

NEW INSTALLATIONS
DETAIL AT TRAFFIC LANES AND SHOULDERS
SCALE 1:2

EXISTING JOINT REPLACEMENT
IDENTIFICATION PLATE TO BE CAST INTO
BAULTRADE AT EVERY JOINT (OPTIONAL)
SCALE 1:10

LEGEND

- ① BSP ANCHORAGES: 12mm PLATE PROFILE CUT AS DETAILED AND WELDED TO ITEM ②
- ② AND ③ AT 200 CENTRES.
- ④ 70 x 70 x 10 ANGLE MODIFIED AS DETAILED. WELDED TO ITEM ①
- ⑤ 80 x 40 x 8 mm PLATE WELDED TO ITEM ①
- ⑥ 2/16 x 16 x 60 SQUARE BARS OR 2/20 mm ROUND BARS - 60mm LONG WELDED TO ITEM ①
- ⑦ 25 x 25 x 5 mm ANGLE WELDED TO ITEMS ① AND ②
- ⑧ 7mm DIA. BREATHER HOLES AT 100mm CENTRES FOR FULL LENGTH OF EXPANSION UNIT. HOLES TO BE EQUIDISTANT ABOUT ANCHORS.
- ⑨ 110 x 20mm CENTRES OR R12 AT 150mm CENTRES BENT TO FORM STRIPS DURING INSTALLATION OF EXPANSION JOINT SYSTEM
- ⑩ 110 ANCHORS GROUTED INTO POSITION DURING INSTALLATION OF EXPANSION JOINT SYSTEM.
- ⑪ EXISTING REINFORCEMENT PROTRUDING INTO RECESS OF CONCRETE NOSINGS TO BE RETAINED.
- ⑫ EXPANSION GAP WIDTH AT TIME OF INSTALLATION OF EXPANSION JOINT SYSTEM NOTE : ALL FILLET WELDS TO BE CONTINUOUS UNLESS OTHERWISE STATED.

NOTES

- 1. GENERAL
- 1.1 THIS DRAWING DETAILS THE EXPANSION JOINT SYSTEM "BSP" 80 CATERING FOR A TOTAL MOVEMENT OF 80 mm.
- 1.2 THE JOINT CONFIGURATION WILL BE ADJUSTED TO MATCH THE "AS CONSTRUCTED" PROFILES OF THE PARAPETS, SKEW ANGLE AND BRIDGE DECK PROFILE FOR EACH INDIVIDUAL BRIDGE.
- 1.3 FOR EXISTING WORK REQUIRING JOINT REPLACEMENT THE POSITIONS OF THE BENS IN THE EXPANSION JOINT SYSTEM WILL MATCH THE JOINT LAYOUT AND BRIDGE PROFILE OF THE INDIVIDUAL BRIDGES. IN NO CASE WILL THE RADIUS OF A BEND BE LESS THAN 100 mm.
- 1.4 COMBINED VERTICAL AND HORIZONTAL RECESSES WILL BE AVOIDED BY PROVIDING DEEPER RECESSES INTO PARAPET AND/OR KERB FACES TO ACCOMMODATE THE BENT-UP SECTIONS OF THE JOINT PROFILES.
- 1.5 THE EXPANSION JOINT SYSTEM RELIES ON REINFORCEMENT PROTRUDING INTO THE RECESSES OF THE CONCRETE NOSINGS

2. DESIGN LOADINGS

- 2.1 THE EXPANSION JOINT SYSTEM (EXCLUDING SECTIONS EXTENDING OVER SIDEWALKS AND/OR RAISED MEDIANS) HAS BEEN DESIGNED IN ACCORDANCE WITH THE BRITISH DEPARTMENT OF TRANSPORT DEPARTMENTAL STANDARD BS 53/94 TO WITHSTAND THE COMBINATION OF THE FOLLOWING NOMINAL LOADS:
 - 2.1.1 A NOMINAL LOAD COMPRISING EITHER A SINGLE WHEEL LOAD OF 100 kN OR A 200 kN AXLE WITH A 1.8m TRACK. THE LOAD FROM EACH WHEEL HAS BEEN UNIFORMLY DISTRIBUTED OVER A CIRCULAR AREA ASSUMING AN EFFECTIVE PRESSURE OF 1.1 N/mm² (IE 340 mm DIAMETER) APPLIED SEPARATELY TO EITHER EDGE OF THE JOINT FOR THE MOST SEVERE EFFECT.
 - 2.1.2 A NOMINAL TRAFFIC LOAD TAKEN AS A UNIFORMLY DISTRIBUTED HORIZONTAL LOAD OF 80kN/m RUN OF JOINT, ACTING AT RIGHT ANGLES TO THE JOINT AT CARROGEMWAY LEVEL.
 - 2.1.3 DESIGN LOAD EFFECTS

