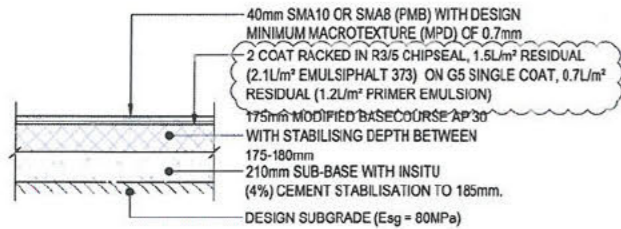


CHECK SUB-BASE COMPLIES WITH THE FOLLOWING CRITERIA:  
 - MINIMUM SUB-BASE THICKNESS OF 285mm  
 - INSITU SUBGRADE CBR ≥ 5% OR Esq = 50MPa  
 - ALL BENKELMAN BEAM DEFLECTION ON PREPARED SUB-BASE ≤ 1.5mm  
 - EXISTING SUB-BASE SUITABLE FOR CEMENT STABILISATION (MIX DESIGN AS PER SPECIFICATION C0208A)

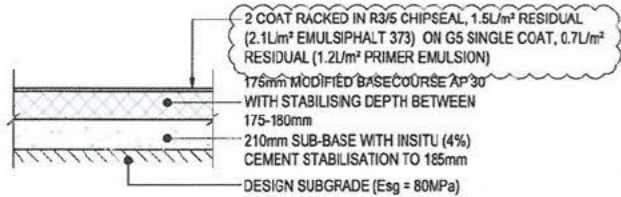
EXPRESSWAY PAVEMENT WITH NEW SUB-BASE

EXPRESSWAY PAVEMENT WITH EXISTING SUB-BASE

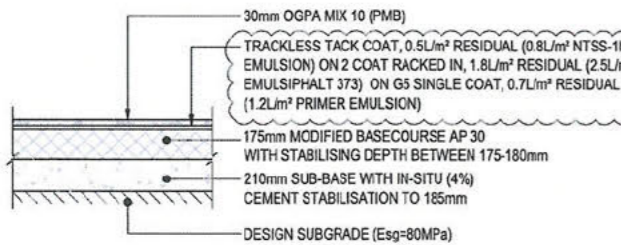
**TYPE 1A PAVEMENT (CH2100 - 2300 ONLY)**  
1:25



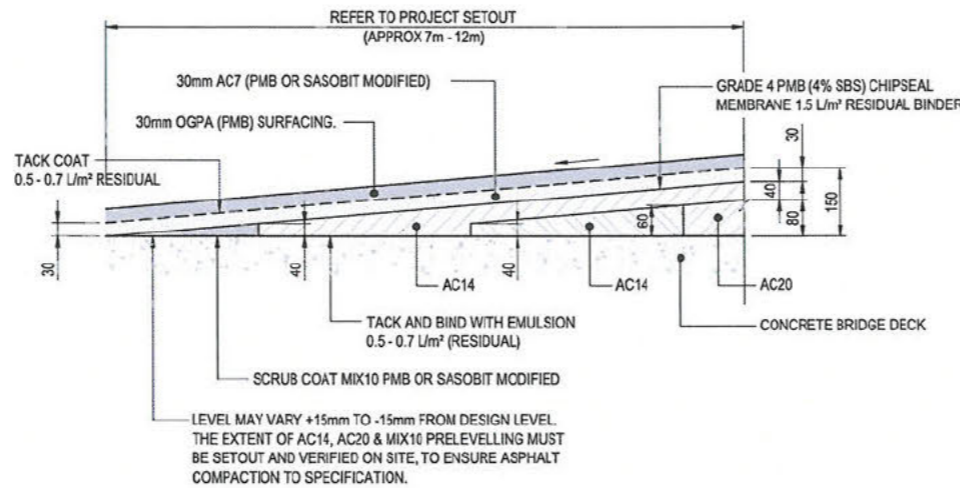
**TYPE 2A PAVEMENT**  
1:25



**TYPE 2B PAVEMENT**  
1:25



**TYPE 2C PAVEMENT**  
1:25



**TYPE 8 (BRIDGE DECK SURFACING)**

NOT TO SCALE  
 NOTE: MINIMUM ASPHALT THICKNESS SHALL BE:  
 AC20 - 60mm  
 AC14 - 40mm  
 MIX10 - 30mm, EXCEPT WHEN USED AS SCRUB COAT DIRECTLY ON BRIDGE DECK

BRIDGE PAVEMENT TRANSITIONS	
NAME	TYPE
POPLAR AVE BRIDGE	TYPE 1
RAUMATI ROAD BRIDGE	TYPE 1
WHAREMAUKU STREAM BRIDGE	TYPE 1
KAPITI ROAD BRIDGE	TYPE 1
MAZENGARB ROAD BRIDGE	TYPE 1
OTAIHANGA ROAD BRIDGE	TYPE 1
WAIKANA E RIVER BRIDGE	TYPE 1
TE MOANA ROAD BRIDGE	TYPE 1
NGARARA ROAD BRIDGE	
SMITHFIELD ROAD BRIDGE	
KAKARIKI STREAM BRIDGE	TYPE 2
PAETAWA DRAIN	TYPE 2

