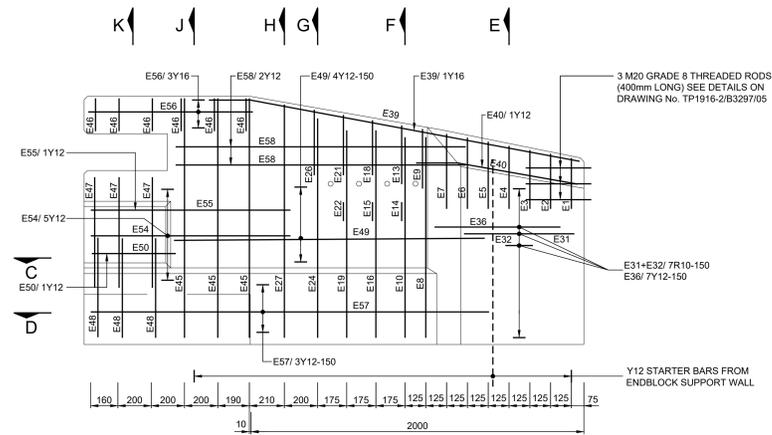
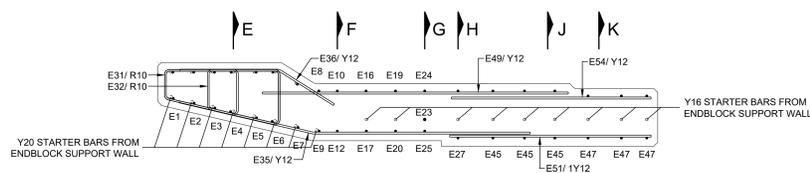


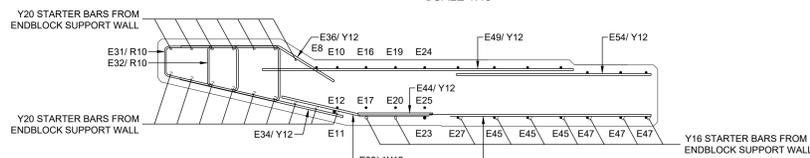
**INSIDE ELEVATION OF ENDBLOCK REINFORCEMENT**  
SCALE 1:15



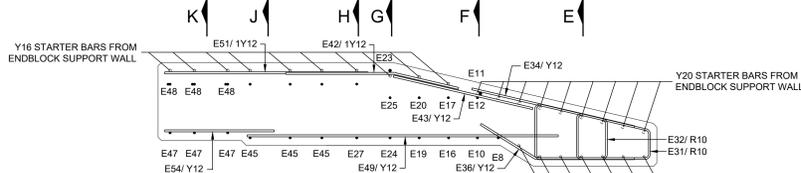
**OUTSIDE ELEVATION OF ENDBLOCK REINFORCEMENT**  
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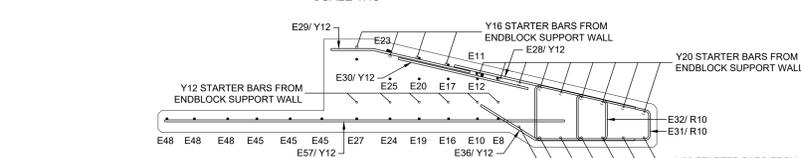
**SECTION A - A**  
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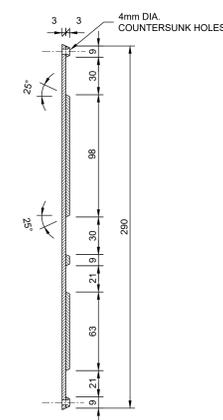
**SECTION B - B**  
SCALE 1:15



**SECTION C - C**  
SCALE 1:15



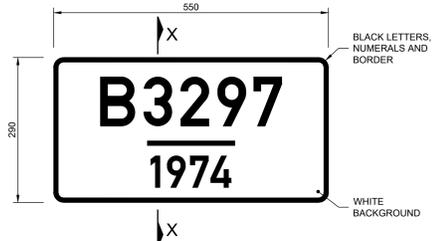
**SECTION D - D**  
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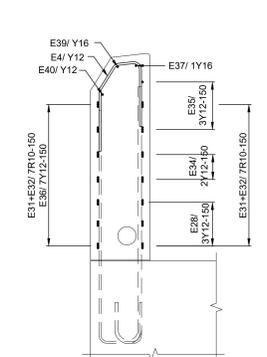
**SECTION X - X**  
SCALE 1:2

