PROPOSED INDUSTRIAL SUB-DIVISION
OLD WALLGROVE RD EASTERN CREEK
ROADS PLAN SET

PLAN NO.

martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT: HANSON / OLD WALLGROVE RD EASTERN CREEK

TITLE: COVER

THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

PROJECT MANAGER: ANDREW NORRIS

DRAWING NUMBER: P1002913JD04V01

DESIGNED:	MGD
DRAWN:	KT
REVIEWED:	ASN
DATUM:	NA
HORIZONTAL RATIO:	NA
VERTICAL RATIO:	NA
SHEET	1 OF 20 SHEETS
PAPER SIZE:	A1 / A3

REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN

GENERAL NOTES

1 ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH, AND THESE NOTES ARE TO BE READ IN CONJUNCTION WITH, THE RELEVANT AUSTRALIAN STANDARDS, COUNCIL'S SPECIFICATIONS AND NOTICE OF DEVELOPMENT APPLICATION DETERMINATION (DA CONDITIONS).

2 SURVEY INFORMATION SHOWN, AND DESIGN LEVELS, ARE BASED ON THE SURVEY BY MSK ARCHITECTS (DWG REFERENCE 72683_DWG_TRACK.DWG).

3 PRIOR TO COMMENCING ANY WORKS, THE CONTRACTOR SHALL CARRY OUT A "DIAL BEFORE YOU DIG" FOR A SERVICES SEARCH. THE CONTRACTOR SHALL THEN ARRANGE FOR ALL SERVICES TO BE PHYSICALLY LOCATED, IDENTIFIED AND CLEARLY MARKED WITHIN THE WORKS AREA PRIOR TO THE COMMENCEMENT OF ANY WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY DAMAGE CAUSED TO SERVICES DURING THE COURSE OF THE WORKS. ANY SERVICE LOCATION SHOWN ON THE FOLLOWING DRAWINGS ARE INDICATIVE ONLY AND THE POSITION AND DEPTH INDICATED SHOULD NOT BE RELIED UPON.

4 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS, SPECIFICATIONS, GEOTECHNICAL REPORTS AND WRITTEN INSTRUCTIONS THAT MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. THE CONTRACTOR SHALL ENSURE THAT THEY HAVE THE LATEST DRAWING REVISION PRIOR TO COMMENCING ANY WORKS.

5 IF THE CONTRACTOR HAS ANY QUESTIONS, REQUIRES CLARIFICATION OF ANY ISSUES, OR FINDS ANY DISCREPANCIES WITHIN THESE DRAWINGS, THE CONTRACTOR SHALL ADVISE THE SUPERINTENDENT BEFORE PROCEEDING.

6 ALL SET OUT DIMENSIONS SHALL BE VERIFIED BY THE CONTRACTOR ON SITE BEFORE WORK COMMENCES. DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS. ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.

7 LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (AHD).

8 ALL MATERIALS AND WORKMANSHIP USED SHALL BE IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS, BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITIES OR ENGINEER'S SPECIFICATIONS AND INDUSTRY BEST PRACTICE, EXCEPT WHERE VARIED BY THE PROJECT SPECIFICATIONS. WHERE THE CONTRACTOR BELIEVES THAT NECSSARY DIMENSIONS ARE NOT SHOWN, REFER THE MATTER TO THE DESIGN CONSULTANT.

9 ALL ENGINEERING WORK MUST BE CERTIFIED AT A MINIMUM AT THE "HOLD POINTS" AS FOLLOWS OR AS REQUESTED BY THE PCA:

- AFTER SEDIMENT AND EROSION CONTROL MEASURES INSTALLED.
- EACH COMPACTED ROAD SUB-GRADE LAYER IS TO BE CERTIFIED PRIOR TO PROCEEDING TO THE FOLLOWING LAYER.
- COMPLETION OF SITE WORKS.

CERTIFICATES ARE TO BE ISSUED ON COMPLETETION CONFIRMING THAT THE WORKS COMPLY WITH THE DEVELOPMENT CONSENT AND CONSTRUCTION CERTIFICATE.

10 DURING CONSTRUCTION, THE WORKS SITE SHALL BE MAINTAINED DAILY IN A SAFE AND STABLE CONDITION. PERIMETER SAFETY FENCING, TEMPORARY BRACING, BENCHING OF EXCAVATIONS AND BATTERS SHALL BE PROVIDED BY THE CONTRACTOR TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES.

11 THE CONTRACTOR IS TO NOTIFY THE SUPERINTENDENT AND DESIGN ENGINEER IF IT BECOMES EVIDENT THAT CONDITIONS ON SITE (INCLUDING ENCOUNTERING OF GROUNDWATER) HAVE POTENTIAL TO NEGATIVELY IMPACT ON THE INTENDED ENGINEERING DESIGN.

12 ALL CONSTRUCTION WORK SHALL BE CARRIED OUT SO THAT AT ANY TIME THE AMENITY OF THE ADJOINING PROPERTIES IS NOT COMPROMISED – I.E. DISCHARGE OF ADDITIONAL OR POLLUTED STORMWATER RUNOFF, ALL WEATHER ACCESS TO THE PROPERTY, NOISE, DUST, BUILDING WASTE ETC.

13 THE CONTRACTOR SHALL PLACE CONDUITS WHERE REQUIRED BY THE RELEVANT UTILITY SERVICE AUTHORITIES AND SHALL UNDERTAKE ALL UTILITY ADJUSTMENTS AS DIRECTED NECESSARY FOR THE COMPLETION OF THE WORKS.

14 THE CONTRACTOR SHALL MAINTAIN AND RESTORE ANY DAMAGE WHICH MAY HAVE BEEN CAUSED BY THE CONSTRUCTION OF THE "WORKS" TO EXISTING ROAD SURFACES, ROADSIDE DRAINAGE OR UTILITY SERVICES.

15 ALL DISTURBED AREAS ARE TO BE REINSTATED AS NEAR AS POSSIBLE TO THE PRE-CONSTRUCTION CONDITION AND/OR IN ACCORDANCE WITH THE SITE'S LANDSCAPING PLAN.

16 THE CONTRACTOR SHALL ENSURE THAT A SMOOTH CONNECTION IS MADE TO ALL EXISTING ENGINEERING WORKS AND NATURAL SURFACES.

17 EROSION AND SEDIMENT CONTROLS IN ACCORDANCE WITH APPROVED EROSION SEDIMENT CONTROL PLAN ARE TO BE IN PLACE AT ALL TIMES. CONTROLS TO BE INSPECTED, MAINTAINED AND REPLACED AS REQUIRED BY THE CONTRACTOR UNTIL WORKS ARE COMPLETED AND PERMANENT MEASURES HAVE BEEN ESTABLISHED OR SITE IS REVEGETATED.

18 PROVISION IS TO BE MADE FOR MAINTAINING TRAFFIC FLOW IN PUBLIC ROADS AT ALL TIMES. TRAFFIC CONTROL MEASURES ARE TO BE IN ACCORDANCE WITH COUNCIL GUIDELINES AND APPROVED CONSTRUCTION TRAFFIC MANAGEMENT PLAN (CTMP).

19 THE CONTRACTOR IS TO ENSURE THAT NO BUILDING MATERIALS, STOCKPILES OR FILL ENCROACHES UPON ADJACENT PROPERTY OR IMPACTS RETAINED TREES FOR THE DURATION OF THE WORKS.

20 THE SITE SUPERINTENDENT MUST BE NOTIFIED IMMEDIATELY SHOULD THE PRESENCE OF ASBESTOS OR OTHER SOIL CONTAMINATION, NOT RECOGNISED DURING THE ORIGINAL ASSESSMENT PROCESS, BE IDENTIFIED DURING DEMOLITION OR CONSTRUCTION WORKS.

21 A SUFFICIENT SUPPLY OF APPROPRIATE SPILL CONTROL EQUIPMENT MUST BE KEPT ON THE PREMISES AT ALL TIMES. MATERIALS USED IN THE CLEAN UP OF A SPILL MUST BE DISPOSED OF TO AN APPROPRIATELY LICENSED WASTE FACILITY.

22 ALL ABOVE GROUND STORAGE'S OF HAZARDOUS MATERIALS, OILS, CHEMICALS OR FERTILISERS MUST BE BUNDED. THE BUND IS TO BE MADE FROM AN IMPERVIOUS MATERIAL AND MUST BE COVERED AND LARGE ENOUGH TO HOLD THE CONTENTS OF THE LARGEST CONTAINER PLUS 10%.

23 NO SITE WORKS, INCLUDING THE REMOVAL OF VEGETATION OR ANY DEMOLITION WORKS, SHALL BE COMMENCED PRIOR TO A CONSTRUCTION CERTIFICATE BEING ISSUED.

24 TOILET FACILITIES ARE TO BE PROVIDED AT THE WORK SITE AT ALL TIMES AT THE RATE OF ONE CLOSET FOR EVERY 20 PERSONS AND BE LOCATED WHOLLY WITHIN THE BOUNDARIES OF THE PROPERTY.

QUALITY ASSURANCE & OCCUPATIONAL HEALTH & SAFETY

1 THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN A QUALITY ASSURANCE SYSTEM WHICH COMPLIES WITH THE REQUIREMENTS OF A.S. 9001 (2000) AND AUS-SPEC COC & COS. THE QUALITY SYSTEM SHALL BE SUCH THAT RECORDS ARE KEPT OF ALL ASPECTS AND STAGES OF THE WORK.

2 THE RECORDS FOR EACH CONSTRUCTION TASK SHALL BE STAGED AND ITEMISED TO THE SATISFACTION OF THE SUPERINTENDENT. THE PRO-FORMERS SHALL BE SUBMITTED TO THE SUPERINTENDENT FOR APPROVAL PRIOR TO ANY WORK BEING COMMENCED.

3 DURING THE COURSE OF CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN ACCURATE AND UP TO DATE RECORDS (SUCH AS GOODS RECEIVED / REJECTED / RETURNED, ALL "ISSUED NOTICES / INSTRUCTIONS / CERTIFICATES", RETAIN ALL DRAWING REVISIONS, REPORTS, MARKED UP DRAWINGS OF EITHER AMENDMENTS OR "WAE"); AND SHALL MAKE SUCH RECORDS AVAILABLE TO THE SUPERINTENDENT IF REQUESTED. FAILURE TO MAINTAIN THE APPROPRIATE RECORDS MAY RESULT IN THE CONTRACTOR RE-INSPECTING COMPLETED WORKS IF INSTRUCTED BY THE SUPERINTENDENT.

4 AT THE COMPLETION OF EACH STAGE OF THE WORKS, THE CONTRACTOR SHALL CERTIFY THAT THOSE WORKS HAVE BEEN UNDERTAKEN AND COMPLETED IN ACCORDANCE WITH THE DRAWINGS, SPECIFICATIONS AND INSTRUCTIONS ISSUED DURING THE COURSE OF THE CONTRACT.

5 THE CONTRACTOR SHALL OBTAIN AND KEEP ON SITE AT ALL RELEVANT MATERIAL SAFETY DATA SHEETS (MSDS) THAT ARE APPLICABLE FOR MATERIALS BEING USED ON THE SITE. ALL TRANSPORTATION, STORAGE, USE OF, AND DISPOSAL OF THESE MATERIALS SHALL BE IN ACCORDANCE WITH MSDS. THE LOCATION OF THESE MSDS SHALL BE MADE KNOWN TO ALL PERSONS DURING THE SITE INDUCTION AND ARE TO BE ACCESSIBLE AT ALL TIMES TO ALL SITE PERSONNEL.

6 ATTENTION IS DRAWN TO THE OCCUPATIONAL HEALTH AND SAFETY ACT NSW. (2000) NO.40 AND ITS REGULATIONS, WHICH REQUIRES THAT EMPLOYERS ENSURE THE HEALTH, SAFETY AND WELFARE OF ALL PERSONS WORKING ON OR VISITING THE SITE.

7 THE CONTRACTOR SHALL AT ALL TIMES EXERCISE ALL NECESSARY AND REASONABLE SAFETY PRECAUTIONS APPROPRIATE TO ENSURE THE SAFETY OF ALL PERSONS ON THE WORK SITE OR IN THE VICINITY OF THE WORKS.

8 THE CONTRACTOR SHALL IMPLEMENT AN OH&S SYSTEM AND MAINTAIN ALL THE REQUIREMENTS OF THE RELEVANT OH&S ACT, SUCH AS LOG BOOKS RECORDING OF: PERSONNEL INDUCTIONS, PERSONNEL SIGN-IN AND SIGN-OUT, INJURIES ETC, AND FIRST AID STATIONS ETC.

9 THE CONTRACTOR SHALL PROVIDE A SECURE PERIMETER FENCE AROUND THE SITE TO EXCLUDE THE PUBLIC; SAFETY FENCING AROUND EXCAVATIONS WITHIN THE SITE; AND ANY OTHER FENCING THAT IS REQUIRED TO ENSURE THE SAFETY OF SITE PERSONNEL / VISITOR PEDESTRIANS, ANIMALS AND VEHICLES.

10 THE LAND AND ADJOINING AREAS ARE TO BE KEPT IN A CLEAN AND TIDY CONDITION AT ALL TIMES. LITTER AND RUBBISH SHALL BE PLACED IN CONTAINERS AND REMOVED FROM THE SITE. WASTE STORAGE IS TO BE PROVIDED THROUGHOUT BUILDING WORK.

11 THE WORK SITE IS TO BE KEPT LIT BETWEEN SUNSET AND SUNRISE IF IT IS LIKELY TO BE HAZARDOUS TO PERSONS USING A PUBLIC PLACE OR UPON INSTRUCTION BY COUNCIL TO ENHANCE THE SAFETY AND SECURITY OF THE AREA IN WHICH THE WORK IS LOCATED.

12 ANY HOARDING, FENCE OR AWNING IS TO BE REMOVED WHEN NO LONGER REQUIRED.

EXISTING SERVICES

1 PRIOR TO COMMENCING ANY WORKS, THE CONTRACTOR SHALL CARRY OUT A "DIAL BEFORE YOU DIG" FOR A SERVICES SEARCH. THE CONTRACTOR SHALL THEN ARRANGE FOR ALL SERVICES TO BE PHYSICALLY LOCATED, IDENTIFIED AND CLEARLY MARKED WITHIN THE WORKS AREA PRIOR TO THE COMMENCEMENT OF ANY WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY DAMAGE CAUSED TO SUCH SERVICES DURING THE COURSE OF THE WORKS.

2 ANY SERVICE LOCATION SHOWN ON THE DESIGN PLANS ARE INDICATIVE ONLY AND THE POSITION AND DEPTH INDICATED SHOULD NOT BE RELIED UPON.

3 ALL CARE IS TO BE EXERCISED WHEN EXCAVATING NEAR EXISTING UTILITY SERVICES. MANUAL EXCAVATION PARALLEL TO THE SERVICE IS RECOMMENDED AND. MECHANICAL DIGGING IS NOT TO BE CARRIED OUT OVER OR NEAR ANY ELECTRICAL / TELECOMMUNICATIONS CABLES OR GAS PIPES. EXCAVATIONS ARE TO BE UNDERTAKEN IN ACCORDANCE WITH THE REQUIREMENTS OF THE NSW WORK COVER CODE OF EXCAVATION 2000.

4 DURING THE EXECUTION OF WORKS, THE CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF ALL EXISTING UTILITY SERVICES. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED TO THE EXISTING SERVICES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE RELEVANT UTILITY SERVICE PROVIDER, AT NO COST TO THE PRINCIPAL OR OTHER PROPERTY OWNER.

5 WHERE IT IS NECESSARY TO REMOVE, DIVERT OR CUT INTO ANY EXISTING UTILITY SERVICE, AND ON COMPLETION OF THE NEW "WORKS, THE CONTRACTOR SHALL GIVE AT LEAST THREE (3) DAYS NOTICE OF THE REQUIREMENTS TO THE SUPERINTENDENT, WHO WILL ADVISE WHAT ARRANGEMENTS SHOULD BE MADE FOR THE ALTERATION OF SUCH EXISTING WORKS.

6 PRIOR TO THE COMMENCEMENT OF ANY WORKS THE CONTRACTOR SHALL OBTAIN THE SUPERINTENDENT'S APPROVAL OF THE PROGRAMME FOR THE RELOCATION / CONSTRUCTION OF TEMPORARY SERVICES.

7 ALL NEW OR EXCAVATED EXISTING UTILITY SERVICES THAT CROSS EXISTING AND FUTURE ROADS/PAVEMENTS SHALL HAVE APPROPRIATE WARNING TAPES AND/OR WIRES PLACED IN ACCORDANCE WITH THE RELEVANT STANDARDS AND THEN BE BACKFILLED WITH DGB20 MATERIAL TO SUBGRADE LEVEL AND COMPACTED TO 98% STANDARD DENSITY RATIO, SUBJECT TO PRIOR APPROVAL FROM THE RELEVANT AUTHORITY.

8 ON COMPLETION OF SERVICES INSTILLATION, ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, INCLUDING NATURE STRIPS, FOOTPATHS, CONCRETE AND GRAVEL AREAS, KERBS AND ROAD PAVEMENTS.

9 THE CONTRACTOR SHALL ALLOW FOR THE EXCAVATION, CAPPING OFF AND REMOVAL IF REQUIRED OF ALL EXISTING SERVICES IN AREAS AFFECTED BY THE WORKS WITHIN THE CONTRACT AREA AS SHOWN ON THE DRAWINGS UNLESS DIRECTED OTHERWISE BY THE SUPERINTENDENT. ALLTO REGULATORY AUTHORITY STANDARDS AND APPROVAL.

10 THE CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES AS REQUIRED TO MAINTAIN THAT SERVICE TO ANY PROPERTY OR BUILDING IN OPERATION DURING THE CONSTRUCTION WORKS, TO THE SATISFACTION AND APPROVAL OF THE SUPERINTENDENT. WHEN ALL NEW WORKS / DIVERSIONS ARE COMPLETED, COMMISSIONED AND INSPECTED, THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY UTILITY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE SUPERINTENDENT.

11 INTERRUPTION TO EXISTING UTILITY SERVICES SHALL BE CARRIED OUT SO AS NOT TO CAUSE ANY INCONVENIENCE OR DAMAGE TO ADJACENT PROPERTIES. THE CONTRACTOR IS RESPONSIBLE FOR GAINING PERMISSION OF THE SUPERINTENDENT FOR TIME OF INTERRUPTION.

12 THE CONTRACTOR SHALL MAINTAIN THE EXISTING STORMWATER DRAINAGE FLOWS THROUGH THE SITE AT ALL TIMES, AND MAKE DUE ALLOWANCE FOR ALL SUCH FLOWS AT ALL TIMES.

13 THE CONTRACTOR SHALL ENSURE THAT APPROPRIATE UTILITY SERVICES ABOVE GROUND MARKERS ARE PLACED IN ACCORDANCE WITH SERVICE PROVIDER AND COUNCIL SPECIFICATIONS.

14 ALL NEW AND REPLACEMENT UTILITY SERVICES SHALL BE LAID AT THE DEPTH AND POSITION WITHIN THE SERVICES TRENCH IN ACCORDANCE WITH RELEVANT AUTHORITY REQUIREMENTS AND SPECIFICATIONS OR AS DIRECTED IN THE DETAILED DRAWINGS.

15 SERVICES TRENCHES TO BE GRADED AT A MINIMUM OF 1% TO EITHER SUBSOIL OR STORMWATER DRAINAGE LINES.

16 THE CONTRACTOR SHALL ENSURE THAT ALL LOCATED AND NEW UTILITY SERVICES WITHIN AND OUTSIDE THE SITE ARE SURVEYED BY A DULY QUALIFIED SURVEYOR AS PART OF THE "WORK AS EXECUTED" RECORDS.

CONSTRUCTION MATERIALS

1 MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS; WITH THE BY-LAWS AND ORDINANCE REQUIREMENTS OF THE RELEVANT BUILDING AUTHORITY; AND INDUSTRY BEST PRACTICE EXCEPT WHERE VARIED BY THE PROJECT SPECIFICATIONS.

2 SUFFICIENT NOTICE SHALL BE GIVEN BY THE CONTRACTOR TO THE SUPERINTENDENT TO ENABLE MATERIALS THAT ARE TO BE BROUGHT ON SITE TO BE EXAMINED. ALL MATERIALS ARE TO BE STACKED IN A SUITABLE MANNER TO FACILITATE EXAMINATION.

3 MATERIALS SUCH AS FILL / TOPSOIL / SAND SHALL HAVE A VALIDATION CERTIFICATE FROM AN APPROVED TESTING LABORATORY / ENVIRONMENTAL CONSULTANT IF SUCH MATERIAL IS NOT PROCURED FROM THE SITE OR SUPPLIED OR ARRANGED BY THE SUPERINTENDENT.

4 WHERE THE CONTRACTOR SUPPLIES MATERIALS OF A MIXED OR POOR QUALITY, THE SUPERINTENDENT SHALL HAVE THE AUTHORITY TO REQUIRE THE CONTRACTOR TO PICK OUT AND STACK THOSE MATERIALS WHICH IN HIS OPINION ARE SUITABLE FOR THE WORKS, AND TO HAVE THOSE WHICH ARE UNSUITABLE REMOVED FROM THE WORKS SITE AT THE CONTRACTOR'S COST.

5 ANY MATERIAL WHICH IS BROUGHT ONTO THE SITE AND PLACED IN SITU PRIOR TO ANY APPROVAL BY THE SUPERINTENDENT / ENGINEER OR THEIR AGENTS SHALL BE REMOVED AND THE WORKS REMEDIATED TO THEIR PRIOR CONDITION BY THE CONTRACTOR AT HIS COST.

EARTHWORKS GENERAL

1 GENERALLY ALL EARTHWORKS ARE TO BE UNDERTAKEN IN ACCORDANCE WITH THE GUIDELINES FOR EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS AS SET OUT IN A.S. 3798 (2007), THE PROJECT APPROVAL CONDITIONS AND THE GEOTECHNICAL REPORT FOR THE DEVELOPMENT PREPARED BY MARTENS AND ASSOCIATES (P1002913JR02V01, MARCH 2012). WHERE INCONSISTENCIES BETWEEN THESE NOTES AND PROJECT GEOTECHNICAL REPORT ARE IDENTIFIED, THE REPORT SHALL BE CONSIDERED TO PREVAIL AND THE PROJECT GEOTECHNICAL ENGINEER IS TO BE CONSULTED.

2 LEVEL 1 SUPERVISION AND TESTING OF EARTHWORKS IS TO BE UNDERTAKEN IN ACCORDANCE WITH AS3798 (2007).

3 THE CONTRACTOR SHALL ENSURE THAT ALL EXCAVATION WORKS COMPLY WITH THE NSW WORK COVER 'CODE OF PRACTICE: EXCAVATION 2000' OR THAT REQUIRED IN THE STATE WHERE THIS CONTRACT IS BEING UNDERTAKEN.