DESIGN LOAD EFFECTS	WHEEL LOADS	HORIZONTAL LOADS
ULTIMATE LIMIT STATE:	$\frac{1}{1.5} \times 1.1 = 0.73$	$\frac{1}{1.5} \times 1.0 = 0.67$
SERVICEABILITY LIMIT STATE:	$1.20 \times 1.0 = 1.2$	$1.00 \times 1.0 = 1.0$
NUMBER OF MILLIONS OF VEHICLES (< 30 kN) PER LANE PER YEAR	2.0	>50
	1.5	>50
	1.0	>50
	0.5	>50

- 2.3 EXPANSION UNITS EXTENDING OVER SIDEWALKS AND/OR RAISED MEDIANS HAVE BEEN DESIGNED TO ACCOMMODATE A STATIC VERTICAL WHEEL LOAD FOR 45 kN DISTRIBUTED OVER A CIRCULAR CONTACT AREA OF 0.1 SQUARE METRES.

BRIDGE EXPANSION JOINT	
DATE OF INSTALLATION	Nov. 2001
REF. No	M/915
TYPE	BSP 80
CERTIFICATE No.	2004/309

DSC ZENDON C.C.
TEL No: (011) 894-1129

3. MATERIALS

- 3.1 MATERIALS AND MANUFACTURING WILL COMPLY WITH THE RELEVANT CLAUSES OF SECTION 600 AND 670 OF THE STANDARD SPECIFICATION FOR ROAD AND BRIDGE WORKS FOR STATE ROAD AUTHORITIES (SOTD). THE RECOMMENDATIONS FOR SANS 10214 AND WILL INCLUDE THE FOLLOWING:
 - 3.1.1 STRUCTURAL STEEL (PLATES AND ANGLES) GRADE 300 W TO SANS 1431.
 - 3.1.2 EPDM STRIP SEAL : TO ASTM D5973
- 3.2 MANUFACTURING
 - 3.2.1 FIELDS IN ACCORDANCE WITH THE REQUIREMENTS OF BS 5135 (THE DESIGN LOAD EFFECTS DO NOT EXCEED 50% OF THE CAPACITY OF THE SPECIFIED WELDS).
 - 3.2.2 GANISHING: IN ACCORDANCE WITH SANS 121.
 - 3.2.3 THE EXPANSION JOINT UNITS WILL BE MANUFACTURED TO AN APPROVED "JOINT PLAN" DRAWN UP TO SUIT THE BRIDGE STRUCTURE AND THE PROPOSED CONSTRUCTION SEQUENCE. GENERALLY THE JOINT SECTIONS SHOULD BE IN SUITABLE LENGTHS TO FACILITATE TRANSPORT AND HANDLING. THE JOINT LENGTHS ARE TO BE INSTALLED AS PER THE PLAN AND COUPLED AS DETAILED ON DRAWING NO DZ/3