- REINFORCEMENT NOTES**
- THE REINFORCEMENT DETAILS SHOWN ON THIS DRAWING ARE FOR CONVENTIONAL REINFORCING STEEL BARS TO SANS 920 - 2005. MILD STEEL : R-BARS : 250MPa. HIGH TENSILE STEEL : Y-BARS : 450MPa.
  - REINFORCEMENT DETAILING ACCORDING TO SANS 282 : 2011.
  - MINIMUM CONCRETE COVER TO REINFORCEMENT SHALL BE 40mm UNLESS OTHERWISE SPECIFIED.
  - FOR PARAPET UNITS WITH INSPECTION EYES OR RECESS FOR COVER PLATES THE LONGITUDINAL REINFORCEMENT INTERRUPTED BY THE OPENINGS MAY BE CUT TO SUIT. VERTICAL BARS FOLLOING INSPECTION EYES TO BE MOVED. THE CONCRETE COVER SHALL BE MAINTAINED.
  - ATTENTION SHALL BE GIVEN TO THE NUMBER AND POSITIONING OF THE COVER BLOCKS TO ENSURE THAT MINIMUM CONCRETE COVER IS MAINTAINED DURING CONCRETING.
  - MINIMUM LAP LENGTH SHALL BE 45 x BAR DIA.
  - REINFORCEMENT SHALL BE INSPECTED BY THE ENGINEER PRIOR TO CASTING OF CONCRETE.
  - ALL REINFORCING TO BE HEAVY DUTY HOT-DIP GALVANISED IN ACCORDANCE WITH SANS 121:2000 TO A ZINC COAT THICKNESS OF NOT LESS THAN 105 MICRONS.
  - ALL STAINLESS STEEL DOWELS TO BE SAWCUT.
  - STAINLESS STEEL DOWELS TO BE OMITTED OVER EXPANSION JOINTS.
- ABBREVIATIONS:**  
 ABR = ALTERNATE BARS REVERSED  
 ALT = ALTERNATELY  
 AS = AS SHOWN  
 B1 = LOWEST OF THE BOTTOM LAYERS  
 B2 = SECOND LOWEST OF THE BOTTOM LAYERS  
 EF = EACH FACE  
 EW = EACH WAY  
 NF = NEAR FACE  
 FF = FAR FACE  
 T1 = HIGHEST OF THE TOP LAYERS  
 T2 = SECOND HIGHEST OF THE TOP LAYERS