4 THE CONTRACTOR SHALL TAKE ALL DUE CARE THAT ONLY THE ABSOLUTE MINIMUM OF AREA FOR CONSTRUCTION IS USED AND THAT NO UNDUE DAMAGE IS DONE TO EXISTING VEGETATION MARKED FOR RETENTION.

5 THE CONTRACTOR SHALL PROGRAMME THE EARTHWORKS OPERATION SO THAT THE WORKING AREAS ARE ADEQUATELY DRAINED DURING THE PERIOD OF CONSTRUCTION. THE SURFACE SHALL BE GRADED AND SEALED OFF TO REMOVE DEPRESSIONS, ROLLER MARKS AND SIMILAR WHICH WOULD ALLOW WATER TO POND AND PENETRATE THE UNDERLYING MATERIAL. ANY DAMAGE RESULTING FROM THE CONTRACTOR NOT OBSERVING THESE REQUIREMENTS SHALL BE RECTIFIED BY THE CONTRACTOR AT THEIR COST.

6 THE CONTRACTOR SHALL BE DEEMED TO HAVE INVESTIGATED THE SITE AND BE SATISFIED AS TO THE QUANTITY AND TYPE OF MATERIAL TO BE EXCAVATED AND THE SUB-SURFACE CONDITIONS LIKELY TO BE ENCOUNTERED DURING BULK EARTHWORKS.

7 PROVIDED ESTIMATES OF CUT AND FILL VOLUMES ARE TO BE VERIFIED BY CONTRACTOR PRIOR TO TENDER.

8 WORKS AREAS SHALL BE STRIPPED OF STRUCTURES, PAVEMENTS, VEGETATION AND OTHER 'UNSUITABLE MATERIAL' (AS DEFINED IN AS 3798, 2007). TOPSOIL IS TO BE STOCKPILED ON SITE FOR RE-USE IN LANDSCAPING AREAS. STOCKPILE LOCATION IS TO BE CONFIRMED ON SITE BY THE SUPERINTENDENT AND IN ACCORDANCE WITH THE SECP. STOCKPILES TO BE IN ACCORDANCE WITH APPROVED PROJECT SECP.

9 ALL GENERATED WASTE AND SPOIL TO BE MANAGED IN ACCORDANCE WITH THE APPROVED SITE WASTE MANAGEMENT PLAN AND/OR RELEVANT NSW DECC GUIDELINES. ANY SPOIL OR OTHER MATERIAL SUSPECTED OF BEING CONTAMINATED IS TO BE REFERRED TO THE SUPERINTENDENT.

10 EARTHWORKS SHALL INCLUDE THE EXCAVATION, PLACING AND COMPACTION OF CUT MATERIALS TO THE LEVELS AND PROFILES AS DETAILED ON THE BULK EARTHWORKS PLAN. EXCESS SPOIL IS TO BE MANAGED AS DIRECTED BY THE SUPERINTENDENT. BATTERS SHALL CONTINUE IN REGULAR LINES AROUND CURVES.

10 THE PRINCIPAL RESERVES THE RIGHT TO AMEND ALL LEVELS SHOWN ON THE DRAWINGS AT ANY STAGE DURING THE CONTRACT PERIOD, PRIOR TO THE PLACEMENT OF TOPSOIL, SHOULD SUCH AMENDMENT BE DEEMED BY THE OWNER'S REPRESENTATIVE / SUPERINTENDENT PRIOR TO PLACEMENT.

11 WHERE BATTERS ARE NOT DETAILED ON PLANS AND SECTIONS, AN EVEN GRADE BETWEEN NOMINATED LEVELS WILL APPLY. THE MAXIMUM UNSUPPORTED BATTER SHALL BE 1V:3H UNLESS NOTED OTHERWISE.

12 BATTERS SHALL BE FREE OF LOOSE MATERIAL AND SHALL BE NEATLY TRIMMED AND ROLLED TO SEAL THE SURFACE (PRIOR TO REVEGETATION AS REQUIRED IN ACCORDANCE WITH SITE VMP).

13 FILL BATTERS TO BE CONSTRUCTED BY OVER PLACEMENT OF ENGINEERED FILL AND TRIMMING BACK TO THE FINAL PROFILE.

SITE PREPARATION

1 PRIOR TO COMMENCEMENT OF ALL SITE EARTHWORKS, THE FOLLOWING IS REQUIRED:

- REMOVAL AND DISPOSAL OF EXISTING TREES AND SHRUBS (INCLUDING ENTIRE ROOTBALLS) FROM THE WORKS AREA. VEGETATION IS TO BE MULCHED AND RE-USED OR REMOVED FROM THE SITE.
- STRIPPING OF ALL GRASS, TOPSOIL AND ROOT AFFECTED SOILS. STRIPPED TOPSOIL TO BE STOCKPILED SEPARATELY AND NOT TO BE USED AS ENGINEERED FILL. SUCH MATERIALS MAY BE REUSED IN LANDSCAPED AREAS.

2 ANY UNSUITABLE MATERIALS AS OUTLINED IN THE GEOTECHNICAL REPORT (MA REFERENCE P1002913JR02V01, MARCH 2012) ARE TO BE RE-USED IN LANDSCAPING OR REMOVED FROM THE SITE.

martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT: HANSON / OLD WALLGROVE RD EASTERN CREEK

TITLE: CONSTRUCTION NOTES – SHEET 1 OF 4

DESIGNED: MGD | DATUM: M.R.L.

DRAWN: KT | HORIZONTAL RATIO: 1:500 @ A1, 1:1000 @ A3

REVIEWED: ASN | VERTICAL RATIO: 1:500 @ A1, 1:1000 @ A3

SHEET 2 OF 20 SHEETS

PAPER SIZE: A1 / A3

THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

PROJECT MANAGER: ANDREW NORRIS

DRAWING NUMBER: P1002913JD04V01

REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN

REMEDIAL WORKS

1 THE AREA IN THE VICINITY OF TEST LOCATIONS 208, 209 AND 210 (SEE GEOTECHNICAL REPORT P1002913JR02V01, MARCH 2012) IS TO BE REMEDIATED PRIOR TO COMMENCEMENT OF SITE EARTHWORKS. THIS AREA HAS BEEN IDENTIFIED AS HAVING DEEP SATURATED LAYERS OF POTENTIALLY UNSUITABLE FILL MATERIALS.

2 REMEDIATION OF THIS AREA IS TO BE UNDERTAKEN UNDER THE SUPERVISION OF THE PROJECT GEOTECHNICAL ENGINEER AND IS LIKELY TO INCLUDE THE FOLLOWING WORKS:

- REDIRECTION / DIVERSION OF DEWATERING FLOWS FROM FORMER HANSON QUARRY TO THE NORTH OF THE PROPOSED SUB-DIVISION.
- EXCAVATION OF DRAINAGE TRENCHES AND SUB-SURFACE DRAINS THROUGH THE AREA.
- BULK EXCAVATION OF UNDERLYING SATURATED MATERIALS FOR DRYING AND RE-USE OR OFF-SITE DISPOSAL

EXCAVATION

1 THE EXCAVATION SHALL BE CARRIED OUT IN THE LOCATIONS SHOWN AND TO THE LEVELS, WIDTHS AND BATTER SLOPES INDICATED ON THE DRAWINGS. IN ALL AREAS WHERE EXISTING LEVELS ARE ABOVE DESIGN LEVELS, EXCAVATION OF EXCESS MATERIAL IS TO BE COMPLETED. WHERE EXPOSED UNDERLYING MATERIAL IS FILL, EXCAVATION IS TO PROCEED TO A LEVEL OF 1.0 M BELOW DESIGN FINISHED SURFACE LEVELS. WHERE NATURAL SOIL / ROCK PROFILES ARE EXPOSED, EXCAVATION IS TO PROCEED TO DESIGN FINISHED LEVEL.

2 EXCAVATED MATERIAL NOT MEETING THE SPECIFICATION FOR FILL MATERIAL AND CLASSIFIED AS UNSUITABLE SHALL BE DISPOSED OF IN AN APPROPRIATE MANNER AND AS DIRECTED BY THE SUPERINTENDENT.

3 ALL EXCAVATED MATERIAL REMOVED FROM THE SITE MUST BE CLASSIFIED IN ACCORDANCE WITH NSW DECC (2008) ENVIRONMENTAL GUIDELINES: ASSESSMENT, CLASSIFICATION AND MANAGEMENT OF LIQUID AND NON-LIQUID WASTES PRIOR TO DISPOSAL. ALL EXCAVATED MATERIAL MUST BE DISPOSED OF TO AN APPROVED WASTE MANAGEMENT FACILITY.

4 WHERE EXCAVATION WORK IS REQUIRED IN THE VICINITY OF EXISTING UTILITY SERVICES, THE CONTRACTOR SHALL SUPPORT ALL SUCH UTILITY SERVICES DURING THE WORKS. ON COMPLETION OF EXCAVATION WORKS SUCH UTILITY SERVICES SHALL BE BACK FILLED IN SUCH A MANNER AS TO RETAIN THE UTILITY SERVICE IN ITS ORIGINAL GRADE AND POSITION TO THE SATISFACTION OF THE SUPERINTENDENT AND UTILITY SERVICE PROVIDER.

5 WHERE EXCAVATED MATERIAL IS TO BE USED FOR FILLING, THE MATERIAL SHALL BE INSPECTED AND APPROVED BY THE SUPERINTENDENT PRIOR TO USE.

6 THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE MAINTENANCE OF ANY EXCAVATIONS AND IS LIABLE FOR ANY DAMAGE WHICH MAY BE CAUSED TO ANY WATER / SEWER PIPE / STORMWATER, PUBLIC UTILITY SERVICE, CAUSED BY THE COLLAPSE OF THE EXCAVATION.

7 WHERE DIRECTED BY THE SUPERINTENDENT THE BOTTOM OF TRENCHES OR EXCAVATIONS SHALL BE COMPACTED PRIOR TO PLACING OF ANY PAVEMENT SUB-BASE, BEDDING OR CONCRETE MATERIALS. SHOULD THE FOUNDATION MATERIAL, IN THE OPINION OF THE SUPERINTENDENT, BE INCAPABLE OF EFFECTIVE COMPACTION, SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH APPROPRIATE MATERIAL.

8 STRIPPED PAVEMENT SUB-GRADES MUST BE PROOF ROLLED (PRIOR TO THE ADDITION OF SUITABLE FILL) BY A MINIMUM 12 TONNE MASS SMOOTH DRUM ROLLER WITHOUT VIBRATION UNDER THE SUPERVISION OF THE GEOTECHNICAL TESTING AUTHORITY (GTA) AND/OR SITE ENGINEER.

9 SUBGRADE IN ROCK IS TO BE RIPPED, SCARIFIED, SPREAD AND COMPACTED TO A MINIMUM DEPTH OF 300MM BELOW THE FINISHED SUBGRADE LEVEL.

10 IF APPROVED BY THE SUPERINTENDENT EXCAVATED MATERIAL MAY BE USED FOR BACKFILL OVER PIPES PROVIDED IT COMPLIES WITH RELEVANT BUILDING AND CONSTRUCTION CODES AND SPECIFICATIONS. THIS MATERIAL SHALL REMAIN THE PROPERTY OF THE PRINCIPAL AND ANY EXCESS SHALL BE SPOILED OR USED FOR FILLING WITHIN THE SITE AS DIRECTED BY THE SUPERINTENDENT.

11 ALL EXCAVATIONS MUST BE PROPERLY GUARDED AND PROTECTED TO PREVENT THEM FROM BEING DANGEROUS TO LIFE OR PROPERTY.

12 RETAINING WALLS OR OTHER APPROVED METHODS NECESSARY TO PREVENT THE MOVEMENT OF EXCAVATED OR FILLED GROUND, ARE TO BE CONSTRUCTED TOGETHER WITH ASSOCIATED STORMWATER DRAINAGE MEASURES PRIOR TO OCCUPATION OF THE DEVELOPMENT OR BEFORE WHERE SITE CONDITIONS REQUIRE.

FILL

1 FOUNDATION MATERIAL DEEMED BY THE GEOTECHNICAL INSPECTION TESTING AUTHORITY (GITA) AS UNSUITABLE IS TO BE REMOVED AS DIRECTED BY THE SUPERINTENDENT AND REPLACED WITH APPROVED MATERIAL SATISFYING THE REQUIREMENTS BELOW.

2 ANY IMPORTED SOILS TO THE SUBJECT SITE MUST BE VIRGIN EXCAVATED NATURAL MATERIAL (VENM) AS DEFINED IN SCHEDULE 1 OF THE PROTECTION OF THE ENVIRONMENT OPERATIONS ACT 1997.

3 PRIOR TO THE IMPORTATION AND / OR PLACEMENT OF ANY FILL MATERIAL, A VALIDATION REPORT AND SAMPLING LOCATION PLAN MUST BE SUBMITTED TO AND APPROVED BY THE PRINCIPAL. THE VALIDATION REPORT AND SAMPLING LOCATION PLAN MUST:

- CERTIFY THE MATERIAL TO BE VENM IN ACCORDANCE WITH THE POEO ACT (1997).
- BE PREPARED BY A PERSON WITH EXPERIENCE IN THE GEOTECHNIAL ASPECTS OF THE EARTHWORKS.
- BE PREPARED IN ACCORDANCE WITH: DEPARTMENT OF ENVIRONMENT AND CONSERVATION (2006) CONTAMINATED SITES GUIDELINES "GUIDELINES FOR THE NSW SITE AUDITOR SCHEME (SECOND EDITION) – SOIL INVESTIGATION LEVELS FOR URBAN DEVELOPMENT SITES IN NSW".
- CONFIRM THAT THE FILL MATERIAL:
  - A) PROVIDES NO UNACCEPTABLE RISK TO HUMAN HEALTH AND THE ENVIRONMENT.
  - B) IS FREE OF CONTAMINANTS.
  - C) IS SUITABLE FOR ITS INTENDED PURPOSE AND LAND USE; AND
  - D) HAS BEEN LAWFULLY OBTAINED.

5 UNLESS OTHERWISE APPROVED OR SPECIFIED, ALL FILL MATERIAL SHALL BE FROM A SOURCE APPROVED BY THE SUPERINTENDENT AND SHALL COMPLY WITH THE FOLLOWING:

- FREE FROM ORGANIC AND PERISHABLE MATTER AND OTHER DELETERIOUS / UNSUITABLE MATERIAL AS DEFINED BY AS 3798 (2007).
- MAXIMUM PARTICLE SIZE 75MM.
- PLASTICITY INDEX BETWEEN 2% AND 20%.
- A MINIMUM CBR TO BE DETERMINED DURING CONSTRUCTION OR AS SPECIFIED ON THESE DRAWINGS.
- ENGINEERED FILL IS TO BE PLACED IN LAYERS NOT GREATER THAN 300 MM (LOOSE) AND COMPACTED TO ACHIEVE 98% SMDD. FINAL FILL LAYER ON ALL AREAS TO BE COMPACTED TO ACHIEVE 100% SMDD. PAVEMENT AND ROAD SUB-GRADE IS TO BE COMPACTED TO LEVELS AS SPECIFIED IN THE GEOTECHNICAL REPORT.

6 MATERIAL ACCEPTANCE AND SELECTION SHOULD BE SUBJECT TO LEVEL 1 FULL TIME-MONITORING BY THE GITA NOMINATED FOR THE PROJECT.

7 A LOG-BOOK SHALL BE KEPT ON SITE AND MAINTAINED TO RECORD ALL DAILY TRUCK LOADS OF FILL BROUGHT TO THE SITE. THIS LOG-BOOK SHALL BE MADE AVAILABLE FOR PERUSAL TO AUTHORISED COUNCIL OFFICERS UPON REQUEST.

8 PRIOR TO ANY FILL BEING PLACED, TOPSOIL AND UNSUITABLE MATERIAL SHALL BE STRIPPED OFF TO A MINIMUM DEPTH OF 150MM AND STOCKPILED AS DIRECTED BY THE SUPERINTENDENT OR AS SPECIFIED IN THE DESIGN DRAWINGS. UNSUITABLE TOPSOIL MATERIAL SO DEEMED BY THE SUPERINTENDENT SHALL BE SEPARATELY STOCKPILED.

9 WHERE FILL IS TO BE PLACED ON THE EXISTING SURFACE, THE EXISTING SURFACE WILL BE PREPARED SUCH THAT A SERIES OF LEVEL TERRACES ARE 'KEYED INTO' EXISTING STIFF TO VERY STIFF SOILS.

10 THE STRIPPED SURFACE MUST BE PROOF ROLLED (PRIOR TO THE ADDITION OF FILL) BY A MINIMUM 12 TONNE STATIC MASS SMOOTH DRUM ROLLER WITHOUT VIBRATION UNDER THE SUPERVISION OF THE GTA.

11 WHERE EXISTING FILL IS ENCOUNTERED, FOLLOWING STRIPPING / EXCAVATION TO SUB-GRADE LEVELS OR WHERE LEVELS ARE TO BE RAISED BY FILLING, THE FOLLOWING WORKS ARE REQUIRED:

- EXCAVATION TO A DEPTH OF 1.0 M BELOW DESIGN FINISHED SURFACE LEVELS (NOTE: NOT REQUIRED WHERE SURFACE IS GREATER THAN 1.0 M BELOW DESIGN LEVEL).
- COMPACTION OF *IN-SITU* FILL USING AN IMPACT ROLLER. ALL IMPACT ROLLING OPERATIONS ARE TO BE SUPERVISED BY A GEOTECHNICAL ENGINEER WITH FINAL REQUIREMENT FOR WORKS TO BE DETERMINED ON-SITE.
- PROOF ROLL AFTER IMPACT ROLLING TO DETECT ANY HEAVING OR SOFT AREAS. ALL SUCH AREAS TO BE REMEDIATED UNDER GEOTECHNICAL ENGINEER'S DIRECTION.

12 WHERE ROCK IS ENCOUNTERED AT FINISHED LEVELS OR DEEPER, NO FURTHER WORKS ARE REQUIRED PRIOR TO FILLING.

13 SHOULD GROUNDWATER SEEPAGE THROUGH SOIL / FILL BE OBSERVED, THEN SUB-SOIL DRAINS SHALL BE REQUIRED.

14 THE CONTRACTOR SHALL ENSURE THAT LEVEL 1 TESTING AS PER AS3798-2007 CLAUSE 8.2 IS CARRIED OUT FOR ANY FILLING OPERATIONS. DENSITY AND COMPACTION TESTING TO BE UNDERTAKEN ON EACH FILL LAYER (MAXIMUM 300 MM RISE IN VERTICAL HEIGHT) BY A NATA REGISTERED LABORATORY OR MINIMUM REQUIREMENTS OF AS.3798 (2007).

15 DENSITY AND COMPACTION TESTING TO BE UNDERTAKEN ON EACH FILL LAYER TO MINIMUM REQUIREMENTS OF AS.3798 (2007).

16 FILL TO BE PLACED AND COMPACTED TO RELATIVE COMPACTION LEVELS AS SPECIFIED IN AS 3798-2007 TABLE 5.1 AND IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 6.2. MINIMUM RELATIVE COMPACTION REQUIREMENTS ARE SUMMARISED FOR THE SITE AS FOLLOWS:

- 98% SMDD FOR GENERAL ENGINEERED FILL LAYERS AND AREAS TO BE REGRADED UP TO 300 MM BELOW FINISHED SURFACE LEVELS.
- 100% SMDD FOR TOP 300 MM LAYER OF FILL FOR ALL AREAS AND FOR PAVEMENT SUB-GRADE.

17 MOISTURE CONTROL OF FILLING MATERIALS TO BE AT ±2% OMC OR AS SPECIFIED ELSEWHERE BY RELEVANT GEOTECHNICAL REPORT OR AS INSTRUCTED BY GTA.

18 FILL TO BE PLACED AND COMPACTED UNDER SUPERVISION OF A GEOTECHNICAL ENGINEER WITH LEVEL 2 QUALIFICATION, IN ACCORDANCE WITH A.S. 3798 (2007).

19 BATTERS SHALL BE CONSTRUCTED BY 'OVER PLACING' SOILS AND TRIMMING BACK TO THE FINAL PROFILE (BEFORE TOP DRESSING) UNLESS OTHERWISE INSTRUCTED ON THE DESIGN DRAWINGS.

20 TOPSOIL WHERE PLACED OR REQUIRED IS TO HAVE A MAXIMUM THICKNESS OF 300MM AND SHALL BE LIGHTLY ROLLED TO ACHIEVE A 'NATURAL IN-SITU' COMPACTION TO PREVENT EROSION BUT TO ACHIEVE THE REQUIRED GRADES AS SPECIFIED ON THE DESIGN DRAWINGS.

21 SURFACE RUNOFF AND SCOUR MUST BE CONTROLLED AND THE SURFACE BETWEEN LAYERS GRADED WITH A 1% MINIMUM FREE DRAINING SLOPE.

22 DURING CLEARING AND EXCAVATION FOR SLABS AND FOOTINGS CUT OUT SOFT SPOTS AND FILL AS ABOVE AND AS DIRECTED BY THE GTA.

REVEGETATION OF SWALES, ROAD SHOULDERS, BUFFER STRIPS AND OTHER DISTURBED AREAS.

1 ALL EARTHWORK IN AREAS TO BE LANDSCAPED ARE TO BE FINISHED WITH 150MM THICK LAYER OF SITE SOURCED OR APPROVED EXTERNAL SUPPLY TOPSOIL AND SPRAY GRASSED FOLLOWING COMPLETION OF WORKS IN ANY ONE AREA.

3 ALL TRAFFIC IS TO BE EXCLUDED FROM NEWLY RE-VEGETATED AREAS BY THE ERECTION OF SUITABLE TEMPORARY BARRIER FENCING.

4 SITE SEDIMENT AND EROSION CONTROL MEASURES ARE TO BE MAINTAINED UNTIL THE VEGETATION IS ESTABLISHED OR OTHERWISE DIRECTED BY THE SUPERINTENDENT OR COUNCIL ENGINEER.

5 THE CONTRACTOR IS RESPONSIBLE FOR THE REVEGETATED AREAS FOR THE PERIOD SPECIFIED IN THE CONTRACT.

TREES

1 ALL TREE PROTECTION REQUIREMENTS AS OUTLINED IN THE APPROVED PROJECT BIODIVERSITY AND CONSERVATION MANAGEMENT PLAN (BCMP) ARE TO BE COMPLIED WITH.

2 A TREE RETENTION PLAN AS PER THE BCMP IS TO BE KEPT ON SITE INDICATING TREES TO BE RETAINED AND AREAS LEFT UNDISTURBED THAT ARE TO BE CORDONED OFF FROM CONSTRUCTION WORKS.

