MCCARRS CREEK ROAD REALIGNMENT STAGE 1

CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

FOR CONSTRUCTION

LOCALITY AERIAL

NOT TO SCALE

SOURCE : GOOGLE EARTH

DRAWING SCHEDULE

DRG No.	DRAWING TITLE	REV.
C1.00 Arrangement and Overview Plans		
C1.01	Cover Sheet	2
C1.02	Specification Notes	1
C1.03	General Arrangement Plan	1
C1.04	Pavement Plan and Details	3
C1.05	Typical Road Cross-Sections Sheet 1 of 2	3
C1.06	Typical Road Cross-Sections Sheet 2 of 2	3
C1.11	Traffic Control Device Plan - Stage 1a - Road Only	3
C1.12	Traffic Control Device Plan - Stage 1b - Road and Carpark	1
C3.00 Survey Setout		
C3.01	Setout Plan	2
C4.00 Siteworks Plans		
C4.01	Siteworks Plan	3
C4.03	Upper Level Stormwater, Grading and Traffic Control Device Plan	1
C4.11	Civil Details	3
C4.12	Pavement Jointing Layout Plan and Details	3
C5.00 Road Longitudinal and Cross Sections		
C5.01	Road Longitudinal Sections Sheet 1 of 5 - McCarrs Creek Rd	2
C5.03	Road Longitudinal Sections Sheet 3 of 5 - Cargo Wharf	1
C5.04	Road Longitudinal Sections Sheet 4 of 5 - Ramp Entry	2
C5.05	Road Longitudinal Sections Sheet 5 of 5 - Ramp Exit	2
C5.11	Road Cross Sections Sheet 1 of 2 - McCarrs Creek Rd	2
C5.12	Road Cross Sections Sheet 2 of 2 - McCarrs Creek Rd	1

DRAWING SCHEDULE

DRG No.	DRAWING TITLE	REV.
C6.00 Kerb Return and Kerb Longitudinal Sections		
C6.01	Carpark Ground Level Kerb Longitudinal Sections	1
C6.02	Carpark Upper Level Longitudinal Sections - Left Kerb CL	1
C6.03	Carpark Upper Level Longitudinal Sections - Carpark CL	1
C6.04	Carpark Upper Level Longitudinal Sections - Right Kerb CL	1
C6.05	Western Retrofit Kerb Longitudinal and Cross Sections	1
C7.00 Stormwater Drainage		
C7.01	Stormwater Drainage Plan	4
C7.11	Stormwater Details Sheet 1 of 4	1
C7.12	Stormwater Details Sheet 2 of 4	1
C7.13	Stormwater Details Sheet 3 of 4	2
C7.14	Stormwater Details Sheet 4 of 4	1
C7.15	Subsoil Drainage Details	1
C7.16	Carpark Stormwater Drainage Details	3
C7.17	Carpark Stormwater Drainage	1
C7.21	Stormwater Drainage Longitudinal Sections Sheet 1 of 2	3
C7.22	Stormwater Drainage Longitudinal Sections Sheet 2 of 2	3
C7.23	Concrete Channel Chainage Plan Longitudinal Sections	2
C7.24	Concrete Channel Details	1
C9.00 Services Coordination Plans		
C9.01	Services Coordination Plan	2
C9.02	Carpark Lighting Coordination Plan	1
C9.03	Carpark Fire Coordiantion Plan	1

REFERENCE DRAWINGS:

1. RUDDS STREET LIGHTING DRG "118094-E100"
2. SYDNEY WATER DRG'S:

- CASE 156379WW - 1.1
- CASE 156379WW - 1.2
- CASE 156379WW - 1.3

CLIENT

WARD

PROJECT MANAGER

CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

ARCHITECT

Warren Smith & Partners Pty Ltd

A 1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
T 02 9299 1312 F 02 9290 1295 E wsp@warrensmith.com.au

ABN 36 300 430 126

Consulting Engineers

SERVING THE CONSTRUCTION INDUSTRY SINCE 1981

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

QUALITY ASSURED COMPANY ISO 9001 International Standards Certification

Lic: QAC/R61/0771

TITLE

COVER SHEET

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C1.01	2

DATE	STATUS
10/02/2017	FOR CONSTRUCTION

Plot Date

Cad File: T:\5325000\CAD\Civil\Detailed Design\Stage 1\5325000-C1.01 Cover Sheet.dwg

Login Name: MCiarrocca

Plot Date: 23.10.2017 2:00:18 PM

Xrefs: X:\5325000\SC Drawings\

GENERAL

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

G2. THE DRAWINGS HEREIN SHALL BE READ AS REQUIRED IN CONJUNCTION WITH STRUCTURAL ENGINEERS DRAWINGS:

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

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

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

STORMWATER & SUB-SOIL DRAINAGE MATERIALS:

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

A. SEWER GRADE uPVC (SN8) WITH SOLVENT WELDED JOINTS FOR BELOW GROUND DRAINAGE UP TO 225mm.

B. FIBRE REINFORCED CEMENT / REINFORCED CONCRETE CLASS 4 WITH RUBBER RINGS FOR PIPE DIA'S GREATER THAN 225mm. UNO.

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

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

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

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

STW4. STORMWATER PITS ARE AS SHOWN & SPECIFIED ON THE PLANS . PRECAST TYPE ACCEPTABLE WITH STEP IRONS FOR DEPTH GREATER THAN 1200. BENCH ALL PITS MIN. 50mm & FORM SMOOTH TRANSITION FROM INLET TO OUTLET, ALL INTERNAL PIT DIMENSIONS TO CONFORM TO TABLE 8.2 AS - 3500.3

STW5. SELECT FILL SHALL BE MATERIAL OBTAINED FROM EXCAVATION OF THE PIPE TRENCH OR IMPORTED WITH A PARTICLE SIZE FOR ROCK NOT GREATER THAN 75mm OR FOR OTHER THAN ROCK NOT GREATER THAN 150mm.

STW6. IMPORTED FILL SHALL BE EITHER, AND GENERALLY CONSIST OF SINGLE SIZED AGGREGATE WITH PARTICLE SIZE NOT GREATER THAN 5mm WRAPPED ALL ROUND WITH GEOTEXTILE FILTER FABRIC OR APPROVED HIGH COMPACTION SAND OR APPROVED CRUSHED ROAD GRAVEL CONFORMING TO RTA FORM 3051 OR SIMILAR.

STW7. STORMWATER PITS AND GRATES TO CONFORM WITH STANDARD COUNCIL REQUIREMENTS, WHERE ON PUBLIC LAND. GRATES TO BE SUPPLIED IN CLASS SHOWN ON THE DRAWINGS.

INSTALLATION REQUIREMENTS:

STW8. PIPES SHALL BE TRUE TO GRADES SHOWN AND ALIGNED SO THAT THE CENTRES OF THE INLET PIPES INTERSECT WITH THE CENTRE OF THE OUTLET PIPE AT THE DOWNSTREAM FACE OF THE PIT.

STW9. MINIMUM GRADES FOR GRAVITY STORMWATER DRAINAGE SHALL CONFORM TO AS3500 PART3 AS FOLLOWS, UNO:
1% FOR 100 AND 150 mm DIA.
0.5% FOR 225 mm DIA
0.5% FOR 300 mm DIA
0.4% FOR 375 mm DIA

STW10. MINIMUM DEPTH OF COVER SHALL BE :-
- 300mm IN PRIVATE PROPERTY (NON VEHICULAR TRAFFIC).
- 450mm IN PUBLIC AREAS.
- 600mm IN VEHICULAR TRAFFICABLE AREAS (FOOTWAY/ROADWAY)

STW11. BED ALL PIPES FIRMLY AND EVENLY ONTO IMPORTED BEDDING FILL MATERIAL.

STW12. LAY AND JOINT ALL PIPES IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND
AS 3725-1989 BURIED FLEXIBLE PIPELINES
AS 2566-1998 LOADS ON BURIED FLEXIBLE PIPELINES
AS 1597.2-1996 PRECAST REINFORCED CONCRETE BOX CULVERTS.
AS 3500-1990 NATIONAL PLUMBING & DRAINAGE CODE. PART 2, SANITARY PLUMBING AND SANITARY DRAINAGE. SYDNEY WATER REQUIREMENTS.

STW13. ALLOW TO TEST ALL PIPES AND PITS TO MANUFACTURERS REQUIREMENTS.

CONCRETE WORKS

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

C2. ALL CONCRETE SHALL BE 80mm NOMINAL SLUMP, 20mm MAXIMUM AGGREGATE WITH NO ADMIXTURES OR FLY ASH, UNLESS OTHERWISE APPROVED. ALL CONCRETE WORK IN CONTACT WITH SEWER TO HAVE TYPE SL PORTLAND CEMENT, OTHERWISE TYPE A CEMENT FOR BRIDGE WORKS, A MAXIMUM 56 DAYS SHRINKAGE OF 600 MICROSTRAIN, A MINIMUM CEMENT CONTENT 350kg/m3 AND MAXIMUM WATER:CEMENT RATIO OF 0.40

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

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

C5. CONCRETE CURING SHALL BE IN ACCORDANCE WITH AS3600. CURING SHALL BE COMMENCED WITHIN TWO HOURS OF FINISHING OPERATIONS AND SHALL BE CONTINUED FOR A MINIMUM OF SEVEN DAYS BY AN APPROVED PROPRIETARY COMPOUND OR BY KEEPING CONTINUOUSLY WET.

C6. FORMWORK SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH AS3610. FORMWORK SHALL NOT BE STRIPPED NOR PROPS REMOVED WITHOUT APPROVAL.

REINFORCEMENT:

R1. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.

R2. WELDING OR SPLICES IN REINFORCEMENT SHALL BE USED ONLY IN POSITIONS APPROVED BY THE ENGINEER.

R3. FABRIC LAP DETAILS SHALL BE IN ACCORDANCE WITH FIG.13.2.4 OF AS3600.

R4. HOOKS, LAPS AND BENDS SHALL BE IN ACCORDANCE WITH AS3600 UNO.

R5. ALL CHEMICAL ANCHORS SHALL BE EITHER 'CHEMSET' BY "RAMSET" WITH THE GLASS CAPSULE SYSTEM INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS %%uOR HILTI HVU ADHESIVE ANCHOR WITH FOIL CAPSULE SYSTEM INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTION. ALL CHEMICAL ANCHORS SHALL BE HOT DIPPED GALVANIZED AND BE MIN M16 DIA. U.N.O.

GENERAL EARTHWORKS, SITEWORKS & FILLING:

FILLING:

SGE1. THESE CLAUSES SHALL BE READ IN CONJUNCTION WITH THE JK GEOTECHNICS GEOTECHNICAL REPORT, DATED 23 MAY 2016

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

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

SGE4. NEW FILL REQUIRED TO REINSTATE CUT LEVELS TO PROPOSED BENCHING LEVELS SHALL BE SOURCED FROM OTHER PARTS OF THE EXCAVATION AS SELECT FILL OR IMPORTED FILL AS SPECIFIED BELOW IN SGE 5 AND SGE 6.

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

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

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

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

EXCAVATION BATTERS:

SGE9. ALL TEMPORARY BATTERS CUT IN CLAY SUBSTRATE SHALL BE 1 HORIZ : 1 VERT. ALL LONG TERM EXPOSED BATTERS CUT IN CLAY SUBSTRATE SHALL BE 2 HORIZ : 1 VERT. ALL DETENTION BASIN BATTERS IN CLAY SUBSTRATE SHALL BE 3 HORIZ : 1 VERT. ALL DETENTION BASIN BATTERS IN ROCK SUBSTRATE SHALL BE NEAR VERTICAL.

SGE10. GEOTECHNICAL TESTING IS TO BE UNDERTAKEN TO AT LEAST LEVEL 2 CONTROL OF FILL COMPACTION STANDARD, AS DEFINED IN AS. 3738 AS FOLLOWS

- FOR GENERAL FILL OR CUT AREAS OVER THE AREA PROVIDE ONE (1) TEST PER 200mm LAYER, OVER AN AREA NOT GREATER THAN 500 m^2

- FOR GENERAL FILL AREAS IN CONCENTRATED AREAS ADJACENT TO AND BEHIND THE STRUCTURE AND ADJACENT TO AND BEHIND RETAINING WALLS PROVIDE ONE (1) TEST PER 200mm LAYER, OVER AN AREA NOT GREATER THAN 50m^2

SGE11. SUBMIT ALL GEOTECHNICAL TEST RESULTS TO WARREN SMITH & PARTNERS FOR REVIEW PRIOR TO CONTINUATION WITH SUBSEQUENT SECTION OF WORK.

EARTH WORKS FOR SERVICES

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

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

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

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

UNDER ROADWAY

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

OTHER THAN ROADWAY

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

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

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

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

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

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

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

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

E7. GEOTECHNICAL TESTING IS TO BE UNDERTAKEN TO AT LEAST LEVEL 2 CONTROL OF FILL COMPACTION STANDARD, AS DEFINED IN AS. 3738 AS FOLLOWS

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

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

RESTORATION:

RES1. RESTORE ALL TRAFFIC AREAS TO PRE EXISTING CONDITION.

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

RES3. RESTORE ALL AUTHORITY OWNED AREAS TO COUNCIL STANDARDS

ROAD WORKS, DRIVEWAYS & CARPARKS

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

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

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

BASE COURSE:	98% MODIFIED
SUB-BASE:	95% MODIFIED
SUB-GRADE:	100% STANDARD
SUB-GRADE REPLACEMENT:	100% STANDARD

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

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

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

APPROVALS

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

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

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

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

SERVICES UNDER ROAD SURFACES

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

ROAD SIGNS & LINE MARKING

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

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

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

PROTECTION OF FLORA - REFER SPECIFICATION

1. ANY TRENCHES WITHIN 3m OF TREES SHALL BE HAND DUG TO AVOID DAMAGE TO TREE ROOTS.

2. THE SEWERAGE WORKS HAVE BEEN LOCATED TO MINIMISE CLEARING AND DAMAGE TO THE EXISTING FLORA ENVIRONMENT. NO TREES ARE PERMITTED TO BE REMOVED OR DAMAGED UNO. CONSTRUCTION OF THE SEWER GRAVITY OR RISING MAIN IN THE VICINITY OF EXISTING TREES SHALL BE HAND EXCAVATED ONLY, ENSURING IRREVERSIBLE DAMAGE OF THE ROOT SYSTEM DOES NOT OCCUR.

3. IF IT IS CONSIDERED NECESSARY TO PERFORM ANY WORK ON TREES, INCLUDING TRIMMING, LOPPING, ROOT CUTTING, REPAIR AND REMOVAL, APPLICATION IN WRITING SHALL BE MADE BY THE CONTRACTOR TO THE SUPERINTENDENT. ANY WORK PERMITTED TO BE DONE ON TREES TO BE RETAINED SHALL BE PERFORMED BY AN APPROVED TREE SURGEON.

4. NO MATURE TREES OR SHRUBS ARE TO BE REMOVED FOR THE PURPOSES OF THE WORKS WITHOUT PRIOR APPROVAL FROM PITTWATER COUNCIL.

AUTHORITY STANDARDS

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

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CLOSED CIRCUIT COLOUR TV (CCTV)

CCTV1. UNDERTAKE A CCTV INSPECTION OF ALL THE COMPLETED DRAINAGE IN ACCORDANCE WITH THE GUIDELINES OF THE THE AUSTRALIAN CONDUIT CONDITION EVALUATION MANUAL (ACCEM)

CCTV2. APPLY THE FOLLOWING REQUIREMENTS TO THE CCTV INSPECTION:-
A. USE DATA CAPTURE SOFTWARE APPROVED BY SYDNEY WATER

B. USE CERTIFIED CCTV OPERATORS

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

CCTV3. FURNISH TO THE DESIGN OF THE CONSULTANT:-
A. VIDEOS IN MPG FORMAT FOR VIEWING
B. CCTV REPORT AND SURVEY DATA IN PDF FORMAT
C. ONE HARD COPY PRINTOUT OF THE SURVEY DATA

PROTECTION OF TREES

T1. WHERE STORMWATER DRAINAGE IS LAID IN THE VICINITY OF TREES / CANOPIES OF TREES, ALLOW THE CONSULTANT ARBORIST TO INSPECT PROGRESSIVELY THE EXCAVATION AND CONSTRUCTION WORKS.

FOR CONSTRUCTION

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
B	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
1	STAGE 1 CONSTRUCTION ISSUE	03/05/17

REVISION	AMENDMENT	DATE

CLIENT: WARD

PROJECT: MCCARRS CREEK ROAD REALIGNMENT STAGE 1 CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

PREPARED BY
Warren Smith & Partners
Warren Smith & Partners Pty Ltd
1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
T 02 9299 1312 F 02 9290 1295 wsp@warrensmith.com.au
www.warrensmith.com.au ABN 36 300 430 126
CONSULTING ENGINEERS
Hydraulic Services Fire Protection Civil Engineering
Sydney Water Accredited Water Servicing Co-ordinator
- Design Project Management - Building Plan Approvals
SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.
Lic No: QAC/R61/0771

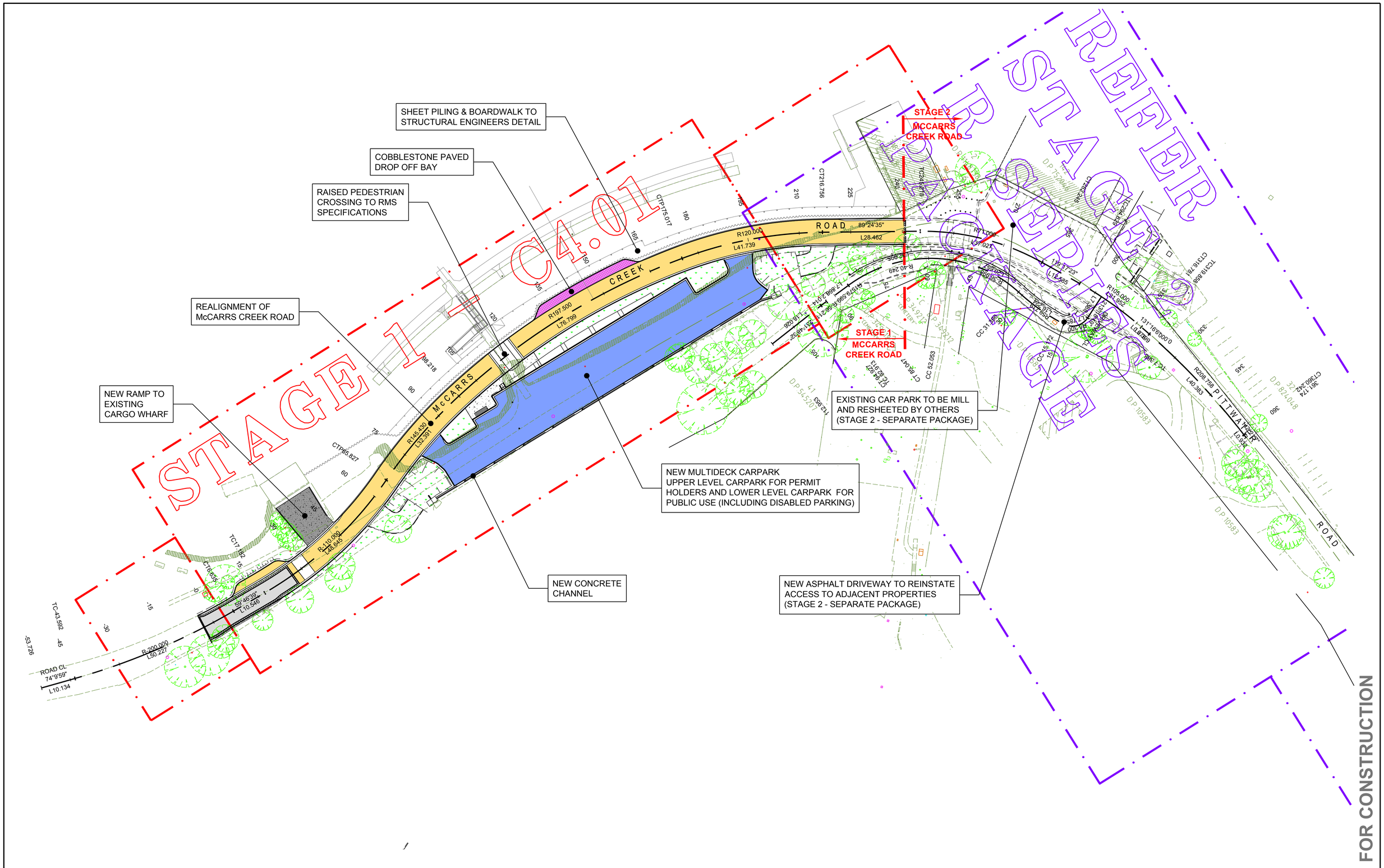
TITLE: **SPECIFICATION NOTES**

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C1.02	1

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

Jobfile: S:\5325000\75 JKW
Plot Date: 26/11/2018@12:08:42 Login Name: WSpencer Cad File: T:\5325000\CAD\Civil\Models\Design\Stage 1\5325000-C1-02 Specification Notes.dwg



NORTH

10.0 0 5.0 10.0 15.0 20.0m
PLAN SCALE 1:500 A1 SHEET

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
B	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
1	STAGE 1 CONSTRUCTION ISSUE	03/05/17

REVISION	AMENDMENT	DATE

CLIENT
WARD

PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY
Warren Smith & Partners

Warren Smith & Partners Pty Ltd
1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
T 02 9299 1312 F 02 9290 1295 wsp@warrensmith.com.au
www.warrensmith.com.au ABN 36 300 430 126

CONSULTING ENGINEERS
■ Hydraulic Services ■ Fire Protection ■ Civil Engineering
■ Sydney Water Accredited Water Servicing Co-ordinator
- Design Project Management - Building Plan Approvals

SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

Lic No: QAC/R61/0771

TITLE
GENERAL ARRANGEMENT PLAN

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
1:500	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C1.03	1

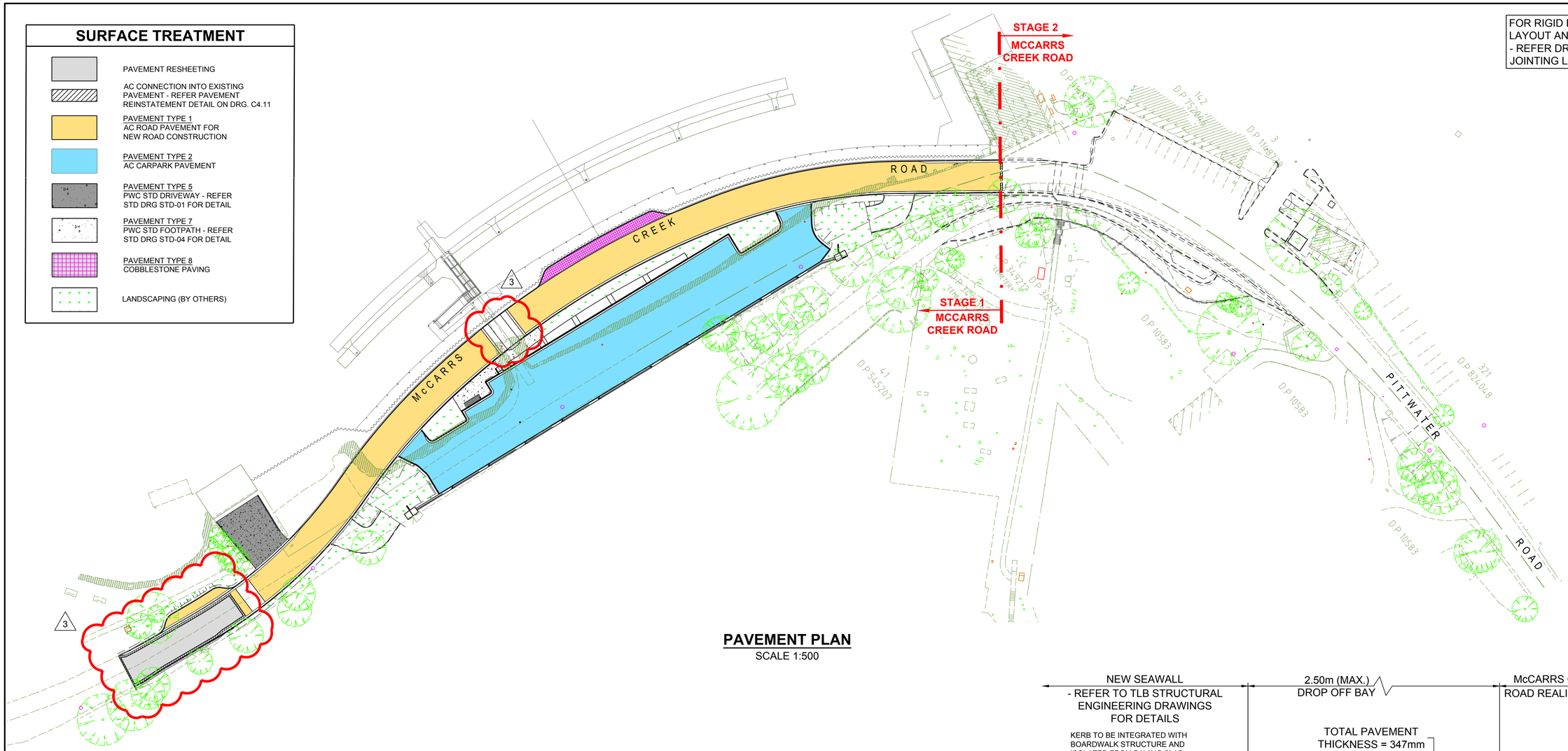
DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

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

SURFACE TREATMENT

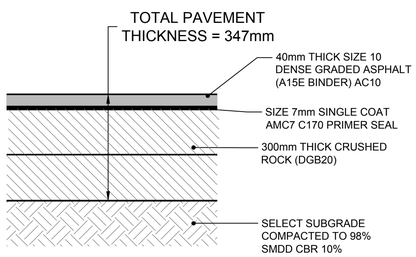
- PAVEMENT RESHEETING
- AC CONNECTION INTO EXISTING PAVEMENT - REFER PAVEMENT REINSTATEMENT DETAIL ON DRG. C4.11
- PAVEMENT TYPE 1 — AC ROAD PAVEMENT FOR NEW ROAD CONSTRUCTION
- PAVEMENT TYPE 2 — AC CARPARK PAVEMENT
- PAVEMENT TYPE 5 — PWC STD DRIVEWAY - REFER STD DRG STD-01 FOR DETAIL
- PAVEMENT TYPE 7 — PWC STD FOOTPATH - REFER STD DRG STD-04 FOR DETAIL
- PAVEMENT TYPE 8 — COBBLESTONE PAVING
- LANDSCAPING (BY OTHERS)

FOR RIGID PAVEMENT JOINTING LAYOUT AND JOINTING DETAILS - REFER DRG C4.12 - PAVEMENT JOINTING LAYOUT PLAN AND DETAILS



PAVEMENT PLAN

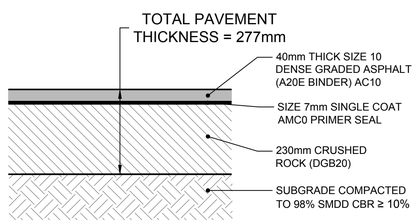
SCALE 1:500



PAVEMENT TYPE 1 (PUBLIC ROAD)

ESA = 4.0 x10^6

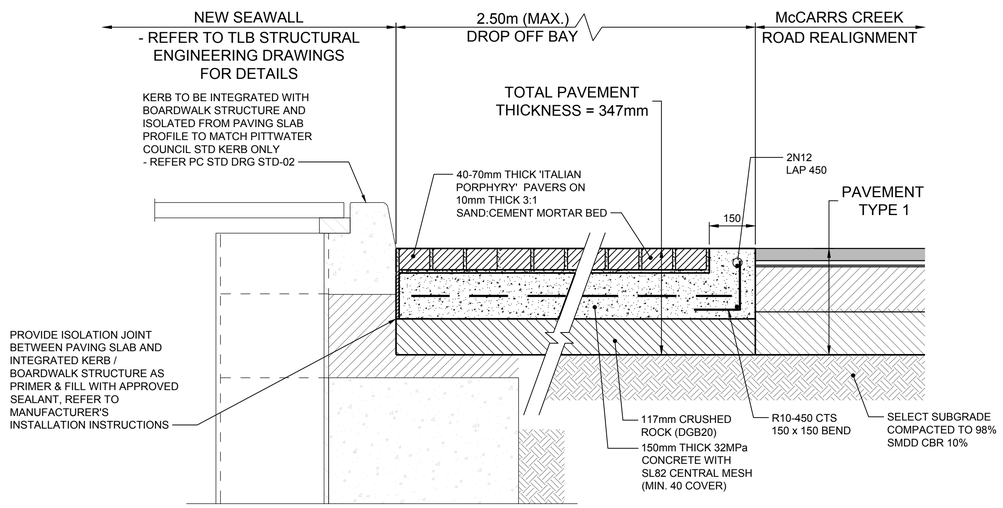
SCALE 1:10



PAVEMENT TYPE 2 (CARPARK)

ESA = 3.0 x 10^5

SCALE 1:10



PAVEMENT TYPE 8 (COBBLESTONE IN DROP-OFF BAY)

SCALE 1:10

FOR CONSTRUCTION

NORTH

100 0 100 200 300 400 500mm — DETAILS SCALE 1:10 A1 SHEET

10.0 0 5.0 10.0 15.0 20.0m — PLAN SCALE 1:500 A1 SHEET

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
B	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
1	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17
2	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	22/06/17
3	STAGE 1 CONSTRUCTION ISSUE	30/08/17

REVISION	AMENDMENT	DATE

CLIENT: WARD

PROJECT: MCCARRS CREEK ROAD REALIGNMENT STAGE 1 CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

PREPARED BY

Warren Smith & Partners

Warren Smith & Partners Pty Ltd
1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
T 02 9299 1312 F 02 9290 1295 wsp@warrensmith.com.au
www.warrensmith.com.au ABN 36 300 430 126

CONSULTING ENGINEERS
■ Hydraulic Services ■ Fire Protection ■ Civil Engineering
■ Sydney Water Accredited Water Servicing Co-ordinator
- Design Project Management - Building Plan Approvals

SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

Lic No: QAC/R61/0771

TITLE: **PAVEMENT PLAN AND DETAILS**

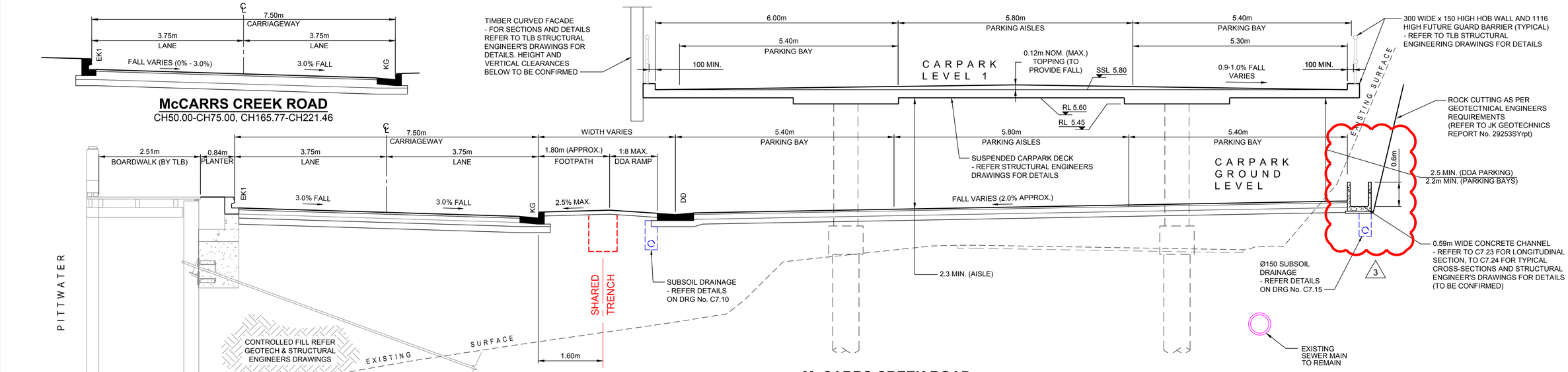
SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C1.04	3

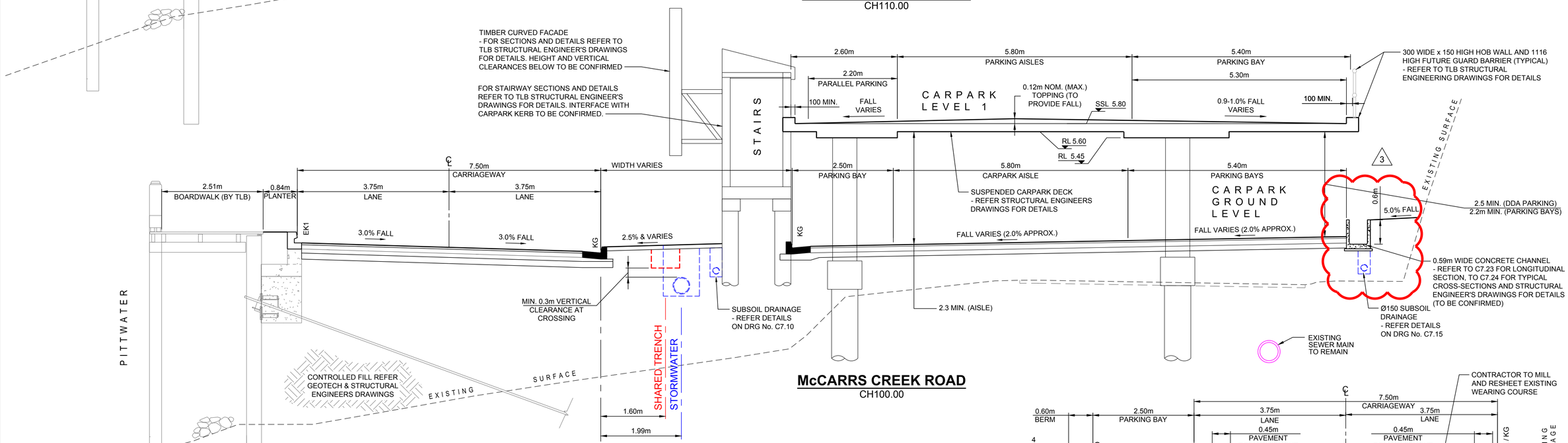
DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

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

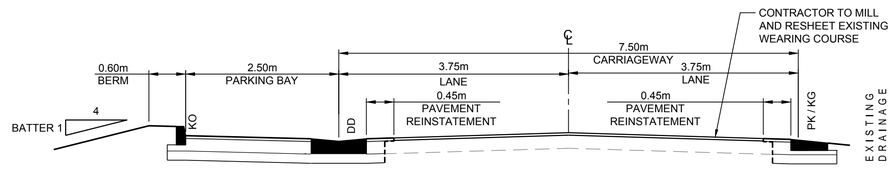
McCARRS CREEK ROAD
CH50.00-CH75.00, CH165.77-CH221.46