FOR TRANSITION DETAILS REFER TO M2PP-23M-D-DWG-7942

**NOTES:**

- FOR TYPICAL CROSS SECTION DETAILS FOR MEDIAN AND VERGE TREATMENT REFER TO STANDARD DRAWINGS M2PP-23M-D-DWG-7930 AND 7931.
- FOR KERBS, CHANNEL, AND FOOTPATH DETAILS REFER TO STANDARD DRAWINGS M2PP-23M-D-DWG-7935 AND 7936.
- MODIFIED BASECOURSE TO BE LAID IN TWO LAYERS, WITH INDIVIDUAL LAYER COMPACTED THICKNESS NO LESS THAN 120mm. ALL MODIFIED BASECOURSE TO BE PUG-MILL PREMIXED AND PAVER-LAID.
- UNLESS OTHERWISE AGREED WITH THE DESIGNER, THE FOLLOWING SEALING CHIP OR SURFACING AGGREGATE SHALL BE USED IN ALL CHIPSEAL AND OGPA SURFACING.
- LIME STABILISED SUB-BASE AND CEMENT STABILISED SUB-BASE SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH M2PP SPECIFICATION C0208 AND C0208A RESPECTIVELY.
- ALL MODIFIED BASECOURSE WITH/IN EXPRESSWAY INCLUDING ALL ON AND OFF RAMP MUST ACHIEVE THE FOLLOWING COMPACTION CRITERIA:  
 - MEAN ≥ 98% OF AGREED TARGET MAXIMUM DRY DENSITY  
 - MINIMUM ≥ 96% OF AGREED TARGET MAXIMUM DRY DENSITY REFER TO M2PP SPECIFICATION C0211A FOR OTHER REQUIREMENTS.
- FOR SURFACING TRANSITION DETAILS BETWEEN CHIPSEAL AND OGPA / SMA OR OGPA AND SMA. REFER TO M2PP-23M-D-DWG-7942
- CHIPSEAL SURFACING IN EDGE AND MEDIAN SHOULDER DESIGN AS FOLLOWS:  
 - GG VOID FILL, 0.6L/m² RESIDUAL (10L/m² CAT6 EMULSION)  
 - 2 COAT RACKED IN R3/5, 1.8L/m² RESIDUAL (2.5L/m² EMULSIPHALT 373) REFER TO M2PP-23M-D-DWG-7930, 7931 AND 7933 FOR MEDIAN AND EDGE SHOULDER SURFACING DETAILS

ROAD SECTION	CHIP/AGGREGATE	PSV MIN
EXPRESSWAY CH1900 - 2400	OTAKI	56
EXPRESSWAY CH2400 - 18100	BELMONT/HOROKIWI	54
POPLAR AVE ON/OFF RAMP CHIPSEAL	OTAKI	56
KAPITI ROAD, TE MOANA ROAD, AND PEKA PEKA ROAD OGPA	BELMONT/HOROKIWI	54
ALL OFF RAMP SMA SURFACING (UP TO 60m FROM RAMP) TERMINATION OR LOCAL ROAD BOUNDARY UNLESS OTHERWISE SHOWN ON INTERCHANGE PAVEMENT PLAN)	PAHIATUA	60

