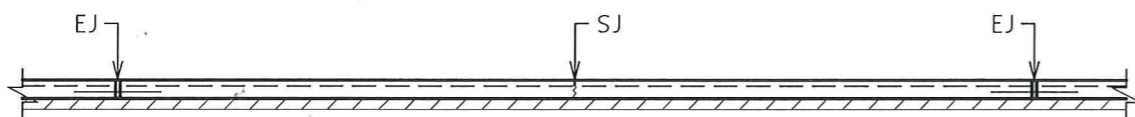


3500 - 4500 WIDE FOOTWAY PAVING CONCRETE PLAN - FULL WIDTH

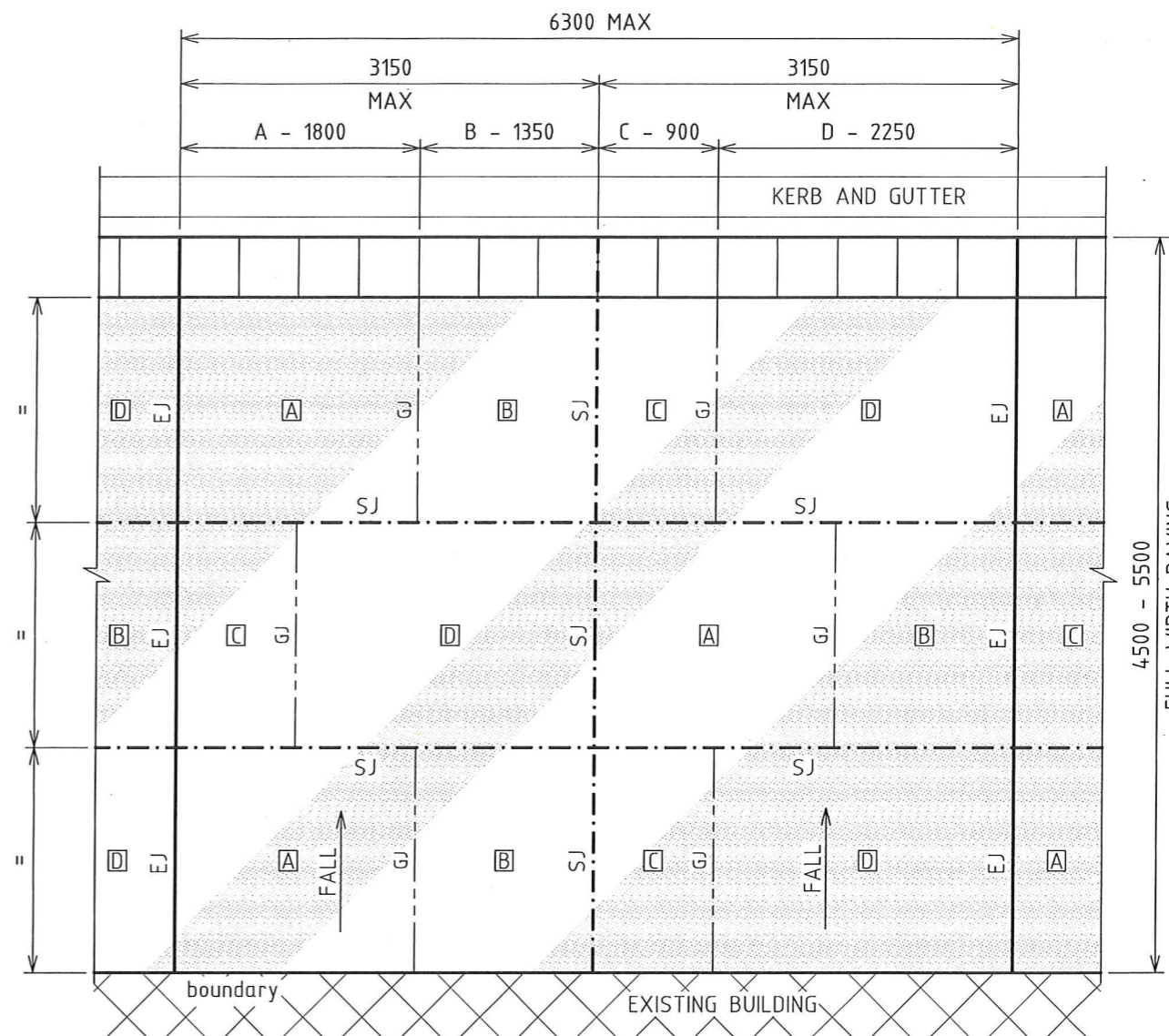
SCALE 1:50

PAVEMENT TYPE 3 IN THE CITY CENTRE PUBLIC DOMAIN TECHNICAL MANUAL



TYPICAL FOOTWAY PAVING CONCRETE LONG SECTION - FULL WIDTH

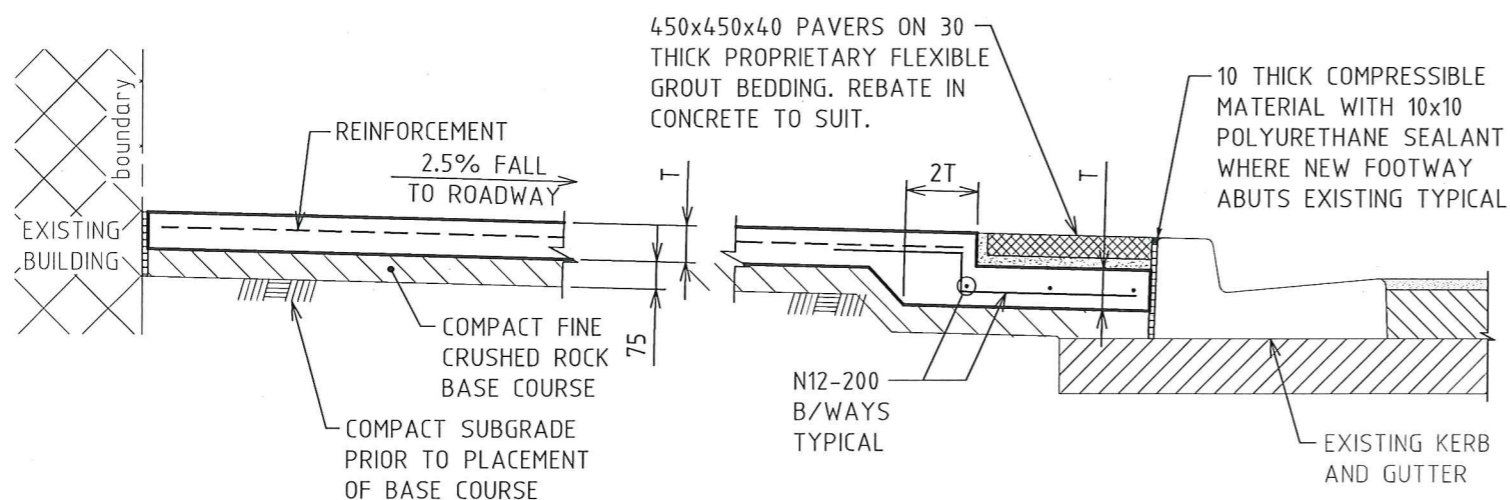
SCALE 1:50



4500 - 5500 WIDE FOOTWAY PAVING CONCRETE PLAN - FULL WIDTH

SCALE 1:50

PAVEMENT TYPE 3 IN THE CITY CENTRE PUBLIC DOMAINE TECHNICAL MANUAL



TYPICAL CROSS SECTION

SCALE 1:20

TABLE 1 - REINFORCED PAVEMENT SPECIFICATIONS

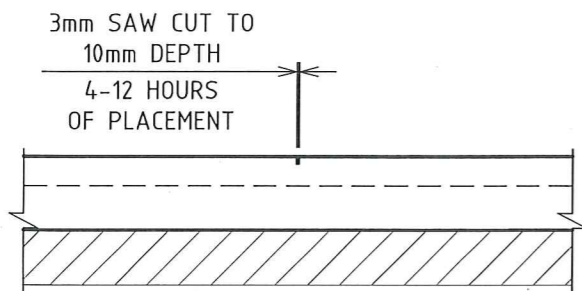
TYPE	EXPOSURE ZONE	F'c (MPa)	T	REINFORCEMENT	COVER (mm)
RESIDENTIAL	ALL EXCLUDING COASTAL AND SURF ZONE	32	100 *	SL72	40 *
COMMERCIAL		32	125 *	SL82	
