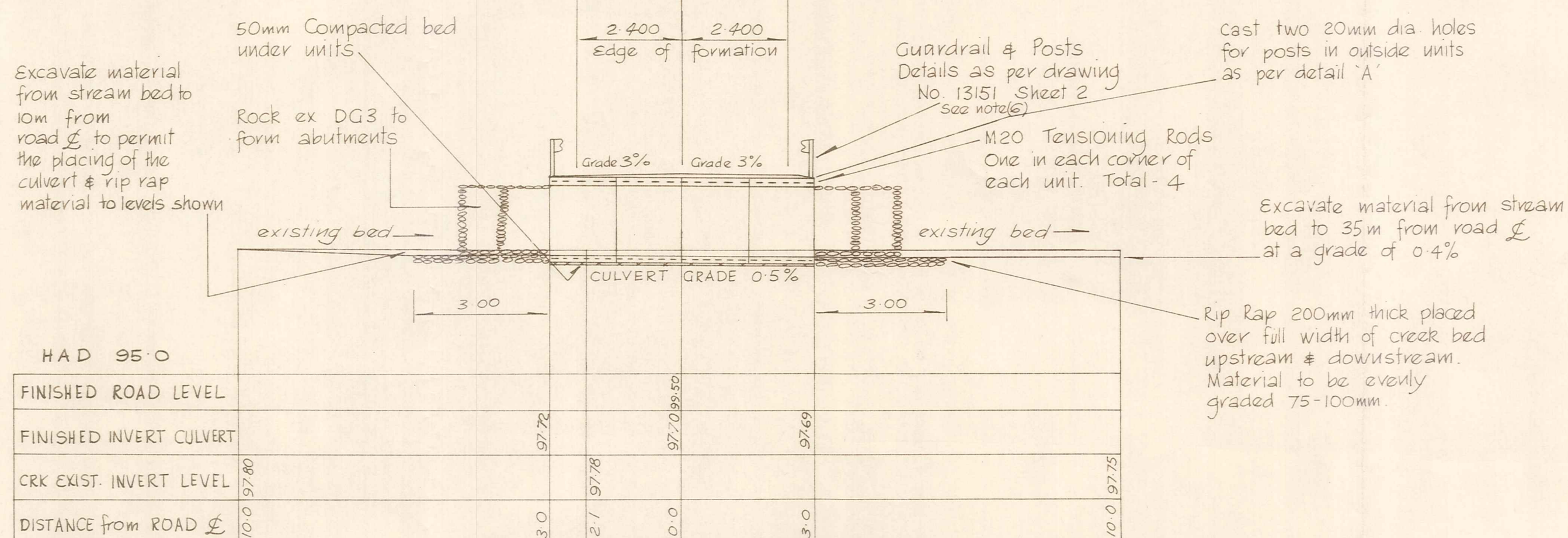


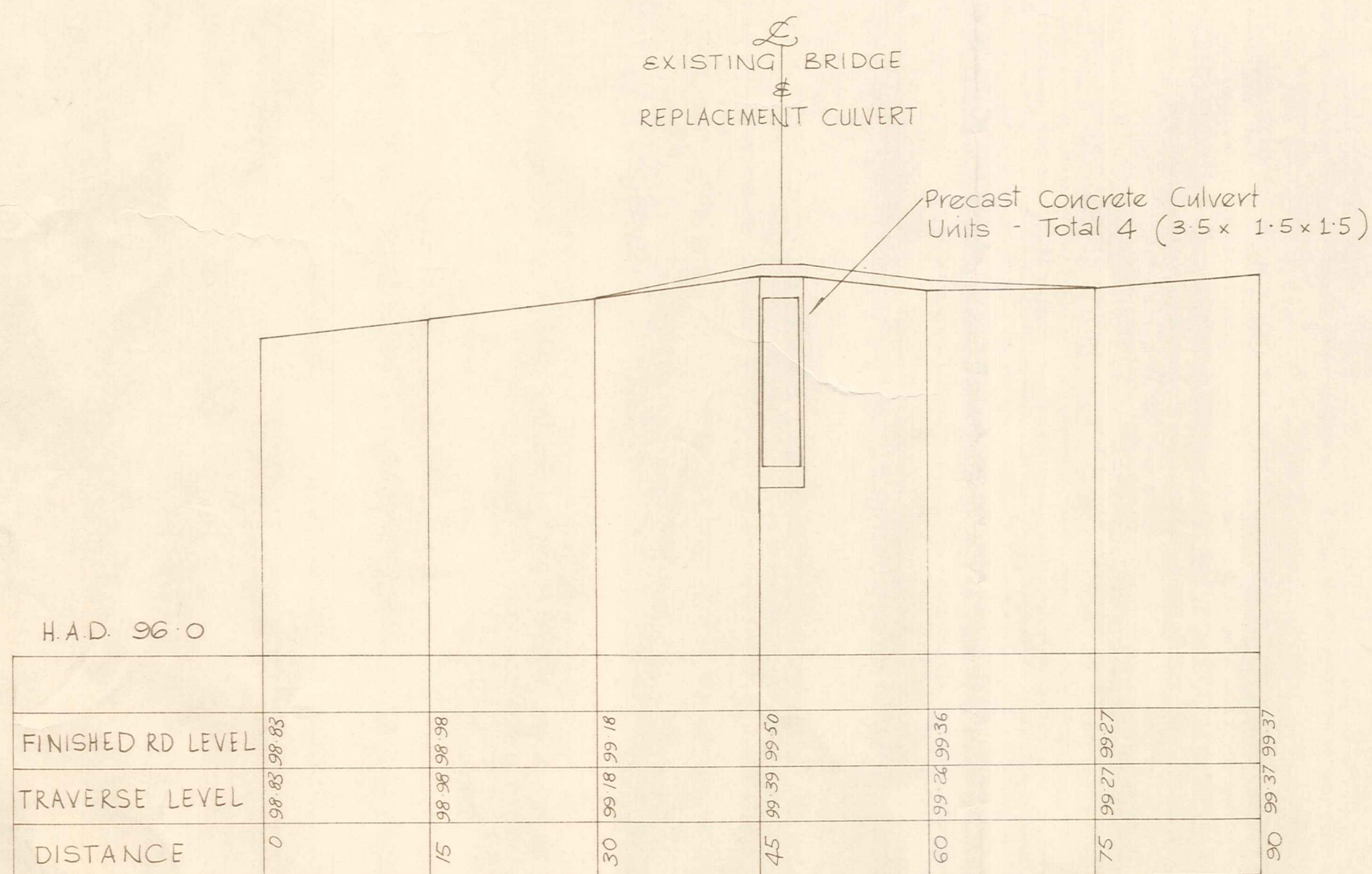
PLAN

Scale 1:500



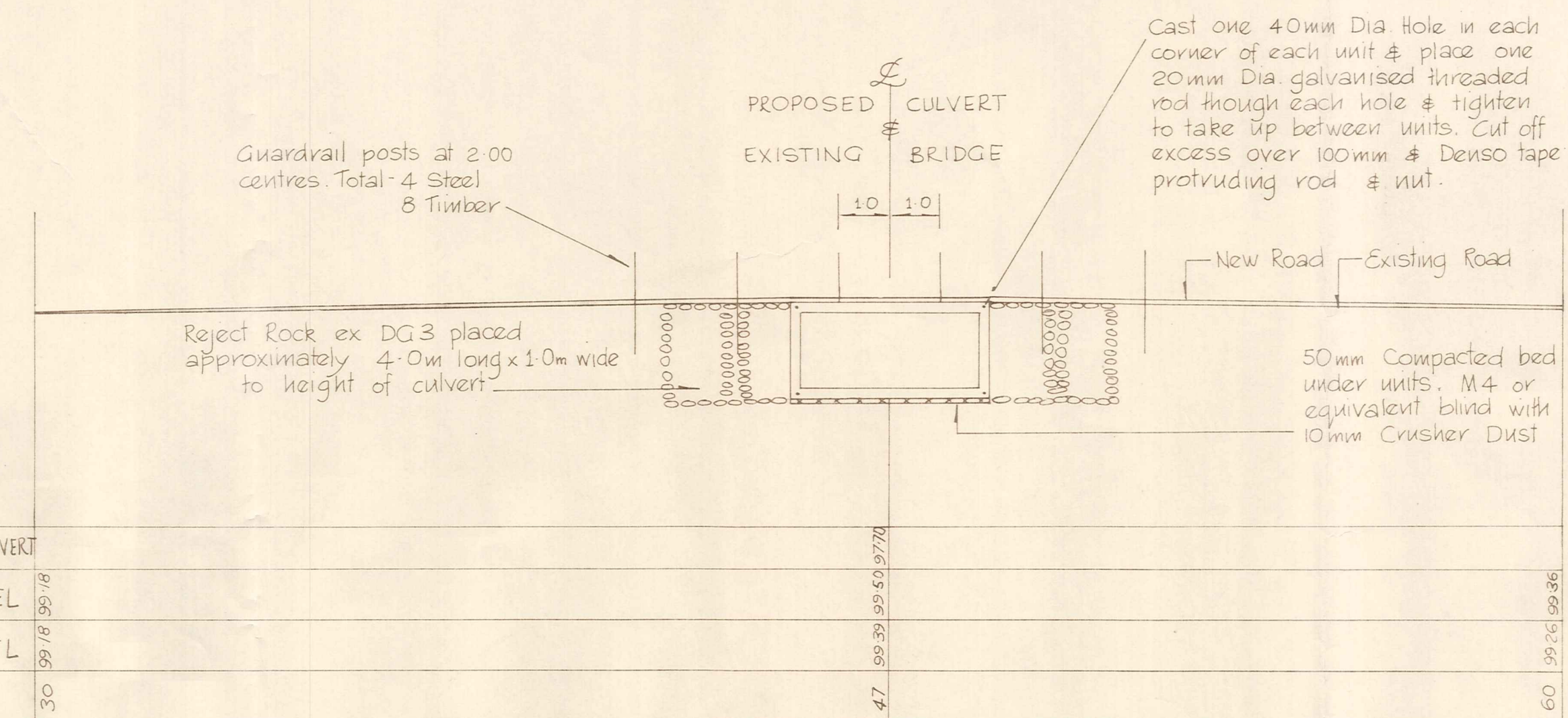
SECTION ALONG STREAM BED

Scale 1:100



LONGSECTION ℄ of ROAD

Scale Horiz. 1:500  
Vert. 1:50



SECTION ALONG ROAD ℄

Scale 1:100

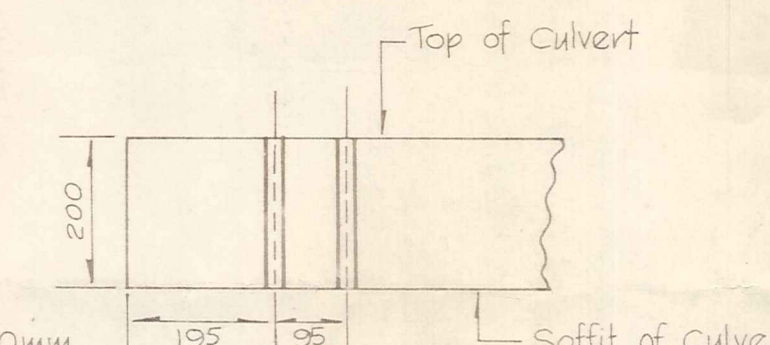
- NOTES ----
1. Existing Bridge not shown on sections
  2. Remove & dispose of existing Bridge & Abutments
  3. Culvert Structure consists of 4 x 3.5m x 1.5m x 1.5m precast box culverts bolted together as detailed