**EXPRESSWAY PAVEMENT SCHEDULE**

SECTOR	START CHAINAGE	FINISH CHAINAGE	LOCATION	DETAIL	DESIGN SUBGRADE RESILIENT MODULUS	DESIGN TRAFFIC LOADING
310	0	2100	RAUMATI STRAIGHT	REFER TO SECTOR 310 DRAWING SET		25.2 MESA
320	2100	2400	POPLAR AVE INTERCHANGE	TYPE 1A TYPE 2B	50MPa - SOUTHBOUND CH1900-2300 80MPa - REMAINING AREAS	25.2 MESA
320	2400	2600	POPLAR AVE INTERCHANGE	TYPE 2C	80MPa	13.9 MESA
320	2600	2660	POPLAR AVE BRIDGE	TYPE 8	N/A	13.9 MESA
320	2660	3050	POPLAR AVE INTERCHANGE	TYPE 2C	80MPa	13.9 MESA
330	3050	4450		TYPE 2C	80MPa	13.9 MESA
340	4450	4520	RAUMATI ROAD BRIDGE	TYPE 8	N/A	13.9 MESA
350	4520	5400		TYPE 2C	80MPa	13.9 MESA
360	5400	5460	WHAREMAUKU STREAM BRIDGE	TYPE 8	N/A	13.9 MESA
370	5460	5750		TYPE 2C	80MPa	13.9 MESA
380	5750	6320	KAPITI ROAD INTERCHANGE	TYPE 2C	80MPa	13.9 MESA
380	6320	6390	KAPITI ROAD BRIDGE	TYPE 8	N/A	13.9 MESA
380	6360	6950	KAPITI ROAD INTERCHANGE	TYPE 2C	80MPa	18.6 MESA
410	6950	7930		TYPE 2C	80MPa	18.6 MESA
420	7930	7950	MAZENGARB ROAD BRIDGE	TYPE 8	N/A	18.6 MESA
430	7950	9170		TYPE 2C	80MPa	18.6 MESA
440	9170	9200	OTAIHANGA ROAD BRIDGE	TYPE 8	N/A	18.6 MESA
480	9200	10570		TYPE 2C	80MPa	18.6 MESA
470	10570	10570	WAIKANA E RIVER BRIDGE	TYPE 8	N/A	18.6 MESA
480	10750	11220		TYPE 2C	80MPa	18.6 MESA
510	11220	11750	TE MOANA ROAD INTERCHANGE	TYPE 2C	80MPa	18.6 MESA
510	11750	11900	TE MOANA ROAD BRIDGE	TYPE 8	N/A	18.6 MESA
510	11900	12500	TE MOANA ROAD INTERCHANGE	TYPE 2C	80MPa	18.6 MESA
520	12500	13000		TYPE 2C	80MPa	12.3 MESA
520	13000	13600		TYPE 2B	80MPa	12.3 MESA
540	13600	14020		TYPE 2B	80MPa	12.3 MESA
540	14020	14040	KAKARIKI STREAM BRIDGE	TYPE 17	N/A	12.3 MESA
540	14020	14800		TYPE 2B	80MPa	12.3 MESA
540	14600	15150		TYPE 2C	80MPa	12.3 MESA
540	15150	15400		TYPE 2B	80MPa	12.3 MESA
550	15400	16350		TYPE 2B	80MPa	12.3 MESA
550	16350	16370	PAETAWA DRAIN BRIDGE	TYPE 17	N/A	12.3 MESA
560	16370	17100		TYPE 2B	80MPa	12.3 MESA
560	17100	17400		TYPE 2C	80MPa	12.3 MESA
570	17400	18100	PEKA PEKA RD INTERCHANGE	TYPE 2C	80MPa	15.0 MESA

CHAINAGE LOCATIONS ARE APPROXIMATE

**DRAFT ONLY**  
NOT FOR CONSTRUCTION

ORIGINAL DRAWING  
IN COLOUR

**FOR CONSTRUCTION**

4	FOR CONSTRUCTION (REVISED AS NOTED. DETAILS REMOVED)	21.05.15
3	FOR CONSTRUCTION (REVISED AS NOTED)	02.03.15
2	FOR CONSTRUCTION	26.06.14
1	FOR CONSTRUCTION	04.04.14

s 9(2)(a)  
s 9(2)(a)

Original Scale (A1)	Design	01.11.13	Approved For Construction
AS SHOWN	Drawn	15.11.13	
Reduced Scale (A3)	Orig Verifier	03.04.14	s 9(2)
1/2 SHOWN	Dwg Check	02.04.14	Date 04.04.14