RESIDENTIAL	WITHIN COASTAL ZONE	32	100 *	SL72	45 *
COMMERCIAL		32	125 *	SL82	

REFER TO STANDARD DRAWING A1300 FOR DRIVEWAY CROSSING DETAILS. CONTINUE CONCRETE JOINT PATTERN ACROSS DRIVEWAYS

NOTE:  
1. COASTAL ZONE IS WITHIN 1000m OF THE COASTLINE OR WITHIN 100m OF THE HARBOUR/HUNTER RIVER

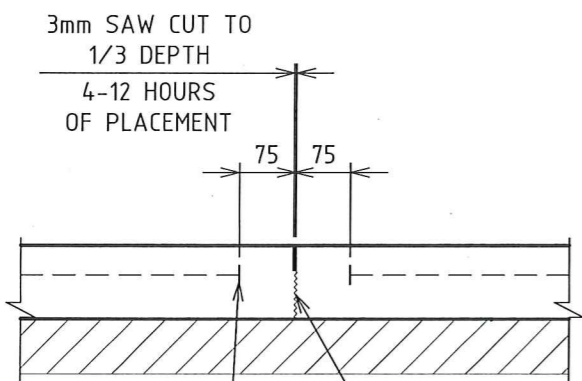
\* - DENOTES MINIMUM THICKNESS AND COVER THAT IS REQUIRED AFTER CONCRETE HONING HAS OCCURRED. CONCRETE LOSS DURING THE HONING PROCESS SHALL BE TAKEN INTO ACCOUNT WHEN SETTING OUT SLAB AND REINFORCEMENT

<table border="1"> <tr> <td>1</td> <td>CONSTRUCTION</td> <td>16.08.16</td> <td>T.A.</td> </tr> <tr> <td>0</td> <td>PRELIMINARY</td> <td>28.07.15</td> <td>T.A.</td> </tr> <tr> <td>No.