3 PRIOR TO WORK COMMENCING, TREE PROTECTION FENCING MUST BE ERECTED AROUND THE TREES THAT ARE TO BE RETAINED AT A 3M SETBACK. THE TREE FENCING MUST BE CONSTRUCTED OF 1.8 METRE CYCLONE CHAINMESH FENCE. THE TREE PROTECTION FENCING MUST BE MAINTAINED IN GOOD WORKING ORDER UNTIL THE COMPLETION OF ALL BUILDING OR DEVELOPMENT WORKS. A STATEMENT OF COMPLIANCE FROM A QUALIFIED TREE SURGEON OR ENVIRONMENTAL CONSULTANT SHALL BE SUBMITTED TO COUNCIL PRIOR TO THE ISSUE OF THE CONSTRUCTION CERTIFICATE. PENALTIES APPLY FOR NON-COMPLIANCE.

4 TO PREVENT DAMAGE TO TREE ROOTS, EXCAVATION (FOR SERVICES AND OTHER WORKS), CHANGE OF SOIL LEVEL (CUT OR FILL), PARKING (VEHICLES OR PLANT), OR PLACEMENT OF BUILDING MATERIALS (INCLUDING DISPOSAL OF CEMENT SLURRY AND WASTE WATER) WITHIN THE SPECIFIED TREE PROTECTION SETBACKS, AND WITHIN 3M OF ALL OTHER TREES TO BE RETAINED ONSITE, IS STRICTLY FORBIDDEN. NO TREE ROOTS LOCATED WITHIN THE SPECIFIED TREE SETBACK/S, SHALL BE SEVERED OR INJURED IN THE PROCESS OF ANY SITE WORKS DURING THE CONSTRUCTION OR LANDSCAPING PHASES OF THE APPROVED PROJECT. THE APPLICANT SHALL ENSURE THAT ALL UNDERGROUND SERVICES (I.E. WATER, DRAINAGE, GAS, AND SEWER) SHALL NOT BE LAID WITHIN 3M OF ANY TREE LOCATED ON THE PROPERTY PROTECTED UNDER COUNCIL'S TREE PRESERVATION ORDER OR LISTED FOR PROTECTION IN THE APPROVED PROJECT BCMP.

SIGNAGE

1. ON-SITE SIGNAGE IS REQUIRED TO CLEARLY IDENTIFY THE PCA AND THE PRINCIPAL CONTRACTOR (THE COORDINATOR OF THE BUILDING WORK) PURSUANT TO THE ENVIRONMENTAL PLANNING AND ASSESSMENT AMENDMENT (QUALITY OF CONSTRUCTION).
2. ALL SIGNAGE REQUIREMENTS AS SPECIFIED IN THE CTMP ARE TO BE IMPLEMENTED PRIOR TO AND DURING CONSTRUCTION WORKS.
3. WHERE SIGNS ARE TO BE REUSED THEY ARE TO BE WASHED AND CLEANED WHERE REQUIRED.
4. ALL EXISITNG SIGNS WHICH ARE DAMAGED AND NON LEGIBLE ARE TO BE REPLACED.

SEDIMENT AND EROSION CONTROL PLAN

1 A SEDIMENT AND EROSION CONTROL PLAN (SECP) FOR ALL SITE WORKS IS TO BE SUBMITTED FOR APPROVAL. MEASURES FOR SEDIMENT AND EROSION CONTROL NOTED IN THE APPROVED SECP ARE TO BE INSTALLED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK TO ELIMINATE THE DISCHARGE OF SEDIMENT FROM THE SITE. THE CONTROLS ARE TO BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF LANDCOM'S "MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION", VOLUME 1, 4TH EDITION, MARCH 2004, (THE BLUE BOOK).

FLEXIBLE PAVEMENTS

- GENERAL

1 FLEXIBLE OR SEMI-RIGID PAVEMENT MATERIAL TYPES AND LAYER THICKNESSES SHALL BE AS PER COUNCIL (2005) ENGINEERING DESIGN AND CONSTRUCTION SPECIFICATIONS AND THESE DRAWINGS.

2 MINIMUM SURFACING REQUIREMENT FOR ALL PAVEMENTS SHALL BE A SINGLE COAT FLUSH SEAL WITH A MINIMUM 50 MM LAYER OF ASPHALTIC CONCRETE (AC10) APPLIED IN TWO 25 MM THICK LAYERS OVER THE WHOLE OF THE ROAD PAVEMENT IN ACCORDANCE WITH COUNCIL'S (2005) ENGINEERING DESIGN SPECIFICATION.

3 PAVEMENT MATERIALS CLASSIFICATION FOR BASE AND SUB-BASE MATERIALS IS TO BE AS PER COUNCIL (2005) CONSTRUCTION SPECIFICATION. BASE TO CONSIST OF DGB20. SUB-BASE TO CONSIST OF DGS40. CRUSHED OR RIPPED SANDSTONE MAY NOT BE USED FOR INDUSTRIAL ROADS UNLESS IT HAS BEEN AUGMENTED BY A PROCESS APPROVED BY COUNCIL AND IS DELIVERED FROM COUNCIL CERTIFIED STOCKPILES AS PER COUNCIL'S (2005) ENGINEERING WORKS SPECIFICATION.

4 PAVEMENT MATERIALS SHALL OTHERWISE COMPLY WITH THE REQUIREMENTS OF COUNCIL'S DESIGN AND CONSTRUCTION SPECIFICATIONS.

5 THE CONTRACTOR SHALL SUBMIT DETAILS OF ALL CONSTITUENTS OF THE PROPOSED BASE AND SUBBASE MATERIALS, INCLUDING SOURCE OF SUPPLY AND THE PROPOSED TYPE AND PROPORTION OF ANY BINDER, TO THE SUPERINTENDENT, SUPPORTED WITH TEST RESULTS FROM A NATA REGISTERED LABORATORY CONFIRMING THAT THE CONSTITUENTS COMPLY WITH COUNCIL REQUIREMENTS.

6 THE CONTRACTOR SHALL PROVIDE THE SUPERINTENDENT WITH WRITTEN NOTICE WHEN TESTING IS BEING CARRIED OUT AND COPIES OF ALL TEST REPORTS FOR APPROVAL TO PROCEED.

martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT: HANSON / OLD WALLGROVE RD EASTERN CREEK

THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

TITLE: CONSTRUCTION NOTES – SHEET 2 OF 4

PROJECT MANAGER: ANDREW NORRIS

DRAWING NUMBER: P1002913JD04V01

DESIGNED: MGD
DRAWN: KT
REVIEWED: ASN

DATUM: M R.L.
HORIZONTAL RATIO: 1:500 @ A1 1:1000 @ A3
VERTICAL RATIO: 1:500 @ A1 1:1000 @ A3

SHEET 3 OF 20 SHEETS
PAPER SIZE: A1 / A3

REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN

– PAVEMENT DESIGN AND CONSTRUCTION

1 CONSTRUCTION OF NEW FLEXIBLE PAVEMENTS SHALL BE CONSISTENT WITH RECOMMENDATIONS GIVEN IN THE GEOTECHNICAL REPORT (MA REFERENCE P1002913JR02V01, MARCH 2012). PAVEMENT THICKNESSES, MATERIALS AND MATERIALS SPECIFICATIONS TO BE AS FOLLOWS:

LAYER	MATERIALS	SPECIFICATIONS	REFERENCE/COMMENT
COVER	50MM AC10 ASPHALT (2 X 25MM LAYERS)	AC10: • ELASTIC MODULUS = 2500 MN/M²	BASED ON SECTION 3.6 (II) OF BLACKTOWN CITY COUNCIL (2005) ENGINEERING GUIDE FOR ESA GREATER THAN 5 X10⁵
BASE	160 MM DGB20	DGB20: • ELASTIC MODULUS = 212 MN/M² • CBR = 45 • PLASTICITY INDEX < 6 • AGGREGATE WET STRENGTH > 70 KN • WET/DRY STRENGTH < 35%	BASED ON FIGURE 8.4 OF AUSTROADS (2010). BASE COURSE OF 160 M REQUIRED.
SUB-BASE	FOR CBR = 1.0 (FILL): 790MM DGS40 PLUS 2 LAYERS OF GEOGRID AT 0, 400MM ABOVE BASE OF LAYER. FOR CBR = 2.5 (NATURAL SOILS): 560MM DGS40 FOR CBR = 7.0 (NATURAL SOILS): 140MM DGS40 FOR CBR = 20.0 (ROCK): RIP AND RECOMPACT ROCK TO DEPTH OF 300MM. RIPPED ROCK TO GENERALLY COMPLY WITH DGS40 GRADING PRIOR TO RECOMPACTION AT 98% SMDD.	DGS40: • ELASTIC MODULUS = 105 MN/M² • CBR = 40 • MAXIMUM WET/DRY STRENGTH VARIATION OF 50% GEOGRID: • TENSAR TX170 OR EQUIVALENT	CBR 1.0 SOLUTION DESIGNED USING TENSARPAVE DESIGN PROGRAM (VERSION 6.04.02, 2008). DETAILS OF MODEL INPUTS AND OUTPUTS ARE PROVIDED IN ATTACHMENT D.

- INSPECTION, SAMPLING AND TESTING

1 INSPECTION, SAMPLING AND TESTING OF THE PAVEMENT SHALL BE UNDERTAKEN BY THE CONTRACTOR IN ACCORDANCE WITH COUNCIL (2005) CONSTRUCTION SPECIFICATION – BEFORE, DURING AND AFTER THE CONSTRUCTION OF THE PAVEMENT. TESTING SHALL BE CARRIED OUT BY A NATA REGISTERED LABORATORY WITH APPROPRIATE ACCREDITATION AND SUITABLY QUALIFIED PERSONNEL.

2 THE CONTRACTOR SHALL PROVIDE THE SUPERINTENDENT WITH WRITTEN NOTICE WHEN TESTING IS BEING CARRIED OUT AND COPIES OF ALL TEST REPORTS FOR APPROVAL TO PROCEED.

3 FIELD DENSITY TESTS SHALL BE CARRIED OUT IN ACCORDANCE WITH AS1289.5.4.1, OR, WITH THE SUPERINTENDENT'S CONCURRENCE, WITH A NUCLEAR DENSITY METER IN ACCORDANCE WITH RELEVANT STANDARDS.

4 COMPACTION ASSESSMENT AND TESTING OF THE WORK IS TO BE CONDUCTED IN 'LOTS' (SEE ACCEPTANCE OF COMPACTED LAYERS), WITH TESTING AS PER COUNCIL (2005) CONSTRUCTION SPECIFICATION.

5 THE PLACEMENT OF SUBSEQUENT LAYERS SHALL NOT BE ALLOWED UNTIL THE REQUISITE TESTING HAS BEEN COMPLETED AND THE TEST RESULTS FOR EACH LAYER HAVE BEEN ACCEPTED BY THE SUPERINTENDENT.

- SPREADING OF PAVEMENT MATERIALS

1 UNBOUND MATERIALS SHALL NOT BE SPREAD UPON AN UNDERLYING PAVEMENT LAYER WHICH HAS A MOISTURE CONTENT EXCEEDING 90% OF THE LABORATORY OPTIMUM MOISTURE CONTENT OR WHICH HAS BECOME RUTTED OR MIXED WITH FOREIGN MATTER. THE UNDERLYING LAYER SHALL BE CORRECTED TO COMPLY BEFORE SPREADING THE NEXT LAYER OF PAVEMENT.

2 THE COST OF CORRECTING AN UNDERLYING LAYER TO COMPLY SHALL BE BORNE BY THE CONTRACTOR.

3 EACH LAYER OF MATERIAL SHALL BE DEPOSITED AND SPREAD IN A CONCURRENT OPERATION AND, AFTER COMPACTION, THE FINISHED SURFACE LEVELS OF THE BASE AND SUBBASE COURSES SHALL BE WITHIN THE PERMITTED TOLERANCES STATED IN COUNCILS SPECIFICATION WITHOUT SUBSEQUENT ADDITION OF MATERIAL. THE THICKNESS OF EACH COMPACTED LAYER SHALL BE NEITHER LESS THAN 100MM NOR MORE THAN 150MM FOR ALL PAVEMENT LAYER TYPES, UNLESS APPROVED BY THE SUPERINTENDENT.

4 WHEN SPREAD FOR COMPACTION PROCESS THE MOISTURE CONTENT OF THE BASE OR SUBBASE MATERIALS SHALL BE IN THE RANGE OF 60-90% OF LABORATORY OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH AS1289.5.2.

- TRIMMING AND COMPACTION

1 EACH LAYER OF THE BASE AND SUBBASE COURSES SHALL BE UNIFORMLY COMPACTED OVER ITS ENTIRE AREA AND DEPTH TO SATISFY THE REQUIREMENT OF RELATIVE COMPACTION SET OUT IN COUNCILS (2005) ENGINEERING CONSTRUCTION SPECIFICATION AND THESE PLANS.

2 WATERING AND COMPACTION PLANT SHALL NOT BE ALLOWED TO STAND ON THE PAVEMENT BEING COMPACTED.

3 ON SECTIONS OF PAVEMENT WITH ONE-WAY CROSSFALL, COMPACTION SHALL BEGIN AT THE LOW SIDE OF THE PAVEMENT AND PROGRESS TO THE HIGH SIDE. ON CROWNED SECTIONS, COMPACTION SHALL BEGIN AT THE SIDES AND PROGRESS TOWARDS THE CROWN. EACH PASS OF THE ROLLERS SHALL BE PARALLEL WITH THE ROADWAY CENTRELINE AND UNIFORMLY OVERLAP EACH PRECEDING PASS. THE OUTER METRE OF BOTH SIDES OF THE PAVEMENT SHALL RECEIVE AT LEAST TWO MORE PASSES BY THE COMPACTION PLANT THAN THE REMAINDER OF THE PAVEMENT.

4 AT LOCATIONS WHERE IT WOULD BE IMPRACTICABLE TO USE SELF PROPELLED COMPACTION PLANT, COMPACTION SHALL BE ACHIEVED BY HAND-OPERATED PLANT APPROVED BY THE SUPERINTENDENT.

5 IF ANY UNSTABLE AREAS DEVELOP DURING ROLLING, THE UNSTABLE MATERIAL SHALL BE REJECTED AND REMOVED FOR THE FULL DEPTH OF THE LAYER, DISPOSED OF AND REPLACED WITH FRESH MATERIAL. THIS OPERATION WILL BE AT THE COST OF THE CONTRACTOR.

6 THE PLACEMENT OF SUBSEQUENT LAYERS SHALL NOT BE ALLOWED UNTIL THE REQUISITE TESTING HAS BEEN COMPLETED AND THE TEST RESULTS FOR EACH LAYER HAVE BEEN ACCEPTED BY THE SUPERINTENDENT.

7 ANY UNBOUND MATERIAL IN A LAYER THAT HAS ATTAINED THE SPECIFIED RELATIVE COMPACTION BUT SUBSEQUENTLY BECOMES OVER WET SHALL BE DRIED OUT AND, IF NECESSARY, UNIFORMLY TYNED, RECOMPACTED AND TRIMMED TO MEET THE SPECIFIED DENSITY REQUIREMENTS AND LEVEL TOLERANCES.

8 COVER/LIVE LOADING REQUIREMENTS IN ACCORDANCE WITH AS/NZS 3725:2007. MINIMUM 500MM COMPACTED FILL REQUIRED OVER CLASS 3 PIPE PRIOR TO ACCESS BY 15 TONNE EXCAVATOR AND COMPACTION WHEEL. 550MM FOR 10 TONNE VIBRATORY SMOOTH DRUM ROLLER.

- ACCEPTANCE OF COMPACTED LAYERS

1 ACCEPTANCE OF WORK, WITH RESPECT TO COMPACTION, SHALL BE BASED ON DENSITY TESTING OF THE WORK. ALL TESTING SHALL BE CARRIED OUT BY A NATA REGISTERED LABORATORY AND SHALL BE IN ACCORDANCE WITH PROCEEDURES DETAILED IN AS1289.5.4.1.

2 FREQUENCY OF TESTING SHALL BE IN ACCORDANCE WITH AS1280, AS1726 AND COUNCIL'S (2005) ENGINEERING DESIGN SPECIFICATION.

3 THE CONTRACTOR SHALL ARRANGE FOR TESTING TO ASSESS COMPACTION WITH A MINIMUM REQUIREMENT OF ONE TEST FOR EVERY 50 M SECTION OF LANE WIDTH AND / OR AT LOCATIONS AS IDENTIFIED BY COUNCIL ENGINEERS, AND PRESENT THE RESULTS TO THE SUPERINTENDENT FOR APPROVAL.

4 THE SUPERINTENDENT SHALL ASSESS COMPACTION OF EACH 50 M SECTION BASED ON RANDOM SAMPLING OF TEST LOCATIONS FOR IN-SITU DRY DENSITY TESTING.

5 AFTER EACH PAVEMENT COURSE HAS BEEN COMPLETED TO THE SPECIFIED DEPTH AND DENSITY, THE SUPERINTENDENT SALL MAKE AVAILABLE A THREE WHEELED SELF-PROPELLED ROLLER AND SHALL CARRY OUT PROOF LOADING BY ROLLING THAT PREPARED PAVEMENT LAYER. APPROVAL TO CONSTRUCT SUBSEQUENT PAVEMENT LAYERS MAY BE GIVEN ONLY AFTER COUNCIL HAS INSPECTED THE PROOF ROLLING. THE SELF-PROPELLED ROLLER SHALL EXCEED 9000 KG IN WEIGHT, HAVE REAR ROLLS OR 1200 MM DIAMETER AND AN INTENSITY LOADING OF 7000 KG/M WIDTH OF ROLL, UNLESS OTHERWISE APPROVED BY COUNCIL.

6 THE COSTS OF ALL TESTING FOR COMPACTION ASSESSMENT SHALL BE BORNE BY THE CONTRACTOR.

7 ACCEPTABLE COMPACTION PERFORMANCE STANDARDS ARE SUMMARISED AS FOLLOWS:

- BASE AND SUBBASE MIN 98 % MODIFIED COMPACTIVE EFFORT.
- SUBGRADE 100 % STANDARD COMPACTIVE EFFORT.
- COUNCIL ENGINEERING CONSTRUCTION SPECIFICATION COMPACTION REQUIRMENTS SUPERCEDE THE ABOVE WHERE COUNCIL REQUIRE GREATER COMPACTION.

8 IF AT ANY TIME DURING THE PROGRESS OF THE WORK, ANY MATERIAL SUPPLIED IS FOUND TO BE NOT IN ACCORDANCE WITH COUNCIL'S (2005) ENGINEERING CONSTRUCTION SPECIFICATION, COUNCIL WILL DIRECT THE CONTRACTOR TO REMOVE THE UNSUITABLE MATERIAL AND REPLACE IT WITH SATISFACTORY MATERIAL. PREVIOUS ACCEPTANCE OF THE WHOLE OR PART OF THE MATERIAL BY COUNCIL SHALL NOT RESTRICT COUNCIL'S RIGHT TO DIRECT REMOVAL AND REPLACEMENT OF MATERIAL SUBSEQUENTLY FOUND TO BE UNSATISFACTORY. THE CONTRACTOR SHALL CARRY OUT SUCH REMEDIAL WORK IMMEDIATELY AND ALL COSTS ASSOCIATED WITH SUCH REMEDIAL WORKS SHALL BE BORNE BY THE CONTRACTOR.

- TOLERANCES

1 CONSTRUCTION TOLERANCES FOR PAVEMENT WORKS INCLUDING PAVEMENTS WIDTHS AND DEPTHS OF BASE AND SUBBASE LAYERS AND FINISHED SURFACE TRIM SHALL BE IN ACCORDANCE WITH COUNCIL (2005) ENGINEERING CONSTRUCTION SPECIFICATION.

- PAVEMENT SEAL

1 PAVEMENT SEAL SHALL BE ASPHALTIC CONCRETE AS NOMINATED IN THE DESIGN DRAWINGS.

2 THE CONTRACTOR IS TO UNDERTAKE ALL PAVEMENT SEALING WORKS IN ACCORDANCE WITH COUNCILS CONSTRUCTION SPECIFICATION.

GENERAL INSPECTIONS BY ENGINEER OR PCA

1 CONTRACTOR TO CONFIRM WITH PCA (PRINCIPAL CERTIFYING AUTHORITY) REQUIREMENTS FOR. INSPECTIONS IN ACCORDANCE WITH REVISED EP&A ACT REGULATIONS EFFECTIVE JULY 1, 2004. AS A MINIMUM, THE FOLLOWING APPLIES.

2 48 HOURS NOTICE IS REQUIRED BEFORE ANY SITE INSPECTION

3 BEARING STRATA OF ALL FOOTINGS PRIOR TO CONCRETE POUR.

4 ANY REINFORCEMENT PRIOR TO CONCRETE POUR.

5 COMPACTION TESTING AT PREPARED SUBGRADE, SUB-BASE AND BASE LEVELS.

6 PROOF ROLL OF ALL EMBANKMENT FOUNDATIONS AND PAVEMENT SUB-GRADE.

7 INSPECTION OF ANY EXCAVATION ENCOUNTERING GROUNDWATER.

8 INSPECTION OF ANY EXCAVATION ENCOUNTERING POTENTIALLY CONTAMINATED MATERIAL.

CONCRETE

1 ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT SAA CODES AND WITH THE BY-LAWS AND ORDINANCE REQUIREMENTS OF THE RELEVANT BUILDING AUTHORITY EXCEPT WHERE VARIED BY THE PROJECT SPECIFICATIONS OR SUPERINTENDENT.

2 ALL CONCRETE SHALL COMPLY WITH A.S. 3600, AND REINFORCING MATERIALS WITH A.S. 1554.3. ALL GLASS REINFORCED CONCRETE SHALL COMPLY WITH A.S.3996.

3 CONCRETE SHALL HAVE A MINIMUM STRENGTH OF 25 MPA AT 28 DAYS IN ACCORDANCE WITH A.S. 3600, UNLESS NOTED OTHERWISE IN DESIGN PLANS, REFERENCED SPECIFICATIONS OR ADVISED IN WRITING BY THE SUPERINTENDENT.

4 EXPANSION JOINTS SHALL BE INSTALLED AS INDICATED ON THE DESIGN DRAWINGS AND IN ACCORDANCE WITH A.S 3600, GENERALLY AT EVERY 6.0M, AND SHALL BE TOOL FINISHED. DUMMY JOINTS SHALL BE STRUCK AT 3.0M INTERVALS TO A DEPTH OF 10MM. UNLESS OTHERWISE INDICATED ON DESIGN DRAWINGS.

5 CRACK CONTROL JOINTS SHALL BE CUT TO A DEPTH OF 20MM, AT 4.0 M INTERVALS, WITHIN 24 HOURS OF THE CONCRETE BEING POURED.

6 PLACEMENT OF CONCRETE - ALL CONCRETE SHALL BE MECHANICALLY VIBRATED TO ACHIEVE COMPACTION WITHOUT SEGREGATION. VIBRATORS SHALL NOT BE USED TO SPREAD THE CONCRETE.

7 CONDUITS SHALL NOT BE PLACED BETWEEN REINFORCEMENT AND CONCRETE SURFACES.

8 CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND USED ONLY WHERE SHOWN OR SPECIFICALLY APPROVED BY THE ENGINEER.

