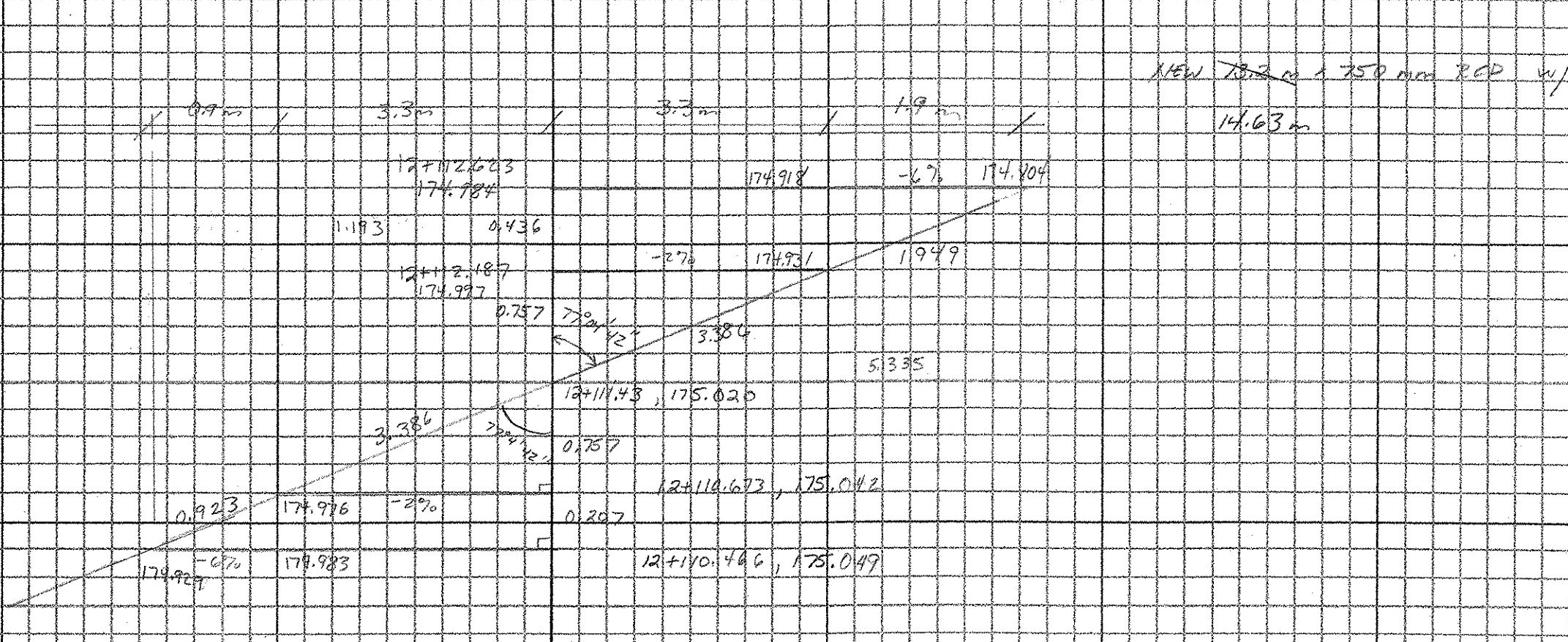
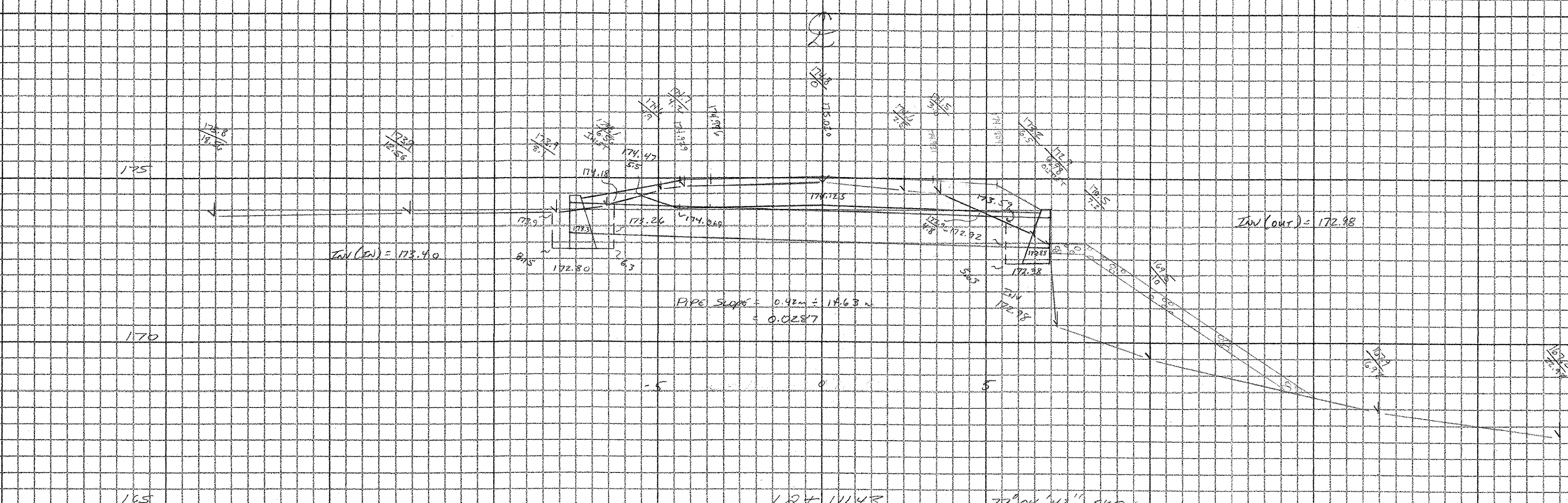