</td> <td>AMENDMENT DETAILS</td> <td>DATE</td> <td>INITIALS</td> </tr> </table>			1	CONSTRUCTION	16.08.16	T.A.	0	PRELIMINARY	28.07.15	T.A.	No.	AMENDMENT DETAILS	DATE	INITIALS	<p>SCALE AS SHOWN</p>	<p>LIVEABLE CITY INFRASTRUCTURE MANAGEMENT SERVICES</p>	<p>APPROVED:</p> <p>SIGNED:..... INFRASTRUCTURE MANAGEMENT SERVICES MANAGER DATE: 06-10-2016</p>	<p>THE CITY OF NEWCASTLE</p> <p>FOOTWAY PAVING CONCRETE FULL WIDTH WITH PAVER BANDING</p>	<p>NCC PLAN No. A1409</p>	<p>SHEET No. 1 OF 3 SHEETS</p>
1	CONSTRUCTION	16.08.16	T.A.																	
0	PRELIMINARY	28.07.15	T.A.																	
No.	AMENDMENT DETAILS	DATE	INITIALS																	
<p>A3 ORIGINAL THIS SHEET WAS PREPARED IN COLOUR AND WILL BE INCOMPLETE IF COPIED</p>			<p>COORDINATE SYSTEM:</p>	<p>HEIGHT DATUM: AHD</p>	<p>REVIEWED: J.C.</p>	<p>AMENDMENT No.</p>														