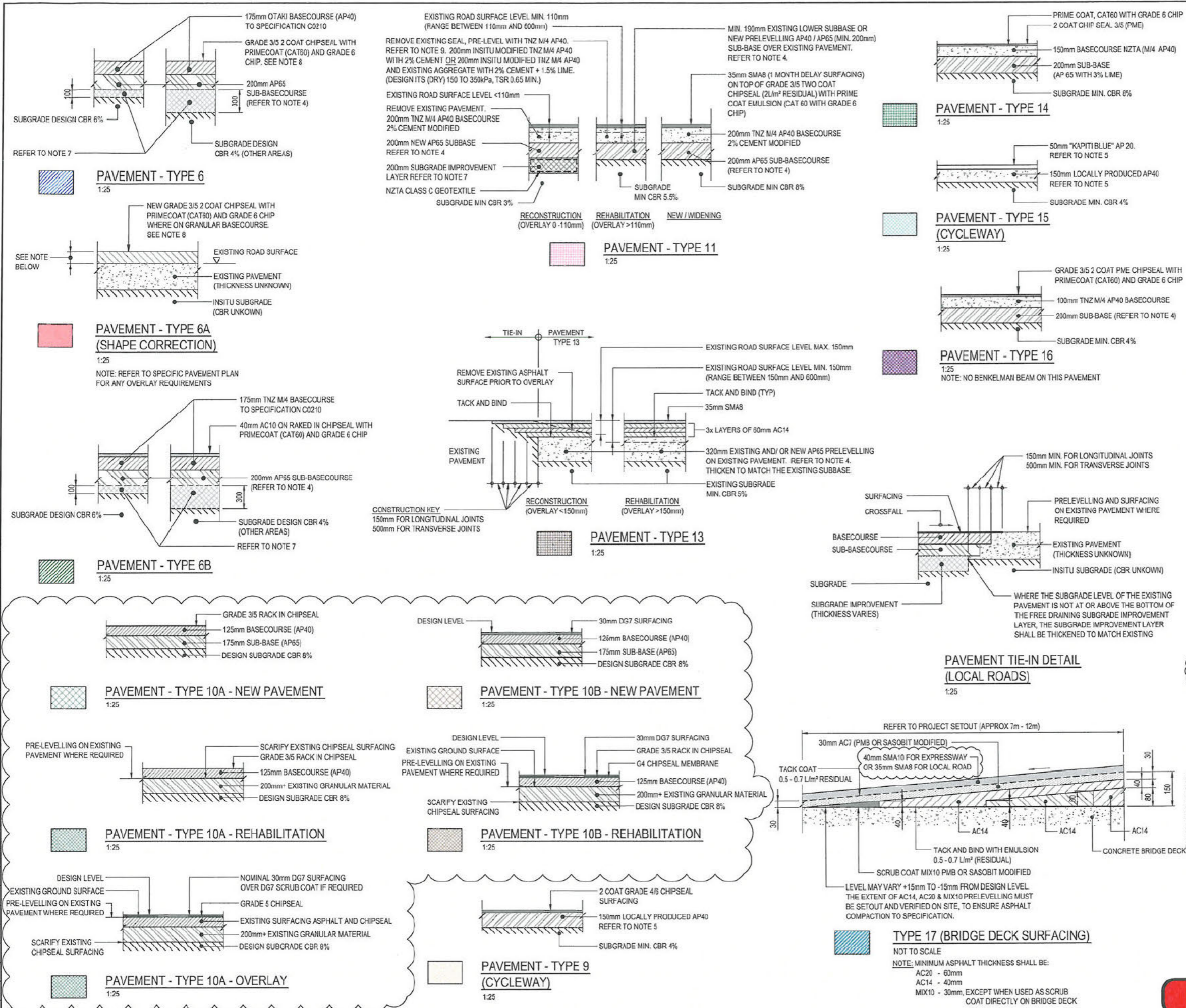


**MacKays to Peka Peka**  
Wellington Northern Corridor

Project: SH1 MACKAYS TO PEKA PEKA EXPRESSWAY  
RP 1012/0.00 TO 1023/5.00

Title: STANDARD DETAILS PAVEMENT SHEET 1

Drawing No: M2PP-23M-D-DWG-7940  
Rev: 4



- NOTES:**
- REFER TO TABLE 1 FOR BENKELMAN BEAM DEFLECTION CRITERIA. FOR PAVEMENT TYPE 6, DEFLECTION TEST SHALL BE UNDERTAKEN AT 10m INTERVALS IN ALL AREAS WITH WIDENING WIDTH GREATER THAN 2m.
  - ALL TWO COAT CHIPSEAL AND PRIMESEAL TO BE DESIGNED BY THE SEALING CONSTRUCTOR.
  - ALL LOCAL ROAD SUBGRADE SHALL BE TESTED USING SCALA PENETROMETER TO DEMONSTRATE THE DESIGN CBR IS ACHIEVED ON SITE. ALL SCALA TESTING SHALL BE UNDERTAKEN TO 1m DEEP AT 10m INTERVALS IN ACCORDANCE WITH SPECIFICATION C0203. THE CONSTRUCTOR SHALL REFER TO FIG. 5.3 OF PAVEMENT DESIGN - A GUIDE TO THE STRUCTURAL DESIGN OF ROAD PAVEMENTS (2004), PUBLISHED BY AUSTRROADS, FOR CORRELATION BETWEEN SCALA PENETROMETER READING AND IN-SITU CBR. IN ADDITION ALL SUBGRADE SHALL BE PROOF ROLLED USING AN APPROVED STEEL DRUM ROLLER. WHERE VISUAL MOVEMENT IS OBSERVED, SUBGRADE RECOMPACTION OR UNDERCUT MAY BE REQUIRED.
  - SUB-BASECOURSE IS TO BE MODIFIED WITH LIME WHERE THE PLASTICITY INDEX, CLAY INDEX OR SAND EQUIVALENT TEST RESULTS OF THE SUB-BASE SOURCE DOES NOT COMPLY WITH SPECIFICATION C0209. SEE SPECIFICATION C0208, FOR INSITU LIME MODIFICATION.
  - MATERIAL TO BE APPROVED BY THE DESIGNERS.
  - SOURCE PROPERTY TESTING AS OUTLINED IN THE TNZ / M4 SPECIFICATION OF THE PROPOSED LOCALLY PRODUCED BASECOURSE AP40, SHALL BE SUBMITTED TO THE DESIGNER FOR APPROVAL. CONSTRUCTION SHALL BE UNDERTAKEN IN ACCORDANCE WITH SPECIFICATION TNZ B/2.
  - SUBGRADE IMPROVEMENT LAYER (MIN SOAKED CBR 10%) FREE DRAINING MATERIAL SUCH AS RECOMPACTED SAND, SOFT PIT RUN, RECYCLED GRANULAR OR HARDFILL TO BE CONSTRUCTED IN ACCORDANCE WITH SPECIFICATION C0203.
  - ALL TWO COAT CHIPSEAL TO BE DESIGNED BY CONSTRUCTORS. FOR LOCAL ROADS CONSIDERATION IS TO BE GIVEN TO USE PME IN HIGH STRESS AREAS. EXTENT TO BE AGREED WITH THE DESIGNERS.
  - WHERE THE PRELEVELLING THICKNESS ON EXISTING KAPITI ROAD EXCEEDS 400mm, INCLUDING 200mm MODIFIED BASECOURSE, OTHER PRELEVELLING AGGREGATE SUCH AS AP65 (3% LIME MODIFIED) WITH MINIMUM THICKNESS OF 200mm, SHALL BE CONSTRUCTED BELOW THE INSITU STABILISED BASECOURSE ALTERNATIVELY AP40 M/4 CAN BE USED AS MAKE-UP AGGREGATE FOR THE FULL PAVEMENT OVERLAY.