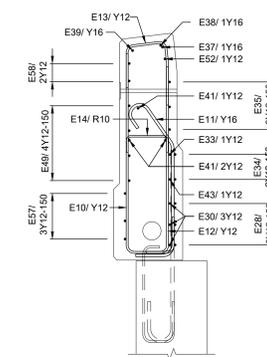
- IMPRINTED STRUCTURE NUMBER NOTES**
- GENERAL**  
 1.1. LETTERS AND NUMERALS SHALL BE TYPE 'B' LETTERS TO DIN 1451 PART 2.  
 1.2. THE BRIDGE NUMBERS SHALL HAVE A WHITE BACKGROUND WITH BLACK LETTERS, NUMERALS AND BORDER.  
 1.3. THE DATE USED FOR STRUCTURES IS THE DATE OF COMPLETION OF THE CONSTRUCTION CONTRACT.
  - MANUFACTURE OF MOULDS AND TEMPLATES**  
 2.1. THE MOULD SHALL BE MANUFACTURED FROM POLYCARBONATE, ULTRA HIGH IMPACT ACRYLIC SHEETING OR ALUMINUM CASTINGS. THE MOULDS SHALL BE REVERSE.
  - CONSTRUCTION**  
 3.1. THE STRUCTURE NUMBER SHALL BE POSITIONED AS SHOWN.  
 3.2. THE MOULDS SHALL BE PROPERLY ALIGNED AND SECURED TO THE INSIDE FACES OF THE SHUTTERS WITH ALUMINUM BLIND RIVETS OR COUNTERSUNK SELF TAPPING SCREWS.  
 3.3. AFTER THE CONCRETE HAS HARDENED THE SHUTTERS SHALL BE CAREFULLY REMOVED ENSURING THAT THE IMPRINTED LETTERING AND BORDER IS NOT DAMAGED.  
 3.4. PAINTING OF THE IMPRINTED LETTERING AND BACKGROUND SHALL BE CARRIED OUT NOT SOONER THAN 28 DAYS AFTER PLACING OF THE CONCRETE.  
 3.5. THE PREPARATION OF THE CONCRETE SURFACE AND PAINT SYSTEM SHALL BE AS FOLLOWS:  
**SURFACE PREPARATION:**  
 THE AREA OVER WHICH THE PAINTED SYSTEM IS TO BE APPLIED SHALL BE CLEANED OF ALL DUST, LOOSE PARTICLES, LAITANCE, OIL OR GREASE CONTAMINATION AND OTHER DELETERIOUS MATERIALS. THEN SHALL BE WASHED WITH POTABLE WATER AND ALLOWED TO DRY. CRACKS, HOLES AND CAVITIES SHALL BE FILLED WITH NON-SHRINK GROUT OR EXTERIOR QUALITY ACRYLIC FILLER AND SANDED SMOOTH WHEN CURED.  
**PRIMER:**  
 THE AREA SHALL BE PRIMED WITH A PENETRATING LOW VISCOSITY TWO PACK EPOXY PRIMER FOR CONCRETE, APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND ALLOWED TO CURE OVERNIGHT.  
**WHITE BACKGROUND:**  
 BACKGROUND SHALL BE PROVIDED BY THE APPLICATION OF LIGHT GREY HIGH BUILD TWO COMPONENT EPOXY-POLYAMINE INTERMEDIATE COAT TO A DRY FILM THICKNESS OF 80 ± 20 MICRONS. AFTER THE MANUFACTURER'S RECOMMENDED OVERCOATING TIME, ONE COAT OF A TWO COMPONENT WHITE ACRYLIC MODIFIED ALIPHATIC POLYURETHANE TO A DRY FILM THICKNESS OF 40 ± 10 MICRONS SHALL BE APPLIED.  
**BLACK LETTERS:**  
 LETTERING SHALL BE HIGHLIGHTED BY THE APPLICATION OF A DARK GREY HIGH BUILD EPOXY INTERMEDIATE COAT TO A DRY FILM THICKNESS OF 100 ± 20 MICRONS. AFTER THE MANUFACTURER'S RECOMMENDED OVERCOATING TIME, ONE COAT OF TWO COMPONENT BLACK ACRYLIC MODIFIED ALIPHATIC POLYURETHANE TO A DRY FILM THICKNESS OF 40 ± 10 MICRONS SHALL BE APPLIED.  
 ALL STAGES SHALL COMPLY WITH THE RELEVANT CLAUSES OF CHAPTER 13.10 OF THE STANDARD SPECIFICATIONS OF ROAD AND BRIDGE WORKS FOR THE SOUTH AFRICAN ROADS AUTHORITY AND WITH THE PAINT MANUFACTURER'S RECOMMENDATIONS.



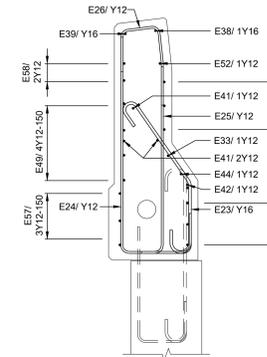
**IMPRINTED STRUCTURE NUMBER**  
SCALE 1:5