TYPICAL GROOVE JOINT - GJ

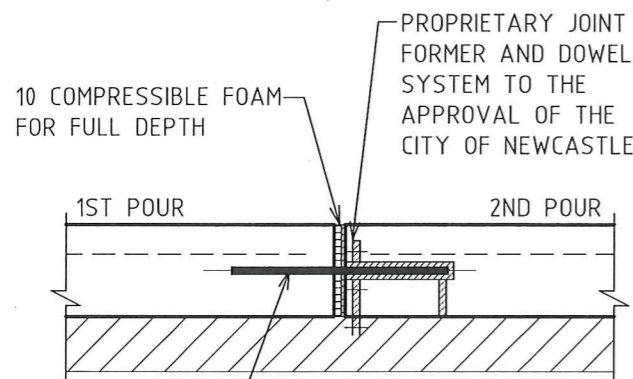
SCALE 1:10



CUT EVERY SECOND BAR 75 MIN CLEAR COVER TO JOINT TYPICAL

TYPICAL SAW JOINT - SJ

SCALE 1:10



TYPICAL EXPANSION JOINTS - EJ

SCALE 1:10

**GENERAL NOTES**

1. ALL WORKMANSHIP AND MATERIAL SHALL COMPLY WITH THE CURRENT AUSTRALIAN STANDARDS IN PARTICULAR AS3600 AND AS3727 AS WELL AS ANY REQUIREMENTS OF THE RELEVANT AUTHORITIES.
2. PAVEMENT IS TO BE FOUNDED ON FIRM NATURAL CUT GROUND OR COMPACTED FILL. ANY SOFT AREAS ARE TO BE REMOVED AND REPLACED WITH COMPACTED FILL TO MEET A MINIMUM OF 100KPa ALLOWABLE BEARING PRESSURE.
3. ANY FILL MUST BE PLACED IN 150mm THICK MAXIMUM LAYERS AND COMPACTED TO A RELATIVE DRY DENSITY OF 98% TO AS1289.5.1.1.
4. THE BASE COURSE IS TO BE GRANULAR GRADED MATERIAL, SUCH AS FINE CRUSHED ROCK.
5. PATHS GENERALLY TO BE DESIGNED TO HAVE A 2.5% CROSS FALL. POORLY DRAINED SITES MAY REQUIRE SUB SURFACE DRAINAGE TO PROTECT THE FOOTWAY PAVEMENT.
6. THE FINISHED LEVEL OF ANY PAVEMENT ABUTTING A WALL MUST BE BELOW THE DAMP PROOF COURSE AND MUST NOT OBSCURE ANY WEEP HOLES OR DRAINAGE OPENINGS.
7. DOWELS ARE TO BE ACCURATELY ALIGNED PARALLEL TO THE PAVEMENT SURFACE AND THE PAVEMENT CENTER LINE. ALL DOWELS AND JOINT FORMERS ARE TO BE GALVANISED.
8. BITUMINOUS JOINT FILLER TO SEAL THE EXPOSED SURFACE OF THE EXPANSION JOINT AND SHOULD THEREFORE BE LOCATED TO THE JOINT TOP AND JOINT EDGES.
9. CONCRETE THICKNESS, GRADE, REINFORCEMENT AND COVER IS AS DETAILED IN TABLE 1
10. TO ASSIST IN THE CURING AND DURABILITY OF THESE THIN SLABS:
  - THE SUB BASE SHOULD BE THOROUGHLY MOISTENED PRIOR TO PLACING CONCRETE (RESULTING IN REDUCED LOSS OF MOISTURE);
  - AS SOON AS THE CONCRETE FINISH HAS BEEN COMPLETED, CURING SHOULD BE INITIATED. CONCRETE SHALL BE KEPT DAMP/WET FOR A MINIMUM OF 7 DAYS WHILE FULLY COVERED WITH CLEAR PLASTIC SHEETS. CURING COMPUND SHALL NOT BE USED.
  - WATER SHOULD NOT BE ADDED TO THE AS-DELIVERED MIX; THIS WILL LOWER THE CONCRETE STRENGTH, CAUSE GREATER SHRINKAGE AND MAY CAUSE CHALKINESS AND DUSTING OF THE SURFACE.
11. CONCRETE TO HAVE A HONED FINISH. REFER TO CONCRETE FINISH NOTES FOR SPECIFICATIONS
12. TOLERANCES:
  - CHANGE IN HEIGHT EACH SIDE OF JOINT 3mm
  - CROSS FALL 0% TO +/- 0.5% DESIGN
  - THICKNESS +20mm / -0mm
  - UNDULATION IN ALL DIRECTIONS: 1mm OVER 250mm, 5mm OVER 1.5m, 10mm OVER 3m OR JOINT TO JOINT (WHICHEVER GREATER)
13. RESIDENTIAL FOOTWAY PAVEMENT IS DESIGNED FOR LIGHT DUTY TRAFFIC LOADING. (OCCASIONAL CARS ONLY).
14. COMMERCIAL FOOTWAY PAVEMENT IS DESIGNED FOR MEDIUM DUTY TRAFFIC LOADING (OCCASIONAL TRUCKS OR ELEVATED WORK PLATFORMS. PNEUMATIC TYRES ONLY).
15. WHERE FOOTWAY PAVING MAY BE LIFTED BY TREE ROOT GROWTH, AN APPROVED PROPRIETARY FLEXIBLE CONCRETE JOINTING SYSTEM TO PREVENT JOINT STEPPING SHALL BE USED.