**TABLE 1 - 95<sup>TH</sup> PERCENTILE BENKELMAN BEAM DEFLECTION CRITERIA**

DEFLECTION TEST ON PREPARED SURFACE	BASECOURSE	SUB BASECOURSE	SUBGRADE IMPROVEMENT LAYER
PAVEMENT TYPE 6 DESIGN CBR 4%	< 1.0mm MIN.	< 1.3mm MIN.	< 1.9mm MIN.
PAVEMENT TYPE 6 DESIGN CBR 6%	< 1.0mm MIN.	< 1.3mm MIN.	< 1.4mm MIN.
PAVEMENT TYPE 10A & 10B DESIGN CBR 8%	< 0.9mm MIN.	< 1.0mm MIN.	-
PAVEMENT TYPE 11 (NEW/ WIDENING) DESIGN CBR 8%	< 0.8mm MIN.	< 1.1mm MIN.	-
PAVEMENT TYPE 11 (REHAB/ RECON.) DESIGN CBR 3.0% OR 5.5%	< 1.0mm MIN.	< 1.5mm MIN.	< 1.8mm MIN.
PAVEMENT TYPE 13 (REHAB/ RECON.) DESIGN CBR 5%	-	< 1.5mm MIN.	-
PAVEMENT TYPE 14 DESIGN CBR 8%	< 0.9mm MIN.	< 1.1mm MIN.	-
PAVEMENT TYPE 1A WITH EXISTING SUB-BASE DESIGN CBR 5%	< 1.0mm MIN.	≤ 1.5mm MIN BEFORE STABILISATION ≤ 1.2mm MIN AFTER STABILISATION	-
PAVEMENT TYPE 2A, 2B, 2C	SEE SPEC C0211A	SEE SPEC C0208A	-

- WHERE PRELEVELLING LAYER THICKNESS IS:**
- BETWEEN 0-50mm PRE-LEVEL WITH TNZ MIX 10 SCRUB COAT
  - BETWEEN 50-100mm, SCARIFY EXISTING SEAL AND PRELEVEL WITH TNZ M/4 AP20
  - GREATER THAN 100mm, PRELEVEL WITH TNZ M/4 AP40 IN LAYERS NOT EXCEEDING 150mm PER LAYER.
  - ALL GRANULAR LAYERS SHALL BE KEYED INTO EXISTING PAVEMENTS

4 FOR CONSTRUCTION - REVISIONS AS NOTED	12.03.15	Original	Design	s 9(2)	61.11.13	Approved For
3 FOR CONSTRUCTION - REVISIONS AS NOTED	08.03.14	AS SHOWN	Drawn	s 9(2)	15.11.13	Drawn
2 FOR CONSTRUCTION - REVISIONS AS NOTED, ITEMS ON HOLD	22.07.14	Reduced	Dig Verifier	(a)	09.04.14	Checked
1 FOR CONSTRUCTION	04.01.14	Scale (1:1)	Dig Check		02.04.14	Scale (1:1)