9 ALL CONSTRUCTION JOINT LOCATIONS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER.

10 NO HOLES, CHASERS OR EMBEDMENT OF PIPES, OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWING, SHALL BE MADE IN CONCRETE MEMBERS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.

11 ALL CONCRETE SHALL BE PLACED AND 'CURED' IN ACCORDANCE WITH A.S.3600. CONCRETE SHALL BE FINISHED TO THE SPECIFICATIONS ON THE DRAWINGS.

12 NO CONCRETE SHALL BE PLACED UNTIL COMPLETED FALSEWORK, FORMWORK AND REINFORCING HAS BEEN INSPECTED AND APPROVED BY THE ENGINEER OR LOCAL COUNCIL.

13 ALL NEW CONCRETE PAVING TO CONSIST OF A MINIMUM 100MM THICK 25MPA REINFORCED CONCRETE WITH SL72 CENTRALLY PLACED.

14 ALL CONCRETE UNLESS OTHERWISE NOTED SHALL HAVE A SLUMP OF 80MM AT POINT OF PLACEMENT, A MAX. AGGREGATE SIZE OF 20MM. NO WATER SHALL BE ADDED TO THE MIX PRIOR TO OR DURING PLACEMENT OF CONCRETE. STRENGTH AS SPECIFIED ON PLANS.

15 CLEAR CONCRETE COVER TO REINFORCEMENT SHALL BE AS FOLLOWS UNLESS OTHERWISE SHOWN-

ELEMENTS	INTERIOR	EXTERIOR	EXTERIOR CAST AGAINST GROUND
FOOTINGS	-	-	50
COLUMNS/PEDESTALS	30 UNO	REFER TO PLAN	-
SLABS/WALLS	25	REFER TO PLAN	40 ON MEMBRANE
BEAMS	25 UNO	REFER TO PLAN	50
BLOCKWORK	55 FROM APPROPRIATE FACE		

16 SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.

17 BEAM DEPTHS ARE WRITTEN FIRST AND INCLUDE SLAB THICKNESS, IF ANY.

18 NO HOLES OR CHASES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE ELEMENTS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.

19 SHRINKAGE REDUCING ADMIXTURES SUCH AS 'ECLIPSE' OR APPROVED EQUIVALENT, IF SPECIFIED, MUST BE ADDED TO MIX PRIOR TO POUR.

20 WATER REDUCING AGENTS, IF SPECIFIED, MUST BE ADDED TO MIX PRIOR TO POUR. NO EXTRA WATER IS TO BE ADDED TO INCREASE SLUMP.

21 WHERE VERTICAL SLAB/BEAM SURFACES ARE FORMED AGAINST A MASONRY (OR OTHER) WALL, PROVIDE 10MM STYRENE SEPARATION MATERIAL.

22 ABOVE COVERS MAY HAVE TO BE ADJUSTED IF FIRE RATING IS A REQUIREMENT.

- REINFORCEMENT

1 ALL REINFORCEMENT SPECIFIED IS GRADE D500 UNLESS NOTED OTHERWISE.

2 REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY IT IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.

3 TOP REINFORCEMENT IS TO BE CONTINUOUS OVER SUPPORTS.
BOTTOM REINFORCEMENT TO BE LAPPED AT SUPPORTS.

4 WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS.

5 PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE ZONE OF CONCRETE COVER TO THE REINFORCEMENT WITHOUT THE APPROVAL OF THE ENGINEER.

6 ALL REINFORCING BARS AND FABRIC SHALL COMPLY WITH AS 4671-2001.

7 REINFORCEMENT SYMBOLS:

N - GRADE 500N DEFORMED BAR (D500) NORMAL DUCTILITY
R - GRADE 250N PLAIN ROUND BAR (R250) NORMAL DUCTILITY.
SL - GRADE 500L WELDED DEFORMED RIBBED MESH (D500)
SQUARE LOW DUCTILITY.
RL - GRADE 500L WELDED DEFORMED RIBBED MESH (D500)
RECTANGULAR LOW DUCTILITY.
THE NUMBER IMMEDIATELY FOLLOWING THESE SYMBOLS IS THE NUMBER OF MILLIMETERS IN THE BAR DIAMETER.
EXAMPLE : 8 N12-250
DENOTES 8, GRADE 500N DEFORMED BARS, 12MM DIAMETER AT 250 CTS.

8 FABRIC REINFORCEMENT TO BE LAPPED 1 COMPLETE SQUARE + 25MM UNLESS NOTED OTHERWISE.

9 ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON BAR CHAIRS SPACED AT A MAXIMUM OF 750 CENTRES BOTH WAYS UNDER ROD AND FABRIC REINFORCEMENT. REINFORCEMENT SHALL BE TIED AT ALTERNATE INTERSECTIONS.

martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT: HANSON / OLD WALLGROVE RD EASTERN CREEK

TITLE: CONSTRUCTION NOTES – SHEET 3 OF 4

DESIGNED: MGD | DRAWN: KT | REVIEWED: ASN

DATUM: M R.L. | HORIZONTAL RATIO: 1:500 @ A1, 1:1000 @ A3 | VERTICAL RATIO: 1:500 @ A1, 1:1000 @ A3

SHEET 4 OF 20 SHEETS | PAPER SIZE: A1 / A3

THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

PROJECT MANAGER: ANDREW NORRIS

DRAWING NUMBER: P1002913JD04V01

REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN

- FORMWORK

1 FORMWORK MUST BE CLEANED OF ALL DEBRIS PRIOR TO CASTING OF CONCRETE.

2 MINIMUM STRIPPING TIMES FOR FORM WORK SHALL BE AS RECOMMENDED IN AS 3610 - 1990 OR AS DIRECTED BY THE ENGINEER.

3 THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENEOUS MASS, COMPLETELY FILLING THE FORM WORK, THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS. ALL CONCRETE ELEMENTS INCLUDING SLABS ON GROUND AND FOOTINGS SHALL BE COMPACTED WITH MECHANICAL VIBRATORS.

4 CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 3 DAYS, FOLLOWED BY PREVENTION OF LOSS OF MOISTURE FOR SEVEN DAYS FOLLOWED BY A GRADUAL DRYING OUT . APPROVED SPRAYED ON CURING COMPOUNDS MAY BE USED WHERE NO FLOOR FINISHES ARE PROPOSED. POLYTHENE SHEETING OR WET HESSIAN MAY BE USED IF PROTECTED FROM WIND AND TRAFFIC.

COUNCIL GENERAL NOTES

THE FOLLOWING COUNCIL NOTES SHALL TAKE PRECEDENCE OVER THE PRECEEDING CONSTRUCTION NOTES IF ANY DISCREPANCIES EXIST.

G1 ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL'S ENGINEERING DESIGN AND ENGINEERING CONSTRUCTION SPECIFICATIONS AND TO THE REQUIREMENTS OF THE CERTIFYING AUTHORITY.

G2 MANDATORY CONSTRUCTION INSPECTIONS BY CERTIFYING AUTHORITY ARE REQUIRED AT THE FOLLOWING STAGES AND THE WORKS APPROVED PRIOR TO CONTINUANCE OF ANY FUTURE WORK:

(A) SEDIMENT AND EROSION CONTROL:

- IMPLEMENTATION OF SEDIMENT AND EROSION CONTROL MEASURES
- REVEGETATION OF DISTURBED AREAS
- CONSTRUCTION OF MAJOR CONTROLS (E.G. GABIONS, SHOT-CRETING, ETC)
- REMOVAL OF SEDIMENT BASINS AND FENCING
- INTERNAL SEDIMENT / POLLUTION CONTROL DEVICES
- FINAL INSPECTION.

(B) TRAFFIC CONTROL:

- IMPLEMENTATION OF TRAFFIC CONTROL
- MAINTENANCE OF TRAFFIC CONTROL DURING WORKS
- REMOVAL OF TRAFFIC CONTROL

(C) CONSTRUCTION OF DRAINAGE WORKS (INCLUDING INTER-ALLOTMENT):

- PIPES BEFORE BACKFILLING, INCLUDING TRENCH EXCAVATION AND BEDDING
- SAND BACKFILLING
- FINAL PIPE INSPECTION
- PIT BASES AND HEADWALL APRONS
- PIT WALLS / WING WALLS / HEAD WALLS
- CONCRETE PIT TOPS
- CONNECTION TO EXISTING SYSTEM
- TAILOUT WORKS
- FINAL INSPECTION.

(D) CONSTRUCTION OF ROAD PAVEMENT:

- BOXING OUT
- PRIOR TO PLACEMENT OF SUB BASE AND ALL SUBSEQUENT PAVEMENT LAYERS, A PROOF ROLLER TEST OF EACH PAVEMENT LAYER IS REQUIRED.
- SUBSOIL DRAINAGE
- KERB PRE-LAYING
- KERB DURING LAYING INCLUDING PROVISION OF ROOFWATER OUTLETS.
- PAVEMENT PROFILES
- WEARING COURSE
- KERB FINAL
- FORMWORK FOR ALL CONCRETE PAVEMENTS INCLUDING FOOTPATHS AND CROSSINGS.
- FINAL INSPECTION.

(E) PROVISION OF STREET FURNITURE:

- STREET FURNITURE (INCLUDING STREETSIGNS, GUIDEPOSTS, GUARDRAIL ETC.)
- ERECTION OF FENCING ADJOINING PUBLIC / DRAINAGE RESERVES.

(F) FOOTPATH WORKS:

- FOOTPATH TRIMMING AND / OR TURFING (TO ENSURE 4% FALL)
- PATHWAY CONSTRUCTION (CYCLE / LINK PATHWAYS)
- PATHPAVING CONSTRUCTION.
- SERVICES ADJUSTMENTS.
- FINAL INSPECTION.

(G) CONSTRUCTION OF ON-SITE DETENTION SYSTEM:

- STEEL AND FORMWORK FOR TANK/HED CONTROL PIT (WHERE APPLICABLE)
- PIT FORMWORK
- COMPLETION OF OSD SYSTEM.

(H) STORMWATER QUALITY CONTROL

- INSTALLATION OF STORMWATER QUALITY CONTROL DEVICES.
- FINAL INSPECTION.

(I) FINAL INSPECTIONS AFTER ALL WORKS ARE COMPLETED AND 'WORKS AS EXECUTED' PLANS HAVE BEEN SUBMITTED TO COUNCIL.

G3 NO TREES ARE TO BE REMOVED UNLESS APPROVAL IS GRANTED BY COUNCIL'S LANDSCAPE COMPLIANCE OFFICER OR AS AUTHORISED BY DEVELOPMENT CONSENT.

G4 MAKE SMOOTH JUNCTIONS WITH EXISTING WORKS.

G5 NO WORK IS TO BE CARRIED OUT ON COUNCIL PROPERTY OR ADJOINING PROPERTIES WITHOUT THE WRITTEN PERMISSION FROM THE OWNER/S.

G6 VEHICULAR ACCESS AND ALL UTILITIES/SERVICES ARE TO BE MAINTAINED AT ALL TIMES TO ADJOINING PROPERTIES AFFECTED BY CONSTRUCTION.

G7 ALL RUBBISH, BUILDINGS, SHEDS AND FENCES TO BE REMOVED TO SATISFACTION OF COUNCIL'S ENGINEER.

G8 COUNCIL ENGINEERS HAVE DISCRETION TO VARY, AS CONSIDERED NECESSARY, THE ENGINEERING REQUIREMENTS IN RESPECT OF A PARTICULAR SUBDIVISION OR DEVELOPMENT HAVING REGARD TO THE SITE CONTEXT.

EARTHWORKS NOTES

E1 EARTHWORKS ARE TO BE CARRIED OUT TO THE SATISFACTION OF THE COUNCIL. UNSUITABLE MATERIALS ARE TO BE REMOVED FROM ROADS AND LOTS PRIOR TO FILLING. THE CONTRACTOR IS TO ARRANGE AND MAKE AVAILABLE COMPACTION TESTING RESULTS FOR ALL AREAS THAT CONTAIN FILL IN EXCESS OF 200 MM.

E2 COMPACTION OF EARTHWORKS SHALL CONTINUE UNTIL A DRY DENSITY RATIO OF 95% FOR SITE FILLING AND 100% FOR ROAD PAVEMENT SUBGRADES HAS BEEN ACHIEVED IN ACCORDANCE WITH TEST METHOD AS1289.5.3.1 OR AS.1289.5.1.1. THE CONTROL TESTING OF EARTHWORKS SHALL BE IN ACCORDANCE WITH THE GUIDELINES IN AS3798 'GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS'. WHERE IT IS PROPOSED TO USE TEST METHOD AS1289.5.8.1 TO DETERMINE THE FIELD DENSITY, A SAND REPLACEMENT METHOD SHALL BE USED TO CONFIRM THE RESULTS.

E3 THE SUITABLE QUALIFIED GEOTECHNICAL ENGINEER, SHALL HAVE A LEVEL 1 RESPONSIBILITY FOR ALL FILLING AS DEFINED IN APPENDIX B AS3798 'GUIDELINES ON EARTHWORKS FOR COMMERCIAL AND RESIDENTIAL DEVELOPMENTS', AND AT THE END OF THE WORKS SHALL CONFIRM THE EARTHWORKS COMPLY WITH THE REQUIREMENTS OF THE SPECIFICATION AND DRAWINGS BY WRITTEN NOTIFICATION.

E4 IN AREAS TO BE FILLED WHERE THE SLOPE OF THE NATURAL SURFACE EXCEEDS 1(V):3(H), THE BASE OF THE ENTIRE EMBANKMENT SHALL BE SUITABLY STEPPED, SCARIFIED OR ROUGHENED BEFORE CONSTRUCTION OF THE EMBANKMENT IS COMMENCED, AS REQUIRED BY THE COUNCIL. NATURAL GROUND ADJOINING AN EXISTING EMBANKMENT TOGETHER WITH THE EXISTING BATTER SHALL BE SIMILARLY TREATED BEFORE THE EMBANKMENT IS WIDENED.

E5 ALL BATTERS ARE TO BE SCARIFIED TO A DEPTH OF 50 MM TO ASSIST WITH ADHESION OF TOP SOIL TO BATTER FACE.

E6 PROVIDE MINIMUM 150 MM AND MAXIMUM 300 MM TOPSOIL WITH ON FOOTPATHS, FILLED AREAS AND ALL OTHER AREAS DISTURBED DURING CONSTRUCTION. TOPSOILED AREAS TO BE STABILISED WITH APPROVED VEGETATION A MAXIMUM OF 14 DAYS AFTER TOPSOILING AND ARE TO BE WATERED TO ENSURE GERMINATION.

E7 THE CONTRACTOR SHALL CONTROL SEDIMENTATION, EROSION AND POLLUTION DURING CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT EDITION OF 'MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION' PRODUCED BY LANDCOM.

E8 A MINIMUM 1 METRE WIDE, CONTINUOUS STRIP OF COUCH GRASS SHALL BE PLACED BEHIND THE BACK OF ALL KERBS AND OTHER CONCRETE STRUCTURES IMMEDIATELY AFTER THE COMPLETION OF THE FOOTPATH GRADING OR OTHER ELEMENTS AS APPLICABLE, AND SHALL BE MAINTAINED AND REPLACED AS REQUIRED DURING THE CONSTRUCTION MAINTENANCE PERIOD.

ROADWORKS NOTES

R1 SUBGRADES AND SUB BASES ARE TO BE COMPACTED IN ACCORDANCE WITH COUNCIL'S CONSTRUCTION SPECIFICATION.

R2 SUBSOIL DRAINS TO BE PROVIDED ON BOTH SIDES OF ROADS (EXCEPT WHERE THERE IS STORMWATER DRAINAGE).

R3 150 X 50 H.D. GALVANISED STEEL KERB OUTLETS TO BE PLACED IN ALL KERB TYPES ON LOW SIDE OF LOTS. PROVIDE SUITABLE ADAPTOR TO ALLOW CONNECTION OF 90 MM DIAMETER STORMWATER PIPE.

R4 LIPLESS PERAMBULATOR CROSSINGS ARE TO BE PROVIDED IN ALL KERB RETURNS AND WHERE REQUIRED BY COUNCIL.

R5 SERVICE CONDUITS TO BE PLACED AS DIRECTED BY ALL PUBLIC UTILITY AUTHORITIES INCLUDING INTEGRAL ENERGY, TELSTRA AND SYDNEY WATER

R6 PROPOSED UTILITIES AND SERVICES CROSSING EXISTING ROADS SHALL BE PROVIDED FOR USING A TRENCHLESS TECHNIQUE SO AS NOT TO DAMAGE THE EXISTING SURFACE. ALL SERVICE CONDUITS UNDER ROADS MUST BE LAID TO A MINIMUM DEPTH OF 750 MM.

R7 CONCRETE FOOTPATH CONSTRUCTION IS TO BE BONDED WITH COUNCIL PENDING COMPLETION OF UTILITY/SERVICES AND SURROUNDING DWELLINGS.

R8 ALL TEMPORARY ROADS MUST BE TEMPORARILY SEALED WITH A SINGLE COAT FLUSH SEAL.

R9 ALL PERMANENT ROADS MUST BE SEALED WITH A SINGLE COAT FLUSH SEAL AND 50 MM OF AC TO BE APPLIED IN TWO 25 MM THICK LAYERS. THE FINAL AC LAYER IS TO BE AC 10 AND IS TO BE BONDED WITH COUNCIL AND PLACED FOLLOWING APPROVAL FROM COUNCIL.

R10 SIGNPOSTING AND LINE MARKING SHALL CONFORM TO AS1742.2 'TRAFFIC CONTROL DEVICES FOR GENERAL USE'. RAISED RETRO-REFLECTIVE PAVEMENT MARKERS TO CONFORM TO AS1906 'RETRO-REFLECTIVE MATERIALS AND DEVICES FOR ROAD TRAFFIC CONTROL PURPOSES'. ALL APRONS AND KERB FACE ON CENTRAL ISLANDS OF ROUNDABOUTS AND ALL OTHER ISLANDS TO BE DELINEATED BY REFLECTIVE WHITE MARKING. INSTALLATION SHALL OCCUR IN ACCORDANCE WITH THE PLAN APPROVED BY THE LOCAL TRAFFIC COMMITTEE.

R11 ALL LOT NUMBERS MUST BE STENCILLED ON KERB FACE.

R12 STREET SIGNS TO COUNCIL STANDARD MUST BE INSTALLED BY THE CONTRACTOR.

STORMWATER NOTES

S1 ALL PIPES TO BE SPIGOT AND SOCKET, RUBBER RING JOINTED.

S2 ALL LONGITUDINAL PIPELINES IN ROADS MUST BE LOCATED UNDER KERB AND GUTTER AND BE BACKFILLED WITH APPROVED GRANULAR MATERIAL UNLESS OTHERWISE APPROVED BY THE COUNCIL ENGINEER.

S3 DRAINAGE LINES MUST BE BACKFILLED WITH APPROVED GRANULAR MATERIAL IN TRAFFICABLE AREAS. THREE (3) METRES OF SUBSOIL DRAINAGE WRAPPED IN GEOTEXTILE STOCKING MUST BE PROVIDED TO ALL DOWNSTREAM PITS.

S4 ALL GULLY PITS TO COUNCIL'S STANDARD AND LINTELS CENTRALLY PLACED AT SAG PITS.

S5 ALL PITS MUST BE BENCHED AND STREAMLINED. PROVIDE SL72 REINFORCEMENT AND GALVANISED STEP IRONS IN ALL PITS OVER 1.2-METRES DEEP AS MEASURED FROM THE TOP OF GRATE TO THE INVERT OF THE PIT.

S6 CONCRETE IS TO HAVE MINIMUM COMPRESSIVE STRENGTH OF 32MPA AT 28-DAYS UNLESS OTHERWISE APPROVED BY THE COUNCIL ENGINEER.

S7 ALL INTERALLOTMENT DRAINAGE MUST HAVE A MINIMUM PIPE DIAMETER OF 150 MM AND A MINIMUM GRADE OF 1% UNLESS OTHERWISE APPROVED BY THE COUNCIL ENGINEER.

S8 ALL INTERALLOTMENT DRAINAGE LINES MUST BE LAID CENTRALLY WITHIN DRAINAGE EASEMENTS. INSPECTION PITS MUST BE PROVIDED AT ALL CHANGES OF GRADE AND DIRECTION.

S9 INTERALLOTMENT DRAINAGE LINES MUST BE INSTALLED AFTER SYDNEY WATER SEWERAGE LINES HAVE BEEN INSTALLED WHERE SEWER IS PROPOSED ADJACENT TO INTERALLOTMENT DRAINAGE LINES.

S10 1% AEP OVERLAND FLOW PATHS MUST BE FORMED AND SHOWN ON 'WORKS AS EXECUTED' DRAWINGS.

S11 ALL PLANS (BOTH DESIGN AND WAE) ARE TO CLEARLY DELINEATE THE EXTENT/LOCATION OF FLOOD LINES INCLUDING THE 5% AEP, 1% AEP AND PMF.

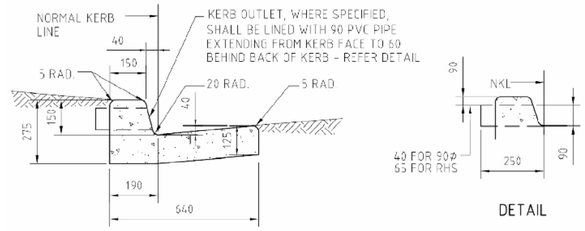
S12 ADEQUATE PROVISION IS TO BE MADE TO PREVENT SCOURING AND SEDIMENTATION FOR ALL DRAINAGE WORKS IN ACCORDANCE WITH COUNCIL'S REQUIREMENTS.

S13 PIT LINTELS ARE TO BE STENCILLED WITH APPLICABLE DISTINCTION STENCIL AVAILABLE FROM COUNCIL.

S14 CATCH DRAINS MUST BE CONSTRUCTED AS REQUIRED BY THE APPROVED PLANS OR THE PRINCIPAL CERTIFYING AUTHORITY.

S15 SOIL AND WATER MANAGEMENT PLANS ARE TO BE PREPARED FOR ALL DISTURBED SITES AND ADHERED TO AT ALL TIMES DURING THE CONSTRUCTION AND MAINTENANCE PERIODS.