**1.1 CONCRETE FINISH NOTES**

ASTM INTERNATIONAL STANDARDS

1. SKID RESISTANCE TESTING: TO ASTM E303-93(2008)

AUSTRALIAN STANDARDS

2. TESTING OF CONCRETE: TO AS1012.
3. CURING COMPOUNDS: TO AS3799.
4. SLIP RESISTANCE: TO AS/NZS4586. AS4663 AND HB197.

**1.2 TESTING**

SLIP RESISTANCE TESTING

1. CARRY OUT WET PENDULUM TEST SLIP RESISTANCE TESTING ON PATH SURFACE TO AS/NZS4586 FOR NEW SURFACES AND AS4663 FOR EXISTING SURFACES. TESTING TO BE UNDERTAKEN WITH A BRITISH PENDULUM TEST USING A 4S RUBBER PAD AND RECORDED AND PRESENTED AS A BPN. TEST SHALL BE CARRIED OUT AT THE COMPLETION OF CONSTRUCTION WITH THE RESULTS PROVIDED TO THE CITY OF NEWCASTLE FOR REVIEW AND APPROVAL

SKID RESISTANCE TESTING

2. CARRY OUT PORTABLE PENDULUM SKID RESISTANCE TESTS (BRITISH PENDULUM) TESTS ON WET SURFACES IN ACCORDANCE WITH ASTM E303-93. SKID RESISTANCE MEASUREMENTS TO BE RECORDED AND PRESENTED AS A BPN. TEST SHALL BE CARRIED OUT AT THE COMPLETION OF CONSTRUCTION WITH THE RESULTS PROVIDED TO THE CITY OF NEWCASTLE FOR REVIEW AND APPROVAL