**DRAINAGE SYSTEM # 23**

12+110.64m LT ~ 12+113.60m RT



$\sin 72.072^\circ = \frac{3.8}{x}$   
 $x = 3.886$   
 $\sin 72.072^\circ = \frac{4.2}{y_1}$   
 $y_1 = 4.807$   
 $\tan 72.072^\circ = \frac{3.3}{y_2}$   
 $y_2 = 0.984$   
 $y = 0.984$

**20% TRENCH EXCAVATION OF EARTH**

(HW) :	FACE :	(HW) :
-6.15 172.80	-6.3 172.80	5.63 172.38
-6.3 172.80	-5.63 172.38	6.88 172.38
-6.3 172.18	-5.63 172.58	6.88 172.90
-6.56 172.1	-4.7 172.86	6.5 172.2
-8.1 172.9	0 174.125	5.63 172.57
-8.15 172.9	-4.309 174.069	5.63 172.97
-8.15 172.80	-6.3 174.17	
	-6.3 174.18	
	-6.3 172.26	
$A_1 = 2.251 \text{m} \times 4.0 \text{m}$		$A_4 = 1.205 \text{m} \times 4.0 \text{m}$
$Vol_1 = 9.004 \text{m}^3$	$A_2 = 11.872 \text{m} \times 1.93 \text{m}$	$Vol_2 = 4.82 \text{m}^3$
	$Vol_3 = 22.913 \text{m}^3$	
<b>TOTAL = 48.217 m<sup>3</sup></b>		

**613.10 Stone Fills, Type I**  
 Est. by C. GREENWOOD  
 (RT)  $0.3 \text{m} \times 1.5 \text{m} \times 4.0 \text{m} = 1.8 \text{m}^3$

**613.11 Stone Fills, Type II**  
 Est. by C. GREENWOOD  
 (LT)  $0.45 \text{m} \times 0.5 \text{m} \times 3.5 \text{m} = 0.7875 \text{m}^3$   
 (RT)  $0.3 \text{m} \times 0.8 \text{m} \times 9 \text{m} = 2.16 \text{m}^3$   
**20.95 m<sup>3</sup>**

**201.25 Concrete Class B**  
 OUTLET:  $2.1645 \text{m}^3$   
 GUT:  $2.60 \text{m}^3$  50mm extra height on headwall  
 FINISHED P-E  
**967.15 REIN. STEEL**  
 $4 \times 2.7 \text{m} = 10.8 \times 1.552 = 16.76 \text{kg}$   
 $4 \times 2.7 \text{m} = 10.8 \times 1.552 = 16.76 \text{kg}$   
**33.52 kg**

**201.0835 250mm RCP Class III**  
**14.63m**

$\text{Slope} = \cos 72^\circ \times \frac{1}{1.5} = 0.33$   
 $\text{Slope} = \cos 72^\circ \times \frac{1}{1.5} = 0.33$

CEG  
 2/28/05 / SURP  
 6/26/05



# CROSS SECTION SHEET

PROJECT NAME: GRAFTON - ROCKINGHAM  
 PROJECT NUMBER: STP 0126 (4) 5  
 FILE NAME: DRAINAGE PLOT DATE: 07-JUN-2000 13:  
 PROJECT LEADER: \_\_\_\_\_ DRAWN BY: C. GREENWOOD  
 DESIGNED BY: \_\_\_\_\_ CHECKED BY: D. BREITL  
 const: g:/common/cadd/m-xsection.dgn SHEET 18 OF 23