TYPICAL INTEGRAL KERB AND GUTTER DETAIL



150mm KERB AND GUTTER

martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT: HANSON / OLD WALLGROVE RD EASTERN CREEK

THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

TITLE: CONSTRUCTION NOTES - SHEET 4 OF 4

PROJECT MANAGER: ANDREW NORRIS

DRAWING NUMBER: P1002913JD04V01

DESIGNED: MGD
DRAWN: KT
REVIEWED: ASN

DATUM: M R.L.
HORIZONTAL RATIO: 1:500 @ A1, 1:1000 @ A3
VERTICAL RATIO: 1:500 @ A1, 1:1000 @ A3

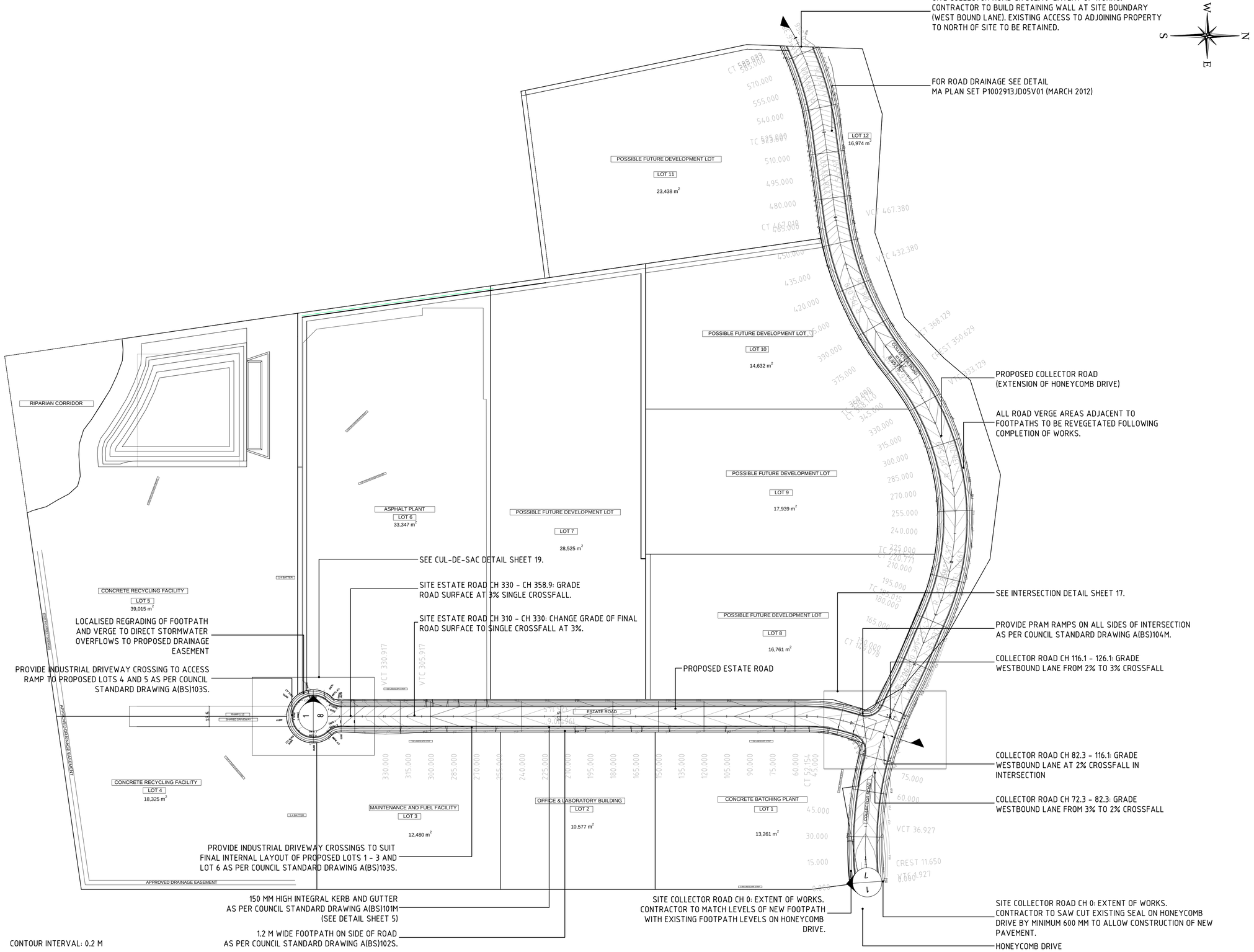
SHEET 5 OF 20 SHEETS

PAPER SIZE: A1 / A3

REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN

KEY

- MINOR CONTOUR
- MAJOR CONTOUR



PAGE BAR SCALE

0 25 50 75 100 125

UNITS - METRES

SCALE - 1:1250 @ A1 1:2500 @ A3

CONTOUR INTERVAL: 0.2 M

martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT: HANSON / OLD WALLGROVE RD EASTERN CREEK

TITLE: ROAD PLAN - OVERVIEW

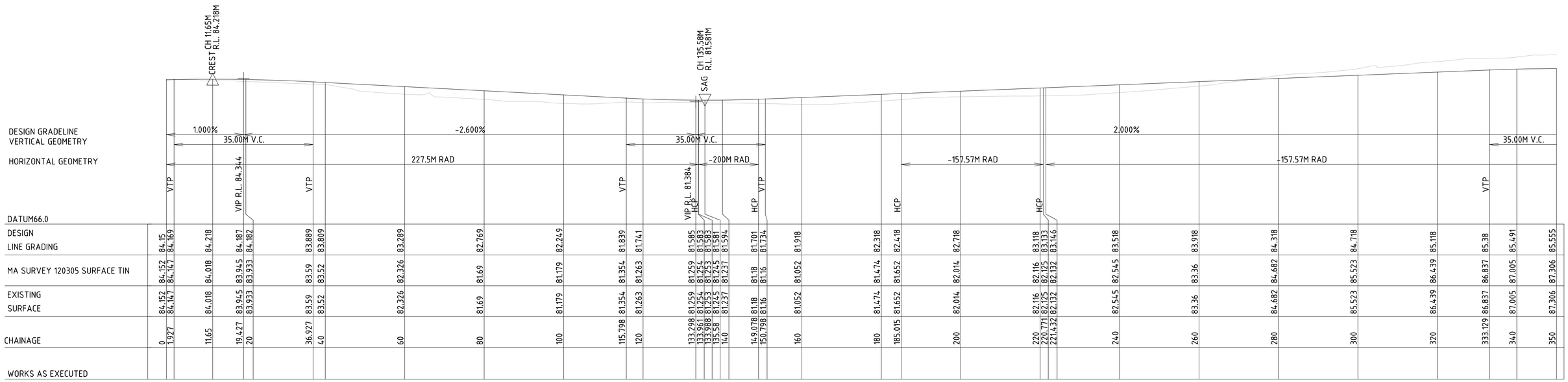
THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

PROJECT MANAGER: ANDREW NORRIS

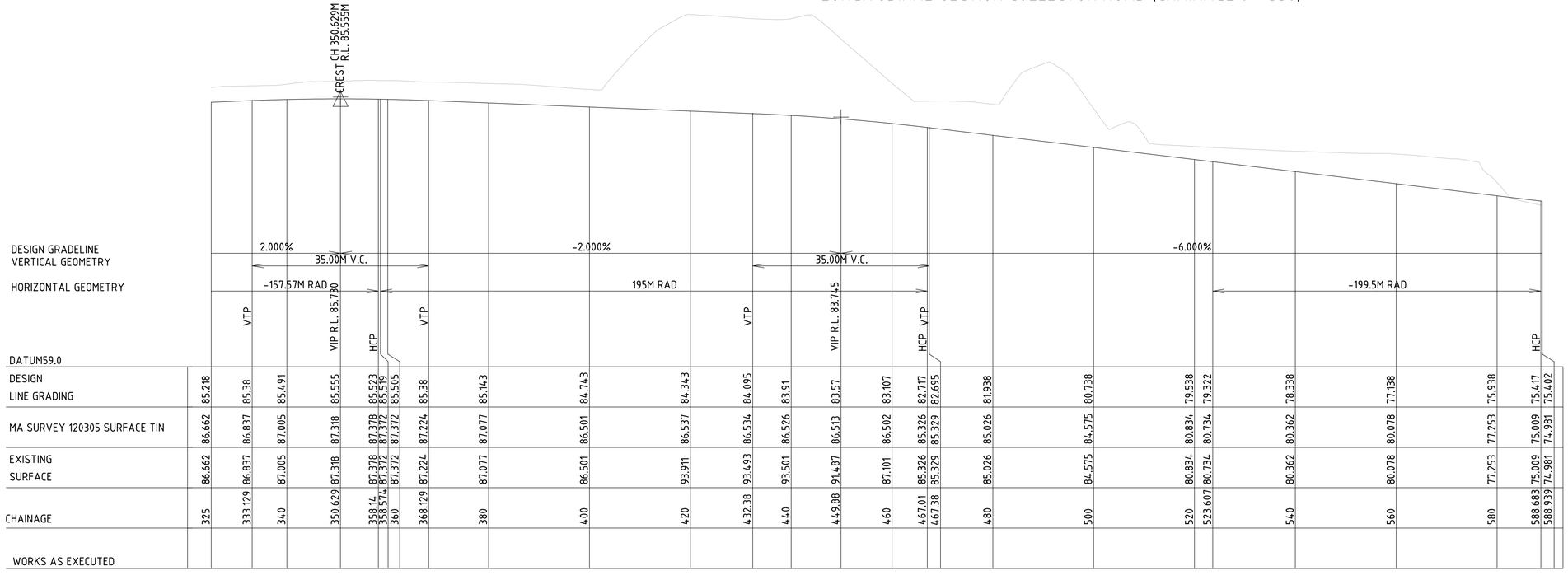
DRAWING NUMBER: P1002913JD04V01

DESIGNED:	MGD
DRAWN:	MGD
REVIEWED:	ASN
DATUM:	M R.L.
HORIZONTAL RATIO:	1:1250 @ A1 1:2500 @ A3
VERTICAL RATIO:	1:1250 @ A1 1:2500 @ A3
SHEET	6 OF 20 SHEETS
PAPER SIZE:	A1 / A3

REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN



LONGITUDINAL SECTION COLLECTOR ROAD (CHAINAGE 0 - 350)



LONGITUDINAL SECTION COLLECTOR ROAD (CHAINAGE 325 - 588.9)

martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT
HANSON / OLD WALLGROVE RD EASTERN CREEK

TITLE
COLLECTOR ROAD - LONGITUDINAL SECTION

THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

PROJECT MANAGER: ANDREW NORRIS

DRAWING NUMBER: P1002913JD04-V01

DESIGNED:	MGD
DRAWN:	KT
REVIEWED:	ASN
DATUM:	M R.L.
HORIZONTAL RATIO:	1:500 @ A1 1:1000 @ A3
VERTICAL RATIO:	1:500 @ A1 1:1000 @ A3
SHEET	7 OF 20 SHEETS
PAPER SIZE:	A1 / A3

REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN

CHAINAGE	DESIGN LINE GRADING	MA SURVEY 120305 SURFACE TIN	EXISTING SURFACE	WORKS AS EXECUTED
0	82.252	81.182	81.182	
20	81.852	81.089	81.089	
22.042	81.811	81.052	81.052	
22.798	81.797	81.036	81.036	
25.042	81.759	80.991	80.991	
28.042	81.721	80.952	80.952	
40	81.602	81.122	81.122	
52.154	81.48	81.001	81.001	
60	81.402	80.904	80.904	
80	81.202	81.639	81.639	
100	81.002	82.498	82.498	
120	80.802	82.012	82.012	
140	80.602	81.456	81.456	
160	80.402	82.302	82.302	
180	80.202	83.237	83.237	
200	80.002	83.205	83.205	
220	79.802	83.1	83.1	
240	79.602	83.031	83.031	
260	79.402	82.527	82.527	
280	79.202	81.275	81.275	
300	79.002	80.809	80.809	
305.917	78.942	80.672	80.672	
318.417	78.771	80.31	80.31	
320	78.742	80.258	80.258	
330.917	78.505	79.901	79.901	
340	78.278	79.597	79.597	
350	78.028	79.267	79.267	
360	77.778	78.961	78.961	
377.299	77.345	78.905	78.905	

LONGITUDINAL SECTION ESTATE ROAD (CHAINAGE 0 - 377.299)

martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT: HANSON / OLD WALLGROVE RD EASTERN CREEK

THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

TITLE: ESTATE ROAD - LONGITUDINAL SECTION

PROJECT MANAGER: ANDREW NORRIS

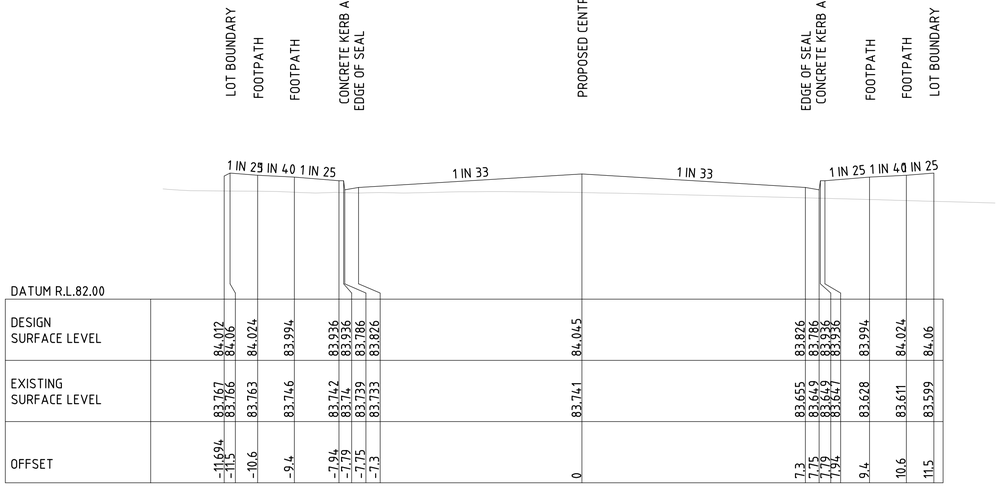
DRAWING NUMBER: P1002913JD04V01

DESIGNED: MGD
DRAWN: KT
REVIEWED: ASN

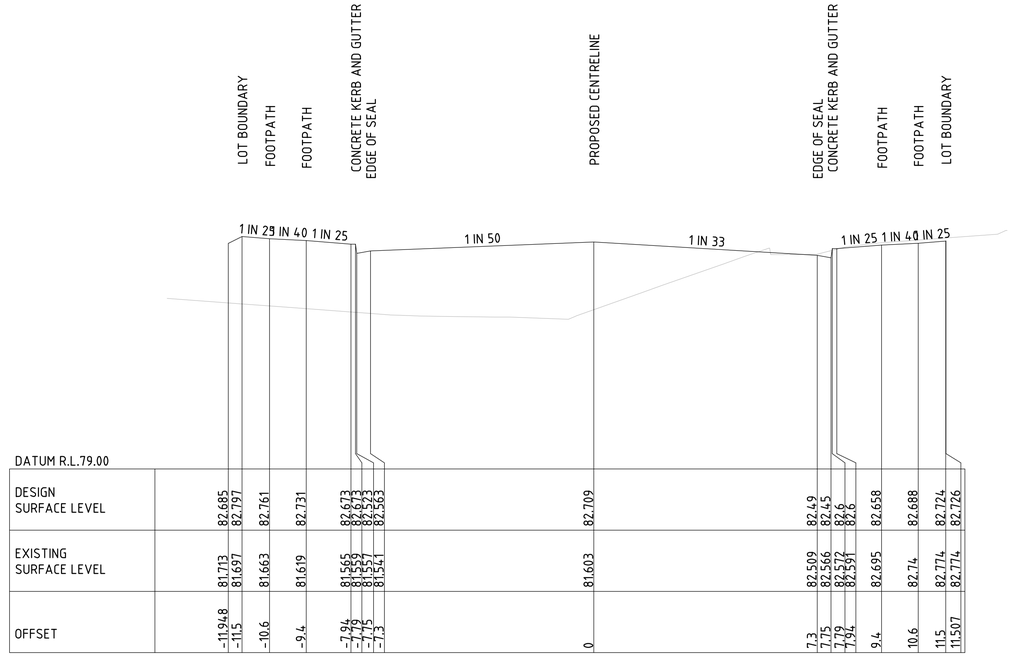
DATUM: M R.L.
HORIZONTAL RATIO: 1:500 @ A1, 1:1000 @ A3
VERTICAL RATIO: 1:500 @ A1, 1:1000 @ A3

SHEET 8 OF 20 SHEETS
PAPER SIZE: A1 / A3

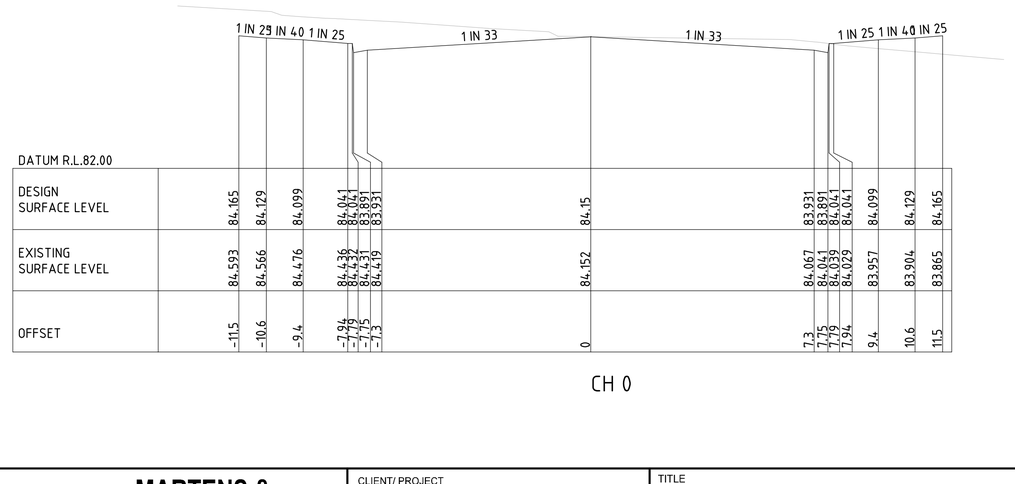
REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN



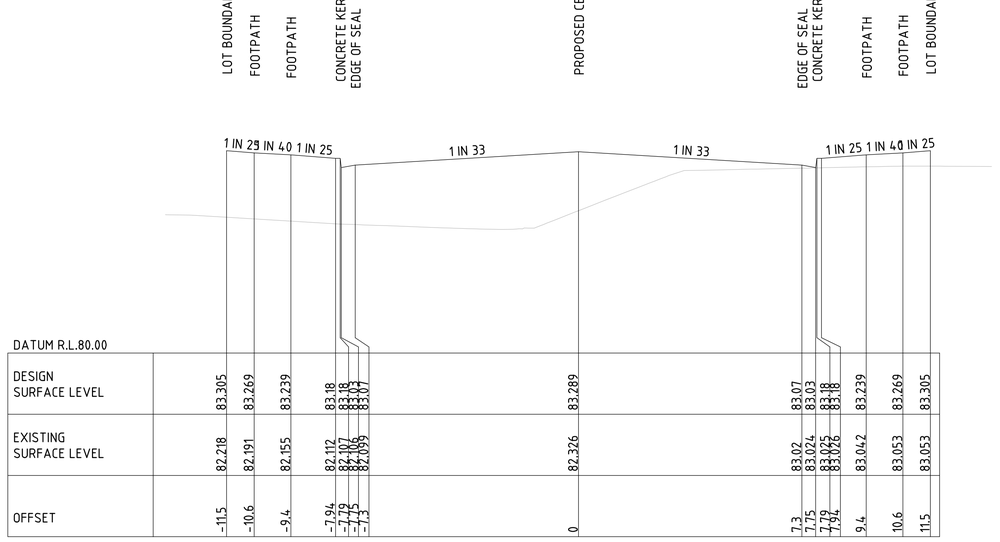
CH 30



CH 82.326



CH 0



CH 60

martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT
HANSON / OLD WALLGROVE RD EASTERN CREEK

TITLE
COLLECTOR ROAD CROSS SECTIONS - SHEET 1 OF 5

THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

PROJECT MANAGER: ANDREW NORRIS

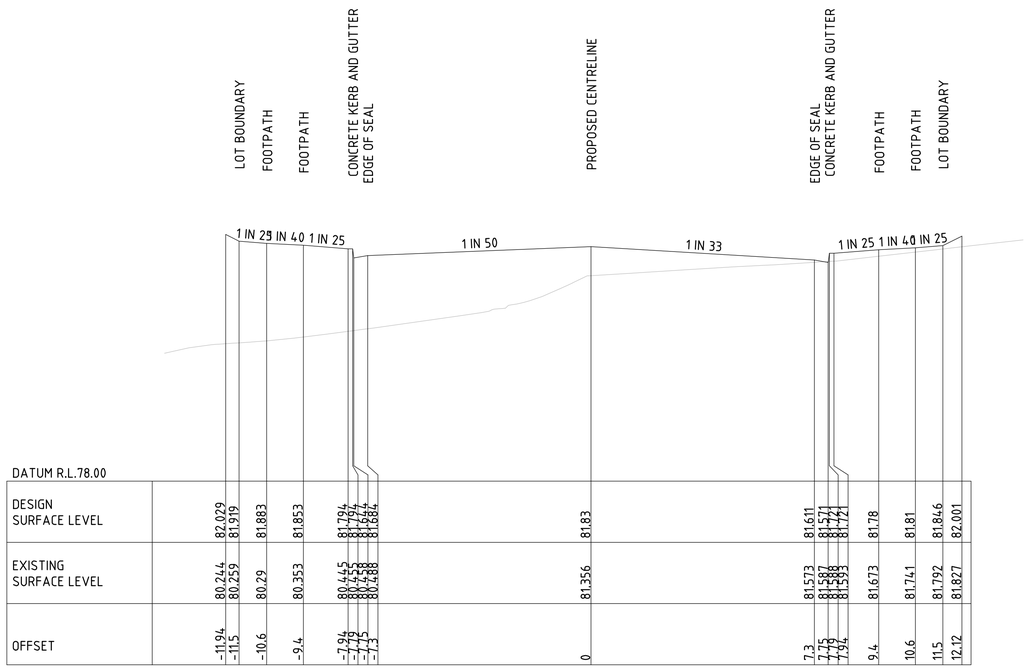
DRAWING NUMBER: P1002913JD04V01

DESIGNED: MGD
DRAWN: KT
REVIEWED: ASN

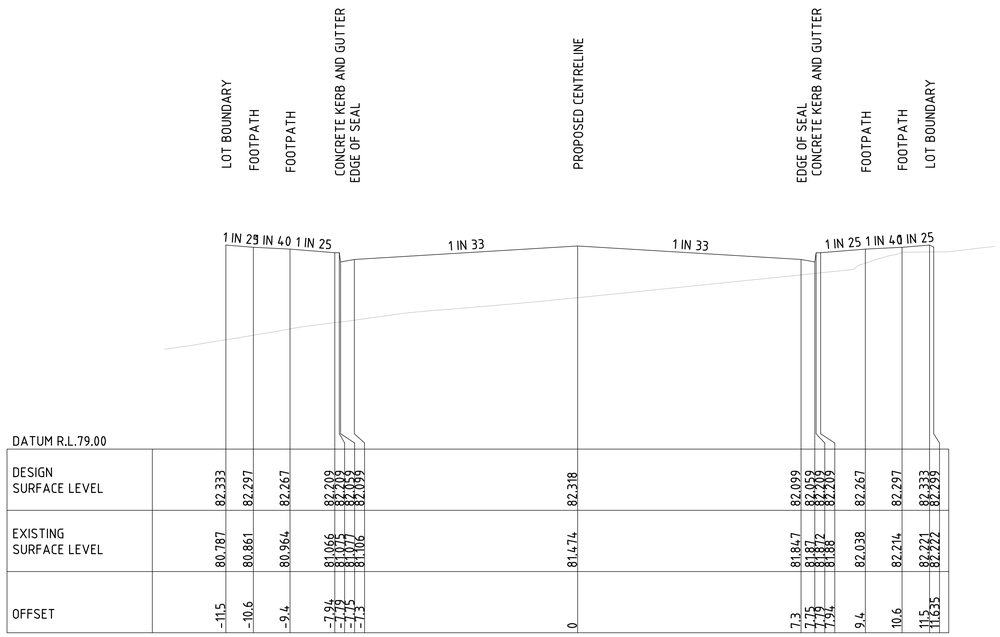
DATUM: M R.L.
HORIZONTAL RATIO: 1:500 @ A1, 1:1000 @ A3
VERTICAL RATIO: 1:500 @ A1, 1:1000 @ A3

