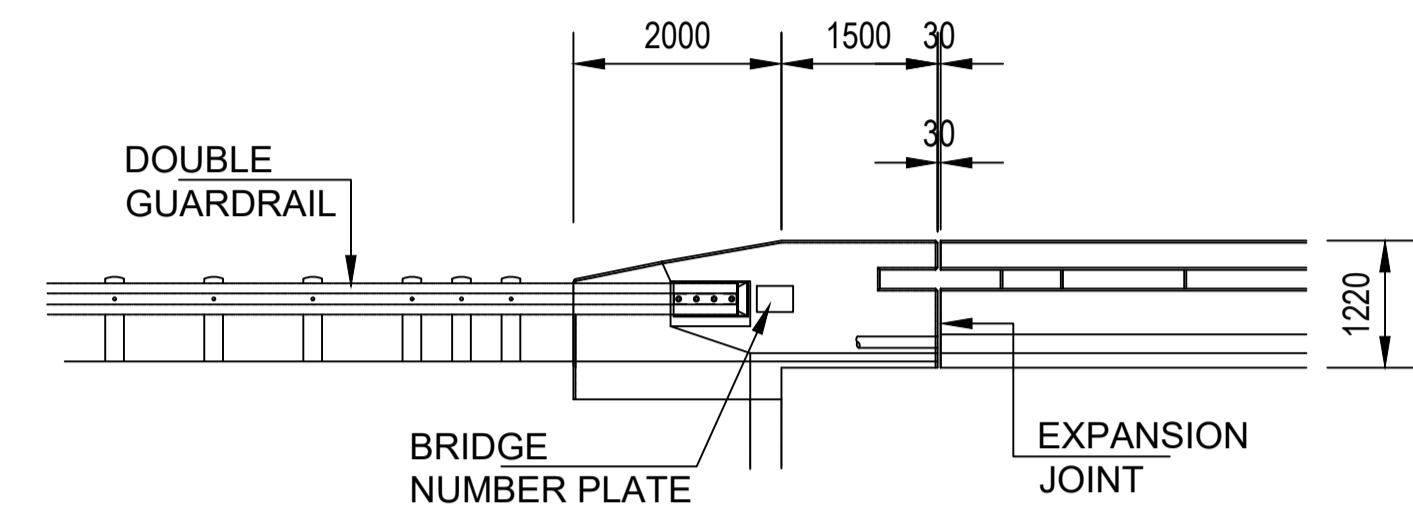
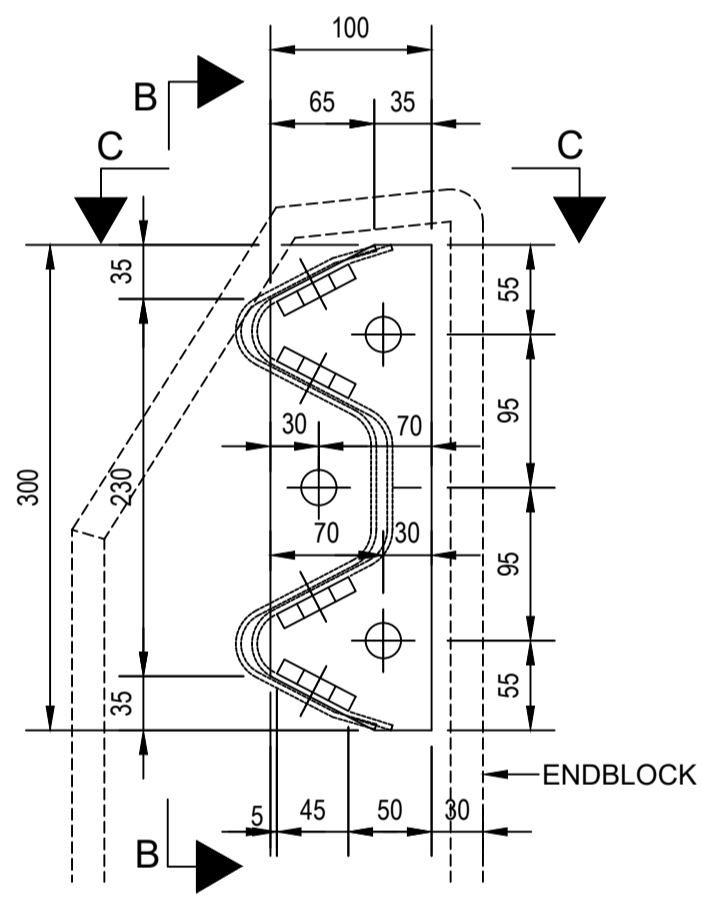