McCARRS CREEK ROAD
CH110.00



McCARRS CREEK ROAD
CH100.00



McCARRS CREEK ROAD
CH12.95 - CH23.98

FOR CONSTRUCTION

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
B	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
1	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17
2	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	30/08/17
3	STAGE 1 CONSTRUCTION ISSUE	28/11/17

REVISION	AMENDMENT	DATE

CLIENT: WARD

PROJECT: MCCARRS CREEK ROAD REALIGNMENT STAGE 1 CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

PREPARED BY: Warren Smith & Partners

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Lic No: QAC/R61/0771

SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

TITLE: **TYPICAL ROAD CROSS-SECTIONS SHEET 1 OF 2**

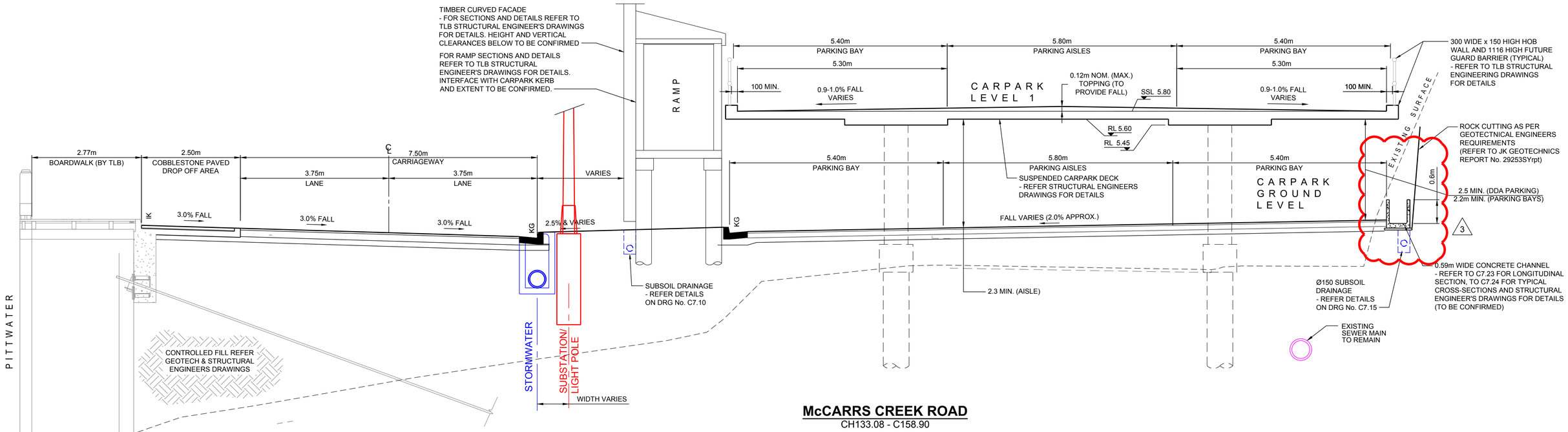
SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
1:50	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C1.05	3

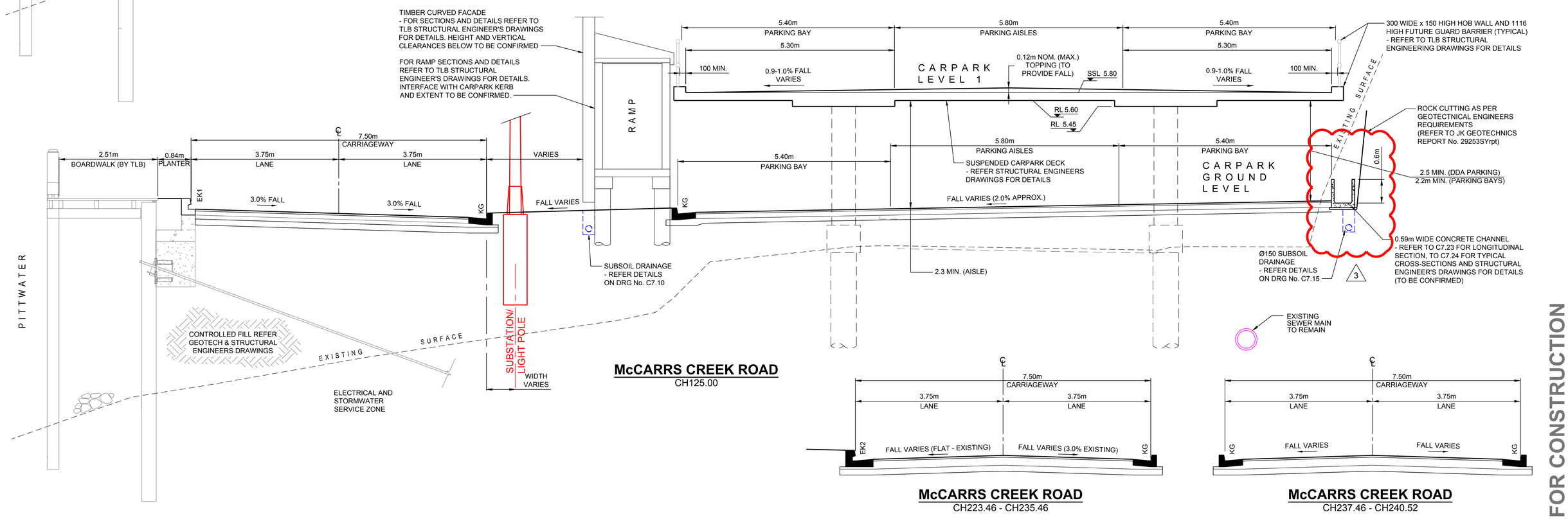
DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

TYPICAL XS SCALE 1:50 A1 SHEET

Date: 8/02/2017 8:41
Plot Date: 31/1/2017@12:08:21 Login Name: WSamms Cad File: T:\5325000\CADs\Civil\Road Design\Stage 1\5325000 C1.05 Typical Road Cross-Sections.dwg



McCARRS CREEK ROAD
CH133.08 - C158.90



McCARRS CREEK ROAD
CH125.00

McCARRS CREEK ROAD
CH223.46 - CH235.46

McCARRS CREEK ROAD
CH237.46 - CH240.52

FOR CONSTRUCTION

REVISION	AMENDMENT	DATE
A	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
1	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17
2	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	30/08/17
3	STAGE 1 CONSTRUCTION ISSUE	28/11/17

1000 0 500 1000 1500 2000mm
TYPICAL XS SCALE 1:50 A1 SHEET

CLIENT: WARD

PROJECT: MCCARRS CREEK ROAD REALIGNMENT STAGE 1 CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

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SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

Lic No: QAC/R61/0771

TITLE: **TYPICAL ROAD CROSS-SECTIONS SHEET 2 OF 2**

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
1:50	J.C.	C.S.	P.G.	M.C.

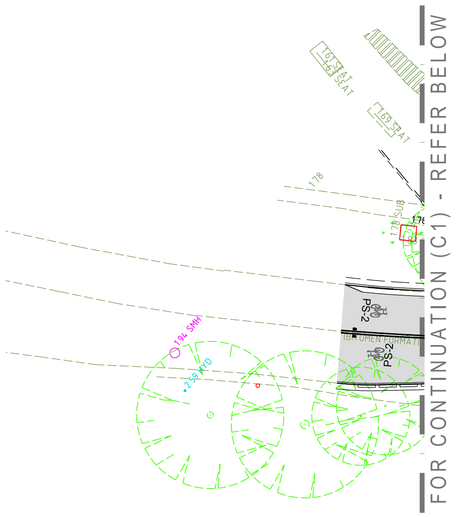
JOB No.	DRAWING No.	ISSUE
5325000	C1.06	3

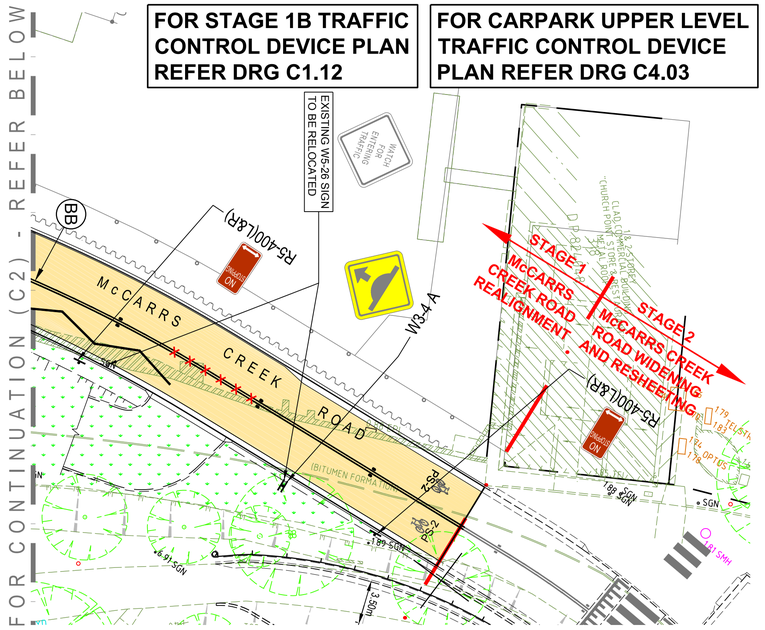
DATE 10/02/2017 — PACKAGE STATUS: FOR CONSTRUCTION

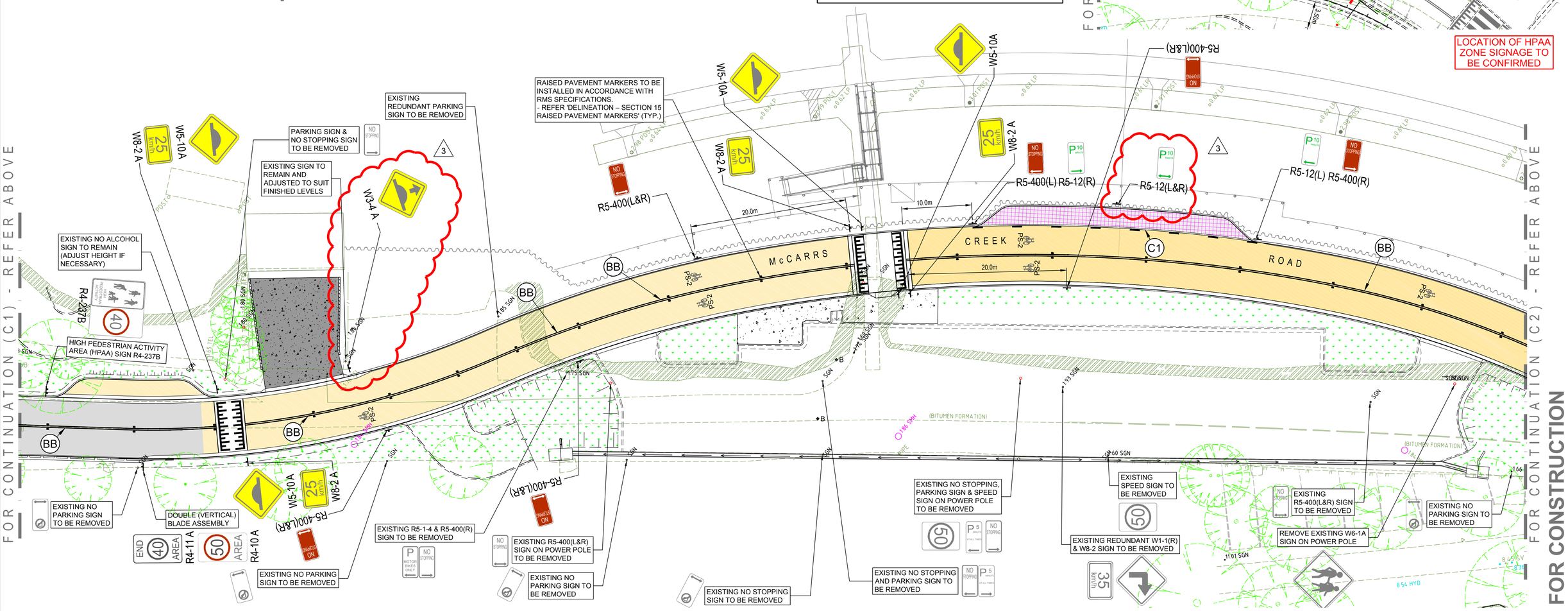
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

TRAFFIC CONTROL DEVICES

1. CONTRACTOR IS TO TAKE CARE WHEN ERECTING SIGN POSTS AND ENSURE THAT SIGNPOST FOOTINGS DO NOT DISTURB ANY UNDERGROUND STORMWATER DRAINAGE INFRASTRUCTURE OR SERVICES.
2. ALL LINEMARKING AND SIGNAGE WORKS TO BE IN ACCORDANCE WITH BOTH CURRENT RMS AND AUSTRALIAN STANDARD AS1742-2009 MANUAL UNIFORM TRAFFIC CONTROL DEVICES, OR AS SHOWN ON THE PLANS OR AS DIRECTED BY THE SUPERINTENDENT.
3. THE SCOPE OF WORK SHALL INCLUDE ALL PAVEMENT MARKINGS TO ROADS AND CARPARKS.
4. RELOCATE/ REMOVE EXISTING SIGNS AS REQUIRED.
5. THE WORK CARRIED OUT AND TESTING PERFORMED SHALL COMPLY WITH THE CURRENT, RELEVANT AUSTRALIAN STANDARDS AND RMS STANDARDS WHERE NECESSARY.
6. ALL MARKINGS SHALL BE SPOTTED OUT AND APPROVED BY THE SUPERINTENDENT PRIOR TO APPLICATION.
7. PAINT SHALL BE APPLIED AT A WET THICKNESS OF BETWEEN 0.35mm - 0.45mm.
8. PAINT SHALL ONLY BE APPLIED TO CLEAN AND DRY SURFACES.
9. ALL LONGITUDINAL LINES SHALL BE APPLIED BY A SELF-PROPELLED MACHINE.
10. LINEMARKING REMOVAL SHALL BE CARRIED OUT BY GRINDING OR SANDBLASTING. REMOVAL BY BURNING WILL NOT BE PERMITTED.
11. THE EXTENT OF LINEMARKING TO BE ERADICATED SHALL BE CONFIRMED ON SITE PRIOR TO REMOVAL. ANY MARKINGS INCORRECTLY REMOVED SHALL BE REINSTATED AT THE CONTRACTOR'S EXPENSE.
12. ALL MARKINGS SHALL BE COMPLETED IN A WORKMANLIKE MANNER AND BE STRAIGHT, SMOOTH AND WITH EVEN CURVES. ANY NON-CONFORMING WORK, SHALL BE REMOVED AND REINSTATED AT THE DIRECTION OF THE SUPERINTENDENT AT THE CONTRACTOR'S EXPENSE.







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

NORTH

5.0 0 2.5 5.0 7.5 10.0m
PLAN SCALE 1:250 A1 SHEET

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
B	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
1	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17
2	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	28/08/17
3	STAGE 1 CONSTRUCTION ISSUE	30/08/17

REVISION	AMENDMENT	DATE

CLIENT: WARD

PROJECT: MCCARRS CREEK ROAD REALIGNMENT STAGE 1 CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

PREPARED BY
Warren Smith & Partners
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1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
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Lic No: QAC/R61/0771

TITLE: TRAFFIC CONTROL DEVICE PLAN - STAGE 1A - ROAD ONLY

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C1.11	3

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

TRAFFIC CONTROL DEVICES

1. CONTRACTOR IS TO TAKE CARE WHEN ERECTING SIGN POSTS AND ENSURE THAT SIGNPOST FOOTINGS DO NOT DISTURB ANY UNDERGROUND STORMWATER DRAINAGE INFRASTRUCTURE OR SERVICES.
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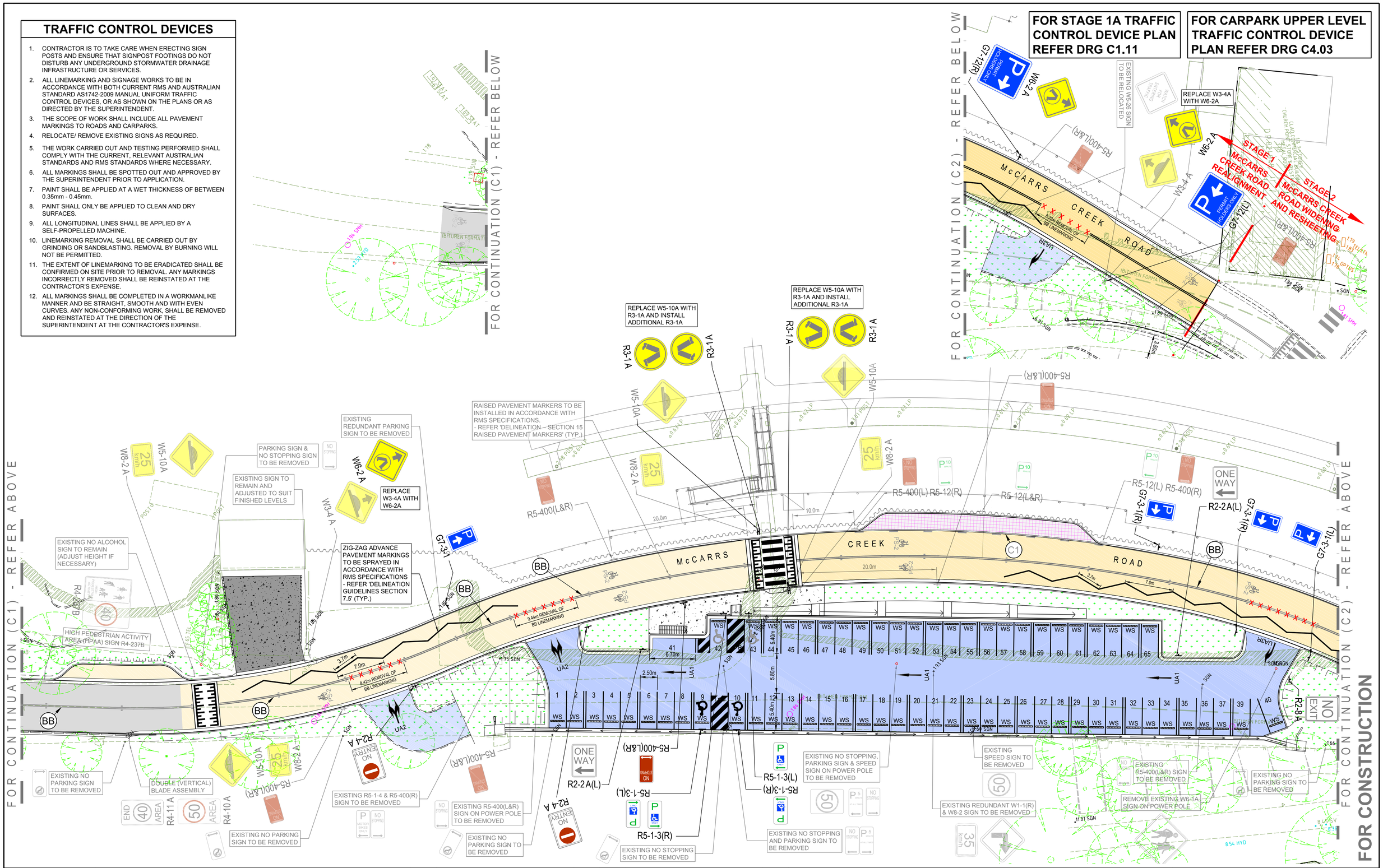
12. ALL MARKINGS SHALL BE COMPLETED IN A WORKMANLIKE MANNER AND BE STRAIGHT, SMOOTH AND WITH EVEN CURVES. ANY NON-CONFORMING WORK, SHALL BE REMOVED AND REINSTATED AT THE DIRECTION OF THE SUPERINTENDENT AT THE CONTRACTOR'S EXPENSE.



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

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

NORTH

5.0 0 2.5 5.0 7.5 10.0m
PLAN SCALE 1:250 A1 SHEET

REVISION	AMENDMENT	DATE
A	CARPARK 100% DETAILED DESIGN ISSUE	30/08/17
1	STAGE 1 CONSTRUCTION ISSUE	28/11/17

CLIENT: WARD

PROJECT: MCCARRS CREEK ROAD REALIGNMENT STAGE 1 CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

PREPARED BY
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Warren Smith & Partners Pty Ltd
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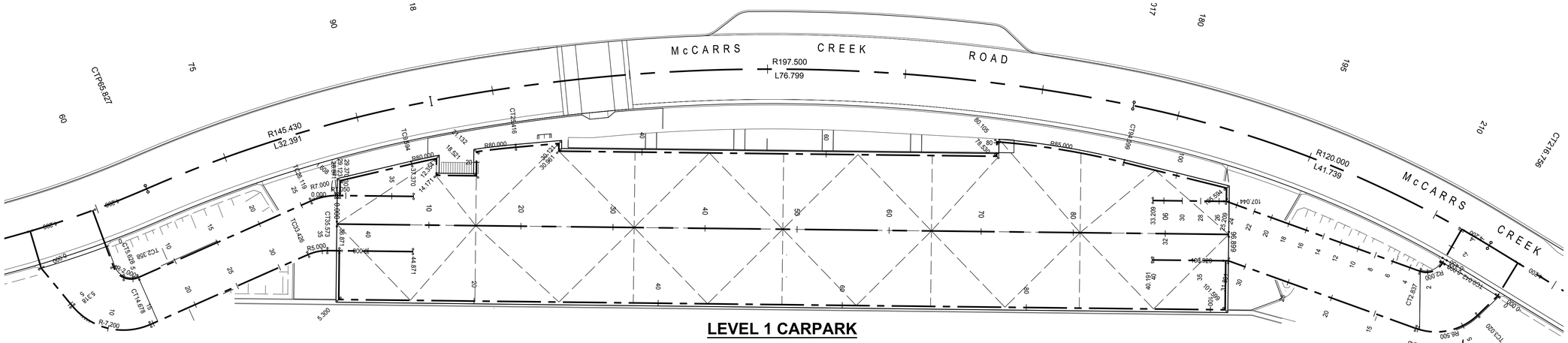
TITLE: TRAFFIC CONTROL DEVICE PLAN - STAGE 1B - ROAD AND CARPARK

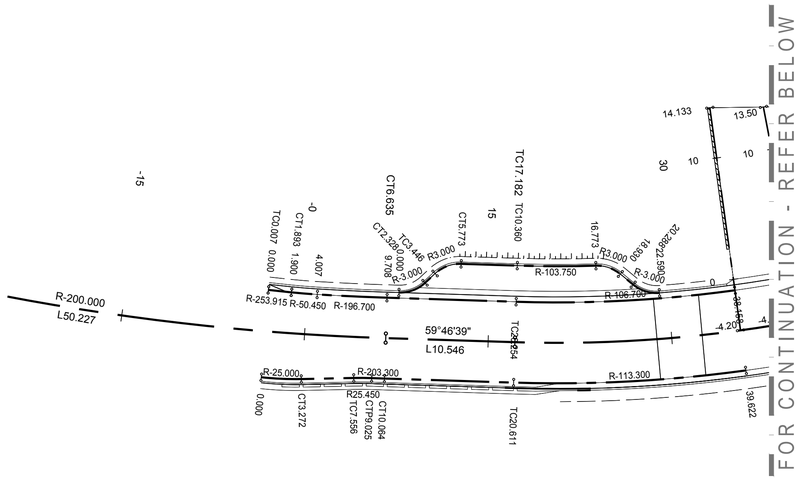
SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

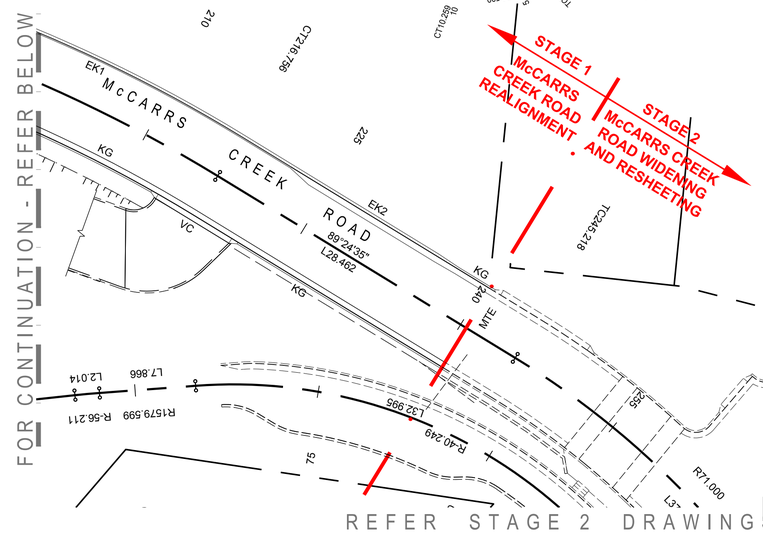
JOB No.	DRAWING No.	ISSUE
5325000	C1.12	1

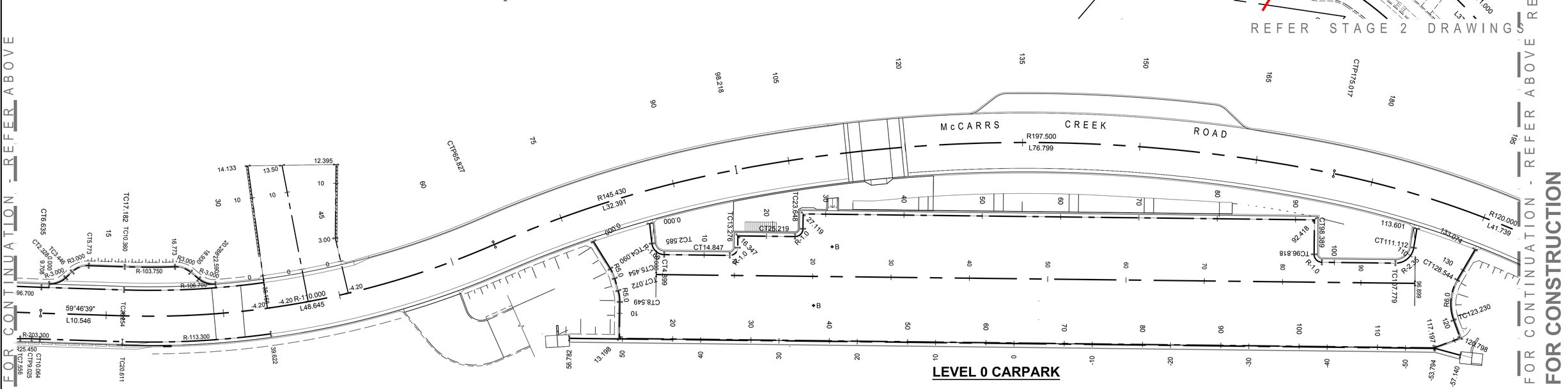
DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION



LEVEL 1 CARPARK







LEVEL 0 CARPARK

NORTH

5.0 0 2.5 5.0 7.5 10.0m
PLAN SCALE 1:250 A1 SHEET

REVISION	AMENDMENT	DATE
A	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
1	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17
2	STAGE 1 CONSTRUCTION ISSUE	30/08/17

REVISION	AMENDMENT	DATE

CLIENT
WARD

PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY
Warren Smith & Partners

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SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

Lic No: QAC/R61/0771

TITLE
SETOUT PLAN

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C3.01	2

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

EXISTING SERVICES

ee	UNDERGROUND ELECTRICAL
eehv	UNDERGROUND ELECTRICAL HIGH VOLTAGE
ee X	UNDERGROUND ELECTRICAL TO BE REMOVED
	OVER HEAD ELECTRICAL
	OVER HEAD ELECTRICAL TO BE REMOVED
2.07 PP	POWER POLE
et	TELECOMMUNICATIONS
et X	TELECOMMUNICATIONS TO BE REMOVED
etfo	OPTICAL FIBRE TELECOMMUNICATIONS
1.76 TEL	TELECOM PIT
es	SEWER MAIN
1.94 SMH	SEWER MAINTENANCE HOLE
eg	GAS MAIN
ew	WATERMAIN
2.59 HYD	HYDRANT
2.12 WM	WATER METER

CIVIL WORKS

KG	INTEGRAL KERB AND GUTTER REFER PWC STD DRG STD-02 FOR DETAIL
ES	EDGE STRIP - REFER PITTWATER COUNCIL STD DRG STD-02 FOR DETAIL
ES 300	EDGE STRIP - REFER DRG C4.06 FOR DETAIL
KO	KERB ONLY - REFER PITTWATER COUNCIL STD DRG STD-02 FOR DETAIL
EK1	ELSHOLZ KERB TYPE 1 - REFER DRG C4.06 FOR DETAIL
EK2	ELSHOLZ KERB TYPE 2 - REFER DRG C4.06 FOR DETAIL
	VEHICULAR CROSSING - REFER PITTWATER COUNCIL STD DRG STD-01 FOR DETAIL
	RAMP
KR	KERB RAMP - REFER PITTWATER COUNCIL STD DRG STD-03 FOR DETAIL
DD	DISH DRAIN - REFER DETAIL ON DRG C4.11
ES	CONCRETE EDGE STRIP - REFER DETAIL ON DRG C4.11
PK	PERMEABLE KERB - REFER DETAIL ON DRG C4.11
	SAWCUT
MTE	NEATLY MATCH TO EXISTING PAVEMENT LEVELS
	DEMOLISH EXISTING TREE AND REMOVE OFF SITE
B	BOLLARD, REFER DWG C4.11 FOR DETAIL
	SIGN POST
	CONCRETE LINED CHANNEL - REFER DETAIL ON DRG C7.22
RW	RETAINING WALL

SURFACE TREATMENT

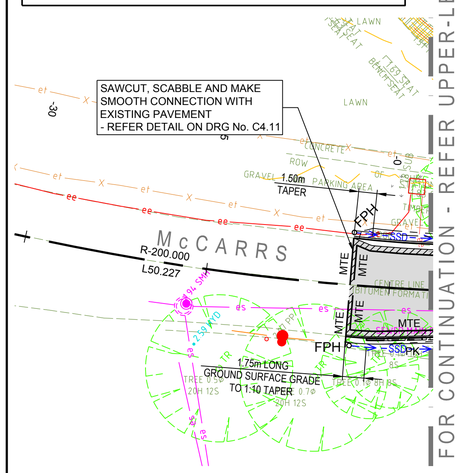
	PAVEMENT RESHEETING
	AC CONNECTION INTO EXISTING PAVEMENT - REFER PAVEMENT REINSTATEMENT DETAIL ON DRG. C4.11
	PAVEMENT TYPE 1 AC ROAD PAVEMENT FOR NEW ROAD CONSTRUCTION
	PAVEMENT TYPE 2 AC CARPARK PAVEMENT
	PAVEMENT TYPE 5 PWC STD DRIVEWAY - REFER STD DRG STD-01 FOR DETAIL
	PAVEMENT TYPE 7 PWC STD FOOTPATH - REFER STD DRG STD-04 FOR DETAIL
	PAVEMENT TYPE 8 COBBLESTONE PAVING
	LANDSCAPING (BY OTHERS)

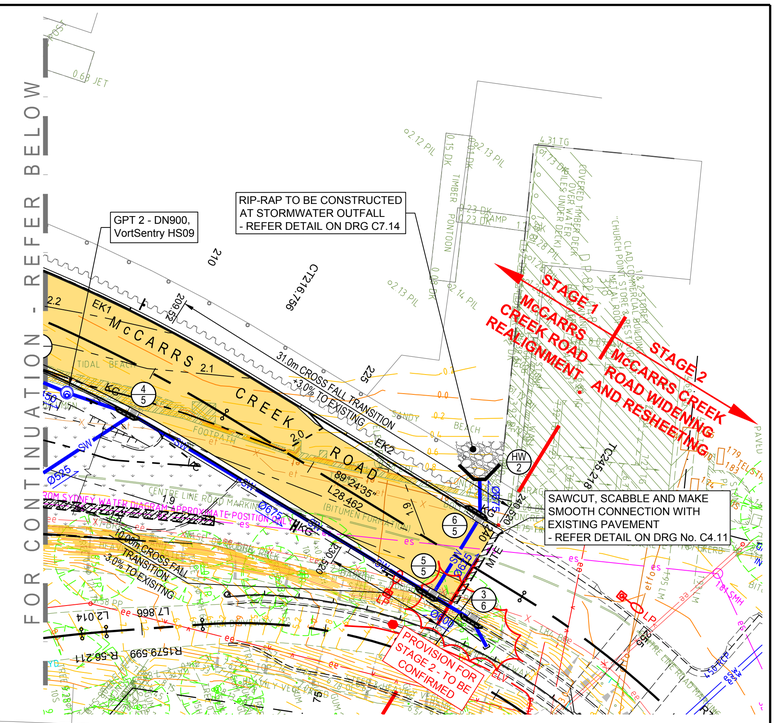
STORMWATER

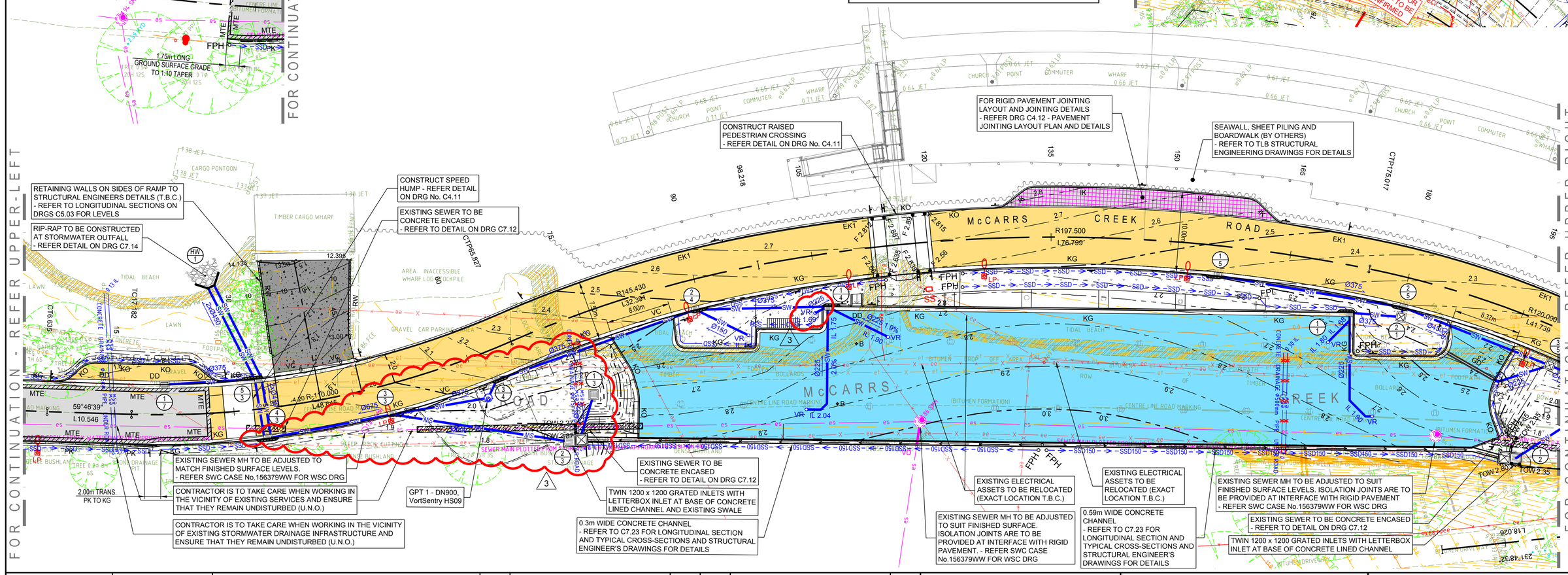
esw	EXISTING STORMWATER PIPE
esw	EXISTING STORMWATER PIPE TO BE REMOVED
Ø450	PIPE DIAMETER AND DIRECTION OF FLOW
SW	STORMWATER PIPE
	KERB INLET PIT (AT SAG)
	KERB INLET PIT (ON GRADE)
	900 x 900 GRATED INLET PIT
	900 x 900 JUNCTION PIT
GD	GRATED TRENCH DRAIN
VR	STORMWATER PIPE VERTICAL RISE
	CONCRETE HEADWALL
	PIT STRUCTURE NUMBER STORMWATER LINE NUMBER
	GROSS POLLUTANT TRAP
SSD	SUBSOIL DRAINAGE LINE
FPH	SUBSOIL FLUSHING POINT HEAD OF LINE
FPL SSD	SUBSOIL FLUSHING POINT ON LINE
SSD150	SUBSOIL DRAINAGE LINE