4. CORROSION PROTECTION

- 4.1 STRUCTURAL STEEL MEMBERS ARE HOT-DIP GALVANISED AFTER COMPLETION OF WELDING AND DRILLING OF HOLES IN ACCORDANCE WITH SANS 121 TO THE THICKNESSES INDICATED:
 - 4.1.1 STANDARD GALVANISED COATING NOT LESS THAN 105 MICRON THICKNESS.
 - 4.1.2 A HEAVY DUTY GALVANISED COATING NOT LESS THAN 105 MICRON THICKNESS.
- 4.2 EXTREME CORROSIVE CONDITIONS
 - 4.2.1 IN ADDITION TO (4.1.1) ABOVE WHEN SPECIFIED ALL AREAS LOCATED WITHIN 50mm OF THE EXPOSED STEEL OR THE CONCRETE WILL BE PREPARED AND COATED AS FOLLOWS:
 - PREPARATION
 - SURFACES TO BE PAINTED BUT BE VERY THOROUGHLY DEGREASED BY USING "PLASCON AQUASOLV" OR EQUAL APPROVED WATER MISCIBLE SOLVENT BASED DEGREASER, APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, FOLLOWED BY WASHING WITH CLEAN PORTABLE WATER. IF THE SURFACE IS NOT WATER BREAK FREE THE CLEANING PROCESS WILL BE REPEATED.
 - PRIMING
 - A TWO COMPONENT EPOXY PRIMER DESIGNED FOR APPLICATION TO GALVANISED STEEL "PLASCON GMS", OR EQUAL, APPROVED PRIMER, TO DRY FILM THICKNESS OF 80±20 MICRONS WILL BE APPLIED.
 - TOP COAT
 - ONE COAT OF TWO COMPONENT ACRYLIC MODIFIED ALIPHATIC POLYURETHANE "PLASCON GPC" OR EQUAL APPROVED WILL BE MIXED AND APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO DRY FILM THICKNESS OF 35±10 MICRONS. THE COLOUR OF THE TOP COAT WILL BE G20 LIGHT GREY TO SANS 1091.
 - ALL DAMAGE TO CORROSION PROTECTION LOCATED WITHIN 50mm OF THE EXPOSED STEEL AND / OR EXPOSED CONCRETE FACES WILL BE REPAIRED WITH ZINC/PK TO A DRY FILM THICKNESS OF 100 MICRONS. WHERE THE REPAIR OVERLAPS THE GALVANIZING SURFACE MUST BE ABRASED WITH 80 GRIT ABRASIVE PAPER AND CLEANED THOROUGHLY WITH GALVANIZED IRON CLEANER. THE REPAIR MUST NOT EXTEND BEYOND THIS PREPARED AREA.

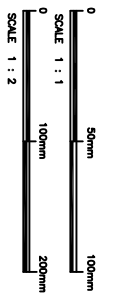
5. GUARANTEES

GUARANTEES AS PER CONTRACT AGREEMENT, WHERE REQUIRED. GUARANTEES FOR THE PRODUCT MUST BE AGREED BETWEEN THE CLIENT AND THE CERTIFICATE HOLDER.

6. MANUFACTURERS

- MANUFACTURER UNDER LICENSE TO BRIDGE SEALS AND PRODUCTS CC BY DSC ZENDON CC.
- 42 MICHELSON ROAD, ANDERBOLT, BOKSBURG P.O. BOX 6221 DUNSMART, 1508, GAUTENG. TEL No (011) 894-1129, FAX No (011) 894-2812
- 7. APPROVED INSTALLERS
- 7.1. MPUMALANGA BRIDGE REPAIRS & SEALS CC - TEL No (011) 894-1129
- 7.2. DSC ZENDON CC - TEL No (011) 894-1129

PLAN No	DRAWING DESCRIPTION
DZ/6	THORAJOINT® - GENERAL DETAILS
DZ/5	MAUER DBO.C (7P) - GENERAL DETAILS
DZ/4	DETAILS OF BOLTED AND SITE WELDED CONNECTIONS
DZ/3	DETAILS AND INSTALLATION OF COVER PLATES
DZ/2	"BSP" 80 - GENERAL DETAILS
DZ/1	"BSP" 80 - GENERAL DETAILS



BRIDGE EXPANSION JOINTS
FOR MOVEMENTS > 80mm

"BSP" 80 - GENERAL DETAILS

SCALE: AS SHOWN

PLAN No DZ/1

REV	DATE	AS PER FINAL AGREEMENT CERTIFICATION AMENDMENTS
1	01/07/2004	

CIVIL AND DEVELOPMENT ENGINEERS (PTY) LTD.
286 ALBERTUS STREET
LA MONTAGNE
PRETORIA, 0184

DSC ZENDON CC
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"BSP" 80 - GENERAL DETAILS