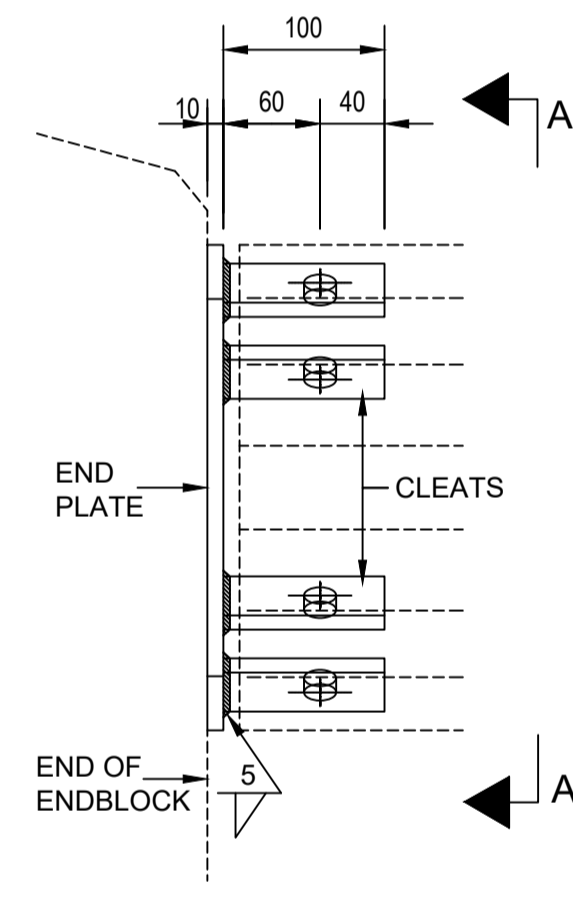
PLAN : BALUSTRADE



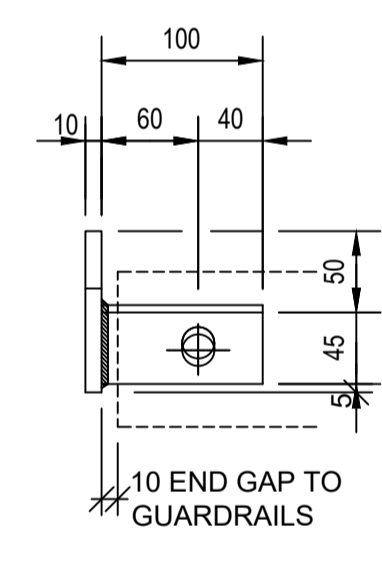
ELEVATION : BALUSTRADE



ELEVATION A-A



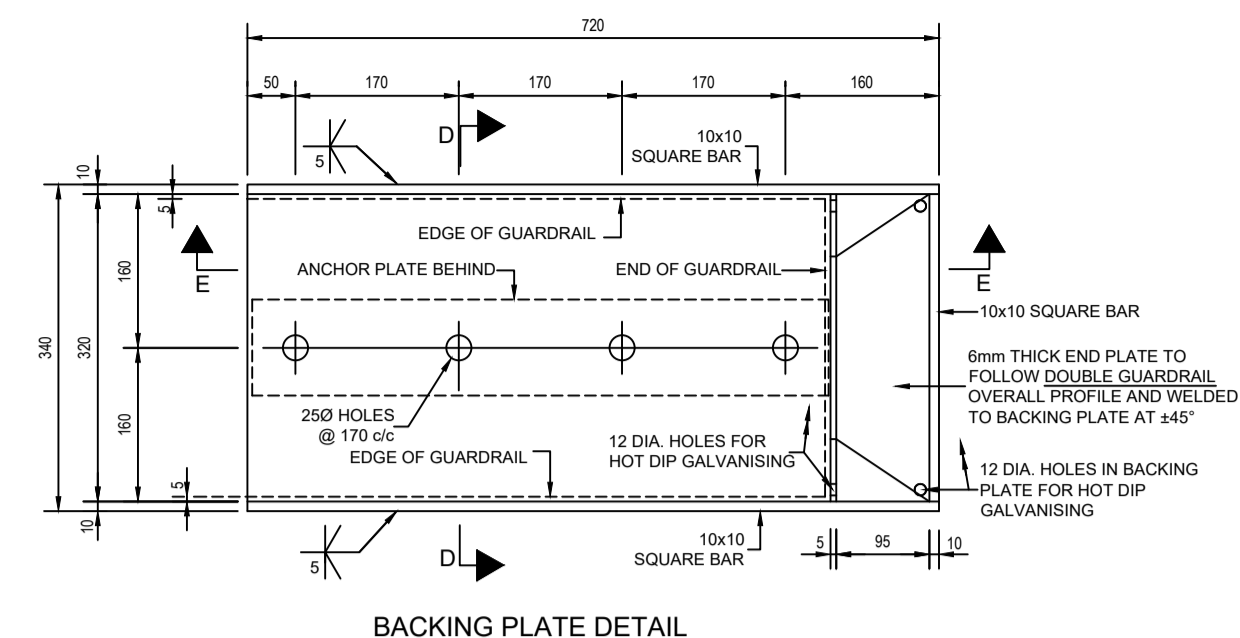
ELEVATION B-B



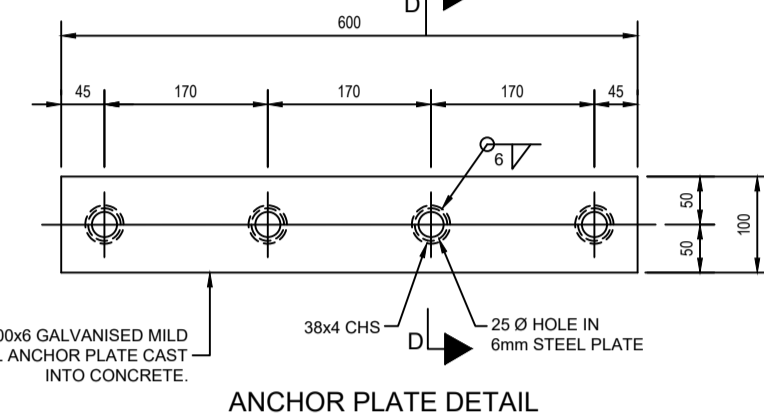
PLAN C-C

MATERIALS  