UTILITIES

	CONCRETE ENCASEMENT
SS	SUB STATION
LP	LIGHT POLE
PP	POWER POLE







NORTH

PLAN SCALE 1:250 A1 SHEET

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
B	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
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2	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	30/08/17
3	STAGE 1 CONSTRUCTION ISSUE	28/11/17

REVISION	AMENDMENT	DATE

CLIENT: WARD

PROJECT: MCCARRS CREEK ROAD REALIGNMENT STAGE 1 CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

PREPARED BY: Warren Smith & Partners

Warren Smith & Partners Pty Ltd
1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
T 02 9299 1312 F 02 9290 1295 wsp@warrensmith.com.au
www.warrensmith.com.au ABN 36 300 430 126

CONSULTING ENGINEERS
Hydraulic Services, Fire Protection, Civil Engineering
Sydney Water Accredited Water Servicing Co-ordinator
- Design Project Management - Building Plan Approvals

SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

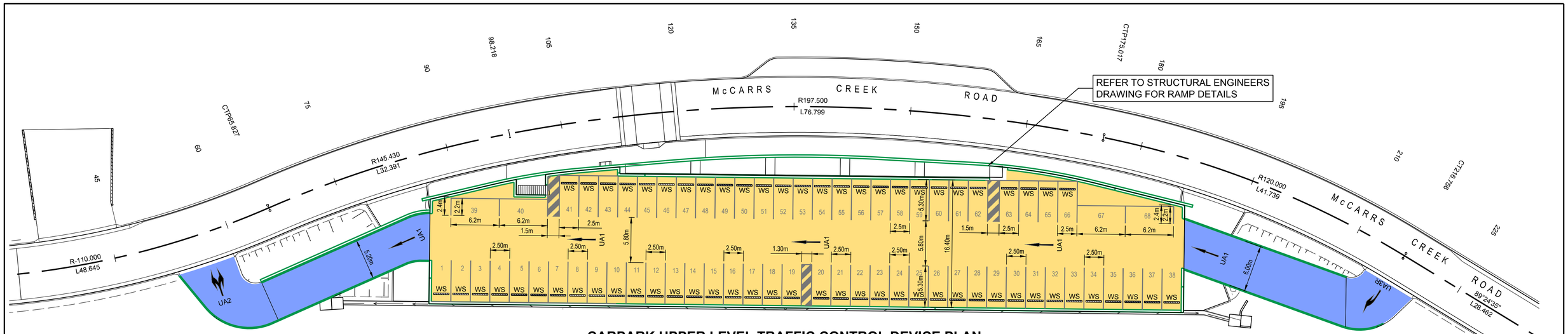
Lic No: QAC/R61/0771

TITLE: **SITEWORKS PLAN**

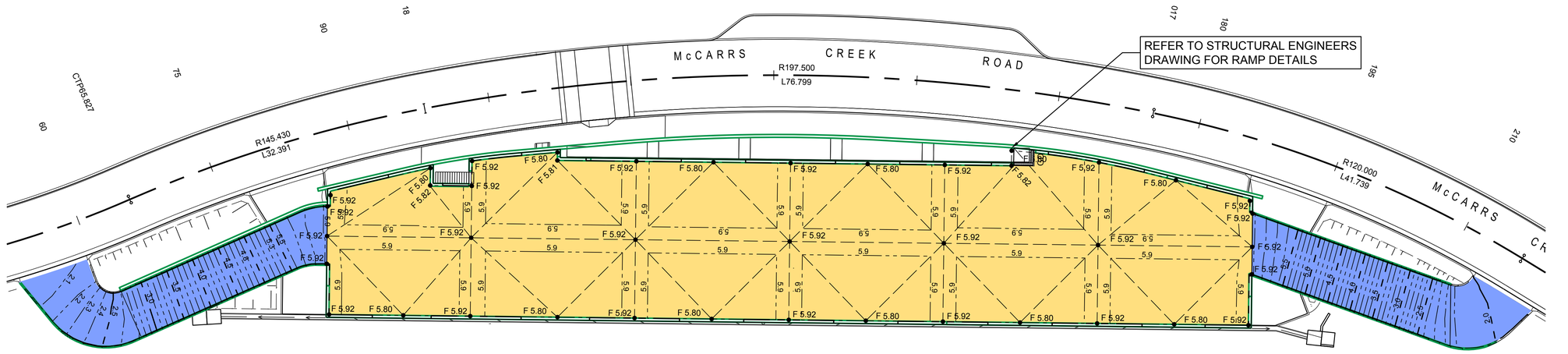
SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C4.01	3

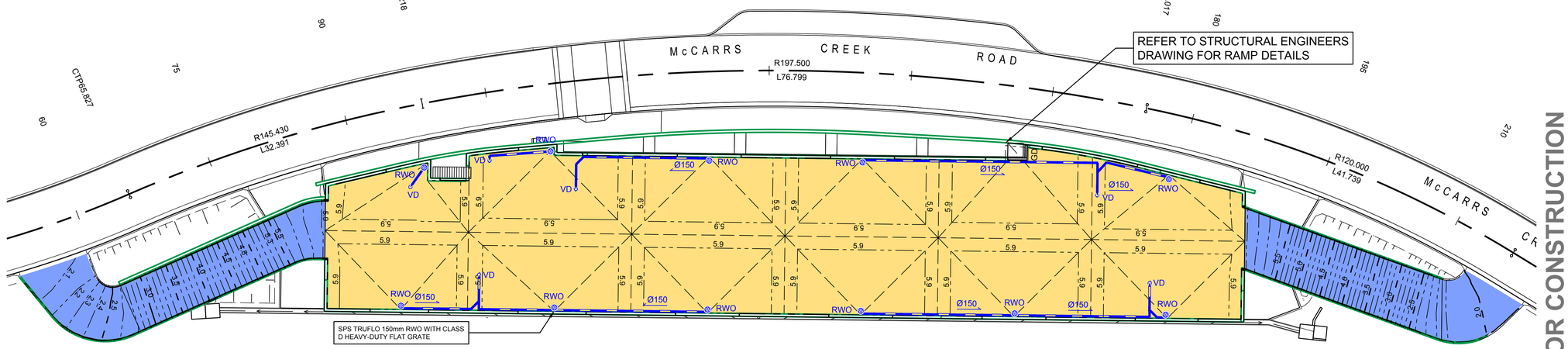
DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION



CARPARK UPPER LEVEL TRAFFIC CONTROL DEVICE PLAN



CARPARK UPPER LEVEL GRADING PLAN



CARPARK UPPER LEVEL STORMWATER AND GRADING PLAN

FOR SETOUT OF UPPER CARPARK LEVEL AND RAMPS REFER TO DRG C3.01, C7.01, C9.03

LEGEND

VD	VERTICAL DROP
VDT	VERTICAL DROP TEE
RWO	SPS TRUFLO STAINLESS STEEL RAINWATER OUTLET (OR APPROVED EQUIVALENT)
	SUSPENDED CARPARK DECK - REFER TO STRUCTURAL ENGINEERING DRAWINGS FOR DETAILS
	RAMP TO UPPER DECK - REFER TO STRUCTURAL ENGINEERING DRAWINGS FOR DETAILS

FOR CONSTRUCTION

NORTH

PLAN SCALE 1:250 A1 SHEET

REVISION	AMENDMENT	DATE
A	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
B	CARPARK 100% DETAILED DESIGN	03/05/17
1	STAGE 1 CONSTRUCTION ISSUE	28/11/17

REVISION	AMENDMENT	DATE

CLIENT: WARD

PROJECT: MCCARRS CREEK ROAD REALIGNMENT STAGE 1 CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

PREPARED BY
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Warren Smith & Partners Pty Ltd
1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
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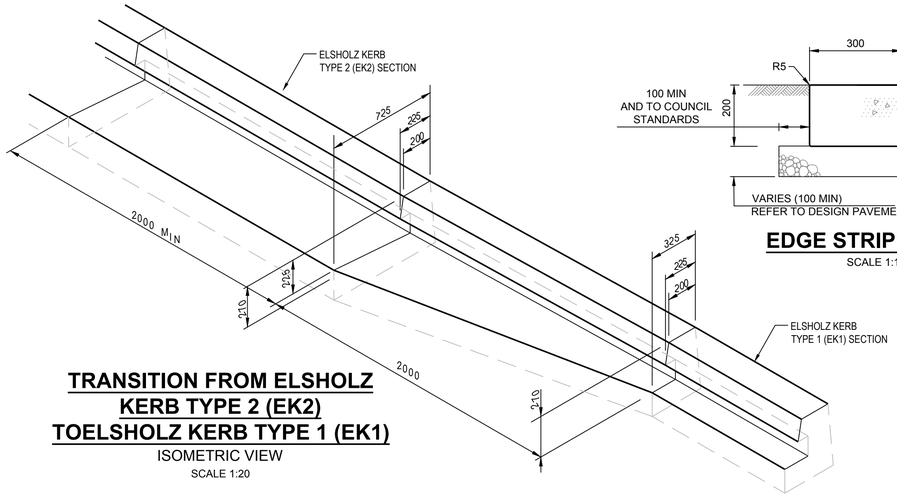
Sydney Water Accredited Water Servicing Co-ordinator
- Design Project Management - Building Plan Approvals
ISO 9001 Lic No: QAC/R61/0771
SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

TITLE: **UPPER LEVEL STORMWATER, GRADING AND TRAFFIC CONTROL DEVICE PLAN**

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C4.03	1

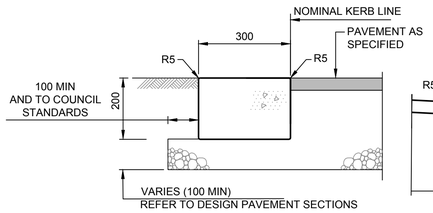
DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION



TRANSITION FROM ELSHOLZ KERB TYPE 2 (EK2) TOELSHOLZ KERB TYPE 1 (EK1)

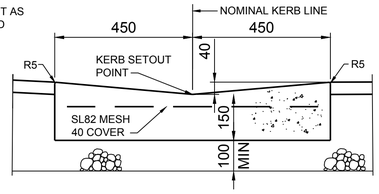
ISOMETRIC VIEW

SCALE 1:20



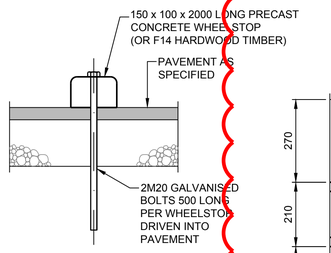
EDGE STRIP (ES 300)

SCALE 1:10



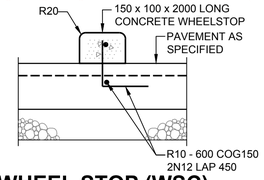
DISH DRAIN (DD)

SCALE 1:10



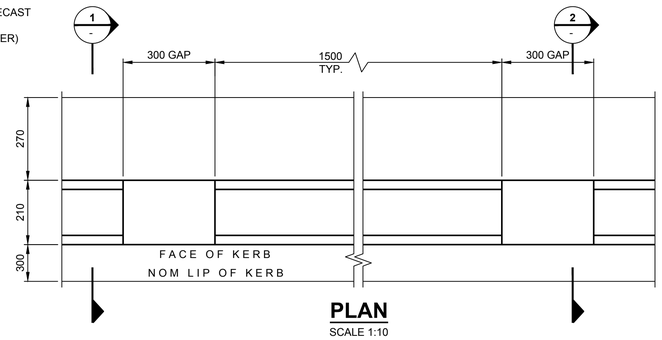
WHEEL STOP (WSF) IN FLEXIBLE PAVEMENT

SCALE 1:10



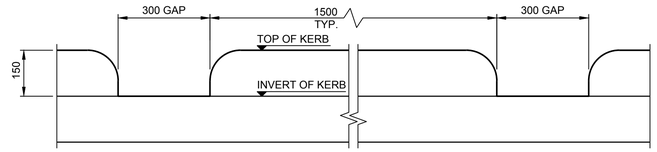
WHEEL STOP (WSC) IN CONCRETE PAVEMENT

SCALE 1:10



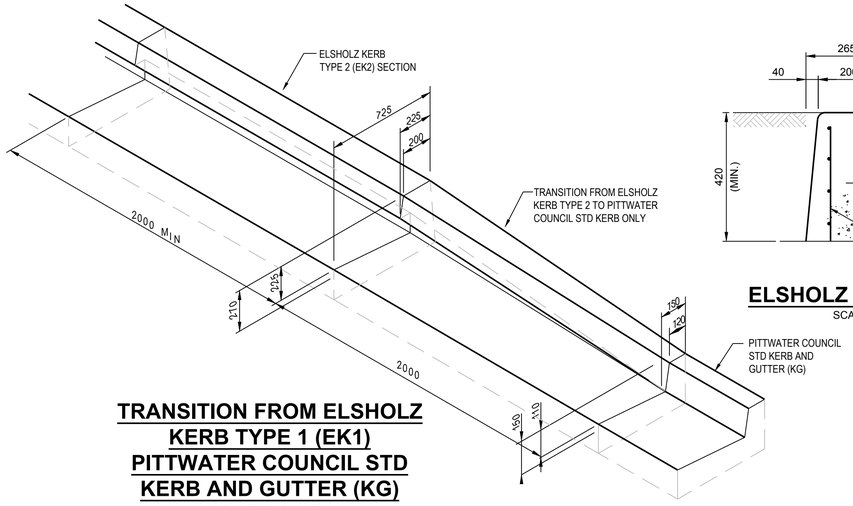
PLAN

SCALE 1:10



ELEVATION

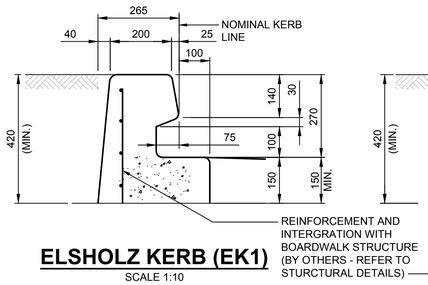
SCALE 1:10



TRANSITION FROM ELSHOLZ KERB TYPE 1 (EK1) PITTWATER COUNCIL STD KERB AND GUTTER (KG)

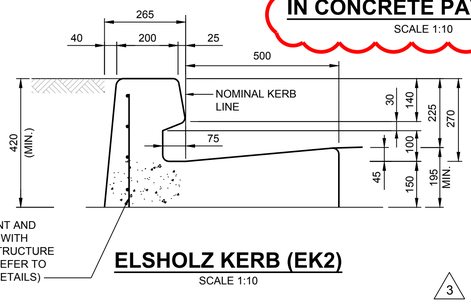
ISOMETRIC VIEW

SCALE 1:20



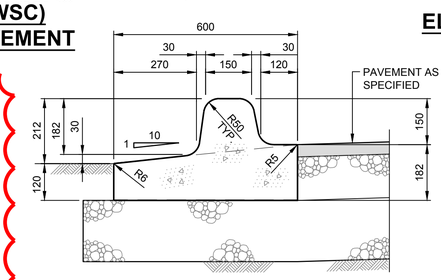
ELSHOLZ KERB (EK1)

SCALE 1:10



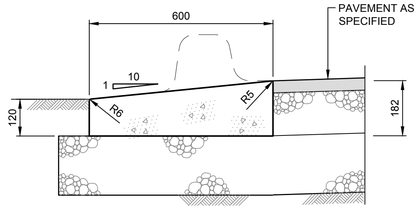
ELSHOLZ KERB (EK2)

SCALE 1:10



SECTION 1

SCALE 1:10

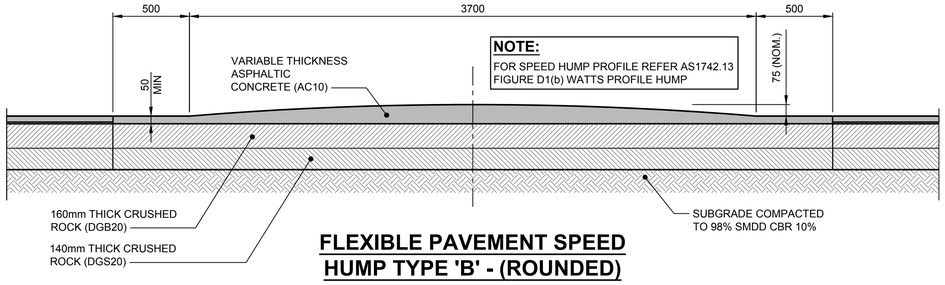


SECTION 2

SCALE 1:10

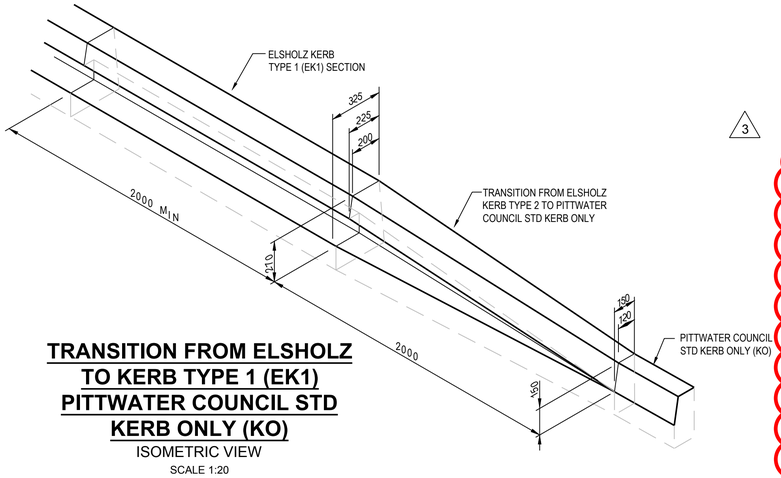
PERMEABLE KERB (PK)

SCALE 1:10



FLEXIBLE PAVEMENT SPEED HUMP TYPE 'B' - (ROUNDED)

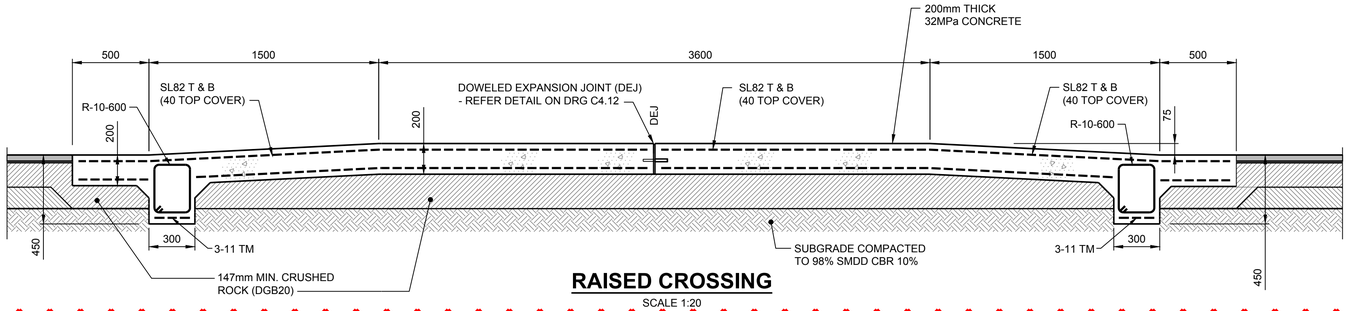
SCALE 1:20



TRANSITION FROM ELSHOLZ TO KERB TYPE 1 (EK1) PITTWATER COUNCIL STD KERB ONLY (KO)

ISOMETRIC VIEW

SCALE 1:20



RAISED CROSSING

SCALE 1:20

FOR CONSTRUCTION

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

DETAILS SCALE 1:50 A1 SHEET

DETAILS SCALE 1:20 A1 SHEET

DETAILS SCALE 1:10 A1 SHEET

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
B	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
1	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17
2	RAISED CROSSING AMENDMENTS	19/07/17
3	STAGE 1 CONSTRUCTION ISSUE	28/08/17

REVISION	AMENDMENT	DATE

CLIENT: WARD

PROJECT: MCCARRS CREEK ROAD REALIGNMENT STAGE 1 CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

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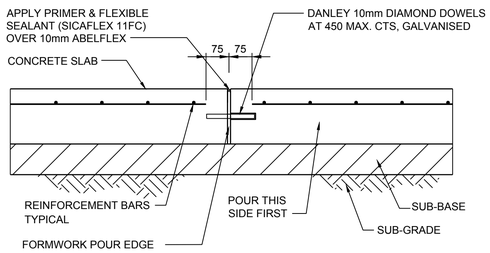
Lic No: GAC/R61/0771

TITLE: CIVIL DETAILS

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C4.11	3

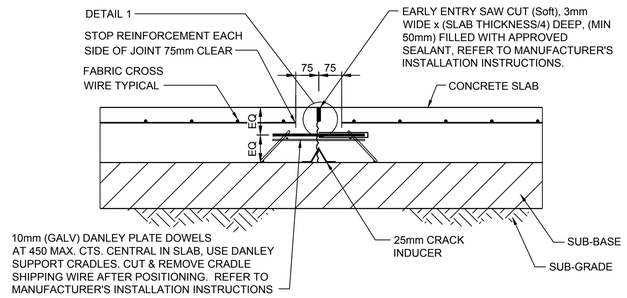
DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION



DANLEY DOWELED EXPANSION JOINT (DEJ)

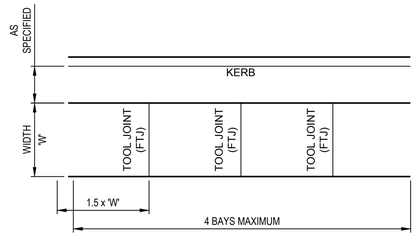
DANLEY DIAMOND PLATE DOWELS FOR COLD JOINTS

SCALE 1:10



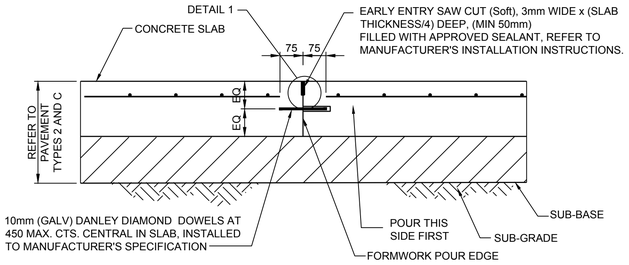
DANLEY SAWN CONTRACTION JOINT (SJ)

SCALE 1:10



CONCRETE PATH TYPICAL JOINT LAYOUT

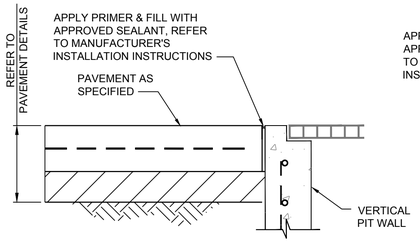
SCALE 1:50



DOWELLED CONSTRUCTION JOINT (CJ)

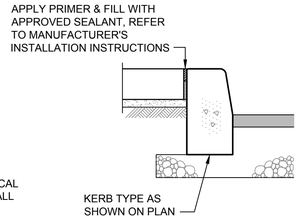
DANLEY DIAMOND PLATE DOWELS FOR STOP WORK JOINTS

SCALE 1:10



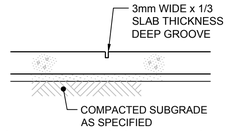
ISOLATION JOINT DETAIL AT PIT (PIJ)

SCALE 1:10



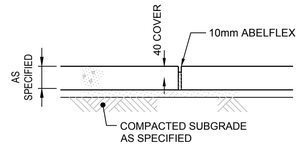
KERB FOOTPATH DETAIL

SCALE 1:10



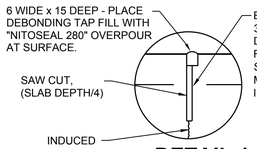
FOOTPATH TOOLED JOINT (TJF) (UNREINFORCED)

NOT TO SCALE



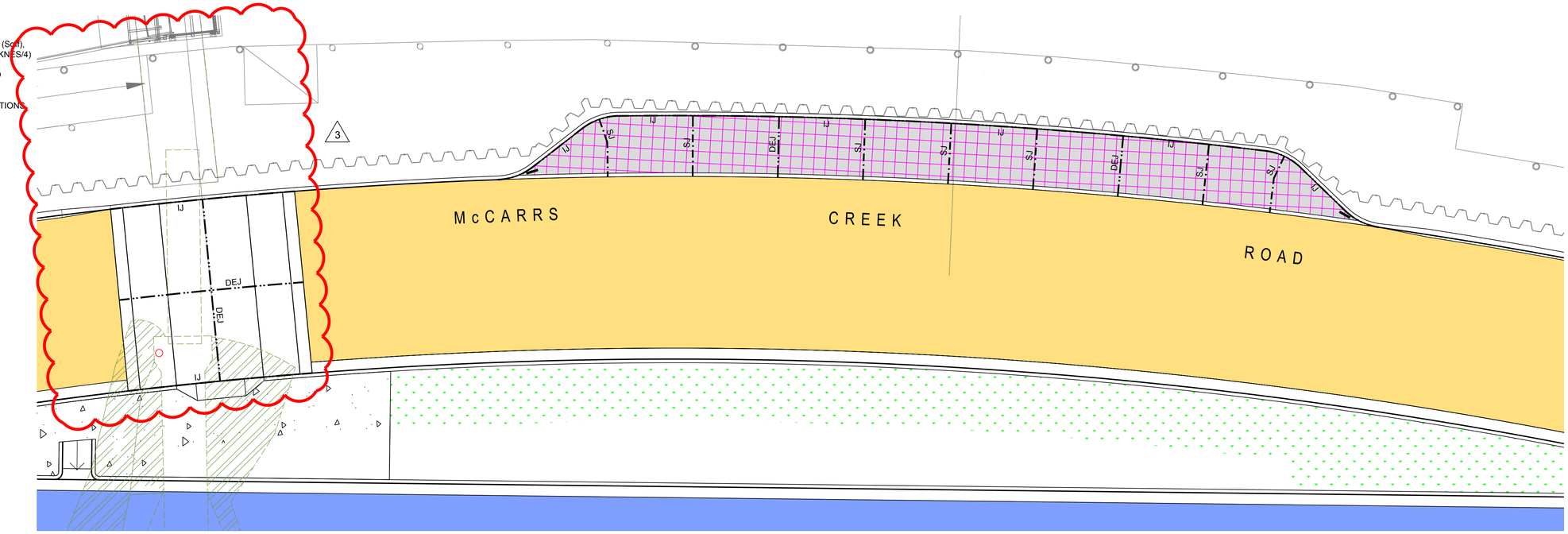
FOOTPATH EXPANSION JOINT (FEJ) (UNREINFORCED)

NOT TO SCALE



DETAIL 1 MASTIC SEAL DETAIL

N.T.S.



FOR CONSTRUCTION

LEGEND

- IJ — ISOLATION JOINT
- DEJ — DOWELED EXPANSION JOINT
- SJ — SAWN JOINT
- 2 x N12 TRIMMER BARS
- PAVEMENT TYPE 1 — AC ROAD PAVEMENT FOR NEW ROAD CONSTRUCTION
- PAVEMENT TYPE 7 — PWC STD FOOTPATH - REFER STD DRG STD-04 FOR DETAIL
- PAVEMENT TYPE 8 — COBBLESTONE PAVING
- LANDSCAPING (BY OTHERS)

NORTH

100 0 100 200 300 400 500mm — DETAILS SCALE 1:10 A1 SHEET

1000 0 500 1000 1500 2000mm — DETAILS SCALE 1:50 A1 SHEET

1.0 0 1.0 2.0 3.0 4.0 5.0m — PLAN SCALE 1:100 A1 SHEET

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

REVISION	AMENDMENT	DATE	REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16			
B	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16			
1	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17			
2	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	19/07/17			
3	STAGE 1 CONSTRUCTION ISSUE	28/08/17			

CLIENT: WARD

PROJECT: MCCARRS CREEK ROAD REALIGNMENT STAGE 1 CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

PREPARED BY

Warren Smith & Partners

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Sydney Water Accredited Water Servicing Co-ordinator
- Design Project Management - Building Plan Approvals

SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

Lic No: QAC/R61/0771

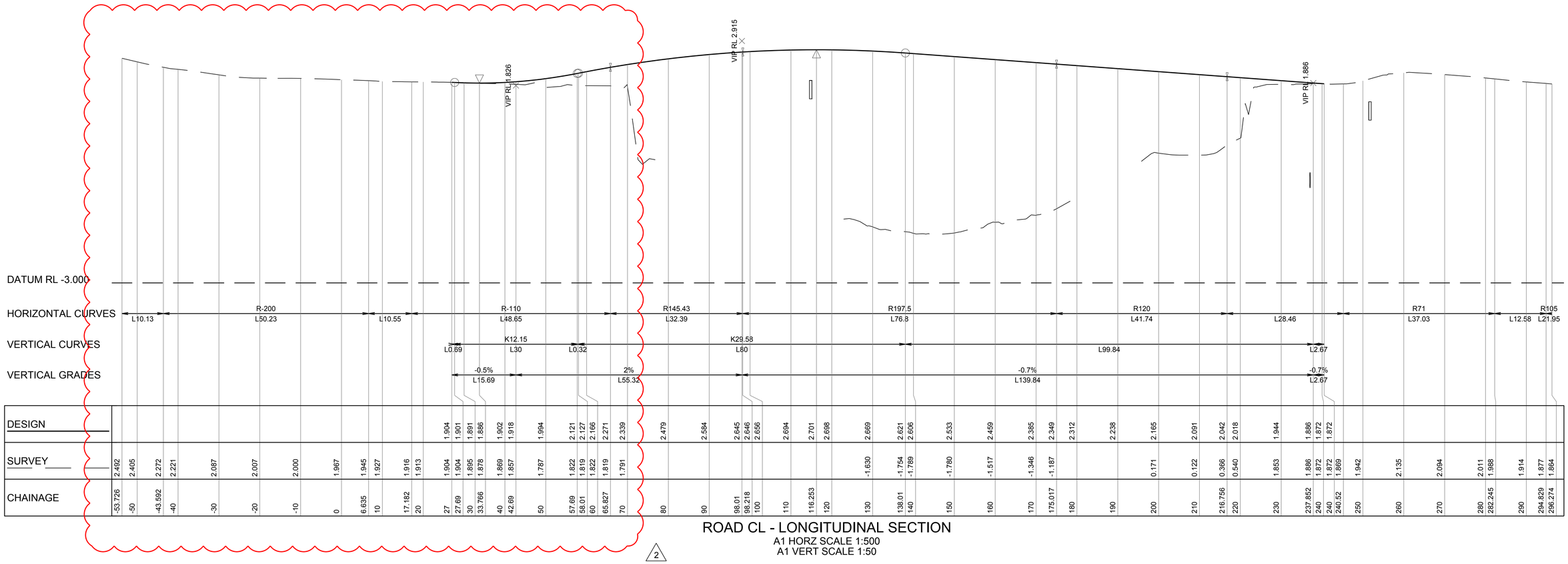
TITLE: **PAVEMENT JOINTING LAYOUT PLAN AND DETAILS**

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C4.12	3

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

Jobfile: S:\5325000\C-TS_A1N\1.0\5325000-SU-Civil\2.5\5325000-SU_Design\ A.5325000-SE_Pavements\ B.5325000-ST_Layout\ 5.5325000-DW_Drawings
Plot Date: 28/11/2018 12:19:18 Login Name: MCclements Cad File: T:\5325000\CAD\Civil\Layouts\Design\Stage 1\5325000-C-C4.12 Pavement Jointing Layout Plan and Details.dwg



ROAD CL - LONGITUDINAL SECTION

A1 HORZ SCALE 1:500
A1 VERT SCALE 1:50

2

FOR CONSTRUCTION

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

1000 0 500 1000 1500 2000mm
VER. SCALE 1:50 A1 SHEET

10.0 0 5.0 10.0 15.0 20.0m
HOR. SCALE 1:500 A1 SHEET

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
B	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
1	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17
2	STAGE 1 CONSTRUCTION ISSUE	05/09/17

REVISION	AMENDMENT	DATE

CLIENT
WARD

PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY
Warren Smith & Partners

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CONSULTING ENGINEERS
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- Design Project Management - Building Plan Approvals

SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

ISO 9001 Lloyd's Register Quality Assurance
Lic No: QAC/R61/0771

TITLE
ROAD LONGITUDINAL SECTIONS SHEET 1 OF 5 - MCCARRS CREEK RD

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C5.01	2

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

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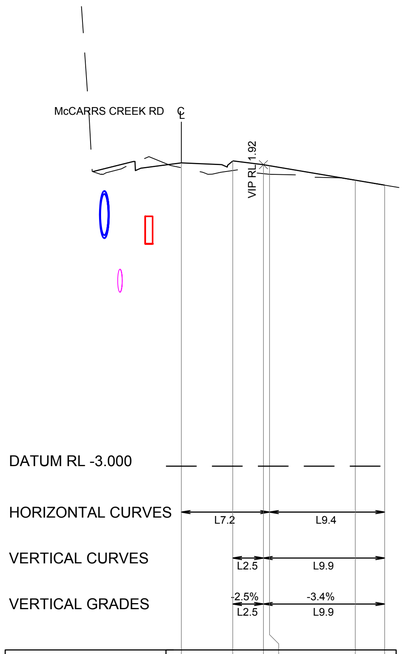
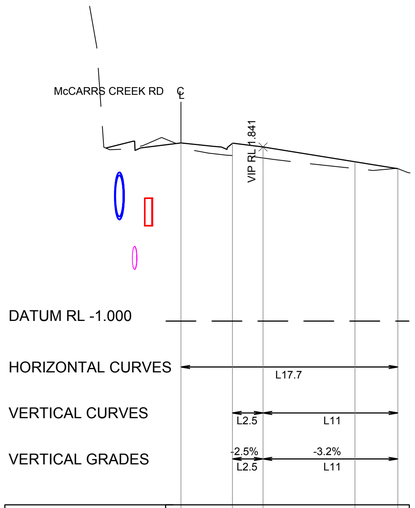


DESIGN		1.982	1.920	1.903	1.667	1.586
SURVEY	1.870	1.824	1.773	1.763	1.666	1.586
CHAINAGE	-4.2	0	2.5	3	10	12.395

CARGO WHARF RIGHT CL - LONGITUDINAL SECTION

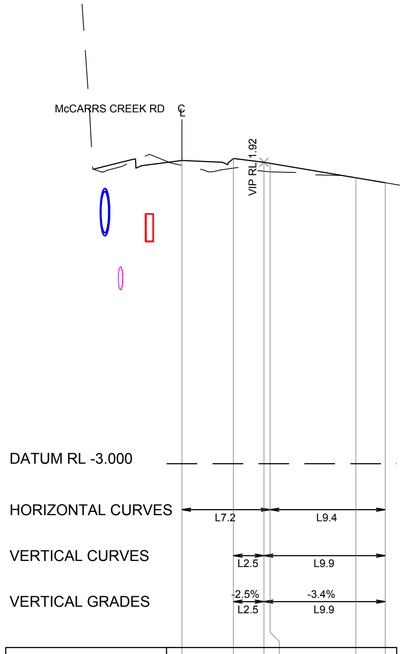
A1 HORZ SCALE 1:250
A1 VERT SCALE 1:50



DESIGN			1.841		1.600	1.487
SURVEY	1.866	1.701	1.661		1.489	1.487
CHAINAGE	-4.2	0	2.5		10	13.5

CARGO WHARF CL - LONGITUDINAL SECTION

A1 HORZ SCALE 1:250
A1 VERT SCALE 1:50



DESIGN		1.982	1.920	1.903	1.667	1.586
SURVEY	1.870	1.824	1.773	1.763	1.666	1.586
CHAINAGE	-4.2	0	2.5	3	10	12.395

CARGO WHARF RIGHT CL - LONGITUDINAL SECTION

A1 HORZ SCALE 1:250
A1 VERT SCALE 1:50

FOR CONSTRUCTION

500 0 250 500 750 1000mm
VER. SCALE 1:25 A1 SHEET
5.0 0 2.5 5.0 7.5 10.0m
HOR. SCALE 1:250 A1 SHEET

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
B	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
1	STAGE 1 CONSTRUCTION ISSUE	05/05/17

REVISION	AMENDMENT	DATE

CLIENT
WARD

PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY
Warren Smith & Partners

Warren Smith & Partners Pty Ltd
1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
T 02 9299 1312 **F** 02 9290 1295 wsp@warrensmith.com.au
www.warrensmith.com.au **ABN** 36 300 430 126

CONSULTING ENGINEERS
■ Hydraulic Services ■ Fire Protection ■ Civil Engineering
■ Sydney Water Accredited Water Servicing Co-ordinator
- Design Project Management - Building Plan Approvals

ISO 9001
Lic No: QAC/R61/0771

SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

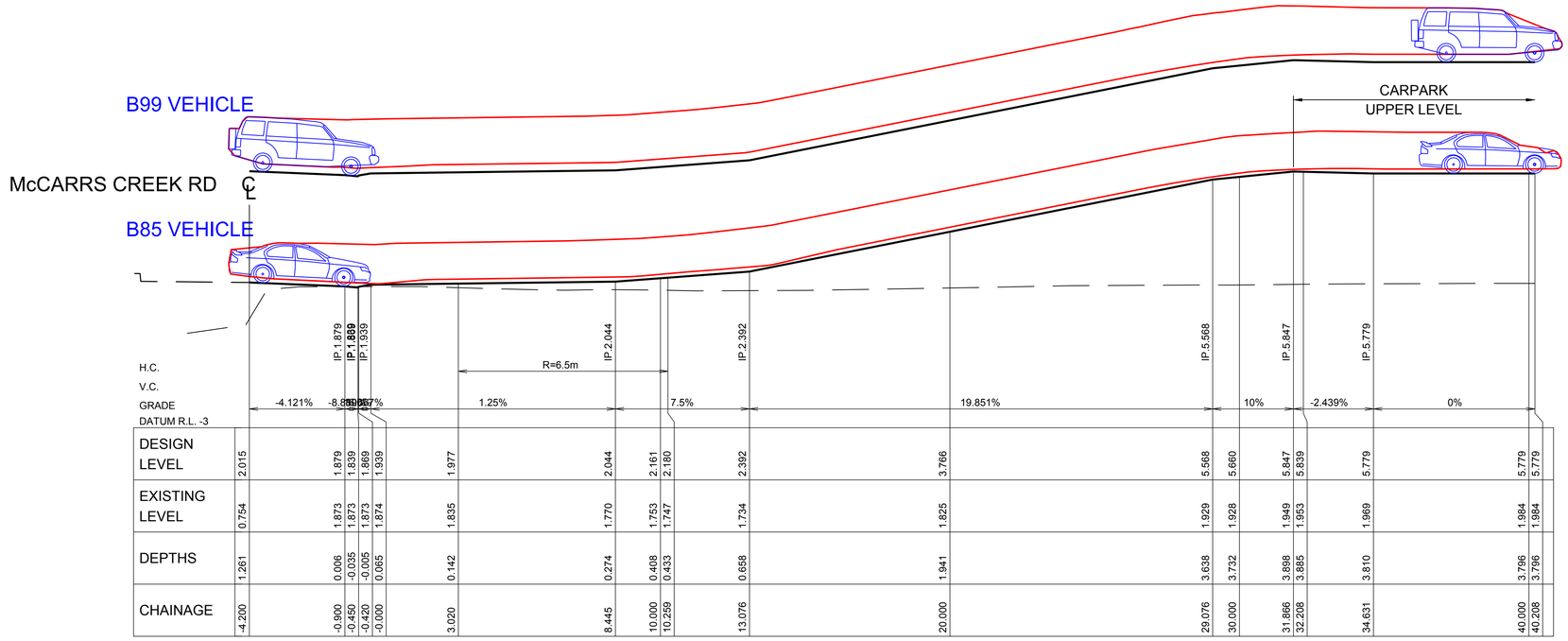
TITLE
ROAD LONGITUDINAL SECTIONS SHEET 3 OF 5 - CARGO WHARF

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C5.03	1

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

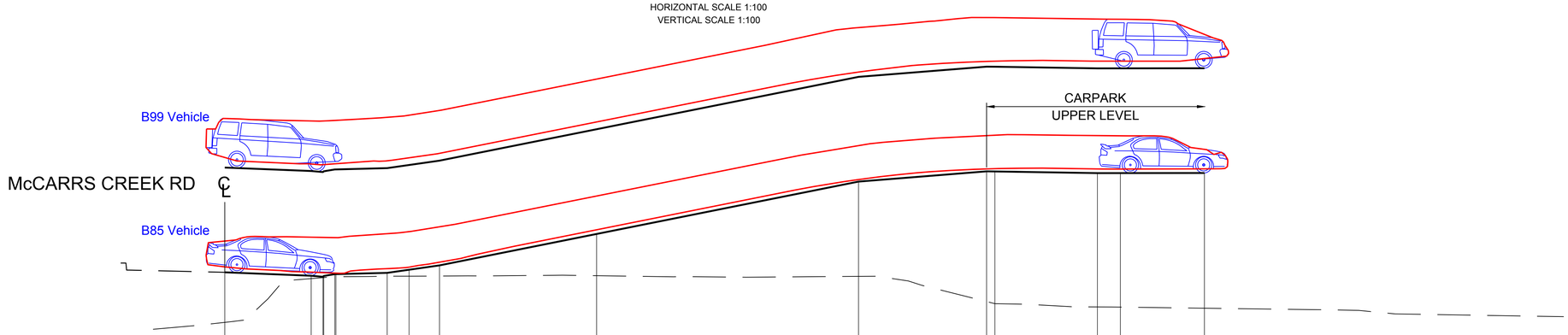
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



DESIGN LEVEL	2.015	1.879	1.839	1.869	1.939	1.977	2.044	2.161	2.180	2.392	3.766	5.568	5.660	5.847	5.839	5.779	5.779	5.779
EXISTING LEVEL	0.754	1.873	1.873	1.873	1.874	1.835	1.770	1.753	1.747	1.734	1.825	1.929	1.928	1.949	1.953	1.969	1.984	1.984
DEPTHS	1.261	0.006	-0.035	-0.005	0.065	0.142	0.274	0.408	0.433	0.658	1.941	3.638	3.732	3.898	3.885	3.810	3.796	3.796
CHAINAGE	-4.200	-0.900	-0.450	-0.420	-0.000	3.020	8.445	10.000	10.259	13.076	20.000	29.076	30.000	31.866	32.208	34.631	40.000	40.208

LONGITUDINAL SECTION OF RAMP ENTRY LEFT EDGE CL

HORIZONTAL SCALE 1:100
VERTICAL SCALE 1:100



DESIGN LEVEL	2.067	1.937	1.897	1.927	1.997	1.998	2.047	2.166	2.332	3.532	5.532	5.923	5.920	5.857	5.858	5.860
EXISTING LEVEL	0.155	1.828	1.865	1.867	1.898	1.898	1.917	1.919	1.926	1.938	1.913	0.950	0.870	0.746	0.739	0.697
DEPTHS	1.912	0.109	0.033	0.060	0.099	0.100	0.130	0.247	0.406	1.594	3.619	4.973	5.050	5.111	5.119	5.164
CHAINAGE	-4.200	-0.900	-0.450	-0.420	-0.000	0.042	2.000	2.837	4.000	10.000	20.000	24.891	25.209	29.121	30.000	33.209

LONGITUDINAL SECTION OF RAMP ENTRY RIGHT EDGE CL

HORIZONTAL SCALE 1:100
VERTICAL SCALE 1:100

FOR CONSTRUCTION

1.0 0 1.0 2.0 3.0 4.0 5.0m
NATURAL SCALE 1:100 A1 SHEET

REVISION	AMENDMENT	DATE
A	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
1	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17
B	CARPARK 100% DETAILED DESIGN	30/08/17
2	STAGE 1 CONSTRUCTION ISSUE	28/11/17

REVISION	AMENDMENT	DATE

CLIENT
WARD

PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY
Warren Smith & Partners

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Sydney Water Accredited Water Servicing Co-ordinator
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ISO 9001 Lic No: QAC/R61/0771

SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

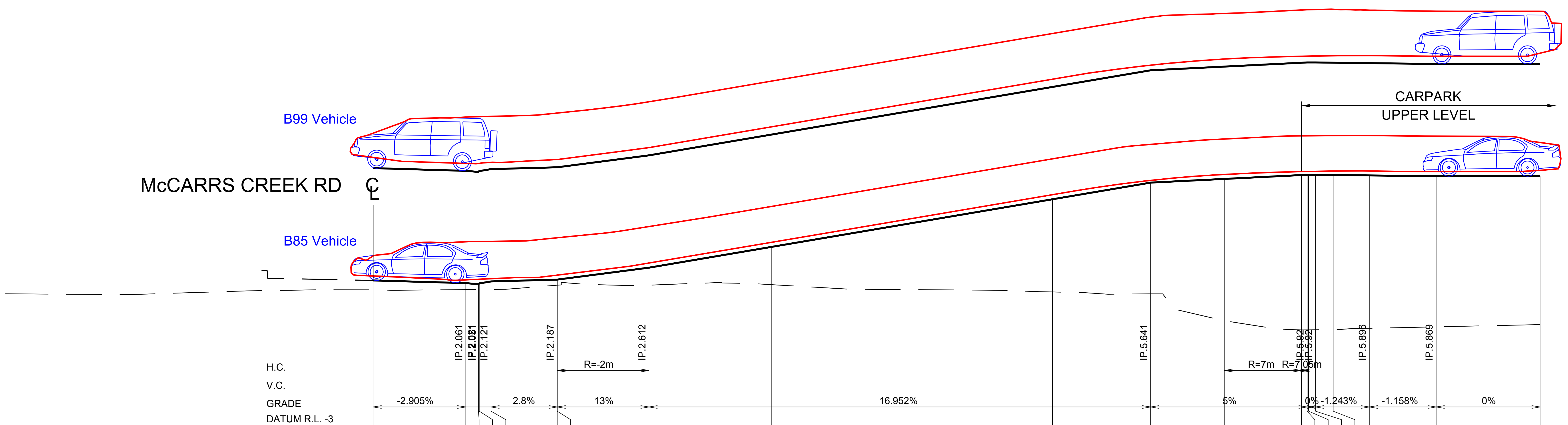
TITLE
ROAD LONGITUDINAL SECTIONS SHEET 4 OF 5 - RAMP ENTRY

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C5.04	2

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

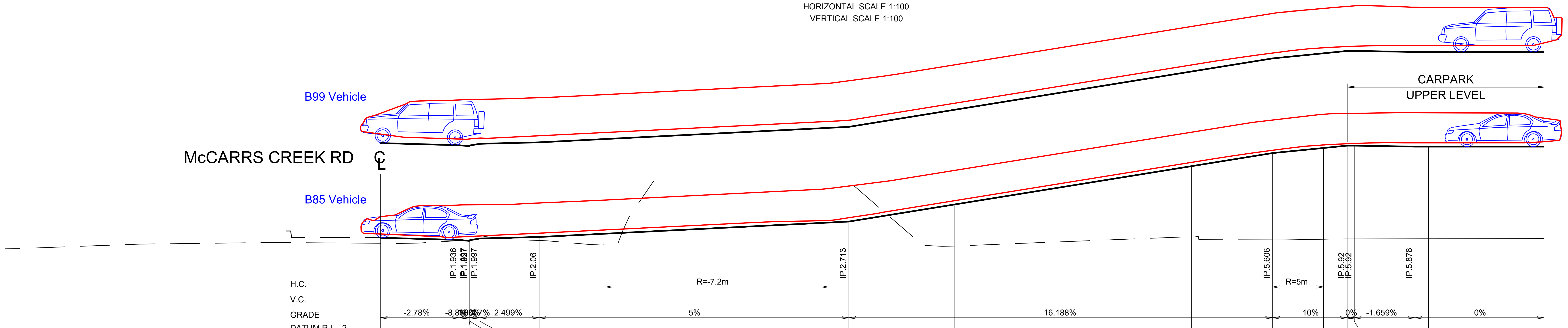
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



DESIGN LEVEL		2.061	2.021	2.051	2.121	2.187	2.187	2.612	3.353	5.048	5.641	5.772	5.910	5.920	5.920	5.920	5.912	5.896	5.869	5.869
EXISTING LEVEL	1.822	1.830	1.834	1.834	1.838	1.987	1.987	1.988	2.006	1.747	1.679	0.721	0.393	0.394	0.395	0.400	0.408	0.452	0.504	0.584
DEPTHS		0.231	0.187	0.217	0.283	0.200	0.200	0.624	1.348	3.302	3.962	5.051	5.517	5.526	5.525	5.520	5.504	5.444	5.365	5.284
CHAINAGE	-4.200	-0.898	-0.450	-0.420	0.000	2.358	2.358	5.628	10.000	20.000	23.498	26.119	28.871	29.070	29.123	29.370	30.000	31.285	33.668	37.370

LONGITUDINAL SECTION OF RAMP EXIT LEFT EDGE CL

HORIZONTAL SCALE 1:100
VERTICAL SCALE 1:100



DESIGN LEVEL	2.028	1.936	1.897	1.927	1.997	2.060	2.201	2.435	2.669	2.713	3.432	5.051	5.606	5.820	5.920	5.920	5.878	5.878	5.878
EXISTING LEVEL	1.795	1.907	1.933	1.935	1.960	1.913	1.737				1.677	2.074	1.940	1.962	1.982	1.982	1.987	1.988	1.997
DEPTHS	0.233	0.029	-0.036	-0.008	0.037	0.147	0.464				1.756	2.977	3.665	3.858	3.938	3.938	3.891	3.890	3.881
CHAINAGE	-4.200	-0.880	-0.450	-0.420	0.000	2.497	5.318	10.000	14.678	15.556	20.000	30.000	33.426	35.573	36.570	36.871	39.426	40.000	44.871

LONGITUDINAL SECTION OF RAMP EXIT RIGHT EDGE CL

HORIZONTAL SCALE 1:100
VERTICAL SCALE 1:100

FOR CONSTRUCTION

1.0 0 1.0 2.0 3.0 4.0 5.0m
NATURAL SCALE 1:100 A1 SHEET

REVISION	AMENDMENT	DATE	REVISION	AMENDMENT	DATE
A	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16			
1	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17			
B	CARPARK 100% DETAILED DESIGN	30/08/17			
2	STAGE 1 CONSTRUCTION ISSUE	28/11/17			

CLIENT
WARD

PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY
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ISO 9001
Lic No: QAC/R61/0771

SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

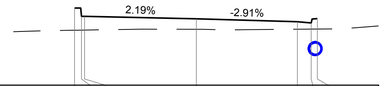
TITLE
ROAD LONGITUDINAL SECTIONS SHEET 5 OF 5 - RAMP EXIT

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C5.05	2

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

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

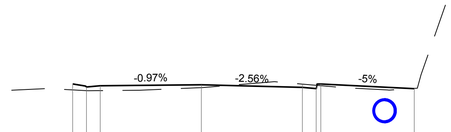


Centreline Data
X = 340719.166
Y = 6275827.463
Z = 2.166

DATUM RL 0.000

DESIGN	2.516	2.246	2.246	2.166	2.070	2.030	2.171
SURVEY	1.792	1.795	1.797	1.822	1.824	1.828	1.830
OFFSET	-3.975	-3.750	-3.650	0.000	3.300	3.750	3.951

CHAINAGE 60

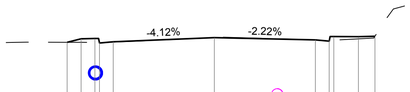


Centreline Data
X = 340709.258
Y = 6275816.217
Z = 1.937

DATUM RL 0.000

DESIGN	1.966	1.866	1.906	1.937	1.853	1.813	1.963	1.810
SURVEY	1.771	1.746	1.747	1.845	1.960	1.921	1.908	1.820
OFFSET	-4.200	-3.750	-3.300	0.000	3.300	3.750	3.900	6.953

CHAINAGE 45

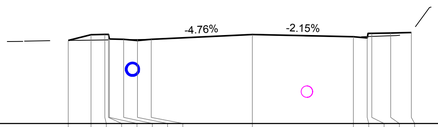


Centreline Data
X = 340697.912
Y = 6275806.422
Z = 1.891

DATUM RL -1.000

DESIGN	1.740	1.854	1.865	1.715	1.755	1.891	1.818	1.778	1.928	1.923	1.937
SURVEY	1.740	1.739	1.738	1.739	1.745	1.895	1.818	1.807	1.810	1.852	1.937
OFFSET	-4.806	-4.350	-3.900	-3.750	-3.300	0.000	3.300	3.750	3.900	4.705	5.245

CHAINAGE 30

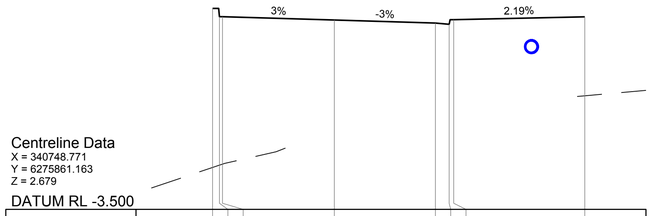


Centreline Data
X = 340695.489
Y = 6275804.654
Z = 1.904

DATUM RL -1.000

DESIGN	1.712	1.898	1.909	1.909	1.759	1.747	1.707	1.747	1.904	1.833	1.793	1.943	1.954	1.970
SURVEY	1.712	1.722	1.727	1.729	1.729	1.736	1.741	1.747	1.905	1.833	1.837	1.843	1.865	1.970
OFFSET	-6.010	-5.267	-4.817	-4.697	-4.667	-4.200	-3.750	-3.300	0.000	3.300	3.750	3.900	4.519	5.190

CHAINAGE 27

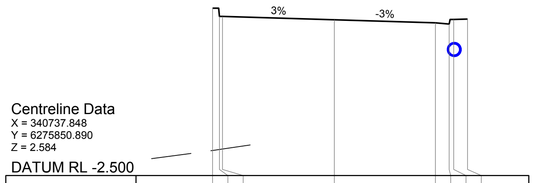


Centreline Data
X = 340748.771
Y = 6275861.163
Z = 2.679

DATUM RL -3.500

DESIGN	3.059	2.789	2.789	2.679	2.580	2.540	2.690	2.784
SURVEY	-2.133	-2.057	-2.024	0.207
OFFSET	-3.975	-3.750	-3.650	0.000	3.300	3.750	3.900	8.176

CHAINAGE 105

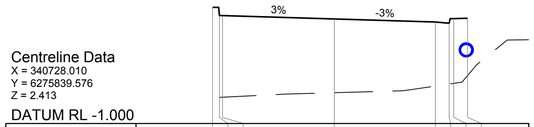


Centreline Data
X = 340737.848
Y = 6275850.890
Z = 2.584

DATUM RL -2.500

DESIGN	2.964	2.694	2.694	2.584	2.485	2.445	2.595	2.607
SURVEY	-1.683	-1.649	-1.635
OFFSET	-3.975	-3.750	-3.650	0.000	3.300	3.750	3.900	4.350

CHAINAGE 90

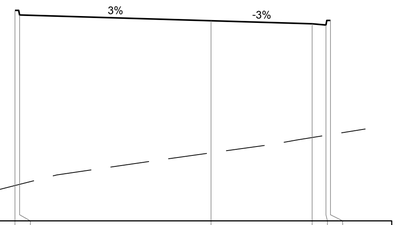


Centreline Data
X = 340728.010
Y = 6275839.576
Z = 2.413

DATUM RL -1.000

DESIGN	2.793	2.523	2.523	2.413	2.314	2.274	2.424	2.435
SURVEY	-0.147	-0.142	0.006	0.221	0.288	0.311	0.563
OFFSET	-3.975	-3.750	-3.650	0.000	3.300	3.750	3.900	4.350

CHAINAGE 75

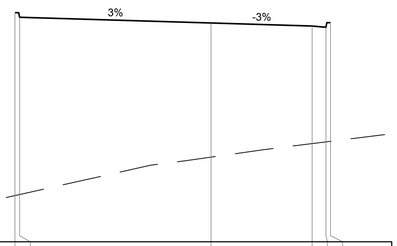


Centreline Data
X = 340785.864
Y = 6275886.469
Z = 2.533

DATUM RL -4.000

DESIGN	2.870	2.720	2.533	2.434	2.394	2.544
SURVEY	-2.846	-2.808	-1.780	-1.279	-1.207	-1.183
OFFSET	-6.400	-6.250	0.000	3.300	3.750	3.900

CHAINAGE 150

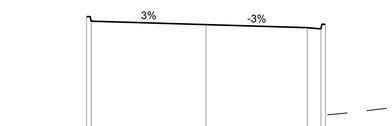


Centreline Data
X = 340772.870
Y = 6275878.982
Z = 2.641

DATUM RL -4.500

DESIGN	2.979	2.829	2.641	2.542	2.502	2.652
SURVEY	-2.991	-2.957	-1.736	-1.295	-1.239	-1.220
OFFSET	-6.400	-6.250	0.000	3.300	3.750	3.900

CHAINAGE 135



Centreline Data
X = 340760.482
Y = 6275870.530
Z = 2.698

DATUM RL -3.500

DESIGN	2.961	2.811	2.698	2.599	2.559	2.709
SURVEY	-2.399	-2.360
OFFSET	-3.900	-3.750	0.000	3.300	3.750	3.900

CHAINAGE 120

2

FOR CONSTRUCTION

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

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
B	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
1	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17
2	STAGE 1 CONSTRUCTION ISSUE	05/09/17

REVISION	AMENDMENT	DATE

CLIENT: WARD

PROJECT: MCCARRS CREEK ROAD REALIGNMENT STAGE 1 CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

PREPARED BY
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SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.
Lic No: QAC/R61/0771

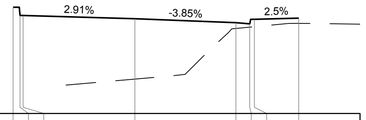
TITLE: ROAD CROSS SECTIONS SHEET 1 OF 2 - MCCARRS CREEK RD

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C5.11	2

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

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

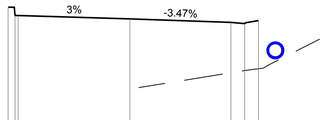


Centreline Data
X = 340842.752
Y = 6275904.044
Z = 2.091

DATUM RL -1.000

DESIGN	2.468	2.198	2.198	2.091	1.964	1.924	2.074	2.110
SURVEY				0.122	1.775	1.817	1.832	1.940
OFFSET	-3.975	-3.750	-3.650	0.000	3.300	3.750	3.900	5.350

CHAINAGE 210

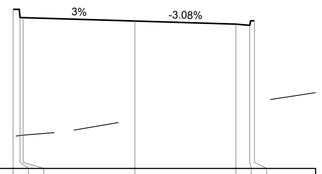


Centreline Data
X = 340827.887
Y = 6275902.114
Z = 2.202

DATUM RL -2.000

DESIGN	2.581	2.311	2.311	2.202	2.087	2.047	2.147
SURVEY					0.442	0.515	0.574
OFFSET	-3.975	-3.750	-3.650	0.000	3.300	3.750	4.200

CHAINAGE 195

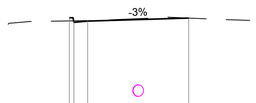


Centreline Data
X = 340813.378
Y = 6275898.346
Z = 2.312

DATUM RL -2.500

DESIGN	2.691	2.421	2.421	2.312	2.210	2.170	2.320
SURVEY	-1.451	-1.426	-1.414				
OFFSET	-3.975	-3.750	-3.650	0.000	3.300	3.750	3.900

CHAINAGE 180

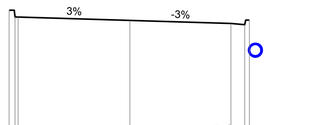


Centreline Data
X = 340873.265
Y = 6275904.548
Z = 1.869

DATUM RL -1.500

DESIGN	1.880	1.730	1.770	1.869	
SURVEY	1.776	1.779	1.786	1.869	
OFFSET	-3.900	-3.750	-3.300	0.000	

CHAINAGE 240.52

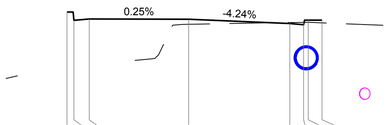


Centreline Data
X = 340799.388
Y = 6275892.949
Z = 2.422

DATUM RL -3.500

DESIGN	2.756	2.533	2.532	2.422	2.323	2.283	2.433
SURVEY	-2.226	-2.187	-2.166	-1.471			
OFFSET	-3.943	-3.750	-3.650	0.000	3.300	3.750	3.900

CHAINAGE 165



Centreline Data
X = 340857.746
Y = 6275904.388
Z = 1.981

DATUM RL -1.500

DESIGN	2.214	1.944	1.989	1.981	1.841	1.801	1.951	1.951
SURVEY				1.815	1.873	1.877	1.878	1.862
OFFSET	-3.975	-3.750	-3.250	0.000	3.300	3.750	3.900	4.350

CHAINAGE 225

FOR CONSTRUCTION

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1.0 0 1.0 2.0 3.0 4.0 5.0m
X-SECTIONS SCALE 1:100 A1 SHEET

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
B	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
1	STAGE 1 CONSTRUCTION ISSUE	03/05/17

REVISION	AMENDMENT	DATE

CLIENT
WARD

PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY
Warren Smith & Partners

Warren Smith & Partners Pty Ltd
1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
T 02 9299 1312 **F** 02 9290 1295 wsp@warrensmith.com.au
www.warrensmith.com.au **ABN** 36 300 430 126

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SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

TITLE
ROAD CROSS SECTIONS SHEET 2 OF 2 - MCCARRS CREEK RD

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C5.12	1

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

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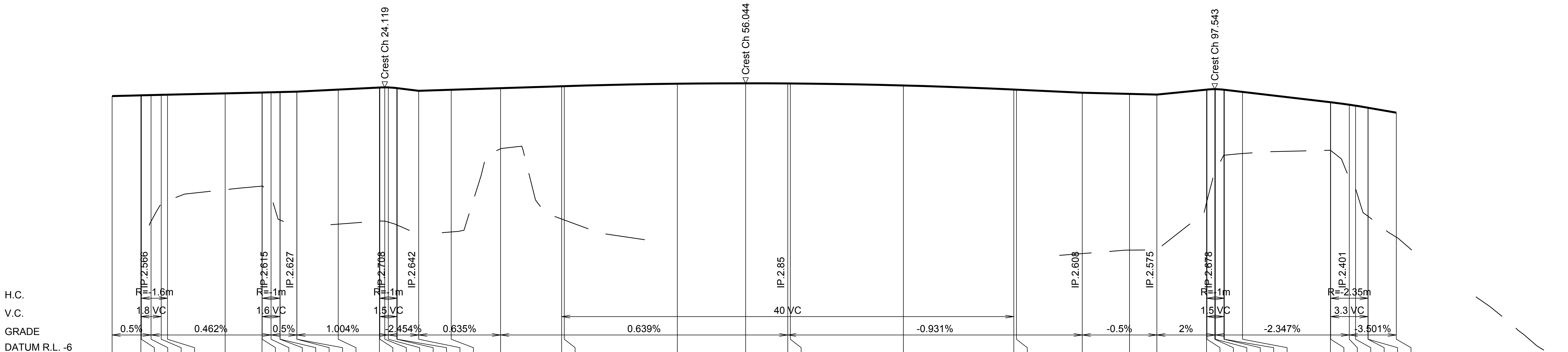

DESIGN LEVEL	2.549	2.562	2.562	2.566	2.570	2.573	2.596	2.612	2.612	2.615	2.619	2.619	2.627
EXISTING LEVEL				0.349	0.668	0.727	0.894	0.956	0.956	0.769	0.359	0.358	
DEPTHS				2.217	1.902	1.846	1.703	1.655	1.655	1.846	2.260	2.261	
CHAINAGE	0.000	2.546	2.585	3.446	4.346	4.899	10.000	13.262	13.276	14.062	14.847	14.862	16.347

DESIGN LEVEL	2.627	2.663	2.700	2.700	2.703	2.701	2.689	2.689	2.642	2.660	2.688	2.722	2.724
EXISTING LEVEL		0.284	0.340	0.341	0.338	0.326	0.271	0.268		0.146	1.617	0.374	0.357
DEPTHS		2.379	2.360	2.359	2.365	2.376	2.418	2.420		2.514	1.071	2.348	2.366
CHAINAGE	16.347	20.000	23.648	23.683	24.119	24.433	25.183	25.219	27.119	30.000	34.363	39.768	40.000

DESIGN LEVEL	2.767	2.774	2.772	2.771	2.736	2.664	2.662	2.608	2.587	2.575	2.663	2.663	2.670
EXISTING LEVEL								-0.236	-0.175	-0.171	0.667	0.697	1.214
DEPTHS								2.844	2.761	2.745	1.995	1.967	1.456
CHAINAGE	50.000	56.044	59.768	60.000	70.000	79.768	80.000	85.820	90.000	92.418	96.818	96.853	97.543

DESIGN LEVEL	2.670	2.661	2.660	2.622	2.440	2.439	2.396	2.379	2.343	2.342	2.255
EXISTING LEVEL	1.250	1.502	1.503	1.533	1.591	1.591	1.168	0.910	0.425	0.423	0.054
DEPTHS	1.420	1.159	1.157	1.089	0.848	0.848	1.228	1.469	1.917	1.919	2.201
CHAINAGE	97.603	98.353	98.389	100.000	107.779	107.795	109.445	110.000	111.095	111.112	113.601

LONGITUDINAL SECTION OF Carpark Kerb Lip CL

HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:50

DESIGN LEVEL	2.414	2.579	2.634	2.699	2.725	2.746	2.782	2.862	2.862	2.896	2.946
EXISTING LEVEL	0.198	1.656	1.705	1.835	1.872	1.918	2.047	1.743	1.743	1.724	1.796
DEPTHS	2.216	0.923	0.929	0.865	0.853	0.829	0.735	1.120	1.120	1.172	1.150
CHAINAGE	0.000	4.090	5.454	7.072	7.701	8.549	10.000	13.198	13.198	20.000	30.000

DESIGN LEVEL	2.996	3.042	3.046	3.076	3.078	3.073	3.071	3.031	2.965	2.957	2.869
EXISTING LEVEL	1.832	4.407	4.572	2.768	1.962	1.654	1.647	1.621	1.588	1.596	1.700
DEPTHS	1.165	-1.365	-1.526	0.308	1.116	1.418	1.424	1.411	1.377	1.362	1.169
CHAINAGE	40.000	49.122	50.000	60.000	63.577	69.122	70.000	80.000	89.122	90.000	100.000

DESIGN LEVEL	2.781	2.717	2.692	2.685	2.627	2.624	2.536	2.405	2.400	2.321	2.144
EXISTING LEVEL	1.755	1.733	1.792	1.810	1.917	1.918	1.937	1.935	1.932	1.892	0.590
DEPTHS	1.025	0.984	0.900	0.875	0.710	0.707	0.599	0.470	0.467	0.429	1.554
CHAINAGE	110.000	117.197	120.000	120.798	123.137	123.230	125.887	128.544	128.637	130.000	133.074

LONGITUDINAL SECTION OF Carpark Kerb Face CL

HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:50

NOTE:
REFER TO DRG C3.01 FOR SETTING OUT DETAILS

FOR CONSTRUCTION

Xrefs: X-5325000-TB_A1H; X-5325000C-LS_Carpark Kerb Face CL LS1; X-5325000C-LS_Carpark Kerb Lip CL LS1
Plot Date: 29.11.2017@12:21:11 Login Name: MCzarnota Cad File: T:\5325000\CAD\Civil\Detailed Design\Stage 1\5325000C-C6.01 Carpark Grou

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1000 0 500 1000 1500 2000mm
VER. SCALE 1:50 A1 SHEET
5.0 0 2.5 5.0 7.5 10.0m
HOR. SCALE 1:250 A1 SHEET