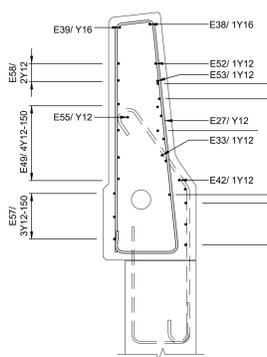
**SECTION E - E**  
SCALE 1:15



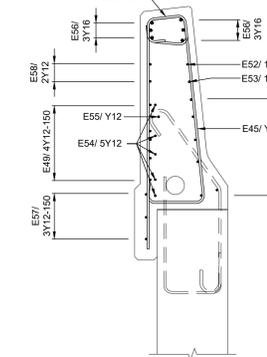
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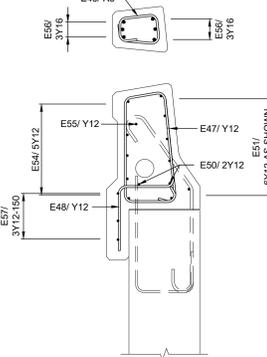
**SECTION G - G**  
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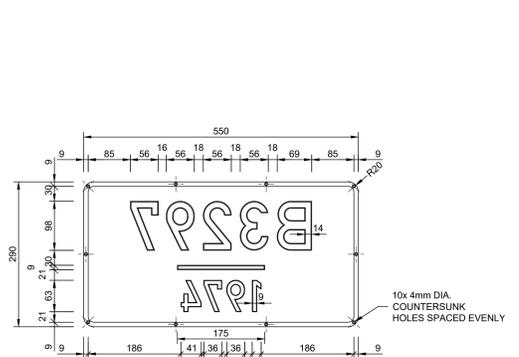
**SECTION H - H**  
SCALE 1:15



**SECTION J - J**  
SCALE 1:15



**SECTION K - K**  
SCALE 1:15



**DETAIL OF MOULD**  
SCALE 1:5

CONSTRUCTION RECORD (AS-BUILT) WORKS CONTRACT ENGINEER Name: _____ Prof. Reg. No.: _____ Date: _____ SANRAL PROJECT MANAGER Name: _____ Date: _____		DESIGNED BY NAME: M CHRISTODOULOU Prof. Reg. No.: 810242 CHECKED BY NAME: KG MALCOMSON Prof. Reg. No.: 88542 DRAWN BY NAME: M WATTS		CONSULTANT APPROVAL NAME: KG MALCOMSON Prof. Reg. No.: 88542 Date: 02/12/2019		HEAD OFFICE 48 Tambotie Avenue Val de Grace Pretoria 0184 PO Box 415 Pretoria 0001 South Africa Tel: (012) 844 8000		SANRAL SOUTH AFRICAN NATIONAL ROADS AGENCY SOC. LTD. BUILDING SOUTH AFRICA THROUGH BETTER ROADS		NORTHERN REGION 38 Ida Street Menlo Park Pretoria 0081 Private Bag X17 Lynnwood Ridge 0040 Tel: (012) 426 6200		ACCEPTANCE THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING for the SA NATIONAL ROADS AGENCY SOC. LTD. Date: _____		PROJECT NUMBER MSBBR: REPAIRS TO BRIDGE PARAPETS: R40 NELSPRUIT B0064 AND R33 PIET RETIEF B3297 DRAWING LOCATION DATA ROUTE: R033 SECTION: 06N DRAWING km DISTANCE: 27.5 BRIDGE/STRUCTURE No.: B3297 CONSULTANT DRAWING No.: TP1916-2/B3297/06 SANRAL DOCUMENT #: 18970874		NRA X.002-063-2018/01-C05 START: R033 END: 06N STRUCTURES-BRIDGES TP1916-2/B3297/06 VER: V2	
No. DATE REVISION V2 12/11/2020 SCANNED ORIGINAL WITH SIGNATURE ORIGINAL VERSION V1 12/11/2020 ORIGINAL VERSION KG MALCOMSON KG MALCOMSON		P. O. Box 72727 LYNNWOOD RIDGE 0040 Tel: 012-842 0000 Fax: 012-803 4429 e-mail: -rfa@sna.co.za		11 VLOTENBURG ROAD EQUESTRIA PRETORIA 0184 Tel: 012-542-0009 Fax: 071-234-4108 e-mail: kba.m@kba.co.za		MSBBR: REPAIRS TO BRIDGE PARAPETS: R40 NELSPRUIT B0064 AND R33 PIET RETIEF B3297 EMERGENCY REPAIR FOR BRIDGE B3297 ON R033/06N AT km 27.5 PARAPET ENDBLOCK 01, 29, 30 & 58 REINFORCEMENT SCALE: AS SHOWN		SHEET 06 OF 10		DRAWING No.: TP1916-2/B3297/06							