**1.3 CONCRETE FINISH**

SLIP RESISTANCE

1. FOR EXTERNAL LEVEL SURFACES THE RATING MUST BE A MINIMUM CLASS W (45-54 MEAN BPN = BRITISH PENDULUM (TESTER) NUMBER (BPN) USING A 4S RUBBER). THE PAVEMENT MUST DEMONSTRATE CHARACTERISTICS IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS (AS MENTIONED IN 1.1 CONCRETE FINISH NOTES) OF A VERY LOW CONTRIBUTION OF THE SURFACE TO SLIPS WHEN WET. THE LIKELY CONTAMINATION OF THE SURFACE MUST BE CONSIDERED AND THE SURFACE MUST MAINTAIN ITS SLIP RESISTANCE WITH MINIMAL MAINTENANCE FOR THE ESTIMATED LIFE OF 15 YEARS.
2. WHERE THE SLOPE OF THE FOOTPATH IS SUCH THAT THE MINIMUM SLIP RESISTANCE FOR THE HONED FINISH CANNOT BE ACHIEVED, THEN AN ALTERNATIVE FINISH WILL BE WILL CONSIDERED. THIS IS TO BE AGREED ON A SITE-BY-SITE BASIS.

SKID RESISTANCE

3. THE SKID RESISTANCE REQUIREMENT FOR VEHICLE DRIVEWAYS AND OTHER VEHICLE TRAFFICABLE AREAS SHALL BE MAINTAINED AS A MINIMUM VALUE OF 45 BPN.
4. SKID RESISTANCE SHALL BE TESTED AT THE END OF THE 12 MONTHS DEFECT LIABILITY PERIOD. THE INITIAL SKID RESISTANCE IS EXPECTED TO BE HIGHER THAN THE SPECIFIED MINIMUM VALUE TO ENSURE ACHIEVEMENT OF THE MINIMUM AS AN ENDURING REQUIREMENT.

SPECIFICATIONS CONTINUED ON SHEET 3

<table border="1"> <tr> <td>1</td> <td>CONSTRUCTION</td> <td>16.08.16</td> <td>T.A.</td> </tr> <tr> <td>0</td> <td>PRELIMINARY</td> <td>28.07.15</td> <td>T.A.</td> </tr> <tr> <td>No.</td> <td>AMENDMENT DETAILS</td> <td>DATE</td> <td>INITIALS</td> </tr> </table>				1	CONSTRUCTION	16.08.16	T.A.	0	PRELIMINARY	28.07.15	T.A.	No.	AMENDMENT DETAILS	DATE	INITIALS	SCALE  AS SHOWN	LIVEABLE CITY INFRASTRUCTURE MANAGEMENT SERVICES	APPROVED:   SIGNED:..... INFRASTRUCTURE MANAGEMENT SERVICES MANAGER DATE:..... 06-10-2016	THE CITY OF NEWCASTLE  FOOTWAY PAVING CONCRETE FULL WIDTH WITH PAVER BANDING	NCC PLAN No.  <b>A1409</b>	SHEET No.  2 OF 3
1	CONSTRUCTION	16.08.16	T.A.																		
0	PRELIMINARY	28.07.15	T.A.																		
No.	AMENDMENT DETAILS	DATE	INITIALS																		
A3 ORIGINAL THIS SHEET WAS PREPARED IN COLOUR AND WILL BE INCOMPLETE IF COPIED				COORDINATE SYSTEM:	HEIGHT DATUM: AHD	REVIEWED: J.C.	AMENDMENT No.	SHEETS													