REVISION	AMENDMENT	DATE	REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16			
B	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17			
C	CARPARK 100% DETAILED DESIGN	30/08/17			
1	STAGE 1 CONSTRUCTION ISSUE	28/11/17			

CLIENT
WARD

PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY
Warren Smith & Partners

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SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

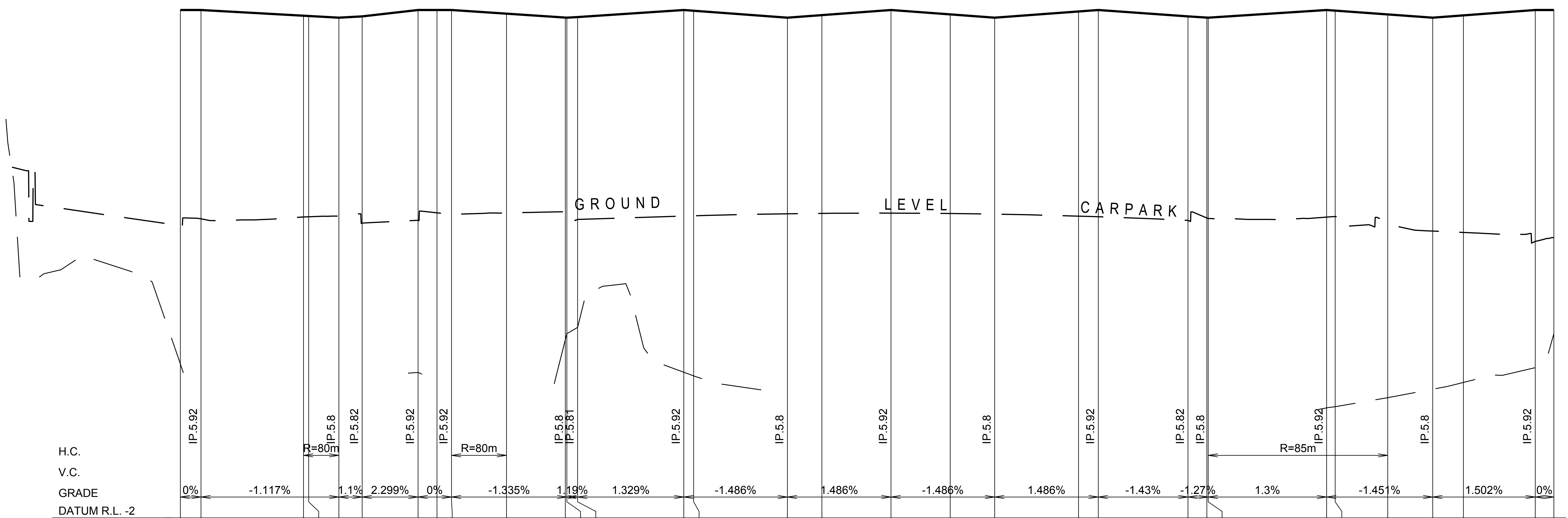
TITLE
CARPARK GROUND LEVEL KERB LONGITUDINAL SECTIONS

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C6.01	1

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

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



DESIGN LEVEL	5.920	5.920	5.831	5.826	5.800	5.820	5.920	5.920	5.920	5.863	5.802
EXISTING LEVEL	0.400						0.268				0.776
DEPTHS	5.520						5.652				5.025
CHAINAGE	0.000	1.608	9.594	10.000	12.354	14.171	18.521	20.000	21.132	25.416	30.000

DESIGN LEVEL	5.800	5.810	5.920	5.909	5.800	5.840	5.920	5.851	5.800	5.897	5.920
EXISTING LEVEL	0.872	0.970	0.271	0.215							
DEPTHS	4.928	4.840	5.649	5.694							
CHAINAGE	30.121	30.961	39.237	40.000	47.312	50.000	55.387	60.000	63.462	70.000	71.537

DESIGN LEVEL	5.820	5.801	5.800	5.920	5.910	5.851	5.800	5.836	5.920	5.920
EXISTING LEVEL				-0.288	-0.266	-0.126	0.006	0.112	0.342	0.870
DEPTHS				6.208	6.177	5.977	5.794	5.724	5.578	5.050
CHAINAGE	78.530	80.000	80.105	89.336	90.000	94.099	97.605	100.000	105.594	107.044

LONGITUDINAL SECTION OF CARPARK UPPER KERB FACE LEFT CL
HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:50

FOR CONSTRUCTION

Xrefs: X-5325000-TB_A1H; X-5325000-LS_Carpark Upper Left CL LS1; X-5325000-LS_Carpark Upper CL LS1; X-5325000-LS_Carpark Upper Right CL LS1; X-5325000C-LS_Western Retrofit Left Kerb CL LS001; X-5325000C-LS_Western Retrofit Right Kerb CL LS001
Plot Date: 29.11.2017@12:21:20 Login Name: MCzarnota Cad File: T:\5325000\CAD\Civil\Detailed Design\Stage 1\5325000C-C6.00 Carpark Upper Level Longitudinal Sections.dwg

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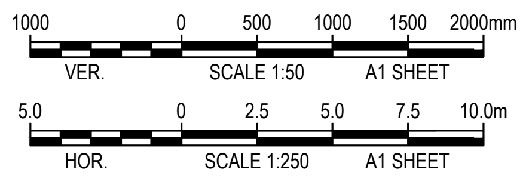

REVISION	AMENDMENT	DATE	REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16			
B	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17			
C	CARPARK 100% DETAILED DESIGN	30/08/17			
1	STAGE 1 CONSTRUCTION ISSUE	28/11/17			

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PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY
Warren Smith & Partners

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www.warrensmith.com.au ABN 36 300 430 126

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SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

TITLE
CARPARK UPPER LEVEL LONGITUDINAL SECTIONS - LEFT KERB CL

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C6.02	1

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

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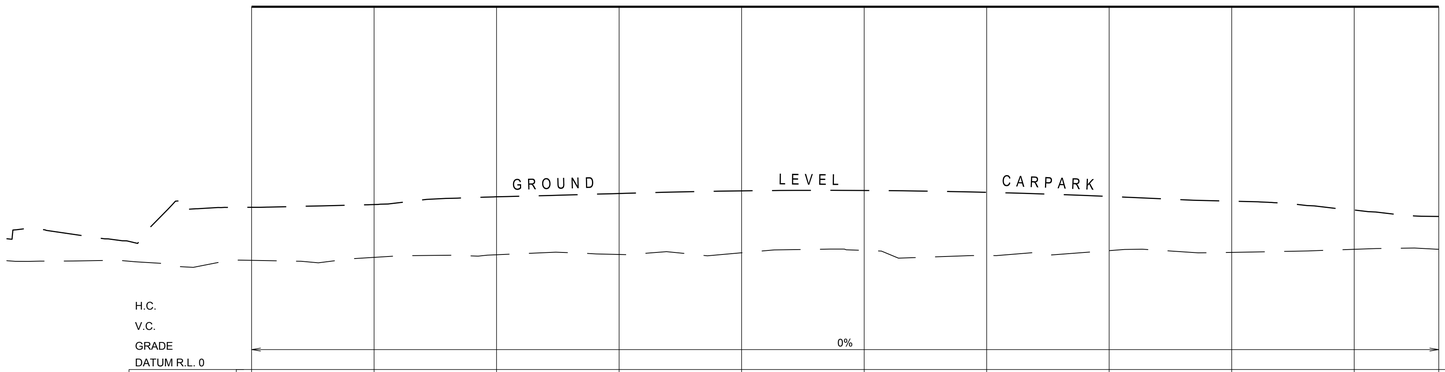

DESIGN LEVEL	5.920	5.920	5.920	5.920	5.920	5.920	5.920	5.920	5.920	5.920	5.920
EXISTING LEVEL	1.782	1.830	1.873	1.877	1.905	1.943	1.859	1.940	1.911	1.962	1.961
DEPTHS	4.138	4.090	4.047	4.043	4.015	3.977	4.061	3.980	4.009	3.958	3.959
CHAINAGE	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	96.899

LONGITUDINAL SECTION OF CARPARK UPPER CL

HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:50

FOR CONSTRUCTION

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1000 0 500 1000 1500 2000mm
VER. SCALE 1:50 A1 SHEET
5.0 0 2.5 5.0 7.5 10.0m
HOR. SCALE 1:250 A1 SHEET

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
B	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17
C	CARPARK 100% DETAILED DESIGN	30/08/17
1	STAGE 1 CONSTRUCTION ISSUE	28/11/17

REVISION	AMENDMENT	DATE

CLIENT
WARD

PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY
Warren Smith & Partners

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SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

TITLE
CARPARK UPPER LEVEL LONGITUDINAL SECTIONS - CARPARK CL

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C6.03	1

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

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

DESIGN LEVEL	5.920	5.920	5.847	5.800	5.918	5.920	5.800	5.812	5.920	5.880
EXISTING LEVEL	1.982	1.711	1.752	1.782	1.799	1.799	2.047	2.274	4.590	
DEPTHS	3.938	4.209	4.096	4.018	4.119	4.121	3.753	3.537	1.330	
CHAINAGE	0.000	5.300	10.000	13.073	20.000	20.092	29.223	30.000	37.299	40.000

DESIGN LEVEL	5.800	5.869	5.920	5.823	5.800	5.920	5.914	5.800	5.835	5.920	5.857	5.800	5.895	5.920	5.920	5.920
EXISTING LEVEL	3.659	2.139	1.679	1.724	1.611	1.596	1.592	1.600	1.634	1.696	1.708	1.735	1.747	1.742	1.742	1.953
DEPTHS	2.141	3.730	4.241	4.099	4.189	4.324	4.322	4.200	4.201	4.224	4.149	4.065	4.149	4.178	4.178	3.967
CHAINAGE	45.373	50.000	53.449	60.000	61.525	69.599	70.000	77.675	80.000	85.749	90.000	93.823	100.000	101.599	101.599	106.929

LONGITUDINAL SECTION OF CARPARK UPPER KERB FACE RIGHT CL
HORIZONTAL SCALE 1:250
VERTICAL SCALE 1:50

FOR CONSTRUCTION

Xrefs: X-5325000-TB_A1H; X-5325000-LS_Carpark Upper Left CL LS1; X-5325000-LS_Carpark Upper CL LS1; X-5325000-LS_Carpark Upper Right CL LS1; X-5325000C-LS_Western Retrofit Left Kerb CL LS001; X-5325000C-LS_Western Retrofit Right Kerb CL LS001
Plot Date: 29.11.2017@12:21:27 Login Name: MCzarnota Cad File: T:\5325000\CAD\Civil\Detailed Design\Stage 1\5325000C-C6.00 Carpark Upper Level Longitudinal Sections.dwg

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1000 0 500 1000 1500 2000mm
VER. SCALE 1:50 A1 SHEET
5.0 0 2.5 5.0 7.5 10.0m
HOR. SCALE 1:250 A1 SHEET

REVISION	AMENDMENT	DATE	REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16			
B	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17			
C	CARPARK 100% DETAILED DESIGN	30/08/17			
1	STAGE 1 CONSTRUCTION ISSUE	28/11/17			

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PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

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ISO 9001
Lic No: QAC/R61/0771

TITLE
CARPARK UPPER LEVEL LONGITUDINAL SECTIONS - RIGHT KERB CL

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C6.04	1

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

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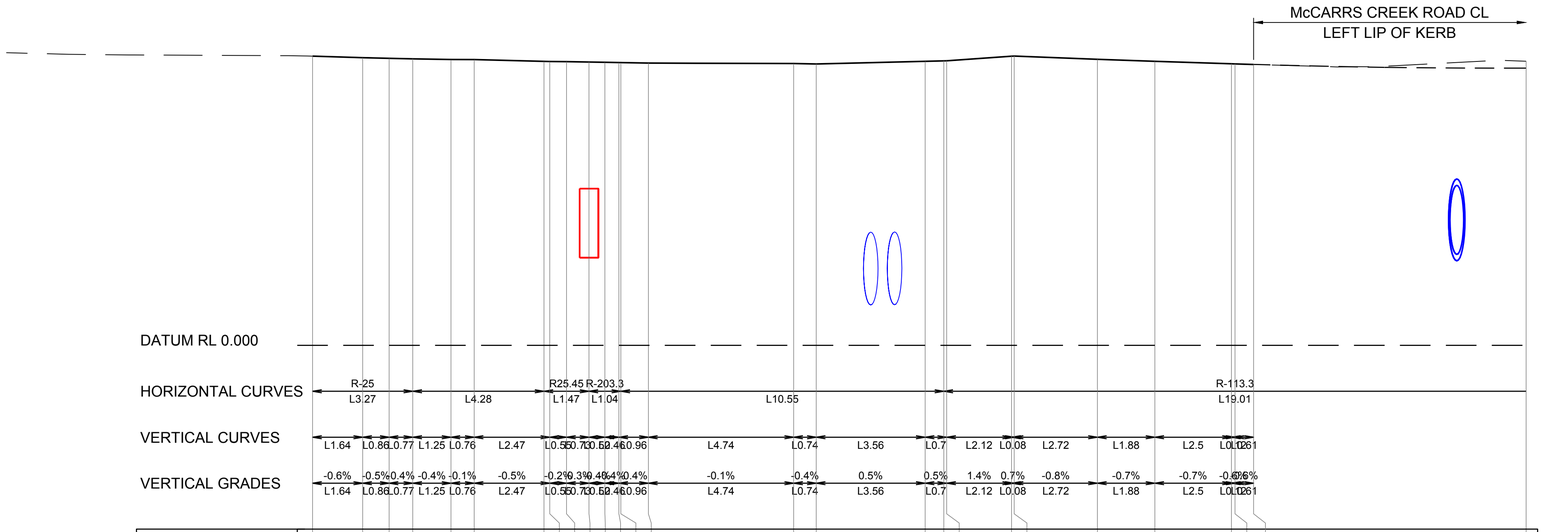
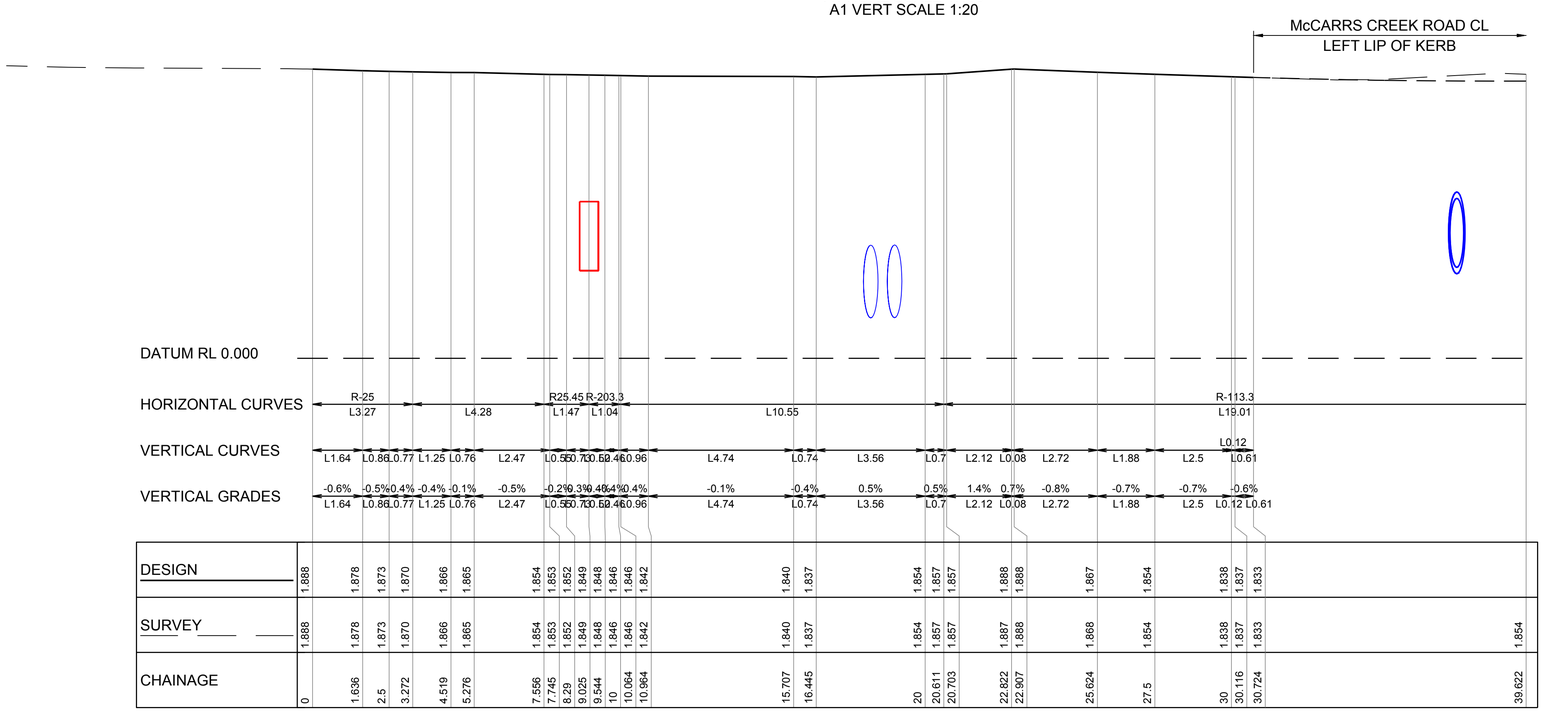


WESTERN RETROFIT RIGHT KERB - LONGITUDINAL SECTION

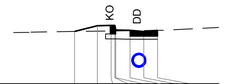
A1 HORZ SCALE 1:100
A1 VERT SCALE 1:20



WESTERN RETROFIT RIGHT KERB - LONGITUDINAL SECTION

A1 HORZ SCALE 1:100
A1 VERT SCALE 1:20

Centreline Data
X = 340693.580
Y = 6275807.346
Z = 1.747



DATUM RL 0.000

DESIGN	1.712	1.698	1.909	1.909	1.759	1.747	1.707	1.747			
SURVEY	1.712	1.722	1.727	1.729	1.729	1.740	1.741	1.747			
OFFSET	-2.710	-1.967	-1.517	-1.397	-1.367	-0.900	-0.450	0.000			

CHAINAGE 29.778

Centreline Data
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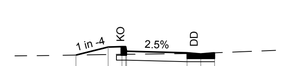
Z = 1.793



DATUM RL 1.000

DESIGN	1.718	1.981	1.992	1.992	1.942	1.793	1.753	1.793			
SURVEY	1.718	1.735	1.743	1.745	1.745	1.765	1.771	1.793			
OFFSET	-4.528	-3.475	-3.025	-2.905	-2.875	-0.900	-0.450	0.000			

CHAINAGE 15

Centreline Data
X = 340667.916
Y = 6275792.285
Z = 1.895

DATUM RL 1.000

DESIGN	1.874	1.844	1.855	1.855	1.895
SURVEY	1.874	1.875	1.881	1.883	1.895
OFFSET	-1.110	-1.050	-0.600	-0.450	0.000

CHAINAGE 0

CROSS-SECTIONS

RETROFIT KERB LEFT CL

NOTE:
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1000 0 500 1000 1500 2000mm
VER. SCALE 1:50 A1 SHEET
5.0 0 2.5 5.0 7.5 10.0m
HOR. SCALE 1:250 A1 SHEET

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
B	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17
1	STAGE 1 CONSTRUCTION ISSUE	28/08/17

CLIENT
WARD

PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY
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■ Hydraulic Services ■ Fire Protection ■ Civil Engineering
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- Design Project Management - Building Plan Approvals

SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

Lic No: QAC/R61/0771

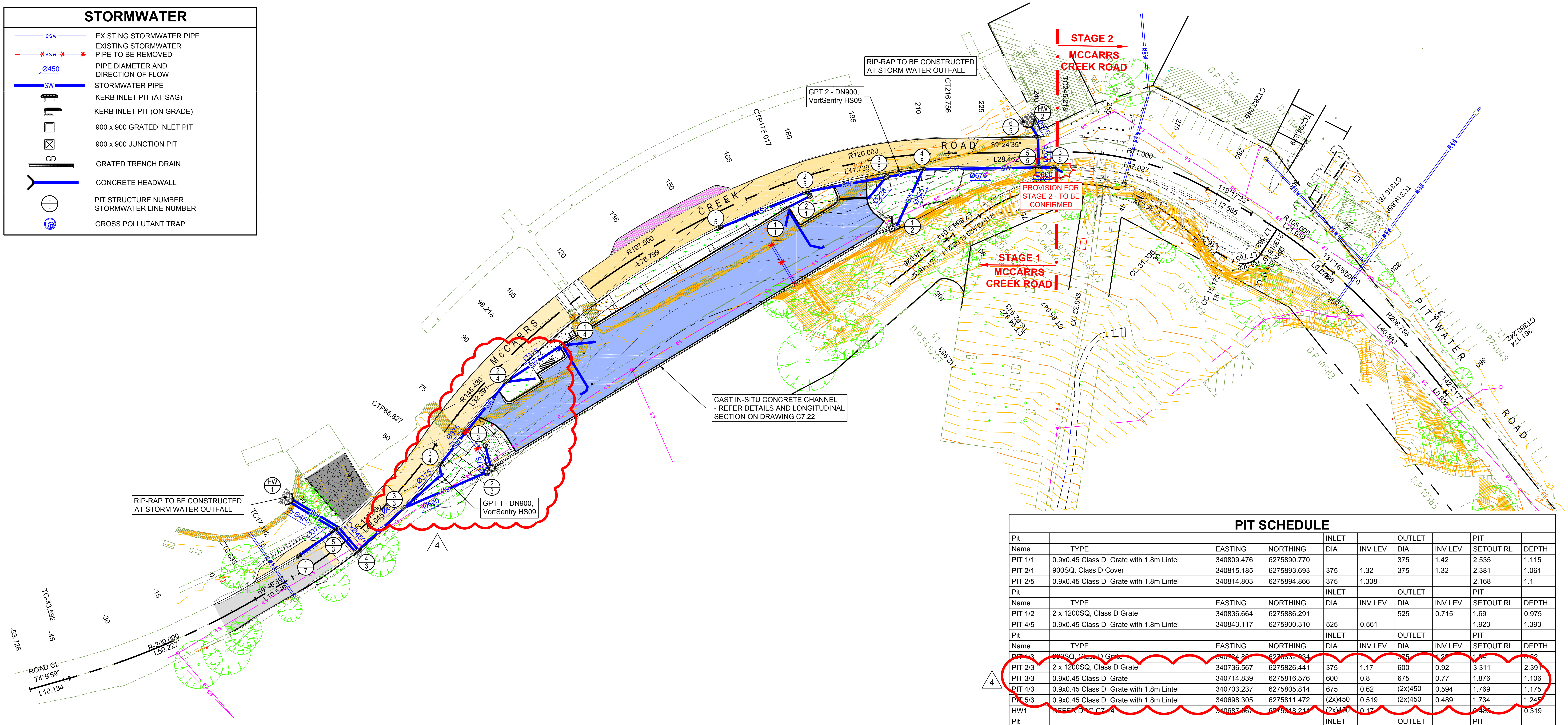
TITLE
WESTERN RETROFIT KERB LONGITUDINAL AND CROSS SECTIONS

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C6.05	1

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

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



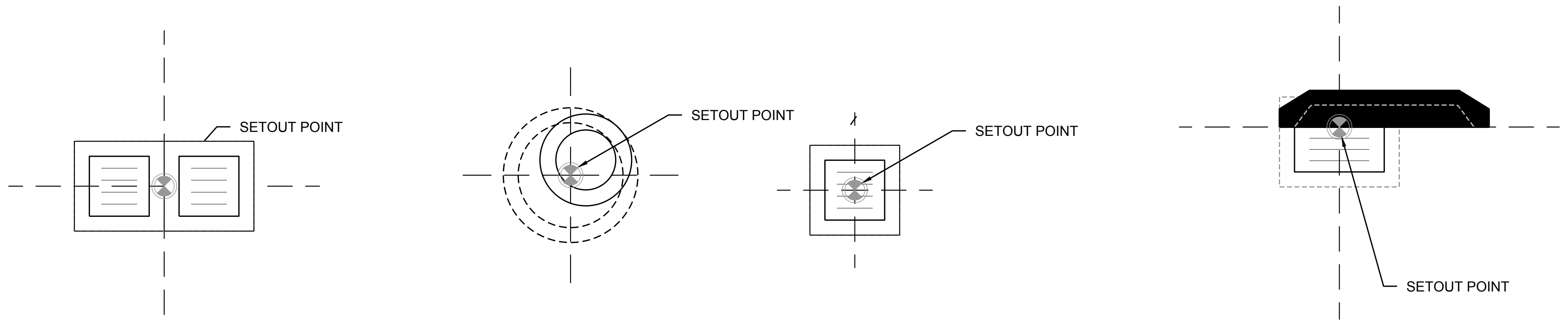
STORMWATER

esw	EXISTING STORMWATER PIPE
×esw××	EXISTING STORMWATER PIPE TO BE REMOVED
Ø450	PIPE DIAMETER AND DIRECTION OF FLOW
SW	STORMWATER PIPE
	KERB INLET PIT (AT SAG)
	KERB INLET PIT (ON GRADE)
☐	900 x 900 GRATED INLET PIT
☒	900 x 900 JUNCTION PIT
GD	GRATED TRENCH DRAIN
	CONCRETE HEADWALL
○	PIT STRUCTURE NUMBER STORMWATER LINE NUMBER
◎	GROSS POLLUTANT TRAP

PIT SCHEDULE

Pit				INLET		OUTLET		PIT	
Name	TYPE	EASTING	NORTHING	DIA	INV LEV	DIA	INV LEV	SETOUT RL	DEPTH
PIT 1/1	0.9x0.45 Class D Grate with 1.8m Lintel	340809.476	6275890.770			375	1.42	2.535	1.115
PIT 2/1	900SQ, Class D Cover	340815.185	6275893.693	375	1.32	375	1.32	2.381	1.061
PIT 2/5	0.9x0.45 Class D Grate with 1.8m Lintel	340814.803	6275894.866	375	1.308			2.168	1.1
Pit				INLET		OUTLET		PIT	
Name	TYPE	EASTING	NORTHING	DIA	INV LEV	DIA	INV LEV	SETOUT RL	DEPTH
PIT 1/2	2 x 1200SQ, Class D Grate	340836.664	6275886.291			525	0.715	1.69	0.975
PIT 4/5	0.9x0.45 Class D Grate with 1.8m Lintel	340843.117	6275900.310	525	0.561			1.923	1.393
Pit				INLET		OUTLET		PIT	
Name	TYPE	EASTING	NORTHING	DIA	INV LEV	DIA	INV LEV	SETOUT RL	DEPTH
PIT 1/3	900SQ, Class D Grate	[illegible]	[illegible]			375	1.22	[illegible]	0.62
PIT 2/3	2 x 1200SQ, Class D Grate	340736.567	6275826.441	375	1.17	600	0.92	3.311	2.391
PIT 3/3	0.9x0.45 Class D Grate	340714.839	6275816.576	600	0.8	675	0.77	1.876	1.106
PIT 4/3	0.9x0.45 Class D Grate with 1.8m Lintel	340703.237	6275805.814	675	0.62	(2x)450	0.594	1.769	1.175
PIT 5/3	0.9x0.45 Class D Grate with 1.8m Lintel	340698.305	6275811.472	(2x)450	0.519	(2x)450	0.489	1.734	1.245
HW1	REFER DRG C7.14	340687.067	6275818.211	(2x)450	0.17			0.489	0.319
Pit				INLET		OUTLET		PIT	
Name	TYPE	EASTING	NORTHING	DIA	INV LEV	DIA	INV LEV	SETOUT RL	DEPTH
PIT 1/4	0.9x0.45 Class D Grate with 1.8m Lintel	340753.845	6275856.864			375	1.632	2.603	0.971
PIT 2/4	0.9x0.45 Class D Grate with 1.8m Lintel	[illegible]	[illegible]	375	1.428	375	[illegible]	2.439	1.046
PIT 3/4	0.9x0.45 Class D Grate with 1.8m Lintel	340723.639	[illegible]	375	1.057	375	1.027	2.073	1.046
GPT 1	DN900 VORTSENTRY HS09	340723.914	6275824.701	375	1.002	375	0.972	2.128	1.156
PIT 3/3	0.9x0.45 Class D Grate	340714.839	6275816.576	375	0.85			1.876	1.106
Pit				INLET		OUTLET		PIT	
Name	TYPE	EASTING	NORTHING	DIA	INV LEV	DIA	INV LEV	SETOUT RL	DEPTH
PIT 1/5	0.9x0.45 Class D Grate with 1.8m Lintel	340793.083	6275885.924			375	1.332	2.348	1.016
PIT 2/5	0.9x0.45 Class D Grate with 1.8m Lintel	340814.803	6275894.866	375	1.143	450	1.068	2.168	1.1
PIT 3/5	1200SQ, Class D Cover	340834.115	6275898.437	450	0.908	450	0.878	2.17	1.292
GPT 2	DN900 VORTSENTRY HS09	340837.646	6275899.007	450	0.842	450	0.812	2.137	1.325
PIT 4/5	0.9x0.45 Class D Grate with 1.8m Lintel	340843.117	6275900.310	450	0.756	675	0.531	1.923	1.393
PIT 5/5	0.9x0.45 Class D Grate with 1.8m Lintel	340871.704	6275900.782	675	0.245	675	0.215	1.688	1.473
PIT 6/5	0.9x0.45 Class D Grate with 1.8m Lintel	340871.627	6275908.282	675	0.14	675	0.11	1.766	1.656
HW2	REFER DRG C7.14	340870.01	6275910.809	675	0.08			0.11	0.03
Pit				INLET		OUTLET		PIT	
Name	TYPE	EASTING	NORTHING	DIA	INV LEV	DIA	INV LEV	SETOUT RL	DEPTH
PIT 3/6	0.9x0.45 Class D Grate with 1.8m Lintel	340875.516	6275900.821			600	0.484	1.659	1.175
PIT 5/5	0.9x0.45 Class D Grate with 1.8m Lintel	340871.704	6275900.782	600	0.446			1.688	1.473
Pit				INLET		OUTLET		PIT	
Name	TYPE	EASTING	NORTHING	DIA	INV LEV	DIA	INV LEV	SETOUT RL	DEPTH
PIT 1/7	600x900, Class D V-Grate	340688.754	6275804.650			375	0.639	1.696	1.057
Pit 5/3	0.9x0.45 Class D Grate with 1.8m Lintel	340698.305	6275811.472	375	0.522			1.734	1.245

4



PIT SET OUT POINTS

FOR CONSTRUCTION

NORTH

10.0 0 5.0 10.0 15.0 20.0m
PLAN SCALE 1:500 A1 SHEET

REVISION	AMENDMENT	DATE	REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16			
B	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16			
1	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17			
2	PIT SCHEDULE AMENDED	29/05/17			
3	LINE 7 ADDED AND LINE 3 MODIFIED	18/08/17			
4	STAGE 1 CONSTRUCTION ISSUE	24/11/17			

CLIENT
WARD

PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY
Warren Smith & Partners

Warren Smith & Partners Pty Ltd
1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
T 02 9299 1312 F 02 9290 1295 wsp@warrensmith.com.au
www.warrensmith.com.au ABN 36 300 430 126

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SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

ISO 9001
Lic No: QAC/R61/0771

TITLE
STORMWATER DRAINAGE PLAN

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C7.01	4

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

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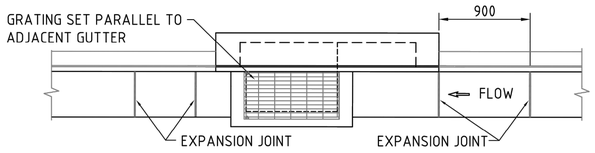
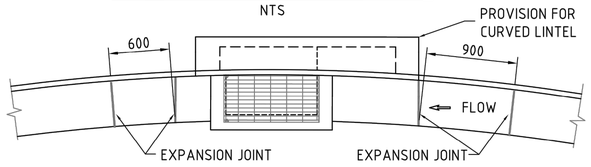
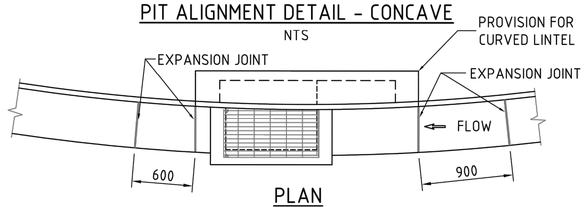


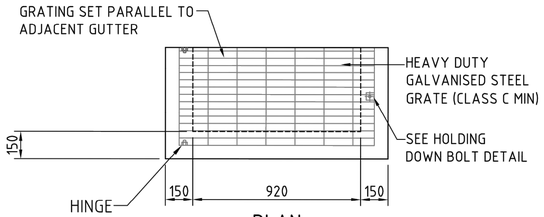
PLAN
PIT ALIGNMENT DETAIL - STRAIGHT
NTS



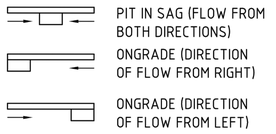
PLAN
PIT ALIGNMENT DETAIL - CONCAVE
NTS



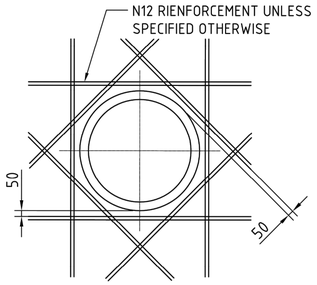
PLAN
PIT ALIGNMENT DETAIL - CONVEX
NTS



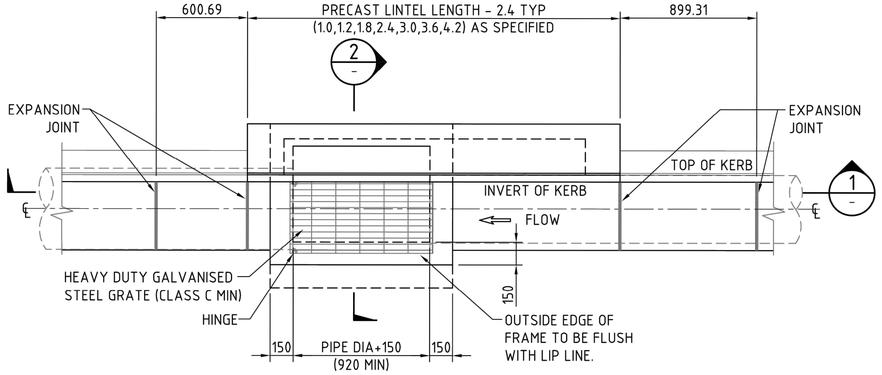
PLAN
GRATE WITH HOLDING DOWN BOLTS
NTS



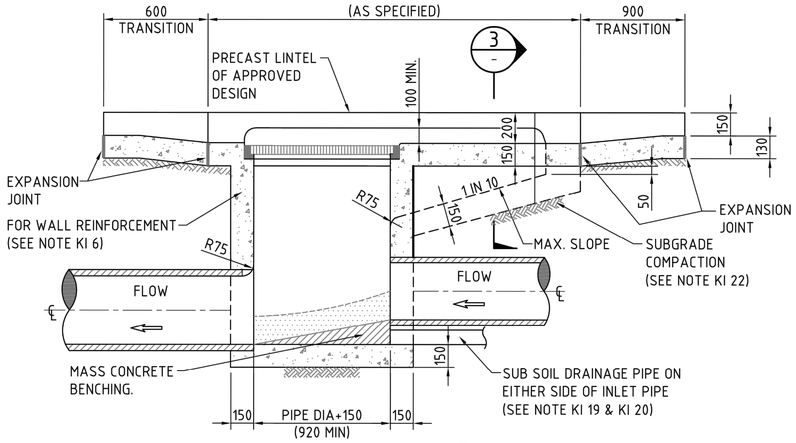
INLET PIT CONFIGURATION
NTS



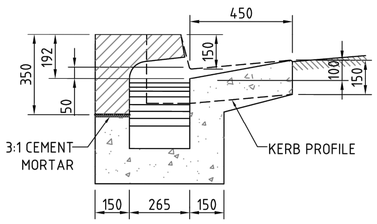
TYPICAL TRIMMER BAR DETAIL
NTS



PLAN
GULLY PIT WITH PIPE UNDER KERB
NTS



SECTION 1
NTS



SECTION 3
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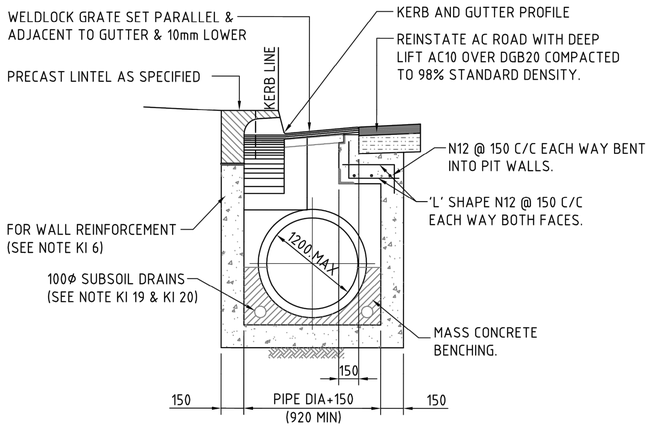

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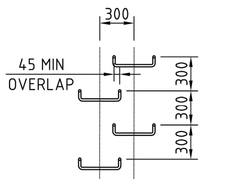
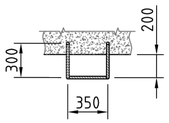
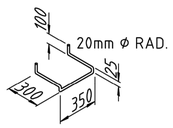


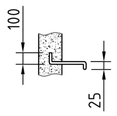
STEP IRON PLACEMENT DETAIL
NTS



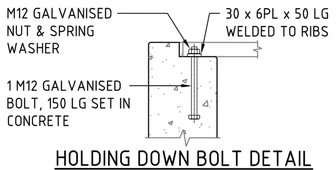
TOP VIEW ON STEP IRON
NTS



ISOMETRIC VIEW ON STE IRON
NTS



SIDE ELEVATION ON STEP IRON
NTS



HOLDING DOWN BOLT DETAIL
NTS

GENERAL NOTES:

KI 1. CONCRETE MINUMUM GRADE 25MPa AT 28 DAYS (AS PER AS3600) UNLESS OTHERWISE STATED.