END PLATE : 100x10 FLAT BAR  
CLEATS : 50x10 FLAT BAR

ALL HOLES ARE 22mm  $\phi$   
FOR M20 BOLT.  
FIXING BOLTS AND THREADED  
ANCHORS

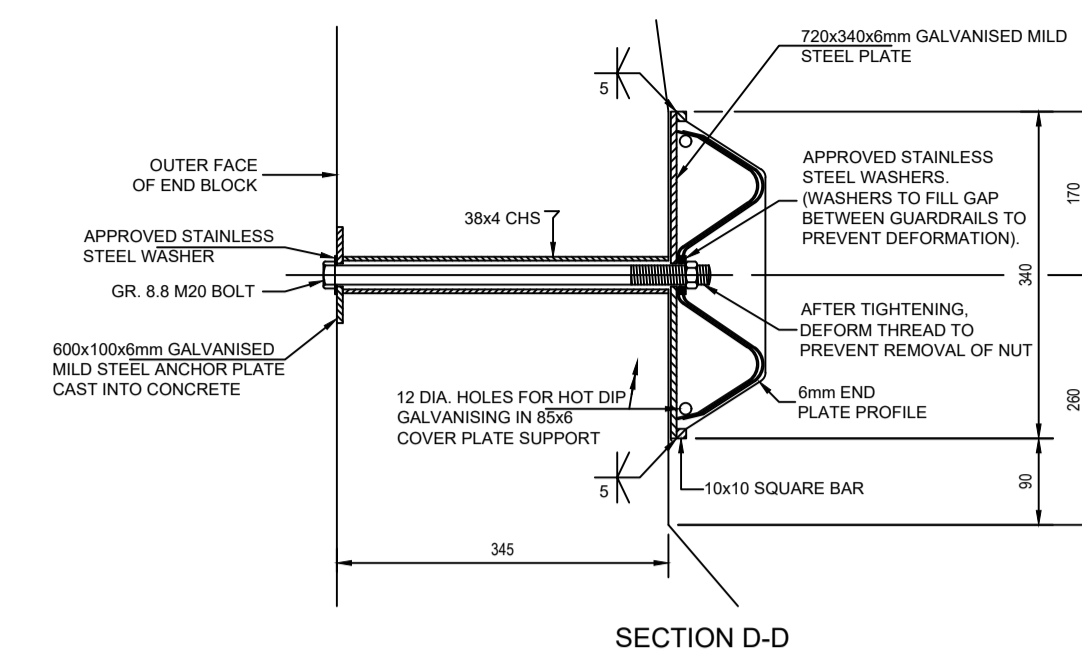


BACKING PLATE DETAIL

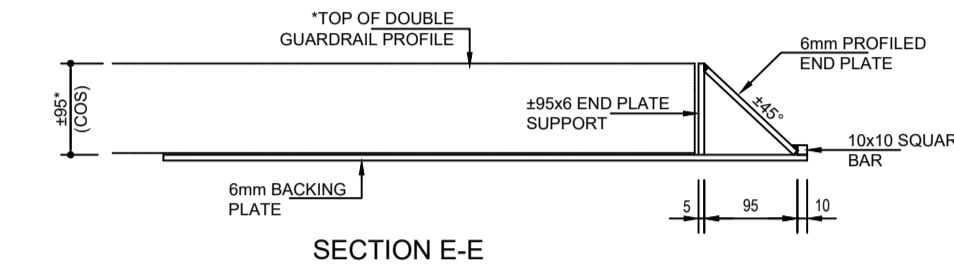


ANCHOR PLATE DETAIL