**1.4 HONED CONCRETE PAVEMENT SURFACE FINISH**

CONCRETE PLACEMENT NOTES

1. CONCRETE SHALL BE PLACED WITH A SLUMP IN THE RANGE OF 80-100mm
2. CONCRETOR TO ALLOW FOR UP TO 10-20mm OF CONCRETE SURFACE TO BE REMOVED DURING THE HONING PROCESS. ALLOWANCE SHALL BE MADE WHEN INSTALLING REINFORCEMENT TO ENSURE A MINIMUM CONCRETE COVER TO REINFORCEMENT IS ACHIEVED FOLLOWING HONING.
3. FILL ALL HOLES IN THE SLAB SURFACE WITH CONCRETE AND NOT WITH SLURRY FROM THE SCREED SURFACE
4. CONCRETOR TO ENSURE COMPLIANCE WITH THE FOLLOWING:
  - DO NOT OVER VIBRATE THE SLAB
  - DO NOT INSTALL REINFORCEMENT THROUGH FRESHLY SCREDED SURFACES.
  - DO NOT HIT THE SURFACE WITH SCREEDS TO DRAW WATER TO THE SURFACE FOR FINISHING
  - DO NOT WORK EDGES AGAINST THE FORMWORK WITH EDGE TOOLS (IF POLISHING IS TO THE EDGE) AS THE STONE SINKS AND EXPOSURE IS REDUCED
  - DO NOT DROP FOREIGN MATERIALS INTO FRESHLY SCREDED CONCRETE SURFACES
5. HELICOPTER THE SURFACE AS FLAT AS POSSIBLE. A PIZZA TRAY ON A POWER TROWEL IS RECOMMENDED
6. FOR A FULL DECORATIVE EXPOSURE, TO AID THE GRINDING PROCESS, THE SLAB SHALL HAVE A BROOM FINISH
7. CURING OF CONCRETE SHOULD BE CARRIED OUT BY KEEPING THE SLAB DAMP/WET COVERED WITH A CLEAR PLASTIC SHEET FOR A MINIMUM OF 7 DAYS, CURING COMPOUNDS SHALL NOT BE USED
8. THE MINIMUM TIME PERIOD BETWEEN POURING CONCRETE AND HONING IS 7 DAYS, THIS CURING PERIOD ENSURES AGGREGATES ARE NOT DISLODGED WHEN THE HONING IS CARRIED OUT

HONING METHOD



2. HONING SHALL BE UNDERTAKEN PRIOR TO THE DECORATIVE SAW-CUTTING. (NOTE: CONTRACTION JOINTS SHALL BE CUT INTO THE NEWLY LAID CONCRETE 4-12 HOURS AFTER LAYING OF CONCRETE AND PRIOR TO HONING).
3. HONING SHALL UTILISE A 60-80 GRIT ABRASIVE PAD FOR CONCRETE GRINDING. GRINDING PAD WILL REQUIRE REPLACEMENT TO ENSURE THAT THE MINIMUM 80 GRIT IS MAINTAINED.

CONCRETE SEALER

4. APPLY A PENETRATING CONCRETE SEALER TO THE SURFACE ONCE FULL CURING HAS BEEN ACHIEVED AND HONING AND DECORATIVE SAW CUTTING HAS BEEN COMPLETED. THE CHOSEN SEALER SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS. SEALER CHOSEN MUST NOT INCREASE OR DECREASE SLIP RESISTANCE OF THE FINISH. PROPRIETARY EXAMPLE OF AN APPROPRIATE SEALER INCLUDES, BUT IS NOT LIMITED TO;
  - DRY TREAT - STAIN PROOF OR COUNCIL APPROVED.

**1.5 DECORATIVE SAW CUTTING**

1. ALL SAW CUTS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE PATTERN DESCRIBED IN CITY CENTRE PUBLIC DOMAIN TECHNICAL MANUAL - PAVEMENT TYPE
3. ALL CUTS SHALL BE STRAIGHT AND MEET THE DESCRIBED JUNCTIONS. ALL DECORATIVE SAW CUT ARE TO BE STOPPED AT KERB RAMPS.

				SCALE  AS SHOWN	 LIVEABLE CITY INFRASTRUCTURE MANAGEMENT SERVICES	APPROVED:   SIGNED:..... INFRASTRUCTURE MANAGEMENT SERVICES MANAGER DATE: 06-10-2016	THE CITY OF NEWCASTLE  FOOTWAY PAVING CONCRETE FULL WIDTH WITH PAVER BANDING	NCC PLAN No.  <b>A1409</b>	SHEET No.  3 OF 3 SHEETS
A3 ORIGINAL	THIS SHEET WAS PREPARED IN COLOUR AND WILL BE INCOMPLETE IF COPIED	COORDINATE SYSTEM:	HEIGHT DATUM: AHD	REVIEWED: J.C.	AMENDMENT No.				