KI 2. WHERE PIT IS LOCATED IN SAG, INLET DEPRESSIONS ARE TO BE ADDED ON BOTH SIDES OF THE PIT.

KI 3. STEEL IN PRECAST LINETS TO BE GRADE N32.

KI 4. TOTAL LENGTH OF INLET VARIES DEPENDANT ON THE REQUIRED INLET CAPACITY (SEE DESIGN)

KI 5. KERB LEVELS SHALL BE AS PER GRADING ON THE DESIGN LONGITUDINAL SECTIONS.

KI 6. FOR PIT DEPTHS LESS THAN 3000 PROVIDE N12 @250 CENTRES EACH WAY AT 50 COVER TO INSIDE FACE WALLS AND BASE. PROVIDE 400 LAP AT CORNERS. FOR PIT DEPTHS GREATER THAN 3000, SEPARATE DESIGN IS REQUIRED.

KI 7. PITS DEEPER THAN 1200mm TO BE FITTED WITH GALVANISED STEP IRONS AT 300mm CENTRES. REFER TO STEP IRON PLACEMENT DETAIL ON THIS DRAWING.

KI 8. PROPRIETARY STEPS MAY BE USED AS AN ALTERNATIVE IF APPROVED BY COUNCIL. THESE SHALL BE INSTALLED ACCORDING TO THE MANUFACTURERS INSTRUCTIONS.

KI 9. STEP IRONS SHALL BE LOCATED:
- DIRECTLY BELOW THE OPENING ON THE COVER.
- DESIRABLY ON A WALL WITHOUT PIPE OPENINGS.

KI 10. METAL FOR STEP IRONS SHALL BE STRUCTURAL GRADE 250 (AS PER AS 3678).

KI 11. STEP IRONS SHALL HAVE ROUNDED EDGES.

KI 12. ALL REINFORCEMENT LAPS 400mm LONG (MIN).

KI 13. ALL EXPOSED EDGES TO BE ROUNDED 20mm RADIUS.

KI 14. ALL BOLTS WASHERS AND NUTS TO BE GALVANISED.

KI 15. MINIMUM COVER TO REINFORCEMENT IS TO BE NO LESS THAN 50mm.

KI 16. STEEL GRATES AND FRAMES TO BE FABRICATED FROM MILD STEEL AND HOT DIP GALVANISED (AS PER AS1650).

KI 17. GRATE PATTERN AND BAR SIZE MAY VARY TO SUIT APPLICATION BUT TYPICALLY SHALL BE CLASS C AND BICYCLE SAFE (AS PER AS3996) UNLESS OTHERWISE STATED.

KI 18. WHERE PIPES ENTER PIT ON SKEW PIPE DIA=HORIZONTAL SKEW DIMENSIONS.

KI 19. 100mm DIA SUBSOIL DRAIN OUTLETS TO BE LOCATED 100mm ABOVE INVERT OF THE STORMWATER PIT. REFER TO DRG CI-005 SUBSOIL DRAINAGE AND OUTLET STRUCTURES.

KI 20. PROVIDE 3m LENGTH OF 100mm DIA SUBSOIL DRAINAGE PIPE WRAPPED IN FABRIC SOCK ADJACENT TO ALL INLET PIPES AND DRAINING TO PIT.

KI 21. FILL ANY GAPS WITH EPOXY RESIN MORTAR OR POLYESTER RESIN MORTAR.

KI 22. PIT SUBGRADE COMPACTION IS TO BE MIN 98% STANDARD.

KI 23. ALL DIMENSIONS ARE SHOWN IN MILLIMETRES U.N.O.

KI 24. MIN PIT DEPTH 800mm.

FOR CONSTRUCTION

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
B	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
1	STAGE 1 CONSTRUCTION ISSUE	03/05/17

CLIENT: WARD

PROJECT: MCCARRS CREEK ROAD REALIGNMENT STAGE 1 CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

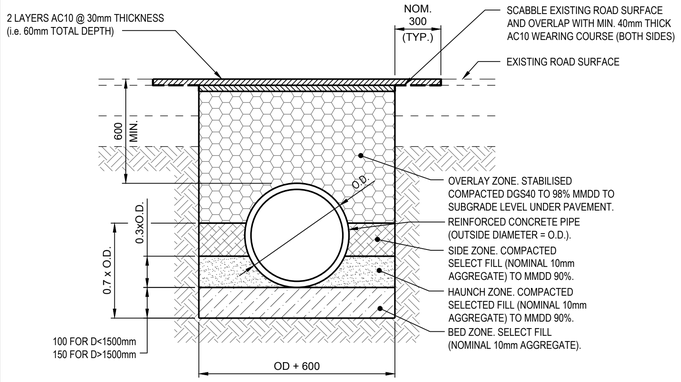
PREPARED BY
Warren Smith & Partners Pty Ltd
1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
T 02 9299 1312 F 02 9290 1295 wsp@warrensmith.com.au
www.warrensmith.com.au ABN 36 300 430 126
CONSULTING ENGINEERS
Hydraulic Services Fire Protection Civil Engineering
Sydney Water Accredited Water Servicing Co-ordinator
- Design Project Management - Building Plan Approvals
SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.
Lic No: QAC/R61/0771

TITLE: STORMWATER DETAILS SHEET 1 OF 4

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C7.11	1

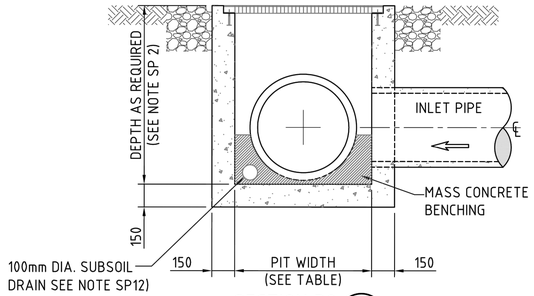
DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION



BITUMENOUS PAVEMENT

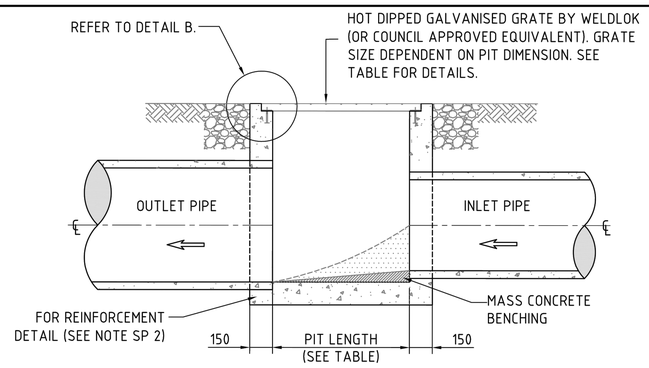
REINSTATEMENT OVER STORMWATER TRENCH

NOT TO SCALE



SECTION P2 2

NTS



SECTION P2 1

NTS

GENERAL NOTES:

SP1. CONCRETE MINUMUM GRADE 25MPa AT 28 DAYS (AS PER AS3600) UNLESS OTHERWISE STATED.

SP2. FOR PIT DEPTHS LESS THAN 3000 PROVIDE N12@250 CENTRES EACH WAY AT 50 COVER TO INSIDE FACE WALLS AND BASE. PROVIDE 400 LAP AT CORNERS. FOR PIT DEPTHS GREATER THEN 3000, SEPARATE DESIGN IS REQUIRED.

SP3. ALL REINFORCEMENT LAPS 400mm LONG (min).

SP4. ALL EXPOSED EDGES TO BE ROUNDED 20mm RADIUS.

SP5. PITS DEEPER THAN 1200mm TO BE FITTED WITH GALVANISED STEP IRONS AT 300mm CENTRES. (REFER TO CI-DRG-001 PITTWATER COUNCIL STADARD DRAINAGE DRAWINGS KERB INLET PIT WITH PIPE UNDER KERB FOR DETAILS).

SP6. PROPRIETARY STEPS MAY BE USED IF APPROVED BY COUCIL AS AN ALTERNATIVE. THESE SHALL BE INSTALLED ACCORDING TO THE MANUFACTURERS INSTRUCTIONS.

SP7. ALL BOLTS WASHERS AND NUTS TO BE GALVANISED.

SP8. MINIMUM COVER OUTSIDE REINFORCEMENT NO LESS THAN 50mm.

SP9. STEEL GRATES AND FRAMES TO BE FABRICATED FROM MILD STEEL AND HOT DIP GALVANISED (AS PER AS1650).

SP10. GRATING PATTERN AND BAR SIZE MAY VARY TO SUIT APPLICATION BUT TYPICALLY SHALL BE CLASS C (AS PER AS3996) UNLESS OTHERWISE STATED.

SP11. WHERE PIPES ENTER PIT ON SKEW PIPE DIA=HORIZONTAL SKEW DIMENSIONS.

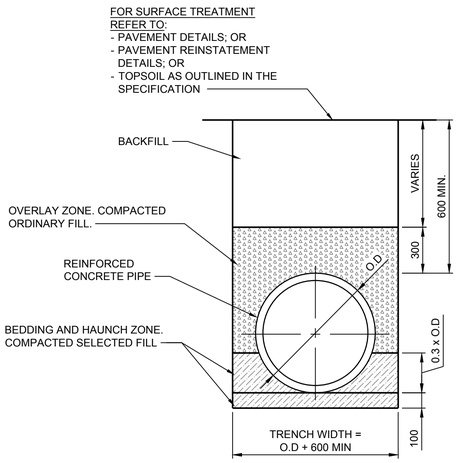
SP12. 100mm DIA SUBSOIL DRAIN OUTLETS TO BE LOCATED 100mm ABOVE INVERT OF THE STORMWATER PIT. REFER TO DRG CI-005 SUBSOILE DRAINAGE AND OULTET STRUCTURES.

SP13. PROVIDE 3m LENGTH OF 100mm DIA SUBSOIL DRAINAGE PIPE WRAPPED IN FABRIC SOCK ADJACENT TO INLET PIPES INVERTS AND DRAINING TO PIT.

SP17. PIT SUBGRADE COMPACTION TO BE MIN 98% STANDARD.

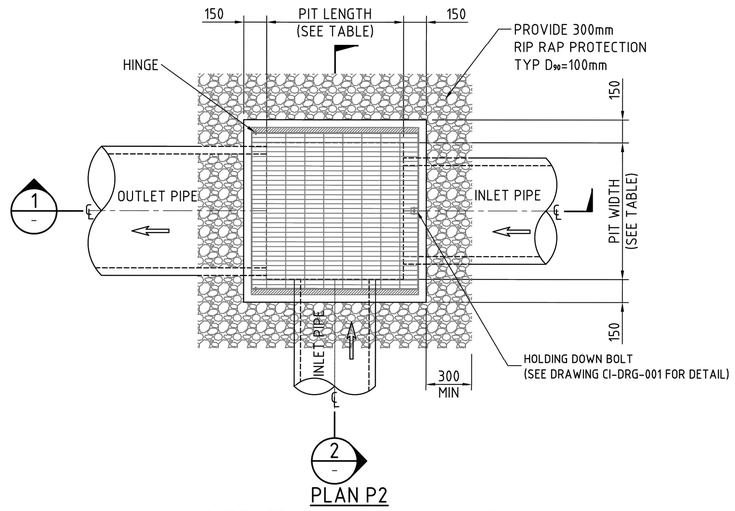
SP18. ALL DIMENSIONS SHOWN ARE IN MILLIMETRES U.N.O.

SP19. MIN PIT DEPTH 800mm



TYPICAL PIPE TRENCH GENERAL AREAS

SCALE : NOT TO SCALE

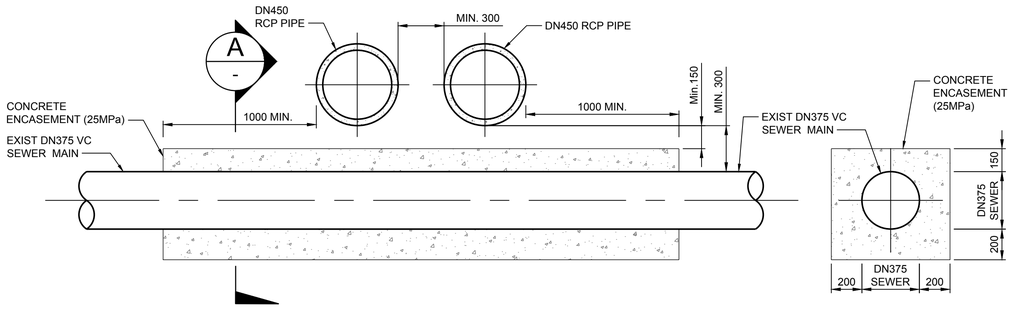


PLAN P2

SURFACE LEVEL SUSCHARGE PIT

NTS

PIT SIZES TABLE		
PIT SIZE	NOMINAL INSIDE PIT DIMENSIONS (mm)	WELDLOK GRATE TYPE OR EQUIVALENT
A	600 x 600	SPG66
B	600 x 900	SPG69
C	900 x 900	SPG99
D	900 x 1200	SPG912
E	1200 x 1200	SPG1212



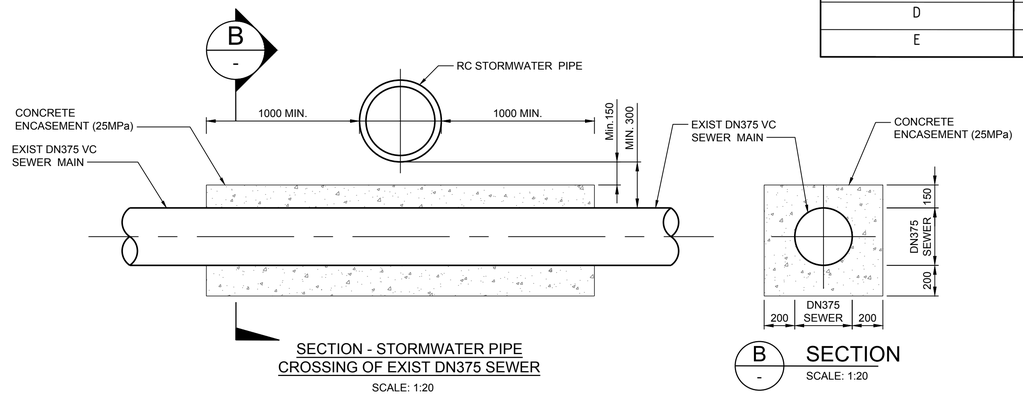
SECTION - DN450 CROSSING OF EXIST DN375 SEWER

SCALE: 1:20

A SECTION

SCALE: 1:20

DETAIL A - DN450 CROSSING OF EXIST DN375 SEWER



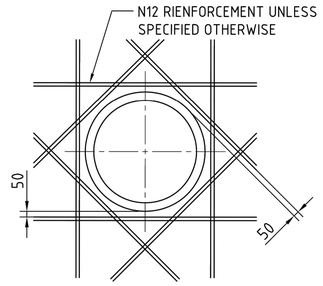
SECTION - STORMWATER PIPE CROSSING OF EXIST DN375 SEWER

SCALE: 1:20

B SECTION

SCALE: 1:20

DETAIL B - STORMWATER PIPE CROSSING OF EXIST DN375 SEWER



TYPICAL TRIMMER BAR DETAIL

NTS

FOR CONSTRUCTION

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100 0 100 200 300 400 500mm
PLAN SCALE 1:10 A1 SHEET

200 0 200 400 600 800 1000mm
PLAN SCALE 1:20 A1 SHEET

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
B	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
1	STAGE 1 CONSTRUCTION ISSUE	31/03/17

CLIENT: WARD

PROJECT: MCCARRS CREEK ROAD REALIGNMENT STAGE 1 CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

PREPARED BY

Warren Smith & Partners

Warren Smith & Partners Pty Ltd
1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
T 02 9299 1312 F 02 9290 1295 wsp@warrensmith.com.au
www.warrensmith.com.au ABN 36 300 430 126

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TITLE: **STORMWATER DETAILS SHEET 2 OF 4**

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C7.12	1

DATE 10/02/2017 — PACKAGE STATUS: FOR CONSTRUCTION

Node: A-5325000-78.dwg
Plot Date: 3/11/2017@12:32 Login Name: MCarrera Cad File: T:\5325000\CAD\CivilDrawing\Design\5325000-C7.10-Stormwater Details.dwg

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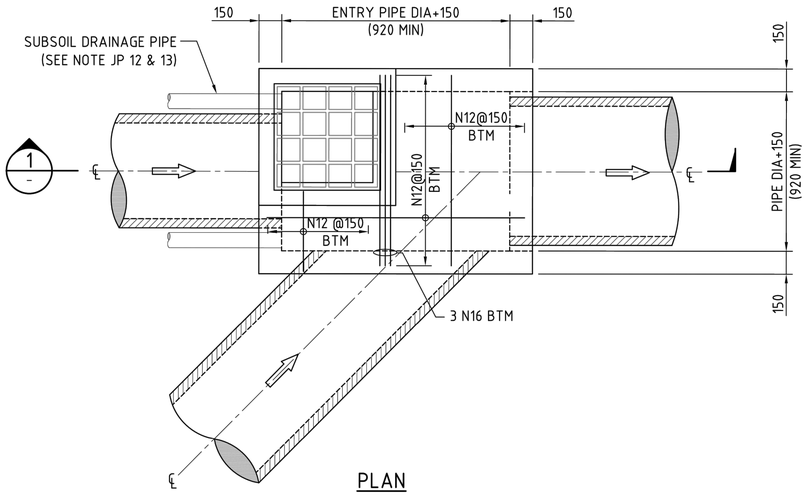
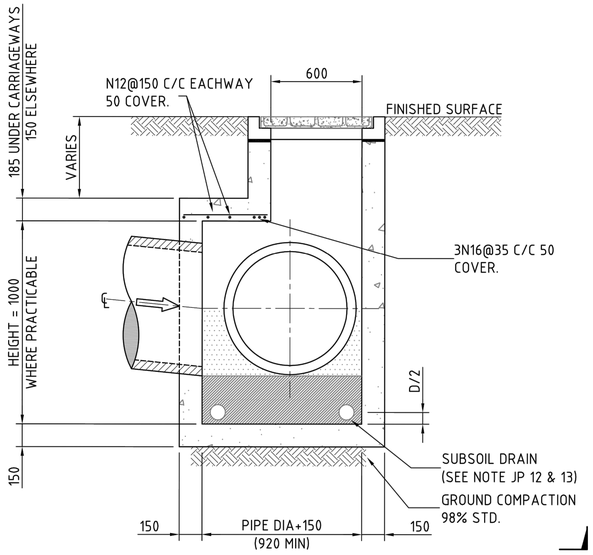


PLAN
JUNCTION PIT LARGE PIPES
NTS



SECTION 2
NTS

GENERAL NOTES:

JP 1. CONCRETE MINUMUM GRADE 25MPa AT 28 DAYS (AS PER AS3600) UNLESS OTHERWISE STATED.

JP 2. FOR PIT DEPTHS LESS THAN 3000 PROVIDE N12 @250 CENTRES EACH WAY AT 50 COVER TO INSIDE FACE WALLS AND BASE. PROVIDE 400 LAP AT CORNERS. FOR PIT DEPTHS GREATER THAN 3000, SEPARATE DESIGN IS REQUIRED

JP 3. ALL REINFORCEMENT LAPS 300mm LONG.

JP 4. DEPTH OF PIT NOT TO EXCEED 3500mm

JP 5. ALL EXPOSED EDGES TO BE ROUNDED 20mm RADIUS.

JP 6. PITS DEEPER THAN 1200mm TO BE FITTED WITH GALVANISED STEP IRONS AT 300mm CENTRES. REFER TO DRG CI-001 GULLY PIT WITH PIPE UNDER KERB.

JP 7. APPROVED PROPRIETARY STEPS MAY BE USED AS AN ALTERNATIVE. THESE SHALL BE INSTALLED ACCORDING TO THE MANUFACTURERS INSTRUCTIONS.

JP 8. ALL BOLTS WASHERS AND NUTS TO BE GALVANISED.

JP 9. MINIMUM COVER OUTSIDE REINFORCEMENT NO LESS THAN 50mm.

JP 10. INLET/OUTLET PLANS TO BE LOCATED AS PER DRAINAGE PLANS.

JP 11. AT RIGHT ANGLE CHANGE IN PIPE DIRECTION OUTLET, INVERT TO BE 150mm BELOW INLET INVERT.

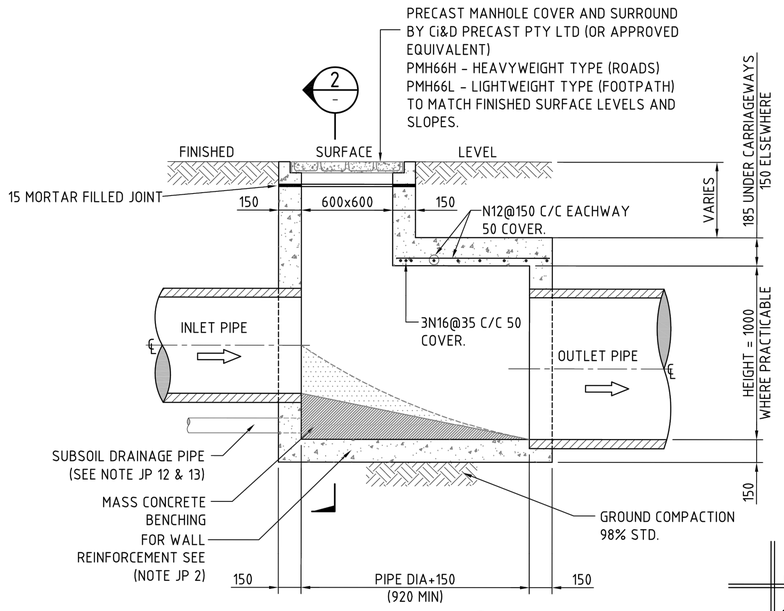
JP 12. 100mm DIA SUBSOIL DRAIN OUTLETS TO BE LOCATED 100mm ABOVE INVERT OF THE STORMWATER PIT. REFER TO DRG CI-005 SUBSOIL DRAINAGE AND OUTLET STRUCTURES.

JP 13. PROVIDE 3m LENGTH OF 100mm DIA SUBSOIL DRAINAGE PIPE WRAPPED IN FABRIC SOCK ADJACENT TO ALL INLET PIPES AND DRAINING TO PIT.

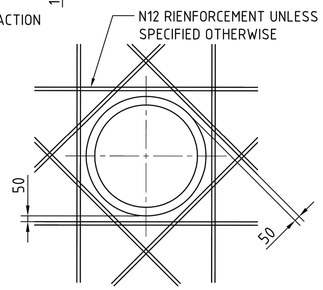
JP 14. PIT SUBGRADE COMPACTION TO BE MIN 98% STANDARD.

JP 15. ALL DIMENSIONS SHOWN ARE IN MILLIMETRES U.N.O.

JP 16. MIN PIT DEPTH 800mm

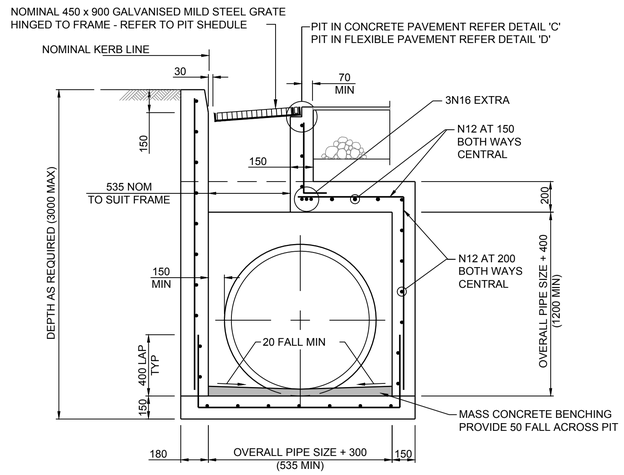


SECTION 1
NTS



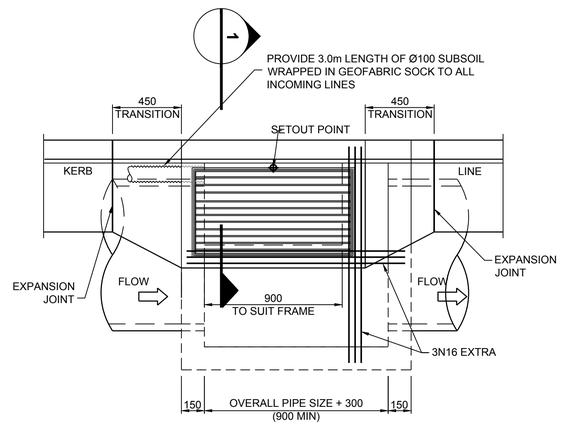
TYPICAL TRIMMER
BAR DETAIL
NTS

2



PROVIDE STEP IRONS
IF PIT DEEPER THAN
1000 (REFER DETAIL)

DETAIL 1
SCALE 1:20



PLAN
SCALE 1:20

GRATED GULLY PIT
(PIPE SIZES > Ø375)

FOR CONSTRUCTION

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100 0 100 200 300 400 500mm
PLAN SCALE 1:10 A1 SHEET
200 0 200 400 600 800 1000mm
PLAN SCALE 1:20 A1 SHEET

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
B	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
1	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17
2	STAGE 1 CONSTRUCTION ISSUE	28/11/17

REVISION	AMENDMENT	DATE

CLIENT
WARD

PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY
Warren Smith & Partners

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1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
T 02 9299 1312 **F** 02 9290 1295 wsp@warrensmith.com.au
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ISO 9001 Lloyd's Register Quality Assurance
Lic No: QAC/R61/0771

TITLE
STORMWATER DETAILS
SHEET 3 OF 4

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C7.13	2

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

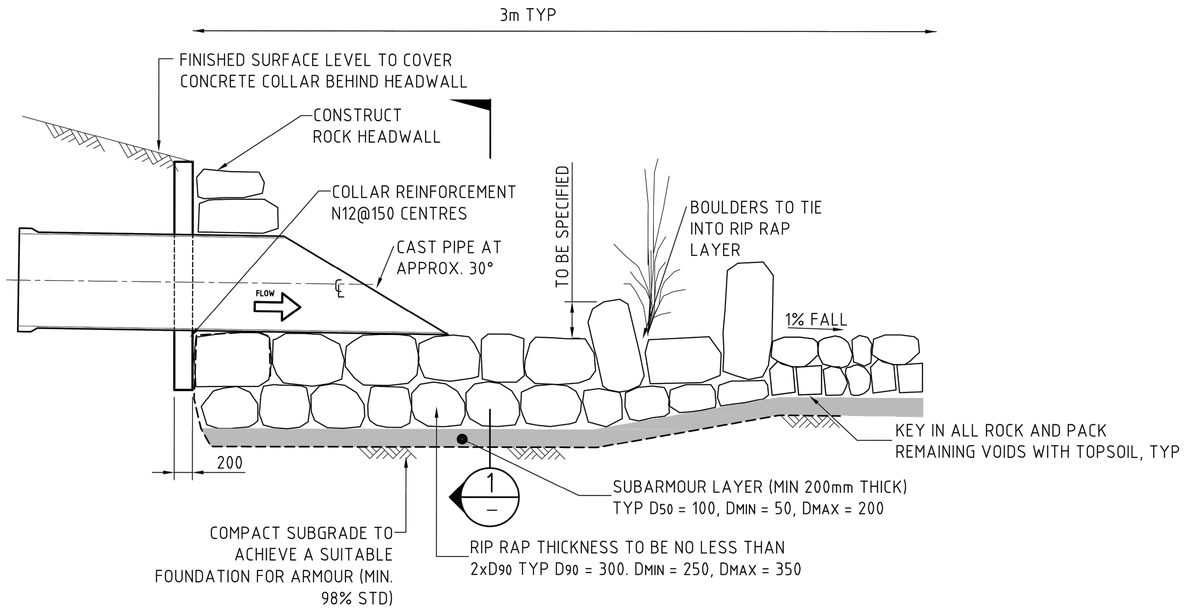
Node: 5325000.PA .PTW
Plot Date: 28-11-2017@12:23:51 Login Name: MCarrone Cad File: T:\5325000\CAD\CivilDesign\Design\Design 15\5325000-C7.13-Stormwater Details.dwg

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

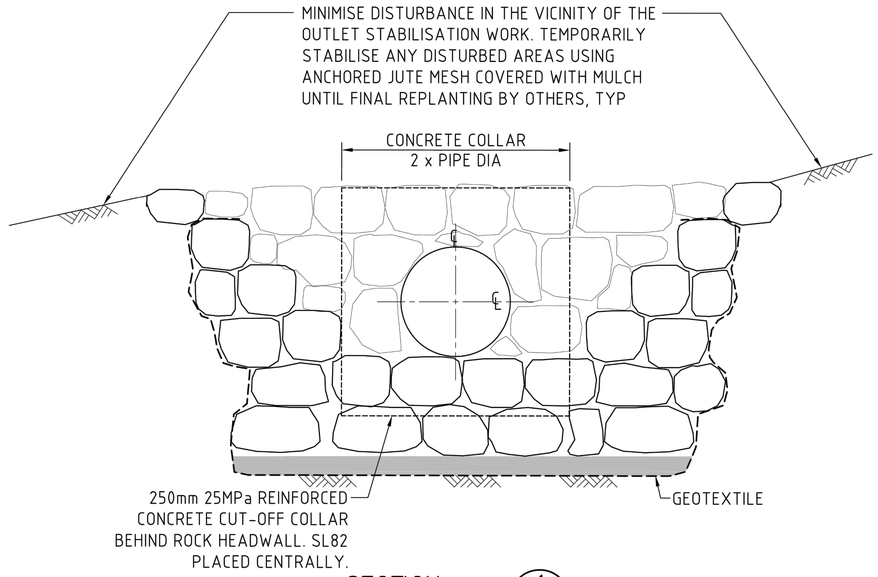
NOTES:

OS 1. WARP TO CONFORM TO NATURAL STREAM CHANNEL. TOP OF RIPRAP IN FLOOR OF BASIN SHOULD BE THE SAME LEVEL OR LOWER THAN NATURAL CHANNEL AT THE END OF THE BASIN.

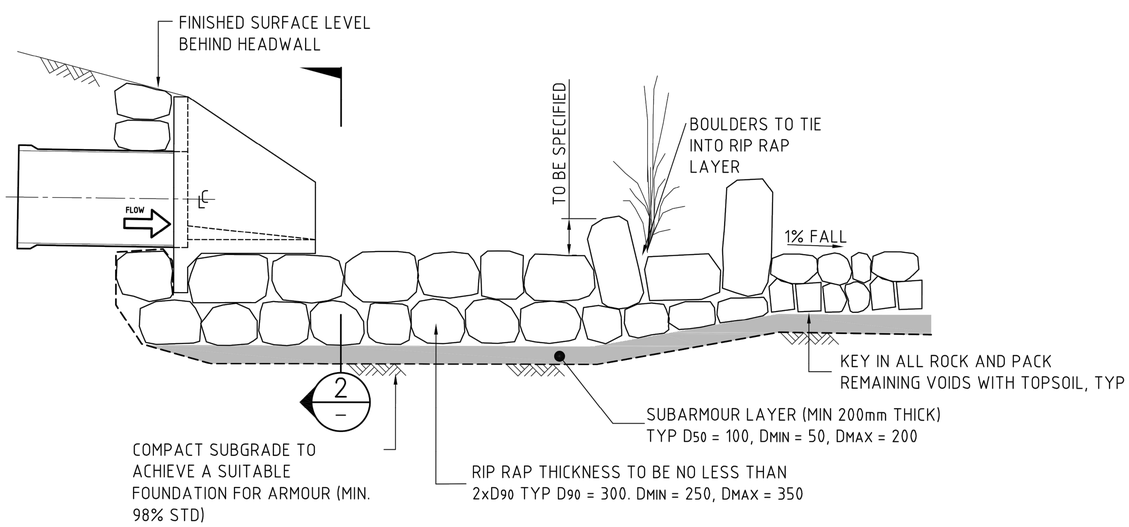
OS 2. CULVERT END TREATMENT MAY BE VARIED TO SUIT SITE CONDITIONS.