Refer to Revision 1 for Original Signature

**NZ TRANSPORT AGENCY**  
WAKA KOTAHU

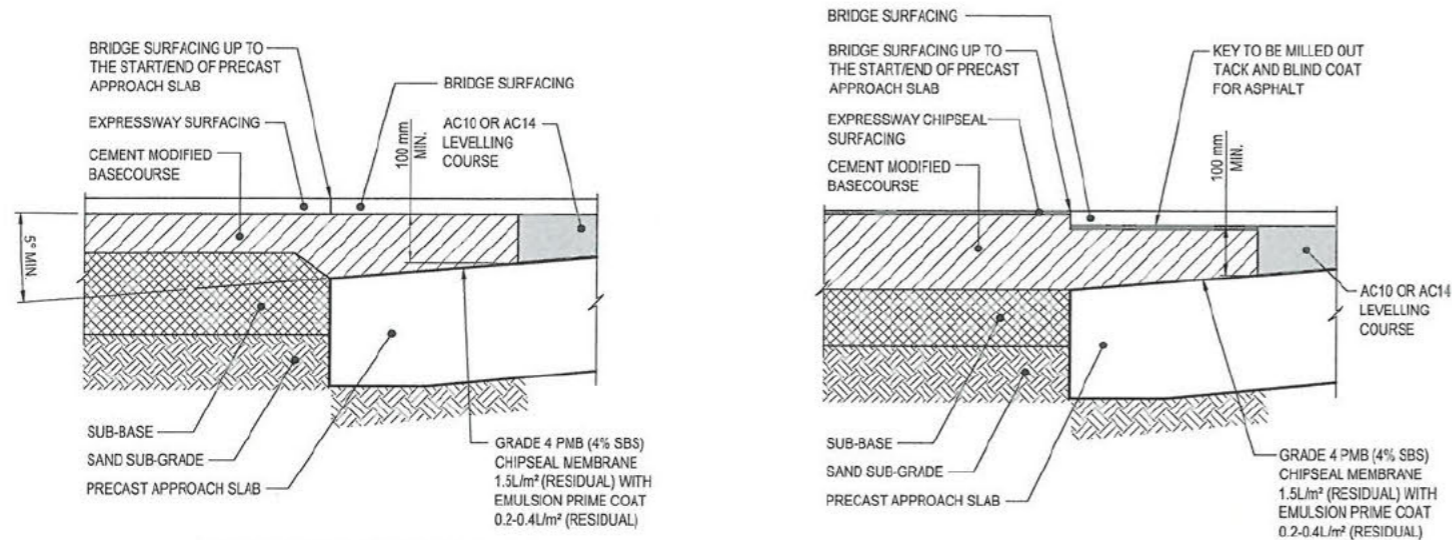
**MacKays to Peka Peka**  
Wellington Northern Corridor

Project: SH1 MACKAYS TO PEKA PEKA EXPRESSWAY  
RP 1012/0.00 TO 1023/5.00

STANDARD DETAILS  
PAVEMENT  
SHEET 2

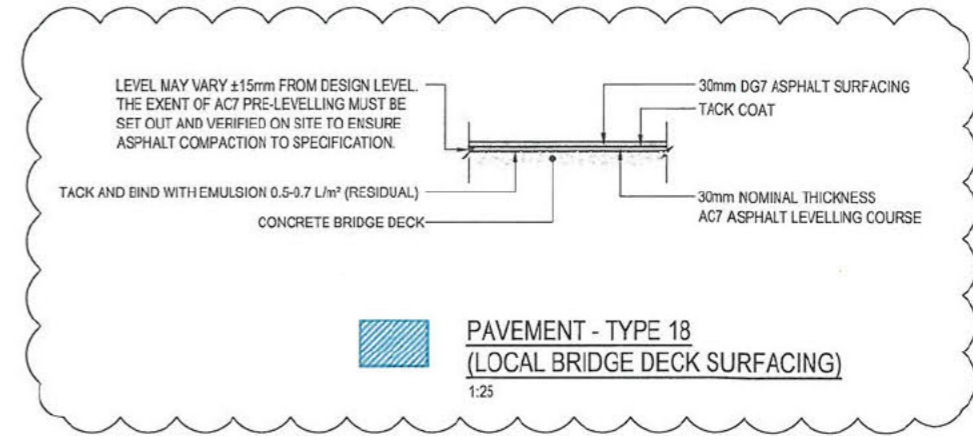
Drawing No: M2PP-23M-D-DWG-7941  
Rev: 4