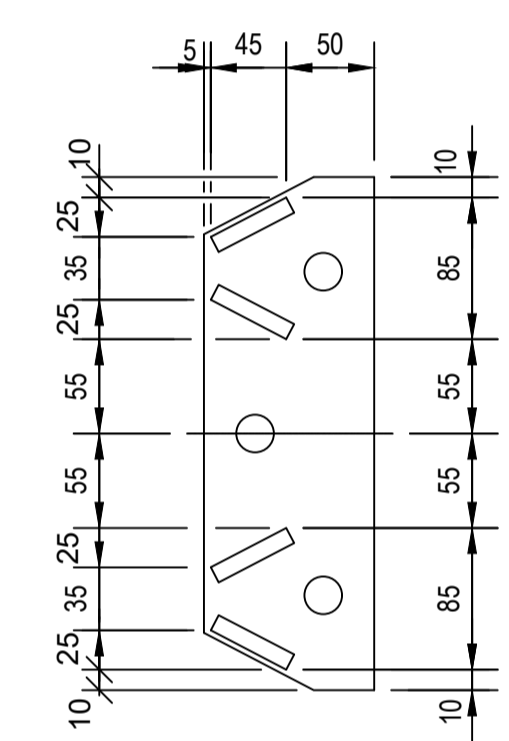
FRONT GUARDRAIL TO END BLOCK CONNECTION DETAILS



SECTION D-D

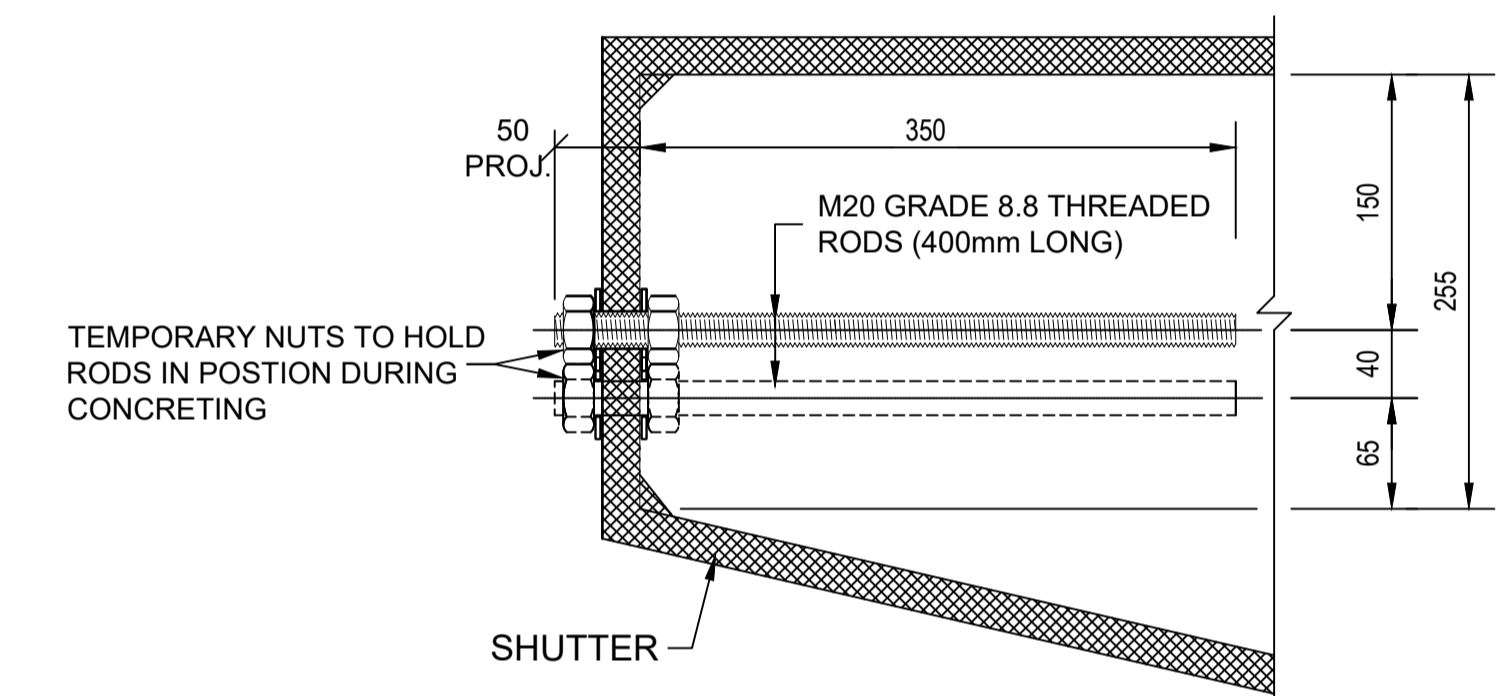


SECTION E-E



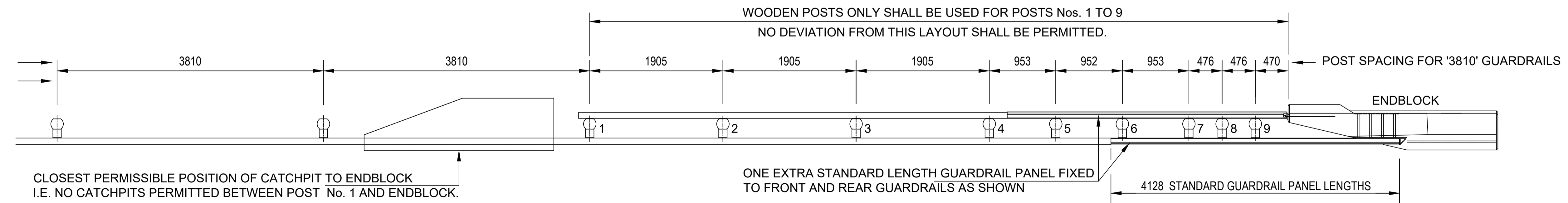
CLEAT SETTING OUT DETAILS

CLEAT SETTING OUT DIMENSIONS ARE PROVISIONAL AND SHALL BE CONFIRMED WITH THE ACTUAL GUARDRAIL SECTION TO BE USED



TYPICAL PLAN SECTION THROUGH END OF END BLOCK

REAR GUARDRAIL TO END BLOCK CONNECTION DETAILS



PLAN

SHOWING POST SPACING AND GUARDRAIL ARRANGEMENT AT BOTH BRIDGE APPROACHES AND DEPARTURES.