SHEET 9 OF 20 SHEETS
PAPER SIZE: A1 / A3

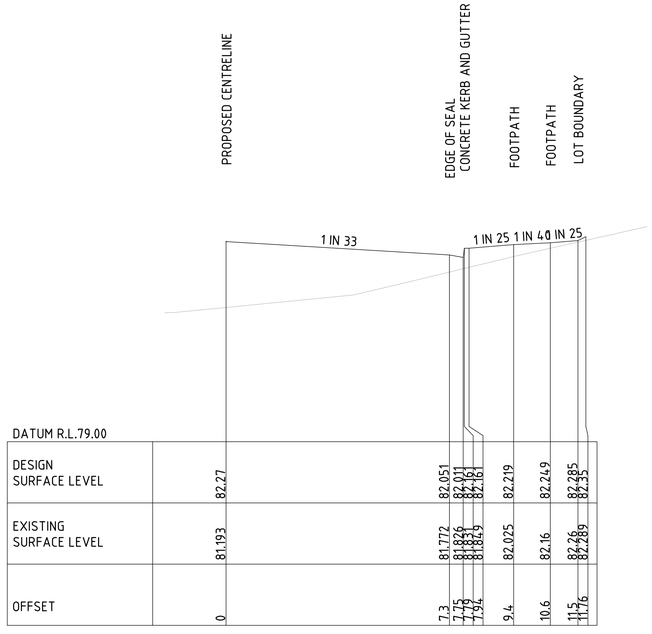
REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN



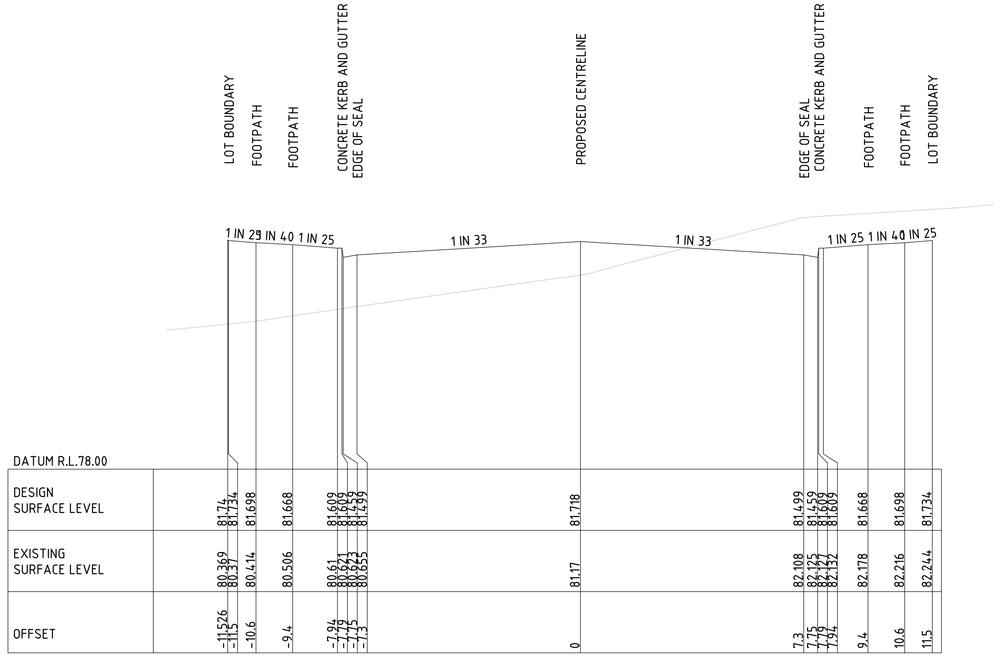
CH 116.116



CH 180



CH 99.221



CH 150

martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT
HANSON / OLD WALLGROVE RD EASTERN CREEK

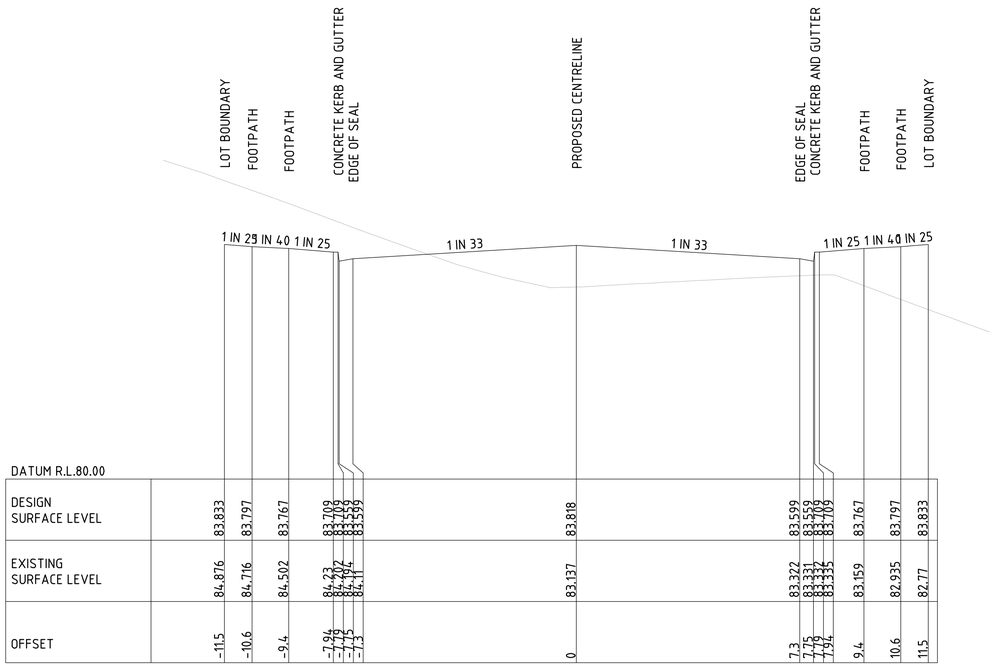
TITLE
COLLECTOR ROAD CROSS SECTIONS - SHEET 2 OF 5

DESIGNED: MGD
DRAWN: KT
REVIEWED: ASN
DATUM: M R.L.
HORIZONTAL RATIO: 1:500 @ A1, 1:1000 @ A3
VERTICAL RATIO: 1:500 @ A1, 1:1000 @ A3
SHEET 10 OF 20 SHEETS
PAPER SIZE: A1 / A3

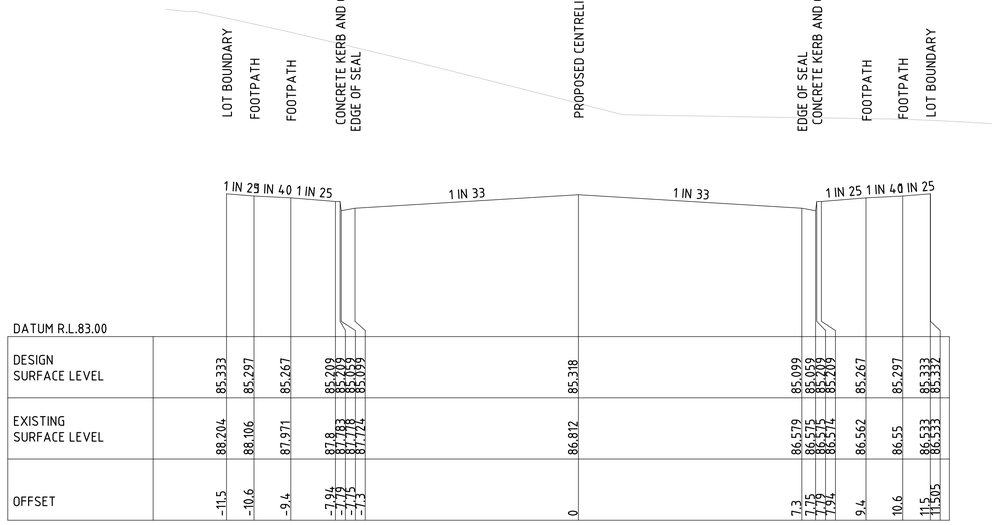
THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

PROJECT MANAGER: ANDREW NORRIS
DRAWING NUMBER: P1002913JD04V01

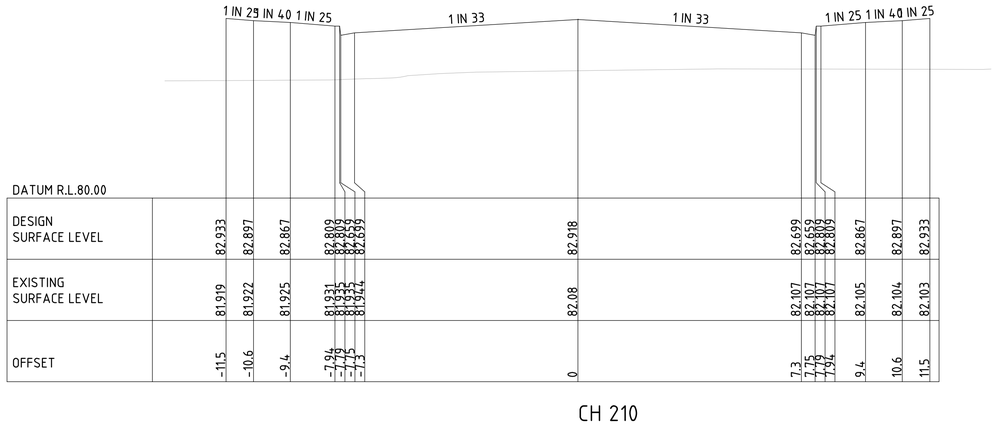
REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN



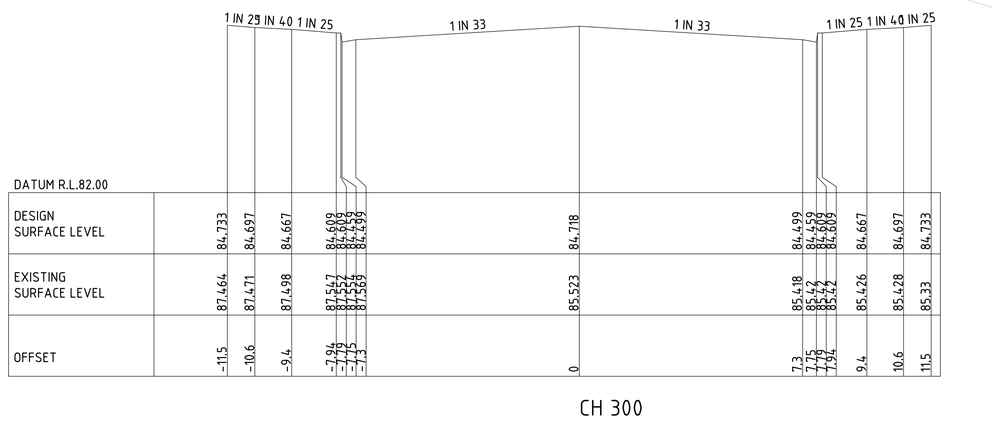
CH 255



CH 330



CH 210



CH 300

martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT: HANSON / OLD WALLGROVE RD EASTERN CREEK

TITLE: COLLECTOR ROAD CROSS SECTIONS - SHEET 3 OF 5

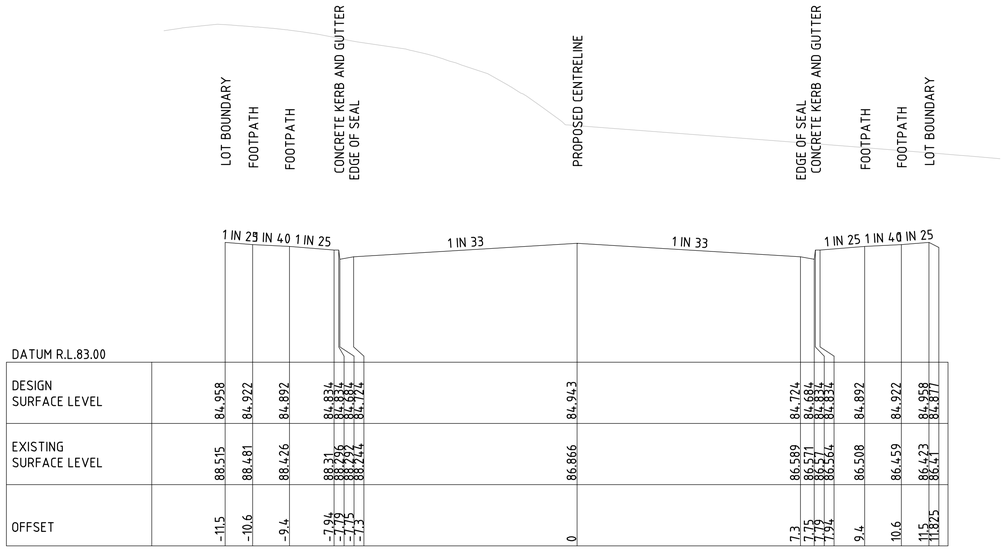
THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

PROJECT MANAGER: ANDREW NORRIS

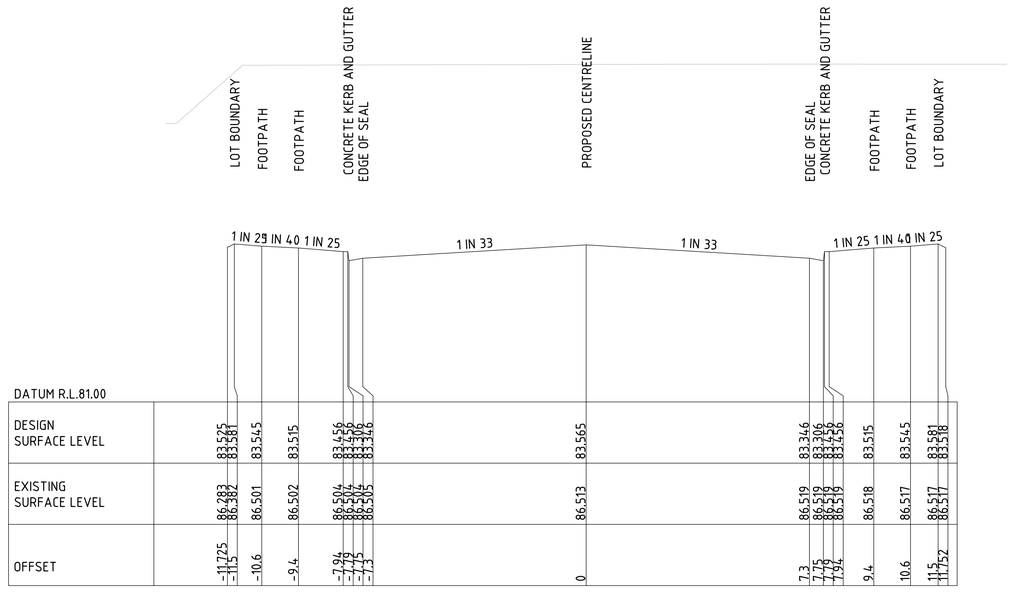
DRAWING NUMBER: P1002913JD04 V01

DESIGNED:	MGD
DRAWN:	KT
REVIEWED:	ASN
DATUM:	M R.L.
HORIZONTAL RATIO:	1:500 @ A1 1:1000 @ A3
VERTICAL RATIO:	1:500 @ A1 1:1000 @ A3
SHEET	11 OF 20 SHEETS
PAPER SIZE:	A1 / A3

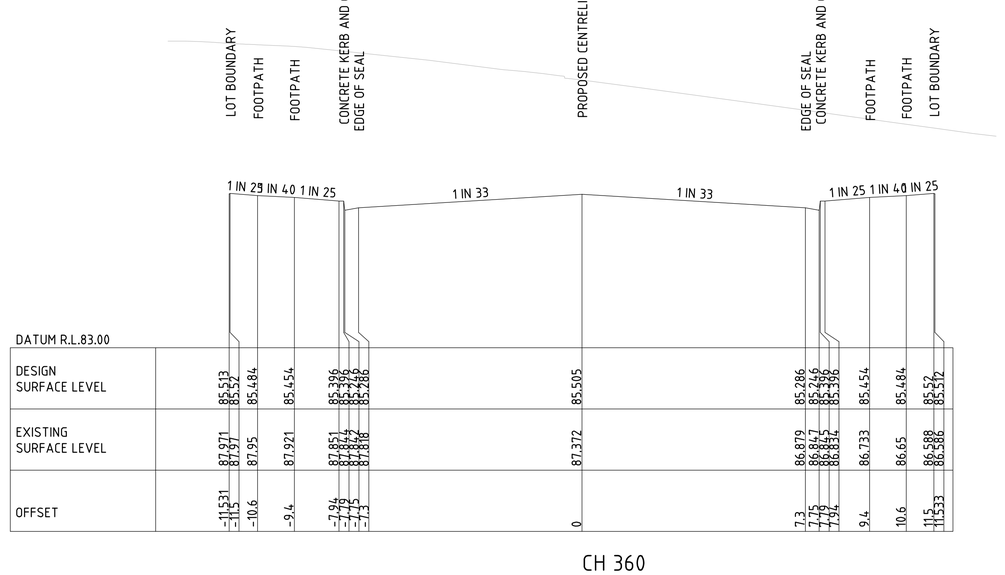
REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN



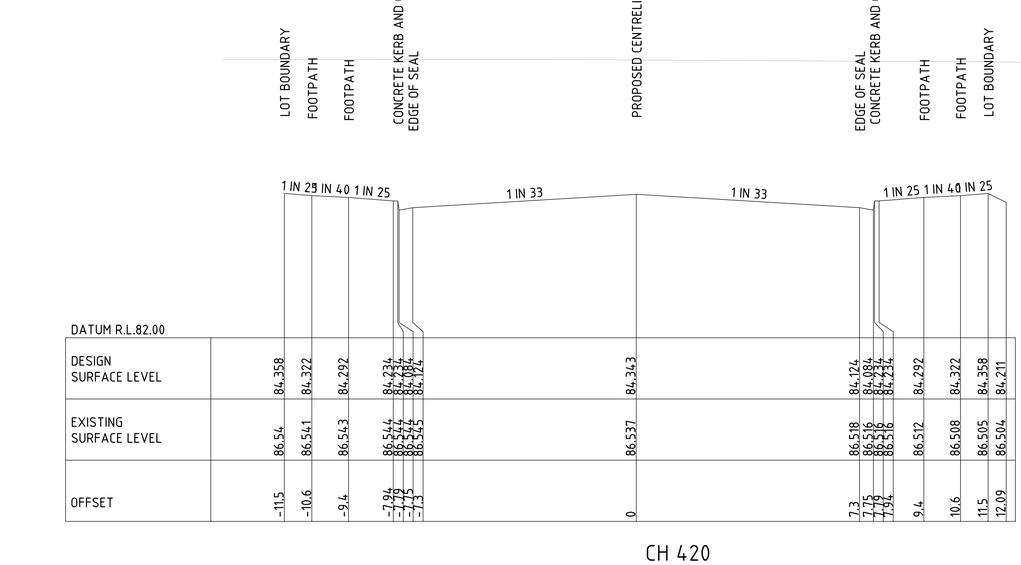
CH 390



CH 450



CH 360



CH 420

martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT
HANSON / OLD WALLGROVE RD EASTERN CREEK

TITLE
COLLECTOR ROAD CROSS SECTIONS - SHEET 4 OF 5

THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

PROJECT MANAGER: ANDREW NORRIS

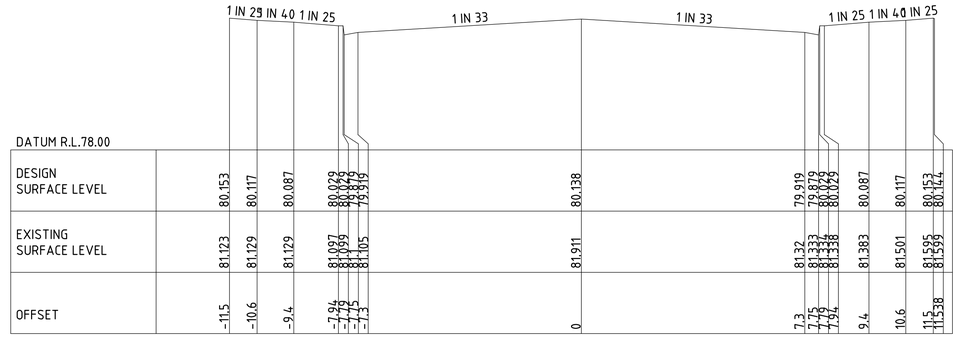
DRAWING NUMBER: P1002913JD04V01

DESIGNED: MGD
DRAWN: KT
REVIEWED: ASN

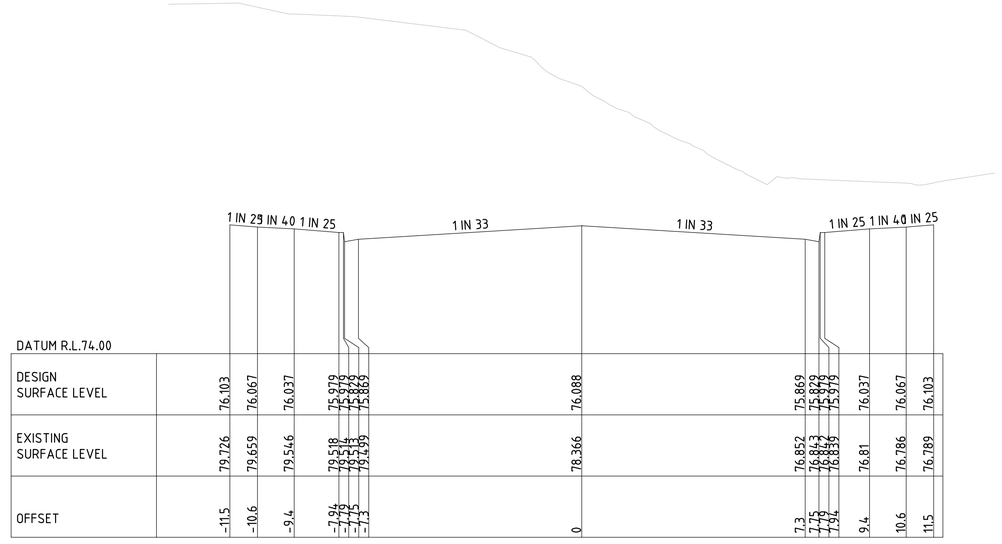
DATUM: M R.L.
HORIZONTAL RATIO: 1:500 @ A1, 1:1000 @ A3
VERTICAL RATIO: 1:500 @ A1, 1:1000 @ A3