**ORIGINAL DRAWING IN COLOUR FOR CONSTRUCTION**

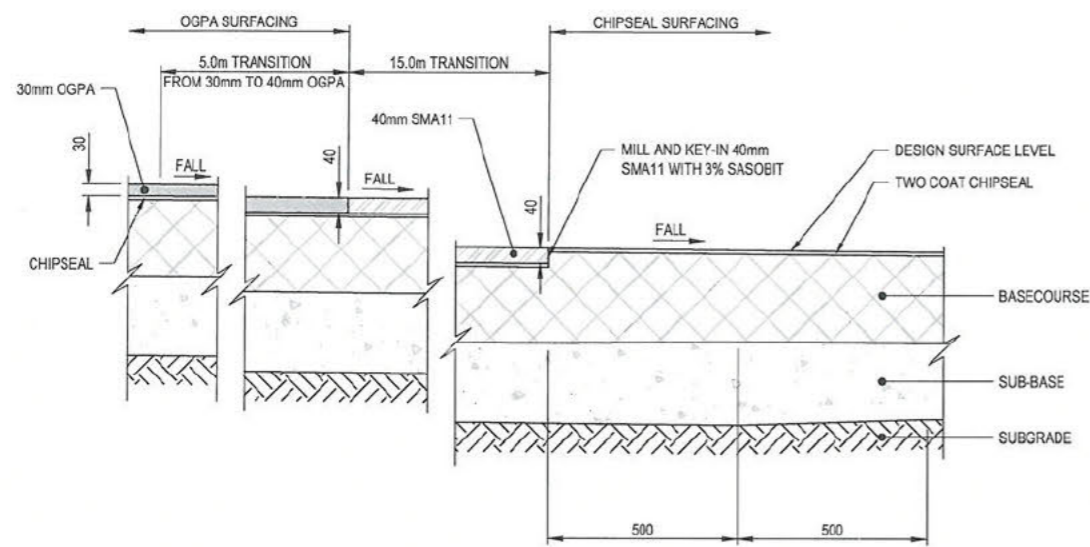


PAVEMENT TRANSITION - TYPE 1  
1:10

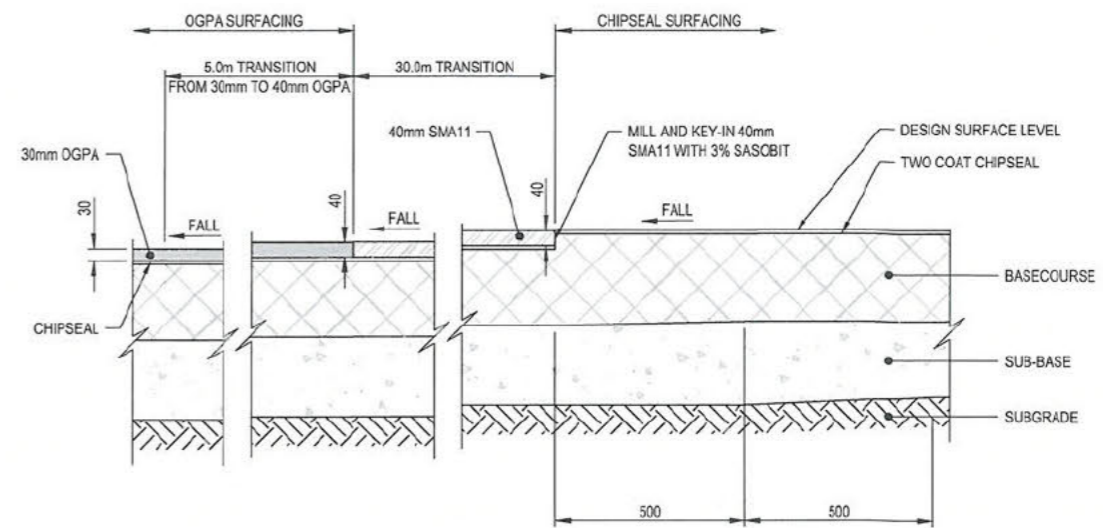
PAVEMENT TRANSITION - TYPE 2  
1:10



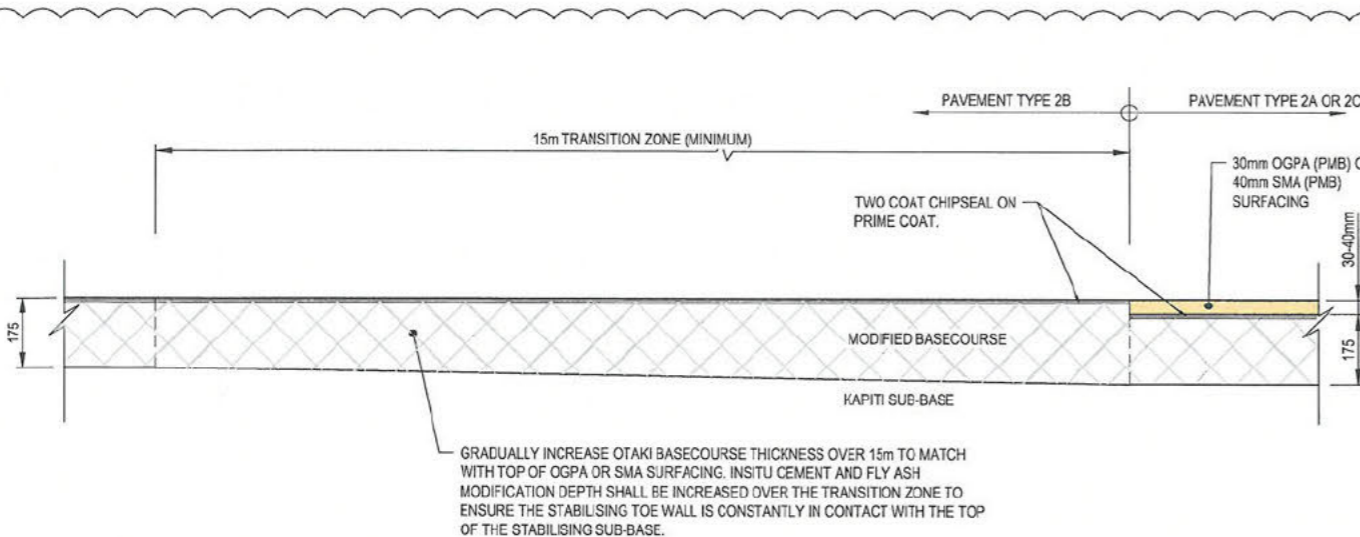
PAVEMENT - TYPE 18  
(LOCAL BRIDGE DECK SURFACING)  
1:25