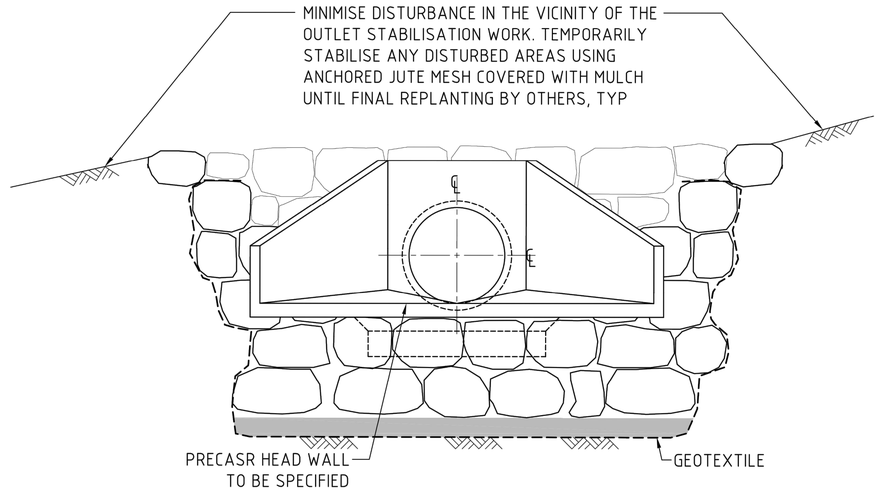
TYPICAL NATURAL OUTLET DETAIL
ROCK HEADWALL
NTS



SECTION 1
NTS



TYPICAL OUTLET DETAIL
CONCRETE HEADWALL
NTS



SECTION 2
NTS

FOR CONSTRUCTION

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PLAN SCALE 1:10 A1 SHEET
200 0 200 400 600 800 1000mm
PLAN SCALE 1:20 A1 SHEET

REVISION	AMENDMENT	DATE	REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16			
B	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16			
1	STAGE 1 CONSTRUCTION ISSUE	03/05/17			

CLIENT
WARD

PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY
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TITLE
STORMWATER DETAILS
SHEET 4 OF 4

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C7.14	1

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

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Plot Date: 3/11/2016 12:23:07 Login Name: MCarvosia Cad File: T:\5325000\CADD\Cad\Sydney\Design\Stage 1\5325000-C7.10 Stormwater Details.dwg

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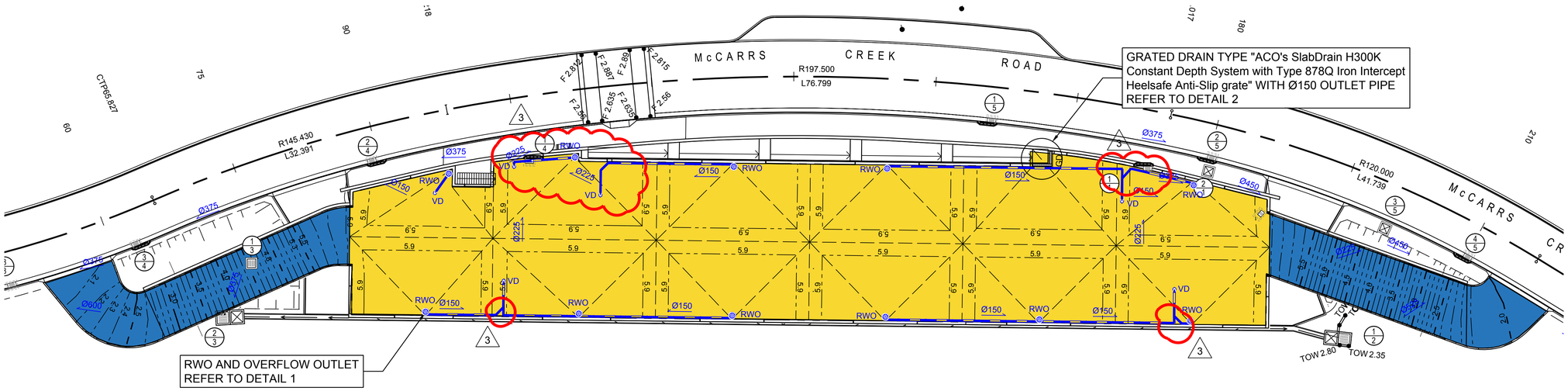
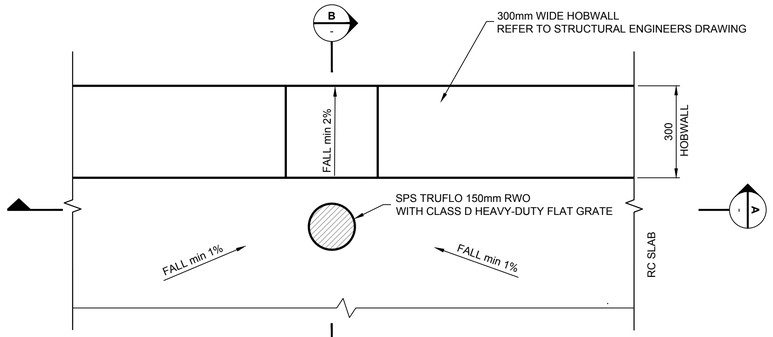


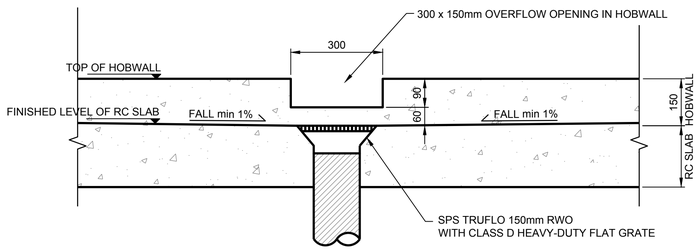
CARPARK UPPER LEVEL STORMWATER LAYOUT

SCALE 1:250



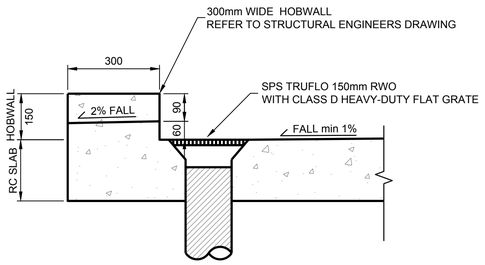
PLAN

SCALE 1:10



PART SECTION A-A

SCALE 1:10

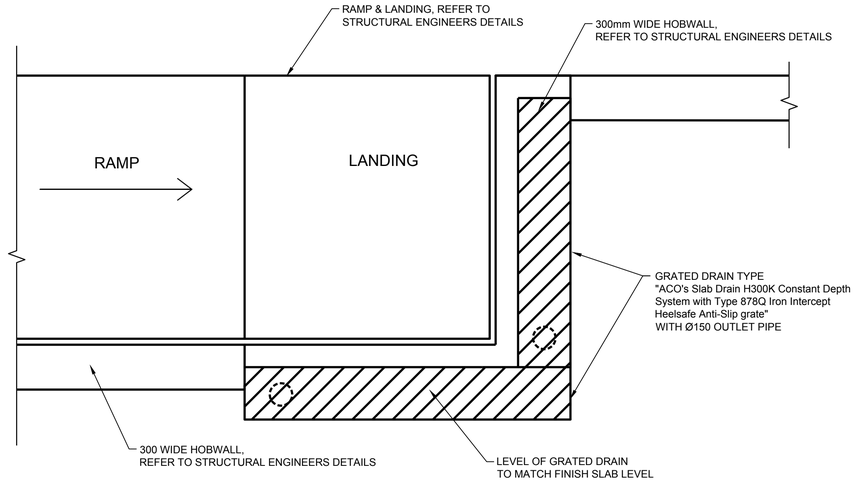


PART SECTION B-B

SCALE 1:10

DETAIL 1: TYPICAL RWO & OVERFLOW OUTLET DETAIL

SCALE 1:10



NOTE: REFER TO STRUCTURAL ENGINEERS DRAWINGS FOR SETTING OUT DETAILS AND CONCRETE DIMENSIONS

DETAIL 2: GRATED DRAIN DETAILS

NOT TO SCALE

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5.0 0 2.5 5.0 7.5 10.0m
PLAN SCALE 1:250 A1 SHEET

200 0 200 400 600 800 1000mm
PLAN SCALE 1:20 A1 SHEET

100 0 100 200 300 400 500mm
PLAN SCALE 1:10 A1 SHEET

REVISION	AMENDMENT	DATE	REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16			
1	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	02/11/17			
2	STAGE 1 CONSTRUCTION ISSUE	07/11/17			
3	STAGE 1 CONSTRUCTION ISSUE	28/11/17			

CLIENT

WARD

PROJECT

MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY

Warren Smith & Partners

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SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

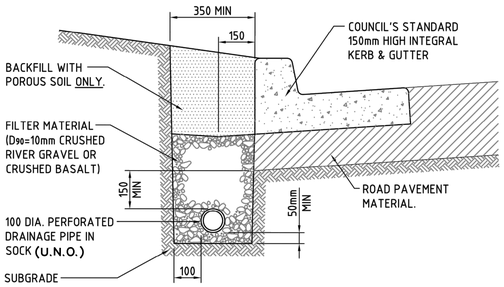
TITLE

CARPARK STORMWATER DRAINAGE DETAILS

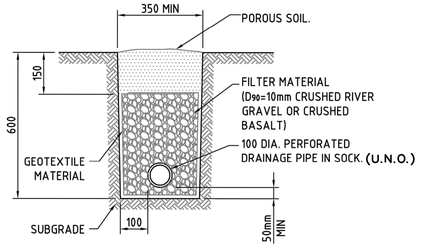
SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C7.16	3

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION



TYPICAL INSTALLATION WITH KERB & GUTTER
NTS



TYPICAL INSTALLATION
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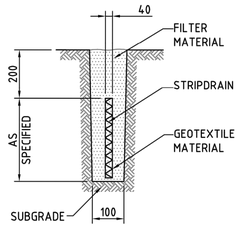


STRIP DRAIN
(SAND AS FILTER MATERIAL)
NTS

SAND FILTER MATERIAL GRADING	
AS. SIEVE SIZE mm	% PASSING
4.750	100
2.360	95-100
0.425	20-80
0.300	0-30
0.150	0-2
0.075	0-0.1

NOTES:

SS 1. SUB-SURFACE DRAINS TO BE LAID 300mm MINIMUM BELOW THE SUB-GRADE. WHERE A HIGH WATER TABLE IS PRESENT, DEEPER SUB-SURFACE DRAINS IN COMBINATION WITH MITRE DRAINS MAY BE USED.

SS 2. SUB-SURFACE DRAINS SHALL BE LAID A MINIMUM GRADE 1 IN 200 WHERE ROAD GRADING ALLOWS, THE SPACE BETWEEN THE INVERT OF THE SERVICE CONDUIT AND OBVERT OF THE SUB-SURFACE DRAIN SHALL BE 50mm.

SS 3. SELECTED FILTER MATERIAL TO BE CLEAN AGGREGATE GRADE 10 TO 20.

SS 4. FLUSHING POINTS ARE TO BE CONSTRUCTED AT THE HEAD OF LINES WITH CLEANING JUNCTIONS AT MAXIMUM 50m CENTRES IMMEDIATELY BEHIND KERB.

SS 5. PIPES AND FITTING SHALL BE EITHER SLOTTED POLYETHYLENE CLASS 400 (AS PER AS 2439) OR uPVC SEWER FITTINGS CLASS SH (AS PER AS1260).

SS 6. TRENCHES SHOULD HAVE CLEARLY CUT SIDES TO AVOID CONTAMINATION OF THE FILTER DURING CONSTRUCTION.

SS 7. ENSURE THAT PIPE IS LOCATED WITH ONLY POROUS SOIL ABOVE, AVOID HEAVY CLAY BACKFILL WHICH RESTRICTS THE FLOW OF WATER TO THE PIPE.

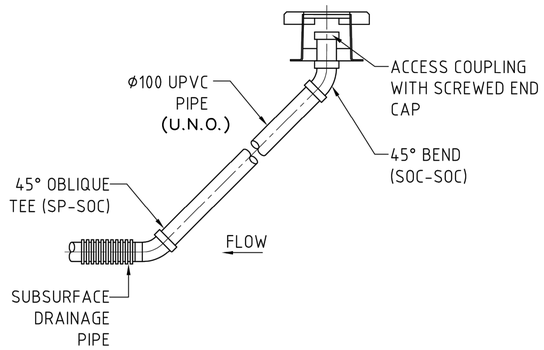
SS 8. A MAXIMUM FILTER AGGREGATE SIZE OF 10mm TO BE USED TO AVOID PUNCTURING THE PIPE.

SS 9. A MINIMUM OF 50mm LAYER OF MATERIAL TO BE FIRST PLACED IN TRENCH TO PROVIDE DRAINAGE PATH UNDERNEATH THE PLASTIC PIPE.

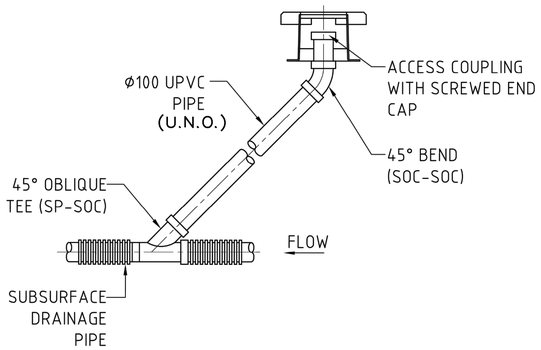
SS 10. PIPE IS TO BE PLACED IN THE CENTRE OF THE TRENCH, THE FILTER MATERIAL COMPACTED AT THE HAUNCHES, AROUND THE SIDE AND ABOVE THE PIPE.

SS 11. ALL FILTER MATERIAL SHALL BE GEOTEXTILE WRAPPED IN MIN 140g/m² NON WOVEN GEOTEXTIL (AS PER AS 2439.1).

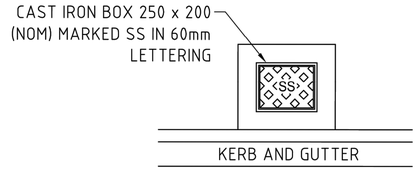
SS 12. FILTER MATERIAL IN STRIP DRAIN TO BE AS PER TABLE BELOW.



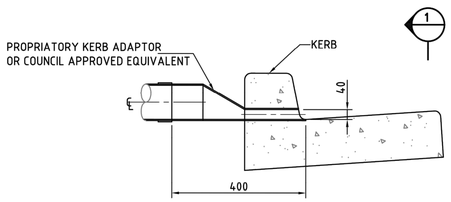
FLUSHING POINT HEAD OF LINE
NTS



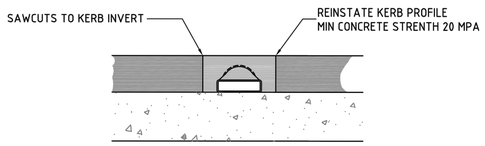
FLUSHING POINT ON LINE
NTS



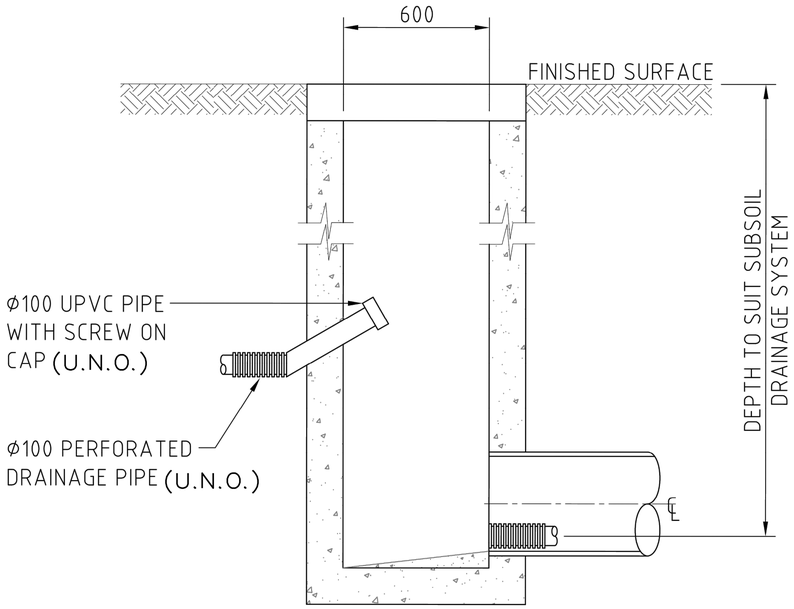
FLUSHING POINT PLAN
NTS



ROOF WATER TO KERB OUTLET
NTS



SECTION 1
NTS



PIT CONNECTION
NTS

FOR CONSTRUCTION

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100 0 100 200 300 400 500mm
PLAN SCALE 1:10 A1 SHEET
200 0 200 400 600 800 1000mm
PLAN SCALE 1:20 A1 SHEET

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
B	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
1	STAGE 1 CONSTRUCTION ISSUE	31/03/17

REVISION	AMENDMENT	DATE

CLIENT
WARD

PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY
Warren Smith & Partners
Warren Smith & Partners Pty Ltd
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SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.
ISO 9001
Lic No: QAC/R61/0771

TITLE
SUBSOIL DRAINAGE DETAILS

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C7.15	1

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

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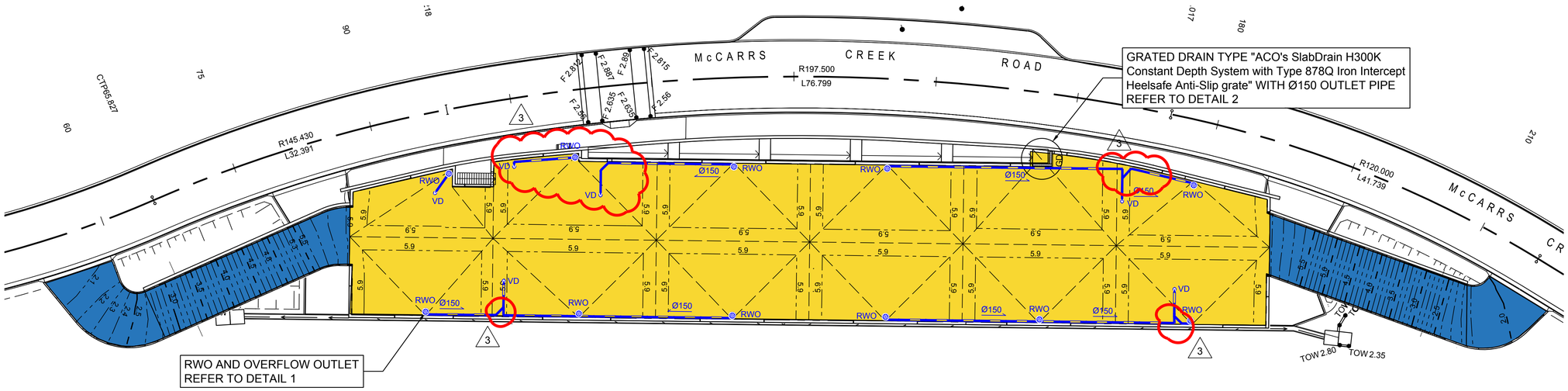
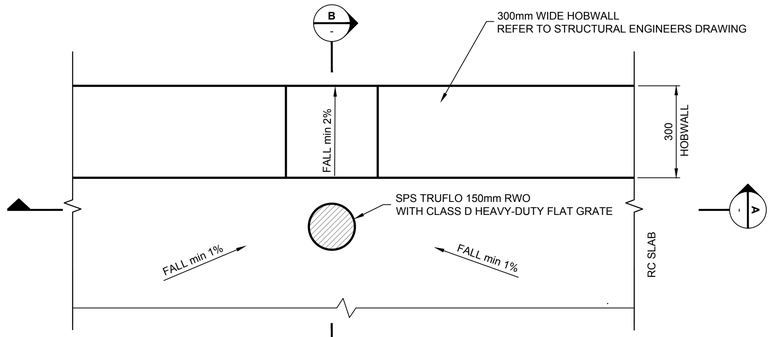


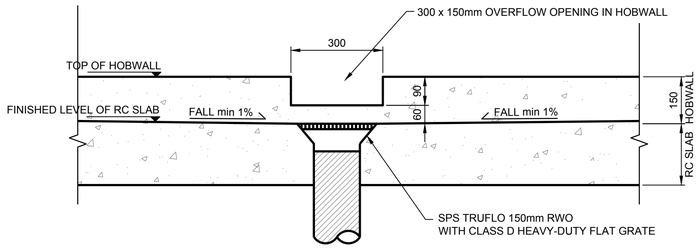
CARPARK UPPER LEVEL STORMWATER LAYOUT

SCALE 1:250



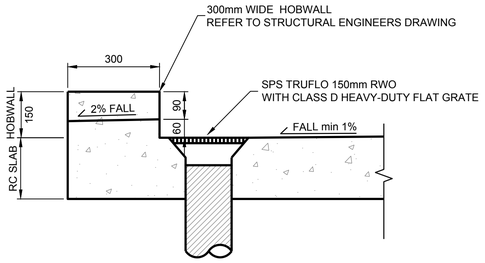
PLAN

SCALE 1:10



PART SECTION A-A

SCALE 1:10

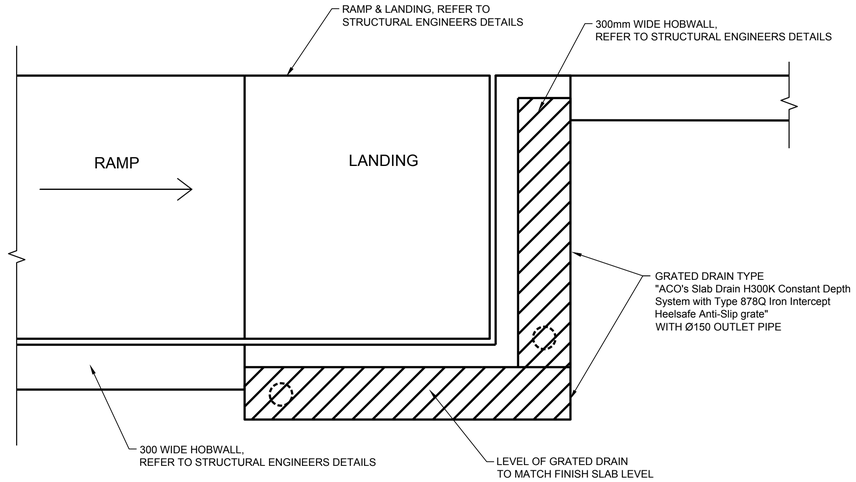


PART SECTION B-B

SCALE 1:10

DETAIL 1: TYPICAL RWO & OVERFLOW OUTLET DETAIL

SCALE 1:10



NOTE: REFER TO STRUCTURAL ENGINEERS DRAWINGS FOR SETTING OUT DETAILS AND CONCRETE DIMENSIONS

DETAIL 2: GRATED DRAIN DETAILS

NOT TO SCALE

FOR CONSTRUCTION

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5.0 0 2.5 5.0 7.5 10.0m — PLAN SCALE 1:250 A1 SHEET

200 0 200 400 600 800 1000mm — PLAN SCALE 1:20 A1 SHEET

100 0 100 200 300 400 500mm — PLAN SCALE 1:10 A1 SHEET

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
1	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	02/11/17
2	STAGE 1 CONSTRUCTION ISSUE	07/11/17
3	STAGE 1 CONSTRUCTION ISSUE	28/11/17

REVISION	AMENDMENT	DATE

CLIENT: WARD

PROJECT: MCCARRS CREEK ROAD REALIGNMENT STAGE 1 CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

PREPARED BY

Warren Smith & Partners

Warren Smith & Partners Pty Ltd
1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
T 02 9299 1312 **F** 02 9290 1295 wsp@warrensmith.com.au
www.warrensmith.com.au ABN 36 300 430 126

CONSULTING ENGINEERS
Hydraulic Services Fire Protection Civil Engineering
Sydney Water Accredited Water Servicing Co-ordinator
- Design Project Management - Building Plan Approvals

Lic No: QAC/R61/0771

SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

TITLE: **CARPARK STORMWATER DRAINAGE DETAILS**

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

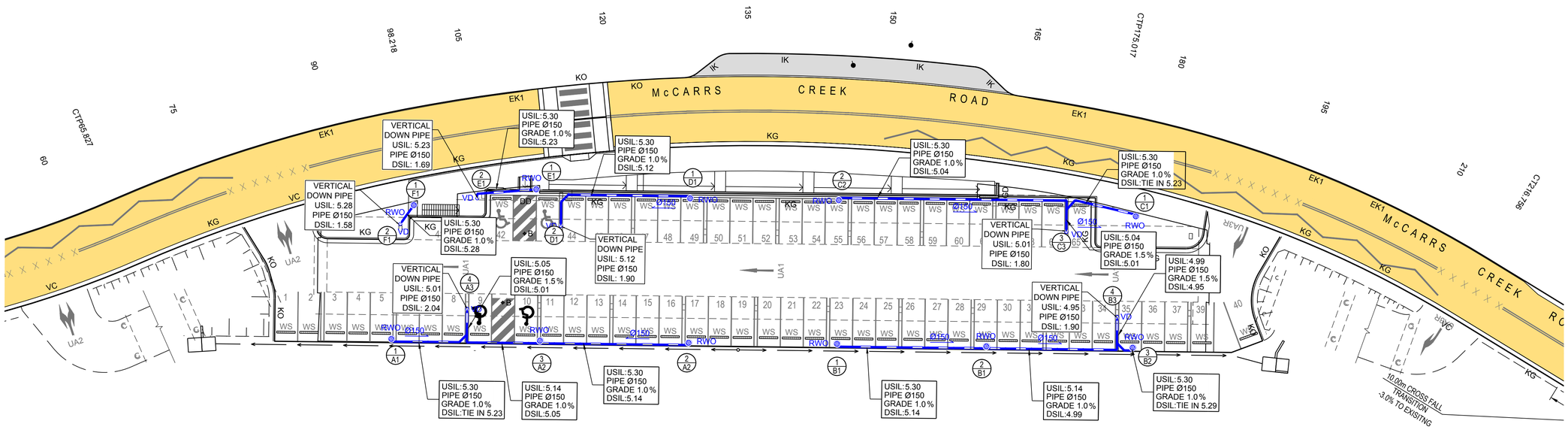
JOB No.	DRAWING No.	ISSUE
5325000	C7.16	3

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

NOTES

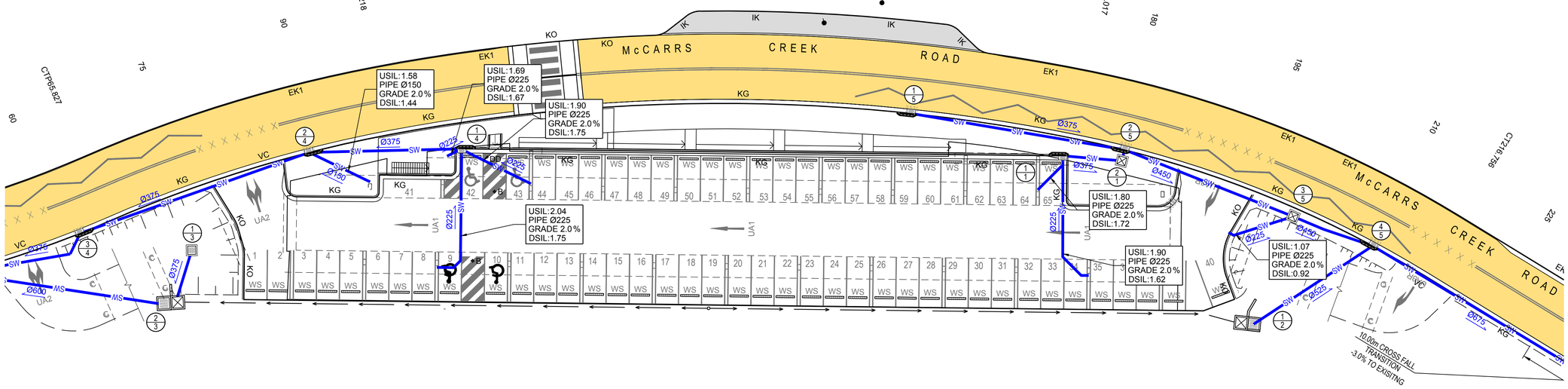
THE STORMWATER DRAINAGE LEVELS THAT HAVE BEEN CALCULATED ARE REQUIRED TO BE VERIFIED ON SITE. AND ENSURE THE FOLLOWING IS ACHIEVED:

1. PIPE GRADES ARE NOTED AS MINIMUM REQUIRED GRADES
2. HEAD ROOM CLEARANCE TO BE ACHIEVED AS FOLLOWS:
   - -- DDA CAR SPACES AND SHARED AREA = 2.5m
   - -- ALL OTHER SPACES = 2.2m
   - -- CAR PARK AISLE = 2.3m
3. REFER TO SPECIFICATIONS FOR MINIMUM PIPE COVER REQUIREMENTS
4. REFER TO TECHNICAL SPECIFICATION FOR HYDRAULIC SERVICES



CARPARK GROUND LEVEL - STORMWATER PIPE WORK IS SHOWN AS FIXED TO UNDERSIDE OF SLAB

SCALE 1:250



CARPARK GROUND LEVEL - IN GROUND STORMWATER DRAINAGE

SCALE 1:250

FOR CONSTRUCTION

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5.0 0 2.5 5.0 7.5 10.0m — PLAN SCALE 1:250 A1 SHEET

200 0 200 400 600 800 1000mm — PLAN SCALE 1:20 A1 SHEET

100 0 100 200 300 400 500mm — PLAN SCALE 1:10 A1 SHEET

REVISION	AMENDMENT	DATE	REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16			
1	STAGE 1 CONSTRUCTION ISSUE	28/11/17			

CLIENT: WARD

PROJECT: MCCARRS CREEK ROAD REALIGNMENT STAGE 1 CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

PREPARED BY

Warren Smith & Partners

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T 02 9299 1312 **F** 02 9290 1295 wsp@warrensmith.com.au
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Sydney Water Accredited Water Servicing Co-ordinator
- Design Project Management - Building Plan Approvals

SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

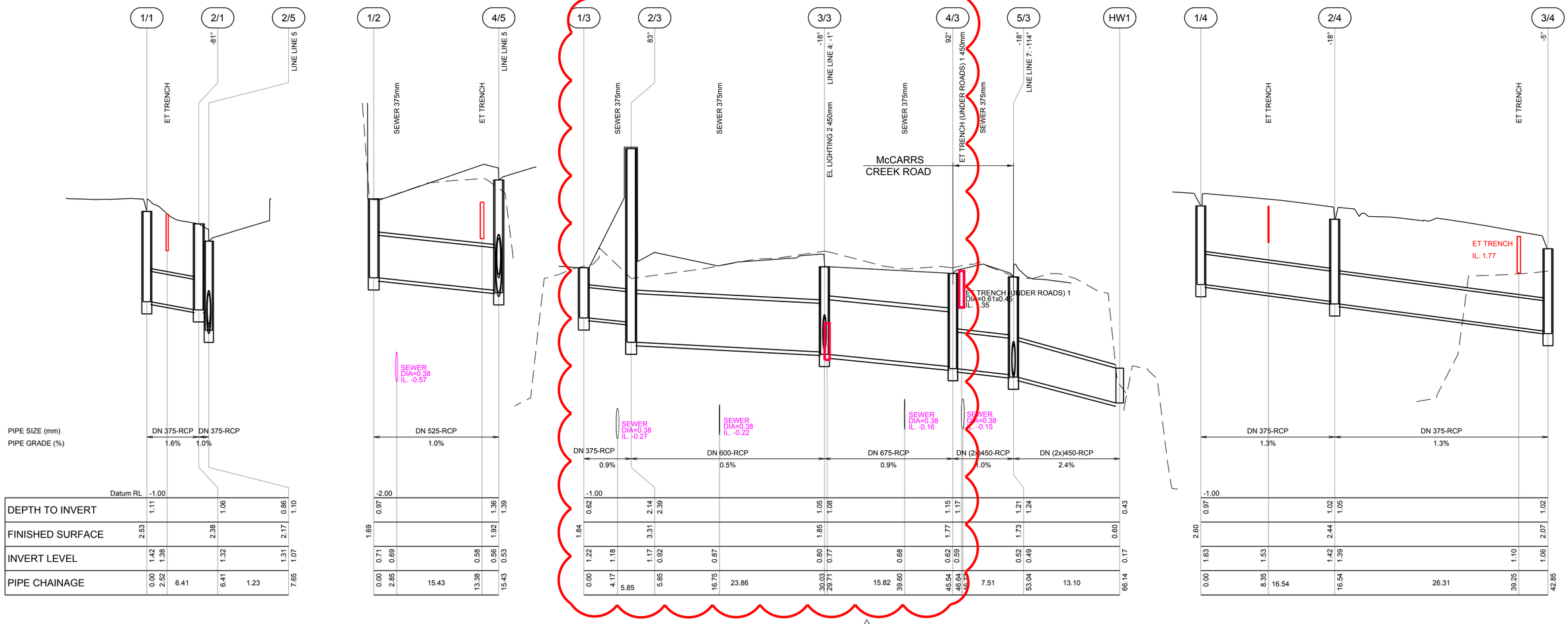
Lic No: QAC/R61/0771

TITLE: **CARPARK STORMWATER DRAINAGE**

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C7.17	1

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION



FOR CONSTRUCTION

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1000 0 500 1000 1500 2000mm
VER. SCALE 1:50 A1 SHEET

5.0 0 2.5 5.0 7.5 10.0m
HOR. SCALE 1:250 A1 SHEET

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
B	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
1	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17
2	LINE 3 MODIFIED	18/08/17
3	STAGE 1 CONSTRUCTION ISSUE	28/11/17

REVISION	AMENDMENT	DATE

CLIENT
WARD

PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY
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- Design Project Management - Building Plan Approvals