  4. Hydraulic Data ---

$$\begin{aligned} \text{Culvert Gradient} &= 0.005 \text{ m/m} \\ \text{Area (A)} &= 5.25 \text{ m}^2 \\ \text{Hydraulic Radius (R)} &= 0.808 \\ n &= 0.015 \end{aligned}$$

$$\begin{aligned} \text{Hence } Q &= \frac{A \times R^{2/3} \times S^{1/2}}{n} \\ &= \frac{5.25 \times 0.808^{2/3} \times 0.005^{1/2}}{0.015} \\ &= 21.5 \text{ m}^3/\text{sec.} \\ v &= 4.1 \text{ m/sec.} \end{aligned}$$

5. Map Reference S134 - 413702

6. Guardrail Posts to be 780mm above ground or deck level.



DETAIL 'A' SECTION OF CULVERT

No.	Revisions	Date	Appvd
Designed	H S D NORDEN	Date 3/86	Print Date
Drawn	H S D NORDEN & M J CRAWLY	3/86	
Checked		12 & 86	
Approved			
File	4043/2/27	L.B. 603	F.B.

**DUFFILL WATTS & KING LTD**  
Consulting Civil & Structural Engineers  
Dunedin Invercargill Alexandra Queenstown

Client  
**VINCENT COUNTY COUNCIL**

Project  
LAUDER-MATAKANUI BACK ROAD  
DRYBREAD TAILINGS STREAM

Sheet Title  
**BRIDGE RENEWAL**

Job No.	Sheet No.	Revision
13288	1	1