SHEET 12 OF 20 SHEETS
PAPER SIZE: A1 / A3

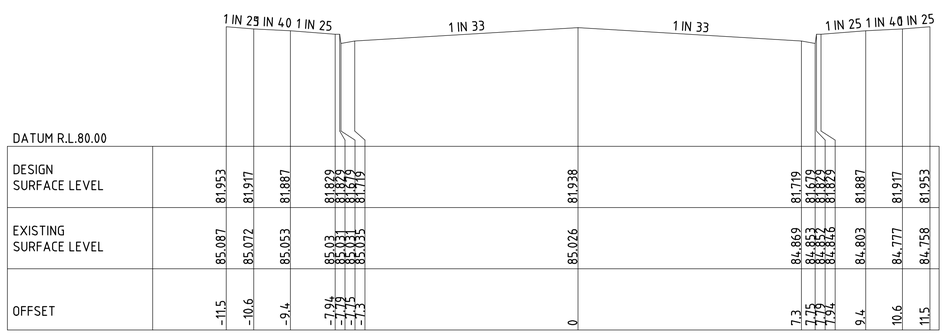
REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN



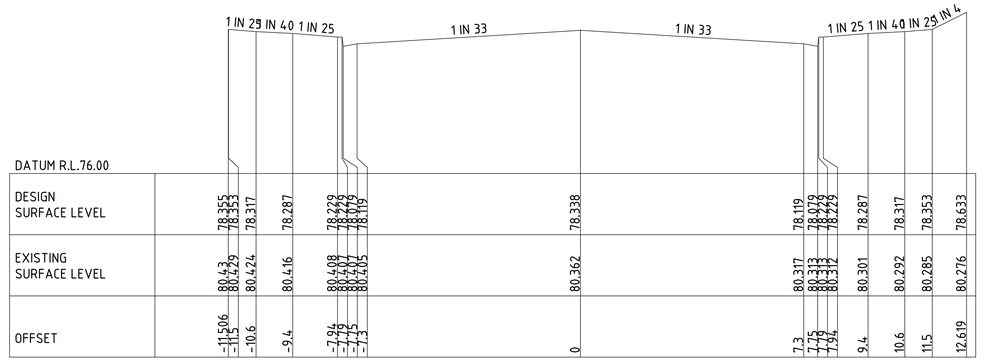
CH 510



CH 577.5



CH 480



CH 540

martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT
HANSON / OLD WALLGROVE RD EASTERN CREEK

TITLE
COLLECTOR ROAD CROSS SECTIONS - SHEET 5 OF 5

THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

PROJECT MANAGER: ANDREW NORRIS

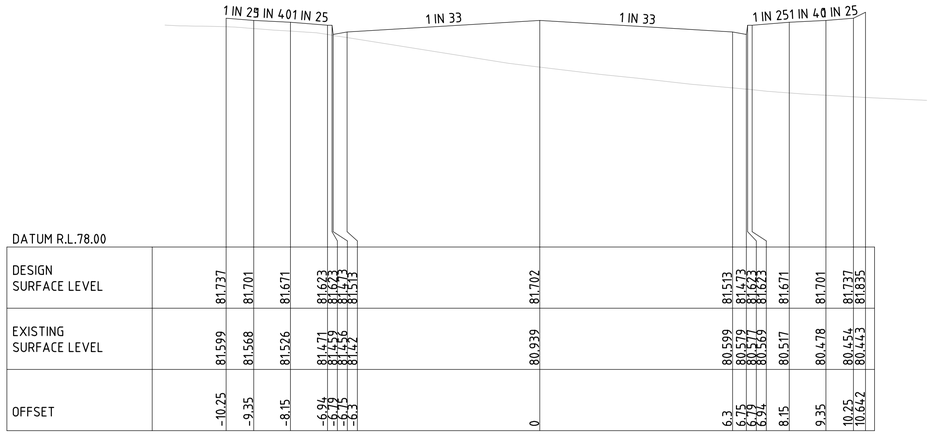
DRAWING NUMBER: P1002913JD04V01

DESIGNED: MGD
DRAWN: KT
REVIEWED: ASN

DATUM: M R.L.
HORIZONTAL RATIO: 1:500 @ A1, 1:1000 @ A3
VERTICAL RATIO: 1:500 @ A1, 1:1000 @ A3

SHEET 13 OF 20 SHEETS
PAPER SIZE: A1 / A3

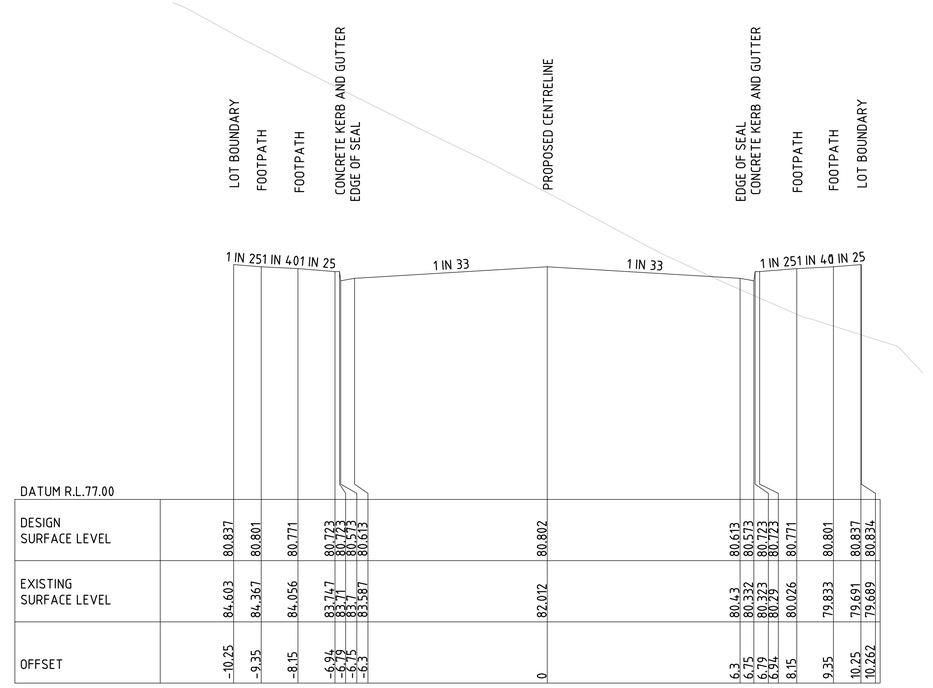
REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN



DATUM R.L.78.00

DESIGN SURFACE LEVEL	81.737	81.701	81.671	81.623	81.623	81.623	81.513	81.702	81.513	81.473	81.623	81.671	81.701	81.737	81.835
EXISTING SURFACE LEVEL	81.599	81.568	81.526	81.471	81.459	81.456	81.42	80.939	80.599	80.579	80.577	80.589	80.517	80.478	80.454	80.443
OFFSET	-10.25	-9.35	-8.15	-6.94	-6.79	-6.75	-6.3	0	6.3	6.75	6.79	6.94	8.15	9.35	10.25	10.642

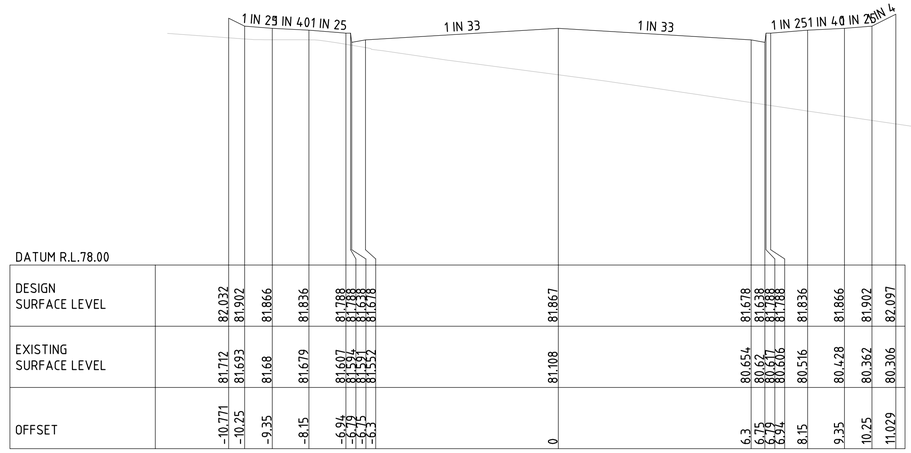
CH 30



DATUM R.L.77.00

DESIGN SURFACE LEVEL	80.837	80.801	80.771	80.723	80.723	80.723	80.613	80.802	80.613	80.573	80.723	80.723	80.771	80.801	80.837	80.834
EXISTING SURFACE LEVEL	84.603	84.367	84.056	83.747	83.741	83.7	83.587	82.012	80.43	80.332	80.323	80.229	80.026	79.833	79.691	79.689
OFFSET	-10.25	-9.35	-8.15	-6.94	-6.79	-6.75	-6.3	0	6.3	6.75	6.79	6.94	8.15	9.35	10.25	10.262

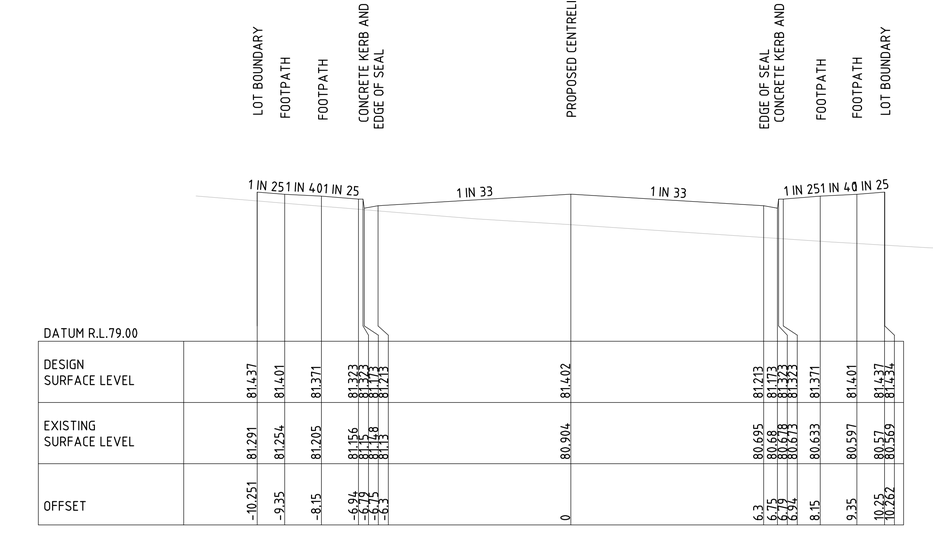
CH 120



DATUM R.L.78.00

DESIGN SURFACE LEVEL	82.032	81.902	81.866	81.836	81.788	81.788	81.678	81.867	81.678	81.638	81.788	81.836	81.866	81.902	82.097
EXISTING SURFACE LEVEL	81.712	81.693	81.68	81.679	81.607	81.594	81.552	81.108	80.654	80.62	80.607	80.606	80.516	80.428	80.362	80.306
OFFSET	-10.771	-10.25	-9.35	-8.15	-6.94	-6.79	-6.3	0	6.3	6.75	6.79	6.94	8.15	9.35	10.25	11.029

CH 19.272



DATUM R.L.79.00

DESIGN SURFACE LEVEL	81.437	81.401	81.371	81.323	81.323	81.323	81.213	81.402	81.213	81.173	81.323	81.323	81.371	81.401	81.437	81.434
EXISTING SURFACE LEVEL	81.291	81.254	81.205	81.156	81.15	81.148	81.13	80.904	80.695	80.68	80.678	80.673	80.633	80.597	80.57	80.569
OFFSET	-10.251	-9.35	-8.15	-6.94	-6.79	-6.75	-6.3	0	6.3	6.75	6.79	6.94	8.15	9.35	10.25	10.262

CH 60

martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT: HANSON / OLD WALLGROVE RD EASTERN CREEK

TITLE: ESTATE ROAD CROSS SECTIONS - SHEET 1 OF 3

THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

PROJECT MANAGER: ANDREW NORRIS

DRAWING NUMBER: P1002913JD04V01

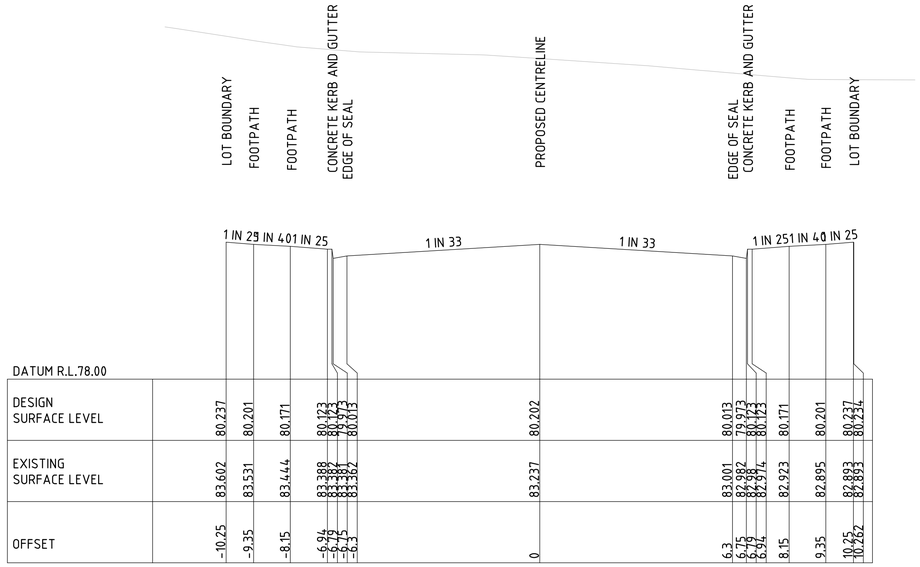
DESIGNED: MGD
DRAWN: KT
REVIEWED: ASN

DATUM: M R.L.
HORIZONTAL RATIO: 1:500 @ A1, 1:1000 @ A3
VERTICAL RATIO: 1:500 @ A1, 1:1000 @ A3

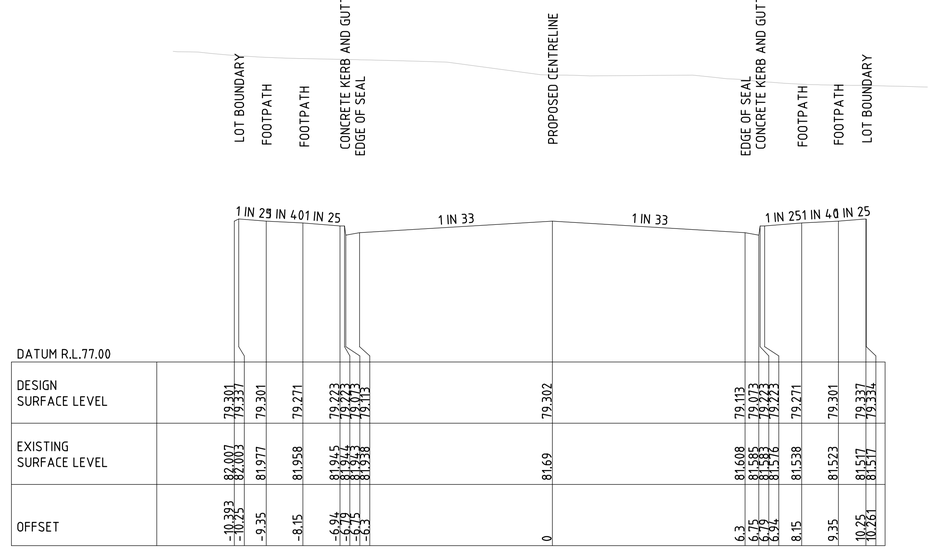
SHEET 14 OF 20 SHEETS

PAPER SIZE: A1 / A3

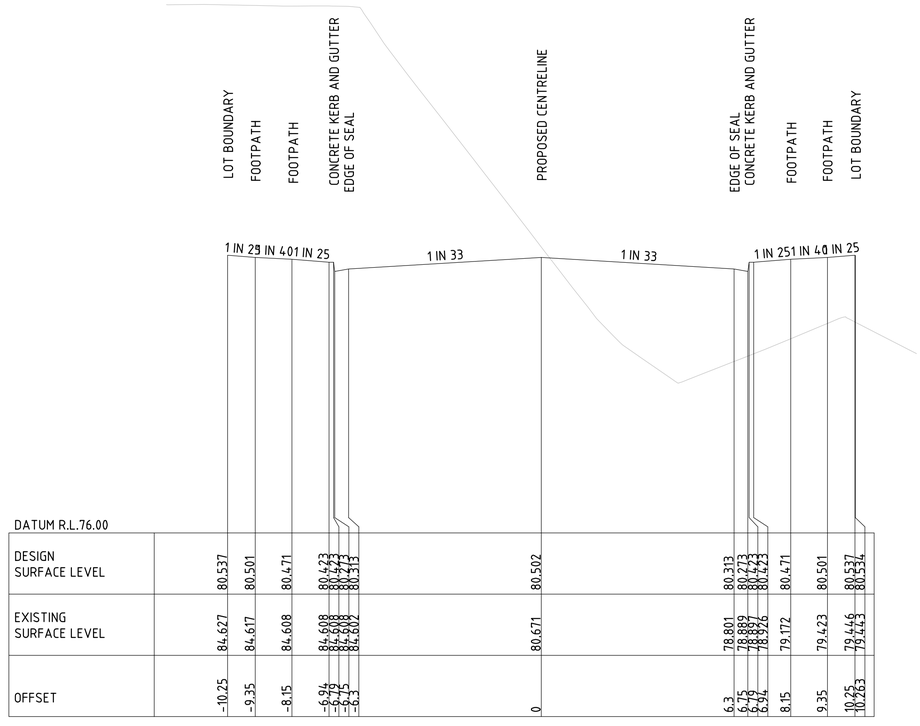
REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN



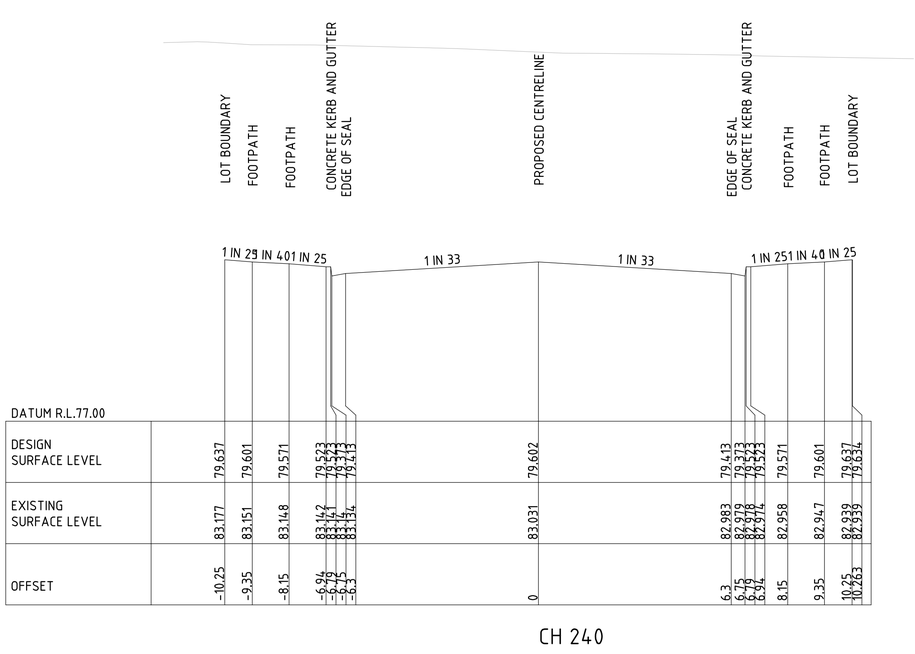
CH 180



CH 270



CH 150



CH 240

martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT
HANSON / OLD WALLGROVE RD EASTERN CREEK

TITLE
ESTATE ROAD CROSS SECTIONS - SHEET 2 OF 3

THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

PROJECT MANAGER: ANDREW NORRIS

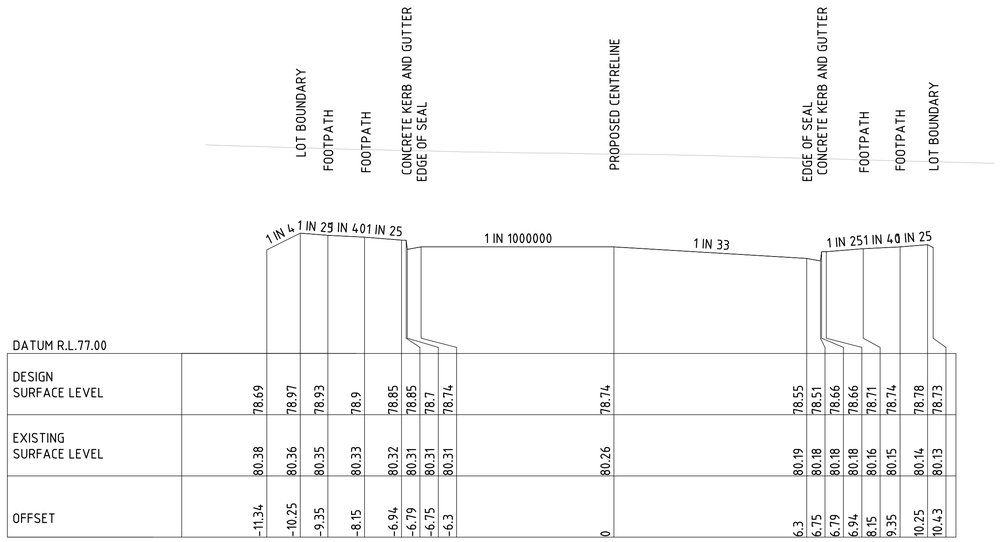
DRAWING NUMBER: P1002913JD04V01

DESIGNED: MGD
DRAWN: KT
REVIEWED: ASN

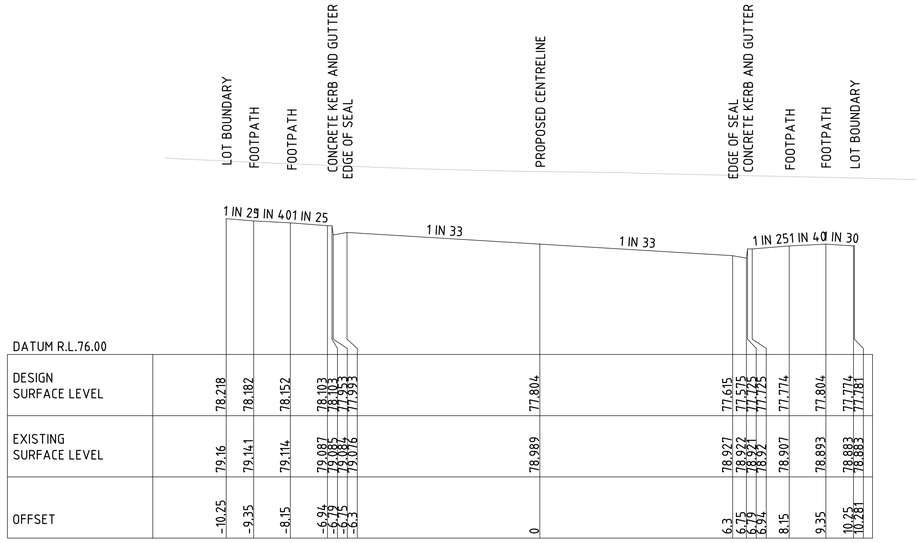
DATUM: M R.L.
HORIZONTAL RATIO: 1:500 @ A1, 1:1000 @ A3
VERTICAL RATIO: 1:500 @ A1, 1:1000 @ A3

