN
LAY DN225 MAIN
LAY DN150 MAIN
EXHUME DN150 MAIN FROM 'C'–'D'
LAY DN225 MAIN
LAY DN225 MAIN
LAY DN150 MAIN
LAY DN225 MAIN
LAY DN225 MAIN

CHURCH
MINCHINBURY ST
ROBERT HILL
PENFOLD ST
CAWARRA
BELMORE
RD
SOUTH
(WESTLINK M7)
MWY
NOT SEWERED

## KEY

- DISCONNECTED WATER MAIN
- EXISTING WATER MAIN – APPROX. 150m TO BE DISCONNECTED
- PROPOSED WATER MAIN – APPROX. 534m OF DN150 PVC-M MAIN
- EXISTING HYDRANT
- EXISTING STOP VALVE
- PROPOSED HYDRANT
- PROPOSED STOP VALVE
- EXISTING SEWER MAIN – APPROX. 124m TO BE EXHUMED
- PROPOSED SEWER MAIN – APPROX. 1290m OF DN225 UPVC MAIN
- EXISTING PRESSURE MAIN
- EXISTING MAINTENANCE HOLE
- PROPOSED MAINTENANCE HOLE
- PROPOSED MAINTENANCE SHAFT
- PROPOSED TERMINAL MAINTENANCE SHAFT

| NUMBER | AMENDMENT | INITIAL | DATE |
|---|---|---|---|
| A | FIRST ISSUE | C.P. | 18.07.12 |
| B | BOUNDARY AMENDED | C.P. | 23.08.12 |
| | | | |

DESCRIPTION/TITTLE

# EASTERN CREEK BUSINESS HUB

## SEWER (LOW INFILTRATION) AND POTABLE WATER CONCEPT PLAN

## PM 9825

| | | |
|---|---|---|
| SECTION SCALE: HOR:1:1000 VERT: 1:250 | DATUM: AHD | |
| SCALE: 1:1000 | SHEET 01 OF 01 SHEETS | DATE: 23.08.12 |
| DRAWING No. 9825–CONCEPT.DWG | | REVISION: B |


ABN: 14 062 942 509

QALCHEK

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