Lic No: QAC/R61/0771

SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

TITLE
STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 1 OF 2

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C7.21	3

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

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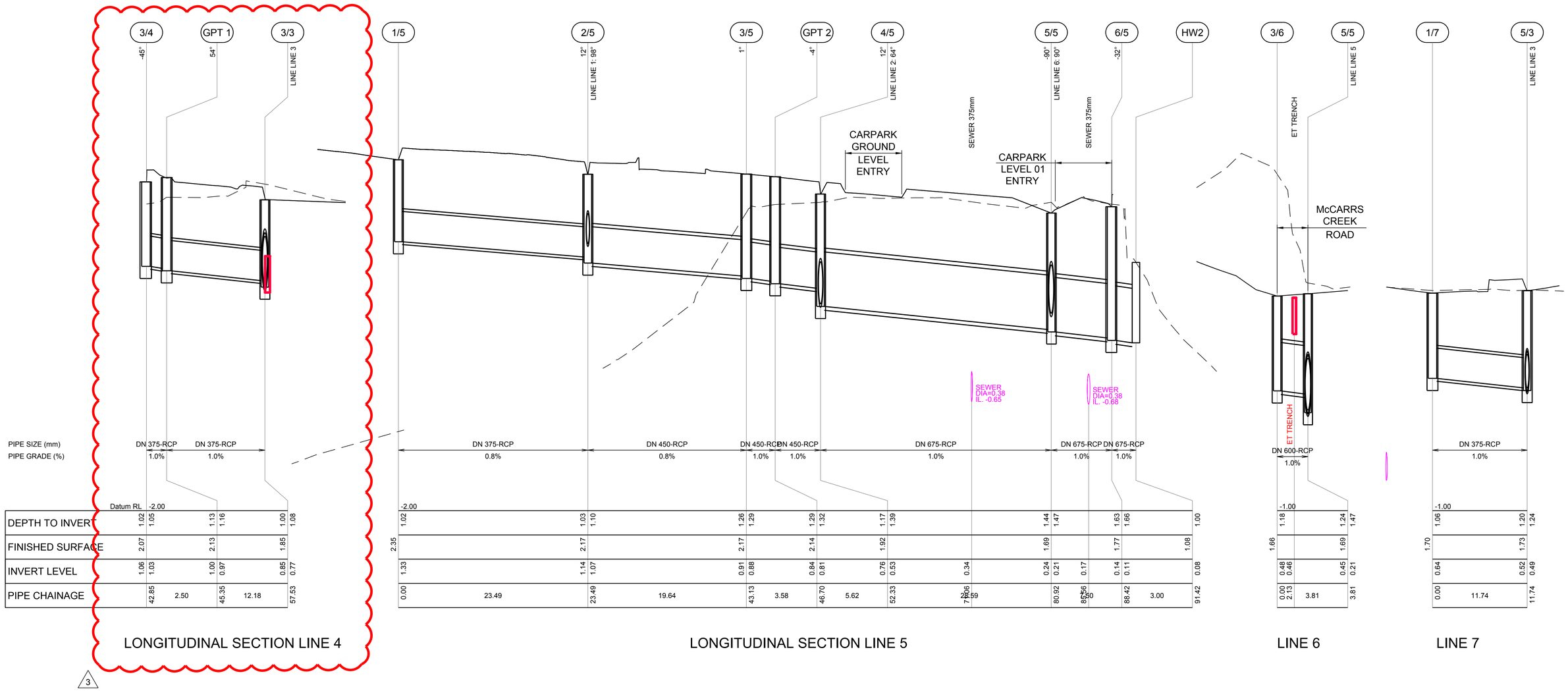

FOR CONSTRUCTION

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1000 0 500 1000 1500 2000mm
VER. SCALE 1:50 A1 SHEET

5.0 0 2.5 5.0 7.5 10.0m
HOR. SCALE 1:250 A1 SHEET

REVISION	AMENDMENT	DATE
1	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17
2	LINE 7 ADDED	18/08/17
3	STAGE 1 CONSTRUCTION ISSUE	28/11/17

REVISION	AMENDMENT	DATE

CLIENT
WARD

PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY
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- Design Project Management - Building Plan Approvals

ISO 9001 Certified Company
Lic No: QAC/R61/0771

SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

TITLE
STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 2 OF 2

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C7.22	3

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

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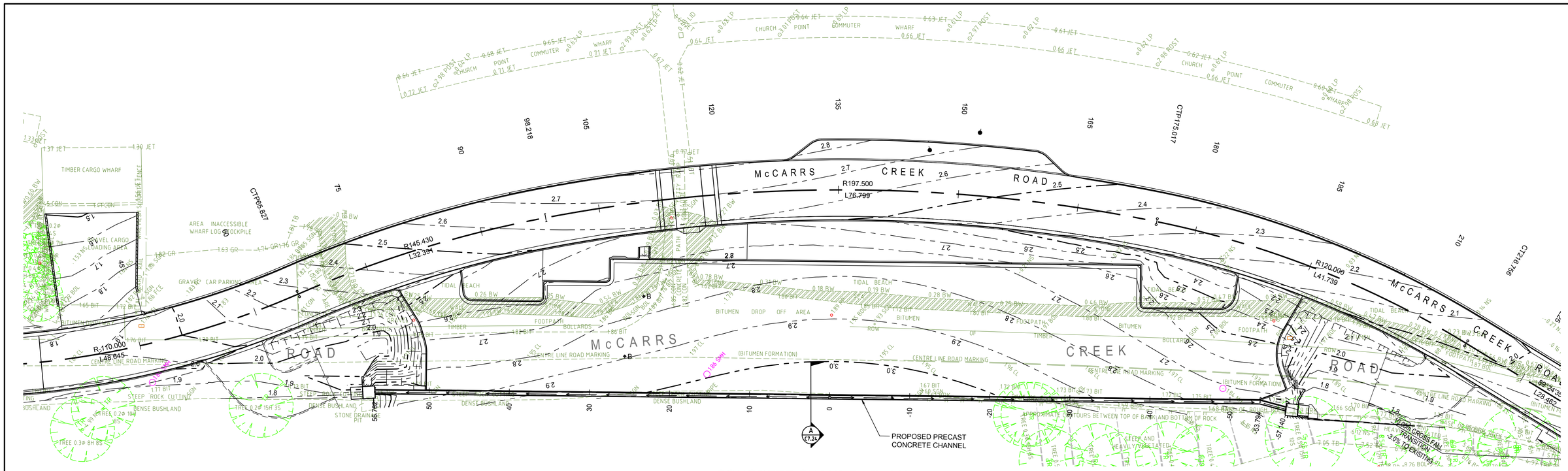
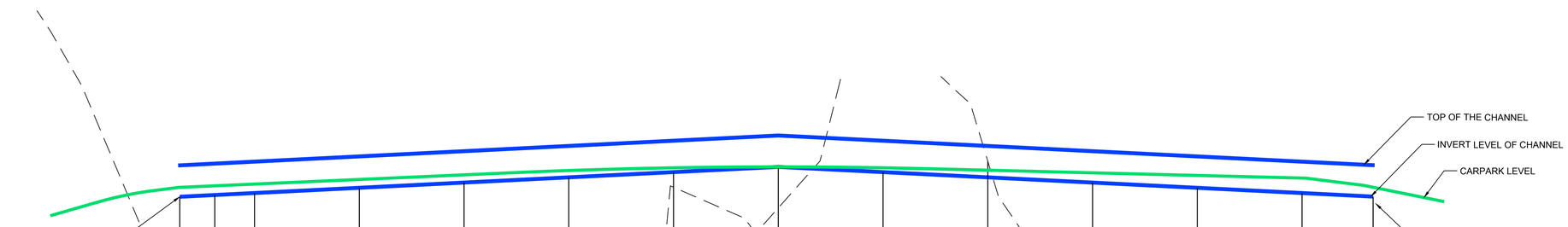


CONCRETE CHANNEL PLAN

SCALE 1:250



H.C.															
V.C.															
GRADE															
DATUM R.L. 0															
CHANNEL INVERT LEVEL	2.507	2.540	2.578	2.678	2.778	2.878	2.978	3.078	2.978	2.878	2.778	2.678	2.578	2.510	
EXISTING GROUND LEVEL	1.693	1.728	1.740	1.704	1.638	1.572	2.689	2.294		3.187	1.798	1.763	1.730	1.736	
DEPTHS OF CUT/FILL	0.814	0.812	0.838	0.974	1.140	1.306	0.289	0.784		-0.309	0.980	0.915	0.848	0.774	
CHAINAGE	-57.140	-53.794	-50.000	-40.000	-30.000	-20.000	-10.000	0.000	10.000	20.000	30.000	40.000	50.000	56.782	

LONGITUDINAL SECTION OF CONCRETE CHANNEL

HORIZONTAL SCALE 1:250

VERTICAL SCALE 1:50

FOR CONSTRUCTION

1000 0 500 1000 1500 2000mm
VER. SCALE 1:50 A1 SHEET
5.0 0 2.5 5.0 7.5 10.0m
HOR. SCALE 1:250 A1 SHEET

REVISION	AMENDMENT	DATE
A	STAGE 1 100% DETAILED DESIGN ISSUE	08/11/16
1	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17
2	STAGE 1 CONSTRUCTION ISSUE	28/11/17

REVISION	AMENDMENT	DATE

CLIENT: WARD

PROJECT: MCCARRS CREEK ROAD REALIGNMENT STAGE 1 CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

PREPARED BY
Warren Smith & Partners
Lic No: QAD/R61/0771
Warren Smith & Partners Pty Ltd
1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
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www.warrensmith.com.au ABN 36 300 430 126
CONSULTING ENGINEERS
Hydraulic Services Fire Protection Civil Engineering
Sydney Water Accredited Water Servicing Co-ordinator
- Design Project Management - Building Plan Approvals
SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

TITLE: **CONCRETE CHANNEL CHAINAGE PLAN LONGITUDINAL SECTIONS**

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C7.23	2

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

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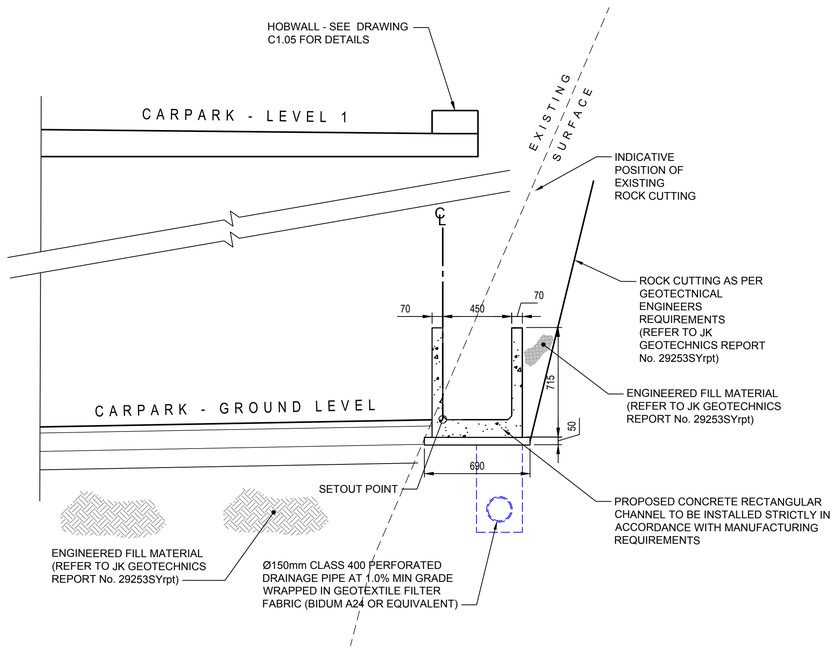
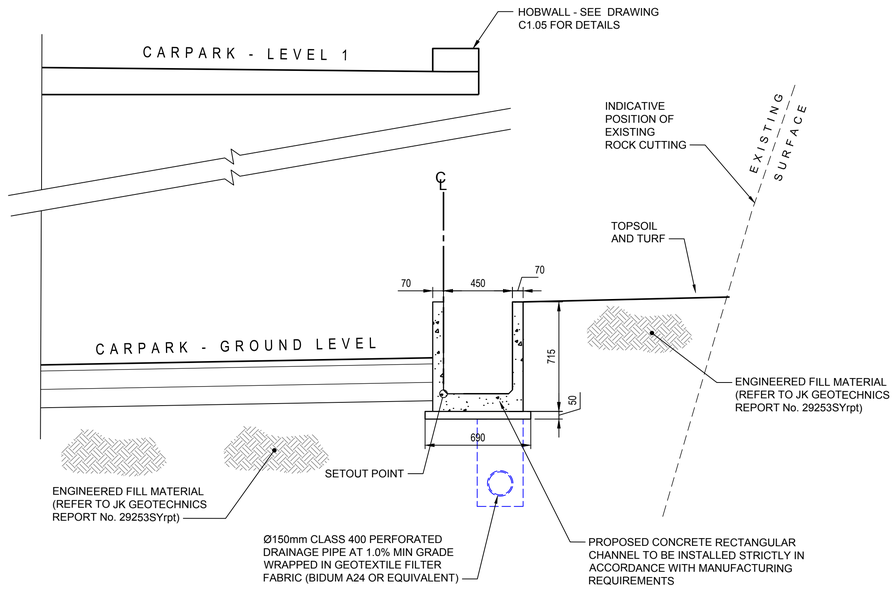


TYPICAL SECTION A-A

TYPICAL CAST IN-SITU
RECTANGULAR CONCRETE CHANNEL CH0.00
SCALE: 1:20



TYPICAL SECTION A-A

TYPICAL CAST IN-SITU
RECTANGULAR CONCRETE CHANNEL CH40.00
SCALE: 1:20

FOR CONSTRUCTION

REVISION	AMENDMENT	DATE	REVISION	AMENDMENT	DATE
1	STAGE 1 CONSTRUCTION ISSUE	28/11/17			

200 0 200 400 600 800 1000mm
HOR. SCALE 1:20 A1 SHEET

CLIENT
WARD

PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY
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1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
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- Design Project Management - Building Plan Approvals

SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

ISO 9001 Lloyd's Register Quality Assurance
Lic No: QAC/R61/0771

TITLE
CONCRETE CHANNEL DETAILS

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C7.24	1

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION

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

STORMWATER

- EXISTING STORMWATER PIPE
- EXISTING STORMWATER PIPE TO BE REMOVED
- Ø450 — PIPE DIAMETER AND DIRECTION OF FLOW
- SW — STORMWATER PIPE
- KERB INLET PIT (AT SAG)
- KERB INLET PIT (ON GRADE)
- 900 x 900 GRATED INLET PIT
- 900 x 900 JUNCTION PIT
- GD — GRATED TRENCH DRAIN
- VR — STORMWATER PIPE VERTICAL RISE
- CONCRETE HEADWALL
- GROSS POLLUTANT TRAP

CIVIL WORKS

- INTEGRAL KERB AND GUTTER REFER PWC STD DRG STD-02 FOR DETAIL
- EDGE STRIP - REFER PITTWATER COUNCIL STD DRG STD-02 FOR DETAIL
- EDGE STRIP - REFER DRG C4.06 FOR DETAIL
- KERB ONLY - REFER PITTWATER COUNCIL STD DRG STD-02 FOR DETAIL
- ELSHOLZ KERB TYPE 1 - REFER DRG C4.06 FOR DETAIL
- ELSHOLZ KERB TYPE 2 - REFER DRG C4.06 FOR DETAIL
- VEHICULAR CROSSING - REFER PITTWATER COUNCIL STD DRG STD-01 FOR DETAIL
- RAMP
- KERB RAMP - REFER PITTWATER COUNCIL STD DRG STD-03 FOR DETAIL
- DISH DRAIN - REFER DETAIL ON DRG C4.11
- CONCRETE EDGE STRIP - REFER DETAIL ON DRG C4.11
- PERMEABLE KERB NEATLY MATCH TO EXISTING PAVEMENT LEVELS
- DEMOLISH EXISTING TREE AND REMOVE OFF SITE
- B — BOLLARD, REFER DWG C4.11 FOR DETAIL
- SIGN POST
- CONCRETE LINED CHANNEL - REFER DETAIL ON DRG C7.22
- RETAINING WALL

EXISTING SERVICES

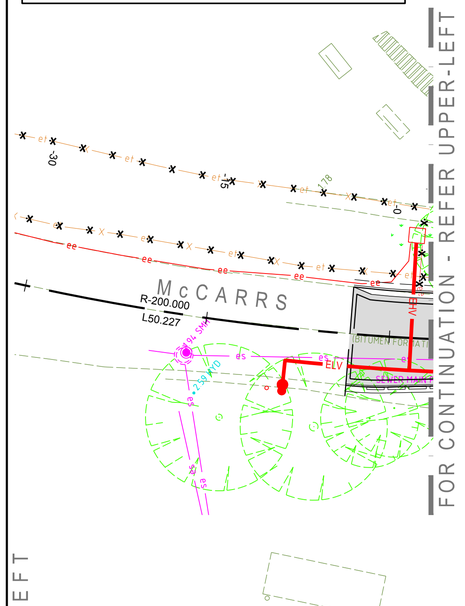
- ee — UNDERGROUND ELECTRICAL
- eehv — UNDERGROUND ELECTRICAL HIGH VOLTAGE
- ee — X — UNDERGROUND ELECTRICAL TO BE REMOVED
- OVER HEAD ELECTRICAL
- OVER HEAD ELECTRICAL TO BE REMOVED
- 2.07 PP — POWER POLE
- et — TELECOMMUNICATIONS
- et — X — TELECOMMUNICATIONS TO BE REMOVED
- etfo — OPTICAL FIBRE TELECOMMUNICATIONS
- 1.76 TEL — TELECOM PIT
- es — SEWER MAIN
- 1.94 SMH — SEWER MAINTENANCE HOLE
- eg — GAS MAIN
- ew — WATERMAIN
- 2.59 HYD — HYDRANT
- 2.12 WM — WATER METER

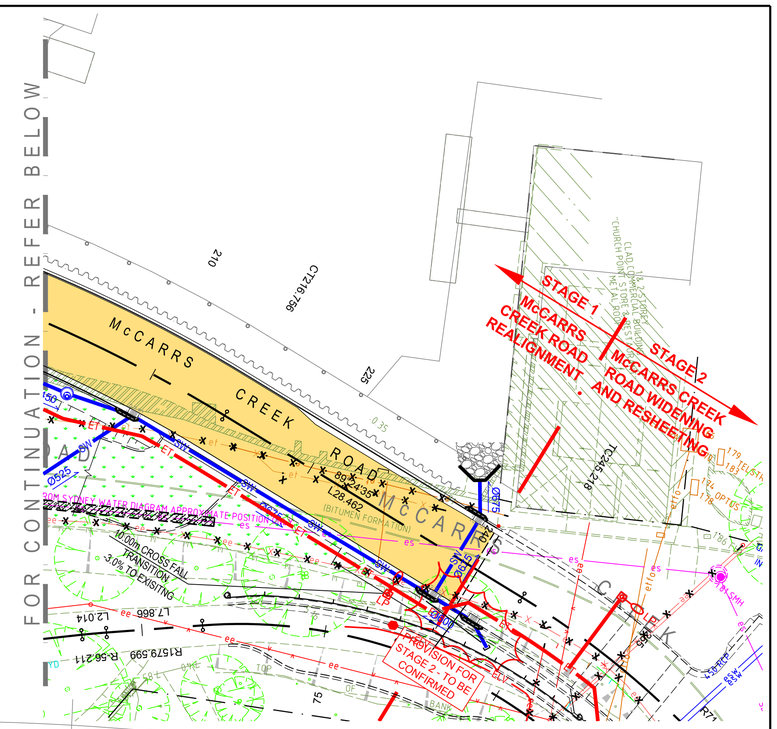
SURFACE TREATMENT

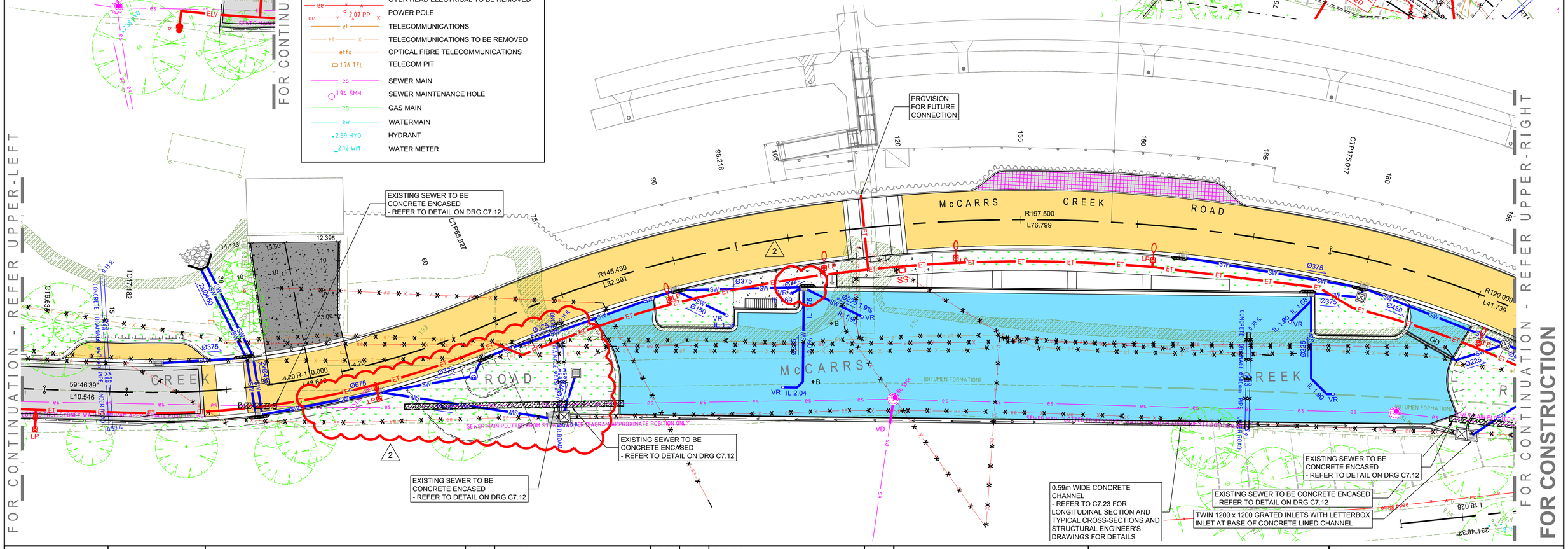
- PAVEMENT RESHEETING
- AC CONNECTION INTO EXISTING PAVEMENT - REFER PAVEMENT REINSTATEMENT DETAIL ON DRG. C4.11
- PAVEMENT TYPE 1 — AC ROAD PAVEMENT FOR NEW ROAD CONSTRUCTION
- PAVEMENT TYPE 2 — AC CARPARK PAVEMENT
- PAVEMENT TYPE 5 — PWC STD DRIVEWAY - REFER STD DRG STD-01 FOR DETAIL
- PAVEMENT TYPE 7 — PWC STD FOOTPATH - REFER STD DRG STD-04 FOR DETAIL
- PAVEMENT TYPE 8 — COBBLESTONE PAVING
- LANDSCAPING (BY OTHERS)

UTILITIES

- CONCRETE ENCASEMENT
- Ø100 W — POTABLE WATER MAIN PIPE DIAMETER / POTABLE WATER MAIN
- HB — HYDRANT BEND
- FH — FIRE HYDRANT
- SV — STOP VALVE
- WSC — POTABLE WATER CONDUIT
- E — ELECTRICITY
- EHV — ELECTRICITY HIGH VOLTAGE
- ELV — ELECTRICITY LOW VOLTAGE
- SS — SUB STATION
- LP — LIGHT POLE
- PP — POWER POLE
- ET — ELECTRICITY AND TELECOMMUNICATIONS TRENCH







NORTH

5.0 0 2.5 5.0 7.5 10.0m
PLAN SCALE 1:250 A1 SHEET

REVISION	AMENDMENT	DATE
1	STAGE 1 CONSTRUCTION ISSUE (ROAD ONLY)	03/05/17
2	STAGE 1 CONSTRUCTION ISSUE	28/11/17

CLIENT: WARD

PROJECT: MCCARRS CREEK ROAD REALIGNMENT STAGE 1 CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

PREPARED BY
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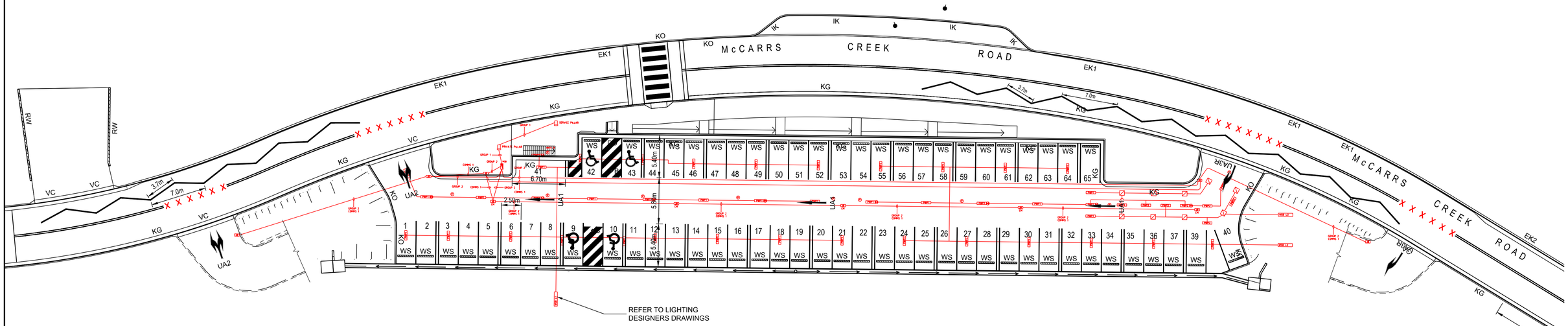
- Design Project Management - Building Plan Approvals
SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.
Lic No: QAC/R61/0771

TITLE: **SERVICES COORDINATION PLAN**

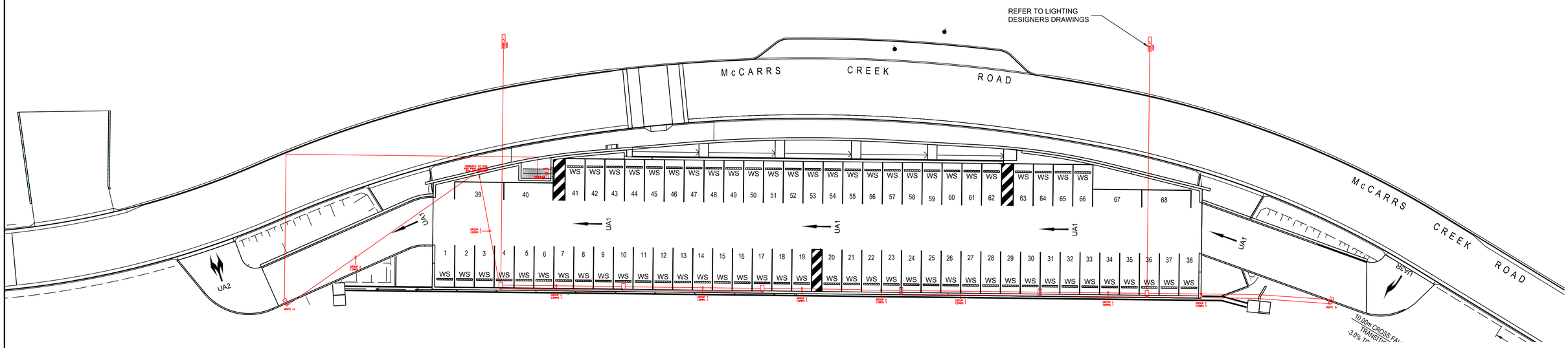
SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C9.01	2

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION



CARPARK GROUND LEVEL LIGHTING LAYOUT



CARPARK UPPER LEVEL LIGHTING LAYOUT

NOTES

1. CONTRACTOR TO REFER TO LIGHTING DESIGNERS DRAWINGS FOR ALL LIGHTING DETAILS AND SETTING OUT.
2. POSITION OF LIGHT POLES AND RWO ON UPPER LEVEL TO BE COORDINATED ON SITE BY CONTRACTOR.

FOR CONSTRUCTION

NORTH

5.0 0 2.5 5.0 7.5 10.0m
PLAN SCALE 1:250 A1 SHEET

REVISION	AMENDMENT	DATE
A	80% DETAILED DESIGN ISSUE	14/10/16
1	ISSUE FOR CONSTRUCTION	14/11/17

REVISION	AMENDMENT	DATE

CLIENT
WARD

PROJECT
MCCARRS CREEK ROAD
REALIGNMENT STAGE 1
CNR MCCARRS CREEK AND
PITTWATER ROADS, CHURCH POINT

PREPARED BY
Warren Smith & Partners

Warren Smith & Partners Pty Ltd
1st Floor, 123 Clarence Street, Sydney 2000 NSW Australia
T 02 9299 1312 F 02 9290 1295 wsp@warrensmith.com.au
www.warrensmith.com.au ABN 36 300 430 126

CONSULTING ENGINEERS
■ Hydraulic Services ■ Fire Protection ■ Civil Engineering
■ Sydney Water Accredited Water Servicing Co-ordinator
- Design Project Management - Building Plan Approvals

SERVING THE CONSTRUCTION INDUSTRY SINCE 1981.

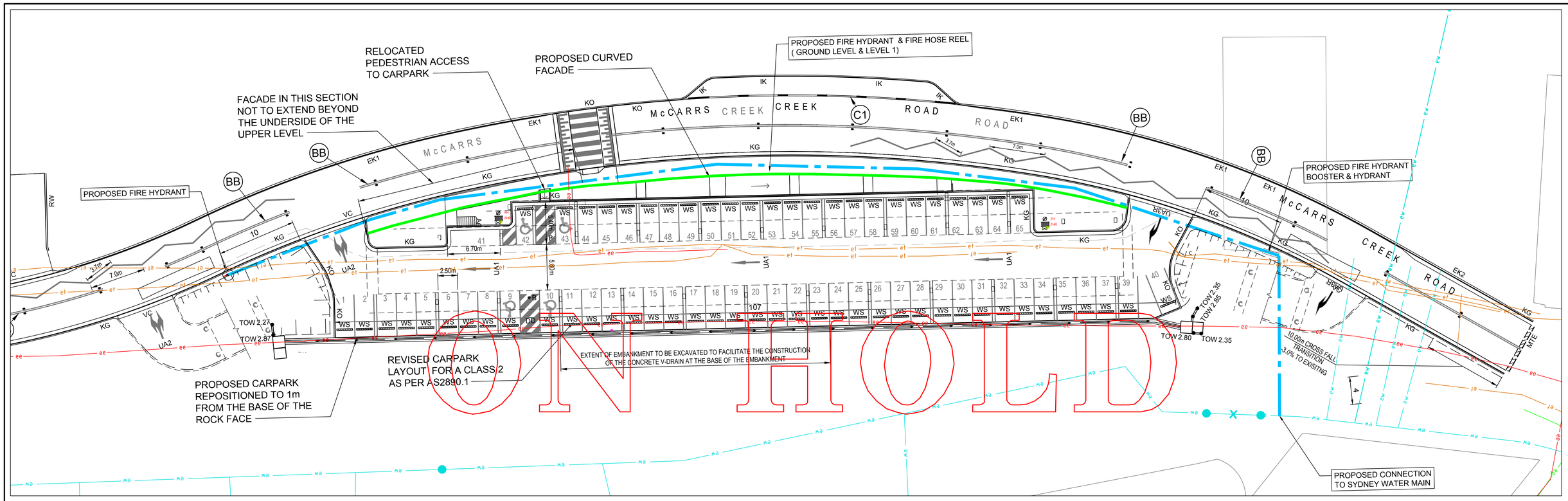
ISO 9001 Certification
Lic No: GAC/R61/0771

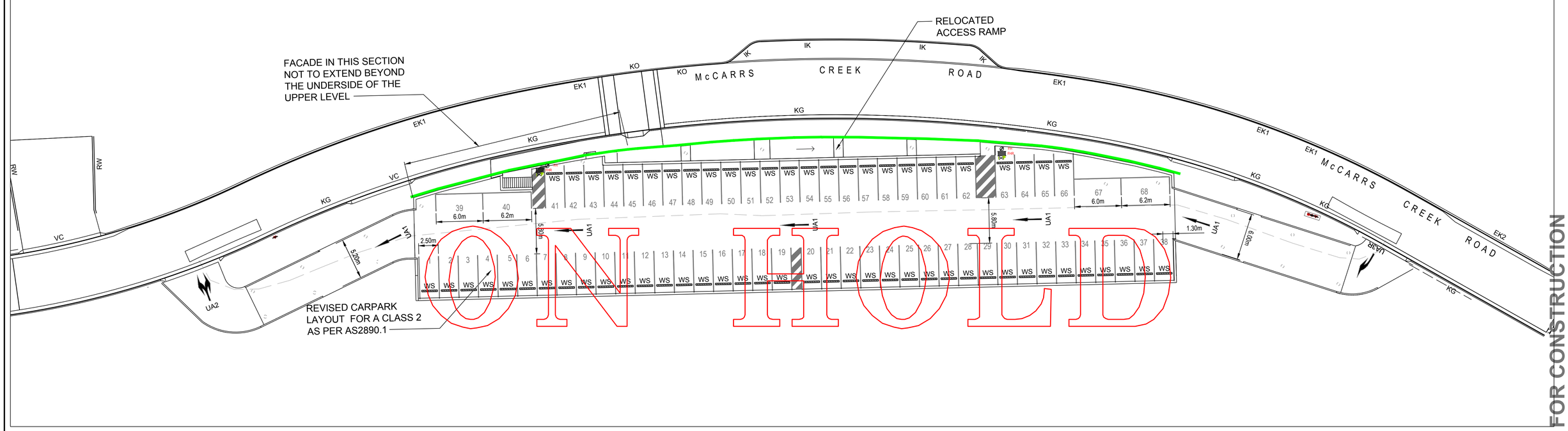
TITLE
CARPARK LIGHTING COORDINATION PLAN

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	M.CZ.	P.G.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C9.02	1

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION





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

REVISION	AMENDMENT	DATE	REVISION	AMENDMENT	DATE
1	ISSUE FOR CONSTRUCTION	28/11/17			

CLIENT: WARD

PROJECT: MCCARRS CREEK ROAD REALIGNMENT STAGE 1 CNR MCCARRS CREEK AND PITTWATER ROADS, CHURCH POINT

PREPARED BY
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TITLE: **CARPARK FIRE SERVICE LAYOUT**

SCALE	DRAWN	DESIGNED	CHECKED	APPROVED
AS SHOWN	J.C.	C.S.	P.G.	M.C.

JOB No.	DRAWING No.	ISSUE
5325000	C9.03	1

DATE	PACKAGE STATUS
10/02/2017	FOR CONSTRUCTION