SHEET 15 OF 20 SHEETS
PAPER SIZE: A1 / A3

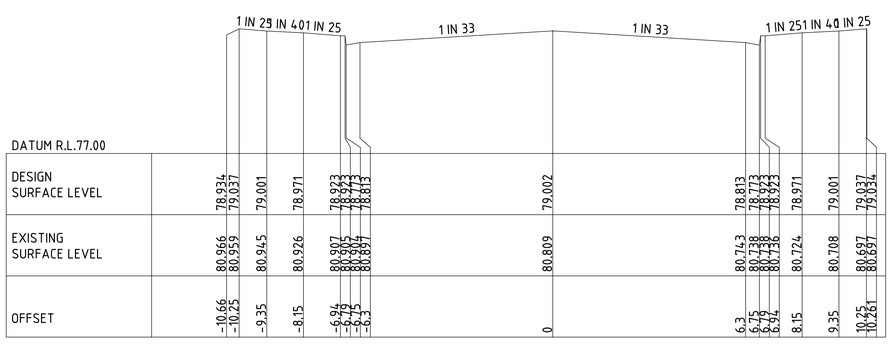
REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN



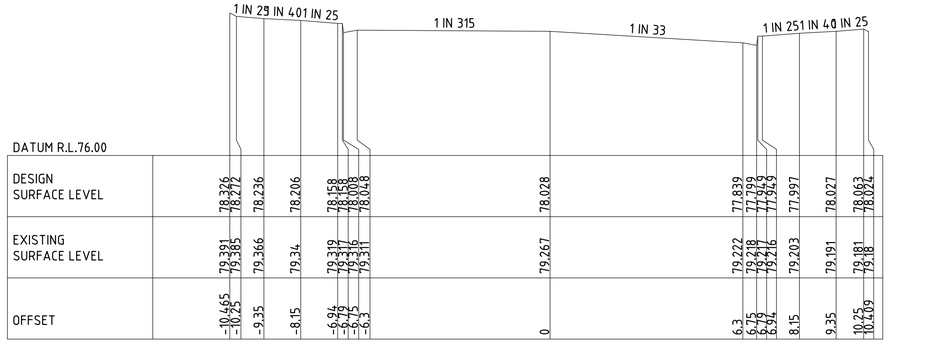
CH 320



CH 358.942



CH 300



CH 350

martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT
HANSON / OLD WALLGROVE RD EASTERN CREEK

TITLE
ESTATE ROAD CROSS SECTIONS - SHEET 3 OF 3

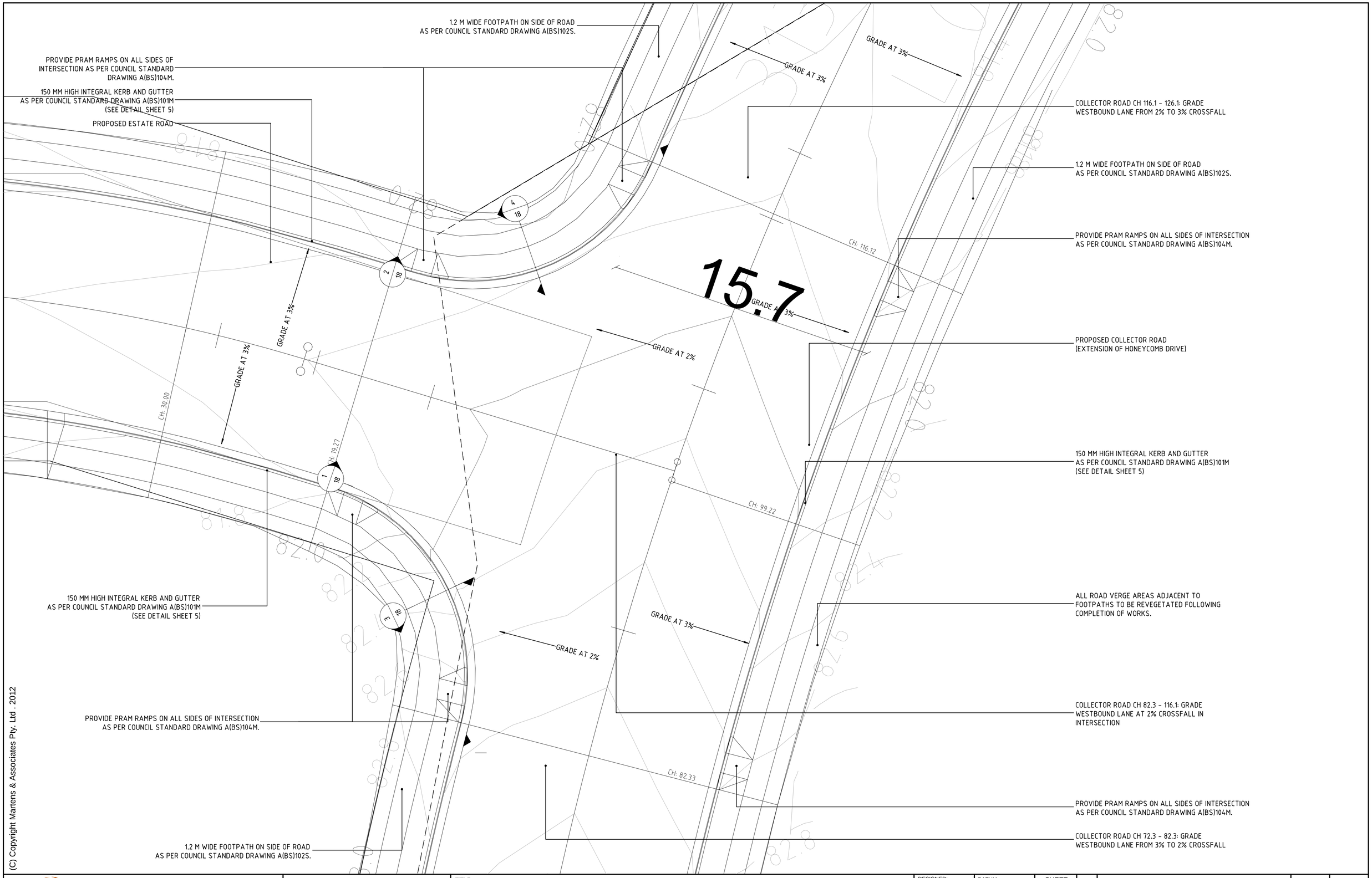
THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

PROJECT MANAGER: ANDREW NORRIS

DRAWING NUMBER: P1002913JD04V01

DESIGNED:	MGD
DRAWN:	KT
REVIEWED:	ASN
DATUM:	M R.L.
HORIZONTAL RATIO:	1:500 @ A1 1:1000 @ A3
VERTICAL RATIO:	1:500 @ A1 1:1000 @ A3
SHEET	16
OF SHEETS	20
PAPER SIZE:	A1 / A3

REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN



martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT
HANSON / OLD WALLGROVE RD EASTERN CREEK

TITLE
INTERSECTION PLAN DETAIL

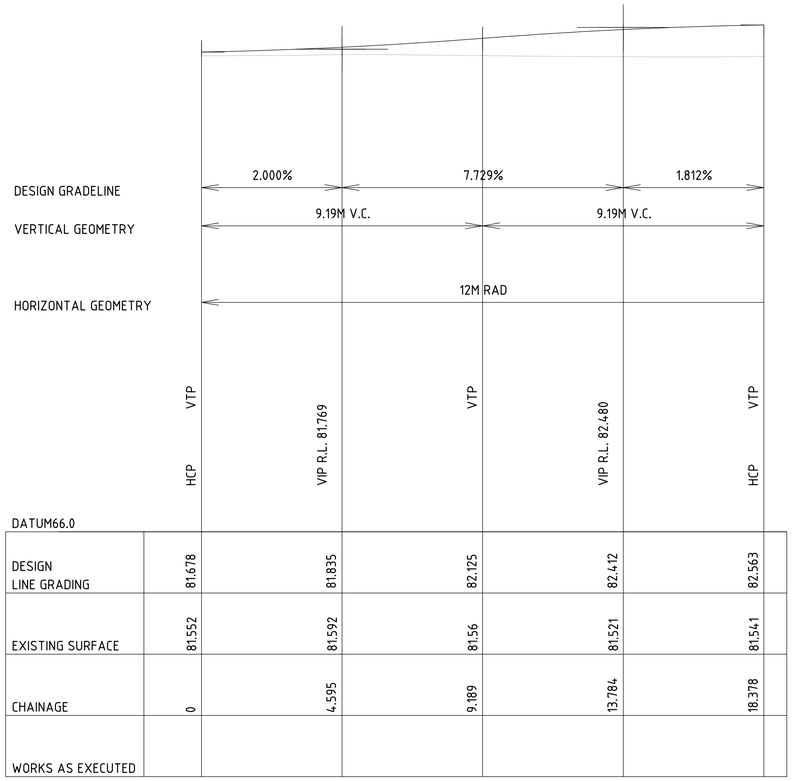
THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

PROJECT MANAGER: ANDREW NORRIS

DRAWING NUMBER: P1002913JD04V01

DESIGNED:	MGD
DRAWN:	KT
REVIEWED:	ASN
DATUM:	M R.L.
HORIZONTAL RATIO:	1:100 @ A1 1:200 @ A3
VERTICAL RATIO:	1:100 @ A1 1:200 @ A3
SHEET	17
OF SHEETS	20
PAPER SIZE:	A1 / A3

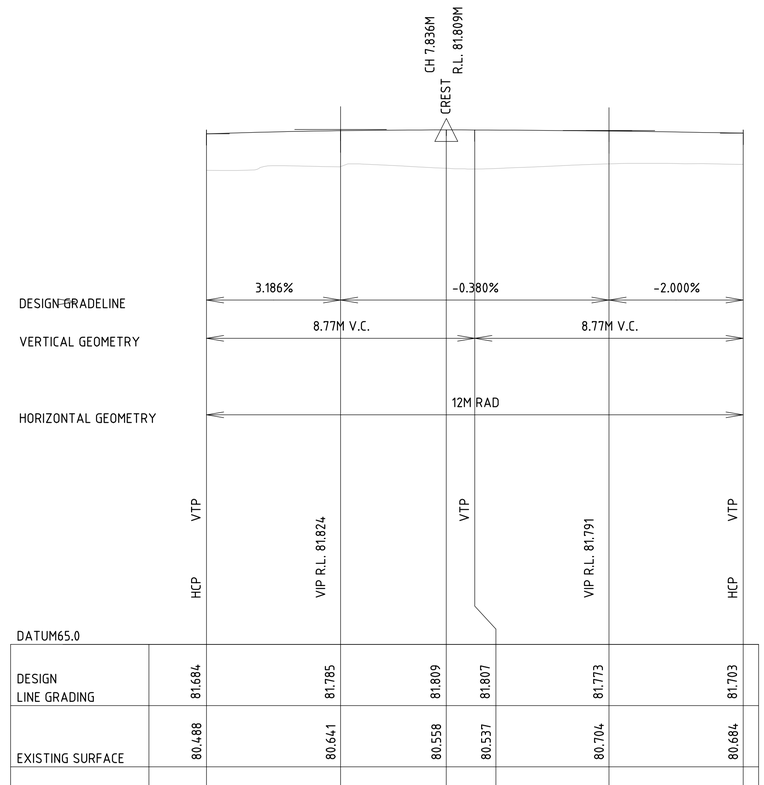
REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN



DATUM66.0

DESIGN LINE GRADING	81.678	81.835	82.125	82.412	82.563	
EXISTING SURFACE	81.552	81.592	81.56	81.521	81.541	
CHAINAGE	0	4.595	9.189	13.784	18.378	
WORKS AS EXECUTED						

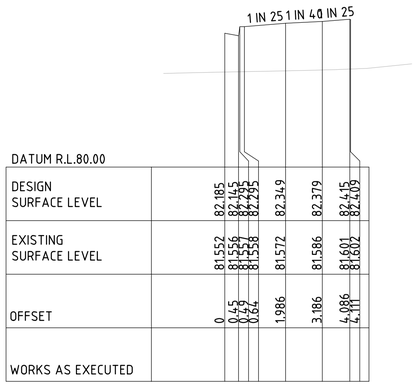
1/17 LONGITUDINAL SECTION KR1



DATUM65.0

DESIGN LINE GRADING	81.684	81.785	81.809	81.807	81.773	81.703
EXISTING SURFACE	80.488	80.641	80.558	80.537	80.704	80.684
CHAINAGE	0	4.385	7.836	8.769	13.154	17.539
WORKS AS EXECUTED						

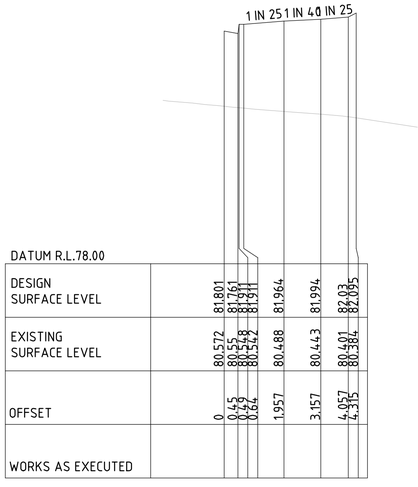
2/17 LONGITUDINAL SECTION KR2



DATUM R.L.80.00

DESIGN SURFACE LEVEL	82.185	82.145	82.295	82.349	82.379	82.415	82.409	
EXISTING SURFACE LEVEL	81.552	81.556	81.557	81.572	81.586	81.601	81.602	
OFFSET	0	0.45	0.49	0.64	1.986	3.186	4.086	4.111
WORKS AS EXECUTED								

3/17 KR1 CHAINAGE 10



DATUM R.L.78.00

DESIGN SURFACE LEVEL	81.801	81.761	81.911	81.964	81.994	82.03	82.095	
EXISTING SURFACE LEVEL	80.572	80.55	80.548	80.542	80.488	80.443	80.401	80.384
OFFSET	0	0.45	0.49	0.64	1.957	3.157	4.057	4.315
WORKS AS EXECUTED								

4/17 KR2 CHAINAGE 10

martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT
HANSON / OLD WALLGROVE RD EASTERN CREEK

TITLE
KERB RETURN LONG-SECTIONS AND CROSS-SECTIONS

THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

PROJECT MANAGER: ANDREW NORRIS

DRAWING NUMBER: P1002913JD04V01

DESIGNED: MGD
DRAWN: KT
REVIEWED: ASN

DATUM: M R.L.
HORIZONTAL RATIO: 1:100 @ A1 1:200 @ A3
VERTICAL RATIO: 1:100 @ A1 1:200 @ A3

SHEET 18 OF 20 SHEETS
PAPER SIZE: A1 / A3

REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN

PROPOSED STORMWATER EASEMENT

PROPOSED SEWER EASEMENT

PROPOSED CDS GPT UNIT BY ROCLA
(OR COMMERCIALLY AVAILABLE EQUIVALENT)
SEE DETAIL MA PLAN SET P1002913JD05V01 (MARCH 2012)

LOCALISED REGRADING OF FOOTPATH AND VERGE TO DIRECT STORMWATER OVERFLOWS TO PROPOSED DRAINAGE EASEMENT

ALL ROAD VERGE AREAS ADJACENT TO FOOTPATHS TO BE REVEGETATED FOLLOWING COMPLETION OF WORKS.

PROPOSED ESTATE ROAD

FOR ROAD DRAINAGE SEE DETAIL
MA PLAN SET P1002913JD05V01 (MARCH 2012)

PROVIDE INDUSTRIAL DRIVEWAY CROSSING TO ACCESS RAMP TO PROPOSED LOTS 4 AND 5 AS PER COUNCIL STANDARD DRAWING A(BS)103S.

ESTATE ROAD CENTRELINE
SEE DETAIL SHEET 8.

GRADE CUL-DE-SAC BULB TO NEW PIT
AT 3% CROSSFALL (APPROX).

1.2 M WIDE FOOTPATH ON SIDE OF ROAD
AS PER COUNCIL STANDARD DRAWING A(BS)102S
TO EXTEND AROUND CUL-DE-SAC.

GRADE VERGE TO TOP OF RETAINING
WALL ON LOT BOUNDARY

150 MM HIGH INTEGRAL KERB AND GUTTER
AS PER COUNCIL STANDARD DRAWING A(BS)101M
(SEE DETAIL SHEET 6)

GRADE CUL-DE-SAC GUTTER TO NEW PIT
AS SHOWN.

SITE ESTATE ROAD CH 330 - CH 358.9: GRADE
ROAD SURFACE AT 3% SINGLE CROSSFALL.

martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT
HANSON / OLD WALLGROVE RD EASTERN CREEK

TITLE
ESTATE ROAD CUL-DE-SAC DETAIL PLAN

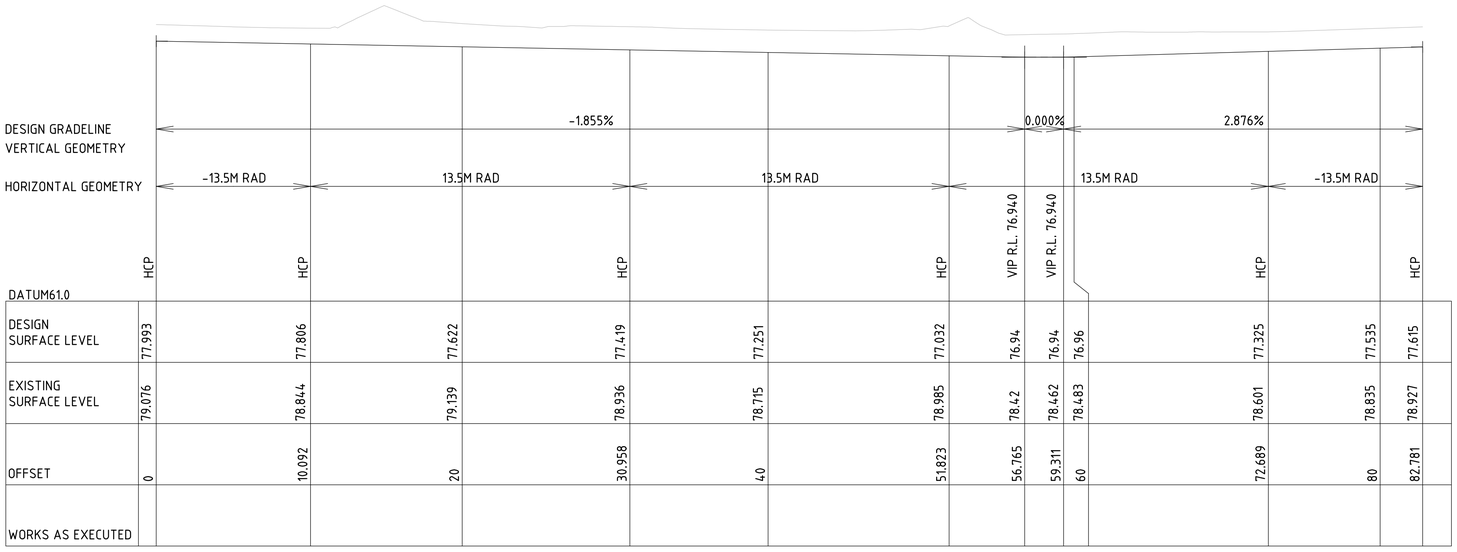
THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

PROJECT MANAGER: ANDREW NORRIS

DRAWING NUMBER: P1002913JD04V01

DESIGNED:	MGD
DRAWN:	MGD
REVIEWED:	ASN
DATUM:	M R.L.
HORIZONTAL RATIO:	1:100 @ A1 1:200 @ A3
VERTICAL RATIO:	1:100 @ A1 1:200 @ A3
SHEET	19
OF SHEETS	20
PAPER SIZE:	A1 / A3

REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN



1/19 LONGITUDINAL SECTION CULDESAC N-S

TYPICAL SECTION THROUGH CUL-DE-SAC

2/19 LONGITUDINAL SECTION CDS SECTION E-W

martens
6/37 Leighton Place
Hornsby, NSW 2077 Australia
Phone: (02) 9476 9999
Fax: (02) 9476 8767
Email: mail@martens.com.au
Internet: http://www.martens.com.au

MARTENS & ASSOCIATES PTY LTD
Sustainable Solutions
Environmental - Geotechnical - Civil
Hydraulic - Wastewater Engineers

CLIENT/ PROJECT
HANSON / OLD WALLGROVE RD EASTERN CREEK

THIS PLAN MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED BY PRINCIPAL CERTIFYING AUTHORITY
All measurements in m unless otherwise specified.

TITLE
CUL-DE-SAC SECTIONS

PROJECT MANAGER: ANDREW NORRIS
DRAWING NUMBER: P1002913JD04V01

DESIGNED: MGD
DRAWN: KT
REVIEWED: ASN
DATUM: M R.L.
HORIZONTAL RATIO: 1:200 @ A1 1:400 @ A3
VERTICAL RATIO: 1:200 @ A1 1:400 @ A3
SHEET 20 OF 20 SHEETS
PAPER SIZE: A1 / A3

REV.	DESCRIPTION	DATE	ISSUED
1	DRAFT	26.03.12	ASN