GUARDRAIL APPROACH & DEPARTURE DETAILS

NOTES AND SPECIFICATIONS

- GUARDRAILS ARE REQUIRED IN THE FOLLOWING CASES:
  - WHERE WATER NEXT TO THE ROAD FORMATION IS DEEPER THAN 1.5m.
  - AT ALL BRIDGES ON SIDE OF ROAD.
  - ON THE OUTSIDE OF CURVES WITH RADII LESS THAN 300m WITHOUT RECOVERY AREAS.
  - WHERE OBSTRUCTIONS ARE LESS THAN 1m FROM THE SHOULDER BREAKPOINT.
  - WHERE AN OBSTRUCTION APPEARS TO BE MORE DANGEROUS THAN WHAT A GUARDRAIL WOULD BE.
  - IN THE CASE OF EMBANKMENTS / FILLS, THE WARRANTS DIAGRAM WILL APPLY.
- NO GUARDRAILS WILL BE ACCEPTED THAT SHOW SIGNS OF RUST OR OXIDATION
- SPECIFICATIONS:
  - BOLT : HIGH TENSILE STEEL M16
  - WASHER : STEEL WASHER.
  - SPACERBLOCK : GUM OR PINE. TREATED WITH CREOSOTE ACCORDING TO ANY METHOD IN SANS 10005.
  - POLE : 150mm TO 180mm GUM OR PINE TREATED WITH CREOSOTE ACCORDING TO ANY METHOD IN SANS 10005.
  - ALL GUARDRAILS SHALL BE GALVANIZED AS SPECIFIED (NOT PAINTED).
  - ALL STRUCTURAL STEEL, INCLUDING TUBES, SHALL BE GALVANIZED IN ACCORDANCE WITH THE REQUIREMENTS OF SABS 763 FOR TYPE A1 OR B1 ARTICLES AS APPLICABLE (OR LATEST).
  - ALL WELDING WILL BE DONE PRIOR TO GALVANIZING.
  - ALL EXISTING GUARDRAILS TO BE MAINTAINED AT EXISTING HEIGHT UNLESS SPECIFIED BY ENGINEER.
  - ALSO REFER TO SECTION 611 OF THE STANDARD SPECIFICATION FOR MUNICIPAL CIVIL ENGINEERING WORKS, 3rd EDITION, 2005.

AMENDMENTS				
NR.	DATE	APPROVED	DESCRIPTION	PAR.

DESIGNED J.M. CRONJE Pr.Tech. Eng.	DRAWN S. AUDIE
DESIGN CHECKED BY S. NAIDOO Pr.Tech. Eng.	INFRASTRUCTURE TECHNICAL INFORMATION MANAGEMENT D.J. CHALMERS

**CITY OF TSHWANE**  
ROADS AND TRANSPORT DEPARTMENT

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PRETORIA  
0001

DIVISIONAL HEAD  
Mr. Marven K. Thagale  
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TRANSPORT INFRASTRUCTURE DESIGN AND CONSTRUCTION DIVISIONAL HEAD Mr. K. Thagale (Marven)	TRANSPORTATION PLANNING DIVISIONAL HEAD Mr. L. Swaneepoel (Lourens)
SIGNATURE: _____	SIGNATURE: _____
DATE: _____	DATE: _____
DRAWING APPROVED BY GROUP HEAD Mr. Letsofane P. (Pheko)	
SIGNATURE: _____	DATE: _____

LOCATION OF PROJECT:

## TYPICAL STANDARD DETAILS

DESCRIPTION OF PROJECT:

## GUARDRAILS

NEW GUARDRAIL TO BRIDGE CONNECTIONS

CONTRACT No.:	PROJECT No.:
DATE: 21 October 2020	SCALE: NOT TO SCALE
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