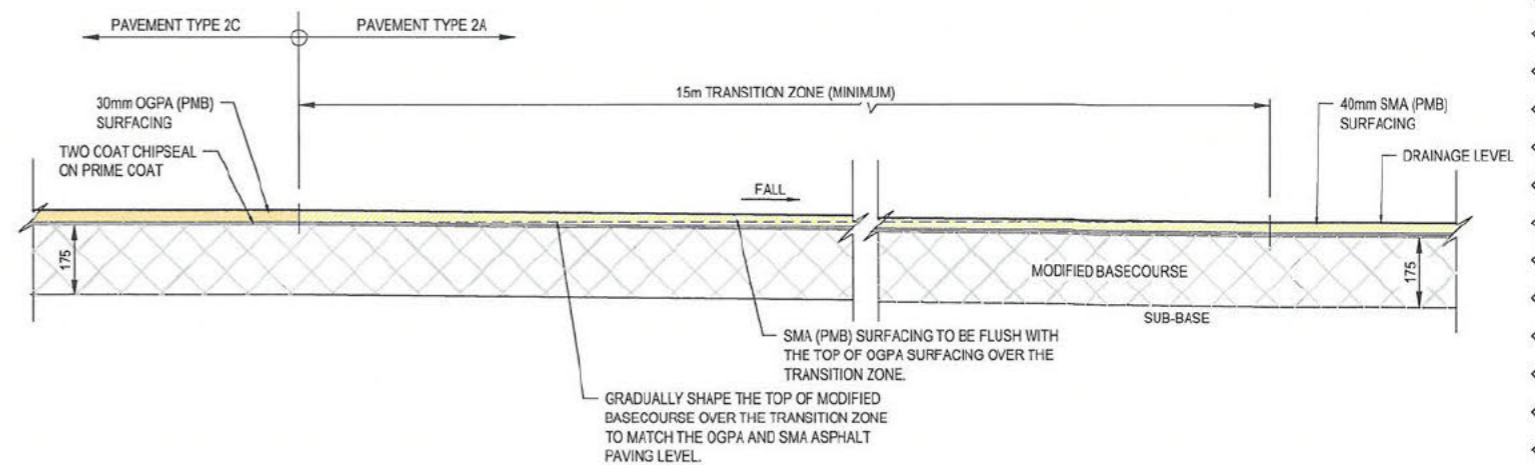
DETAIL - OGPA/CHIPSEAL TRANSITION - OGPA FALLING TO CHIPSEAL  
1:10



DETAIL - OGPA/CHIPSEAL TRANSITION - CHIPSEAL FALLING TO OGPA  
1:10



SURFACING TRANSITION - TYPE A  
1:10



SURFACING TRANSITION - TYPE B  
1:10

**FOR CONSTRUCTION**

3	FOR CONSTRUCTION (REVISED AS NOTED)	s 9(2)(a)	02.03.15
2	FOR CONSTRUCTION (REVISED AS NOTED)		05.09.14
1	FOR CONSTRUCTION		22.07.14

Original Scale (A1) AS SHOWN: s 9(2)(a) 09.01.14  
 Design: s 9(2)(a) 09.01.14  
 Checked: s 9(2) 09.01.14  
 Drawn: s 9(2) 09.01.14  
 Approved For Construction: s 9(2) 09.01.14  
 Reduced Scale (A3): 00.06.14  
 Date: 22.07.14

**NZ TRANSPORT AGENCY**  
WAIKA KOTAHU

**MacKays to Peka Peka**  
Wellington Northern Corridor

Project: SH1 MACKAYS TO PEKA PEKA EXPRESSWAY  
 RP 1012/0.00 TO 1023/5.00

Title: STANDARD DETAILS PAVEMENT SHEET 3

Drawing No: M2PP-23M-D-DWG-7942  
 Rev: 3