



TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

DIPLOMA IN CIVIL ENGINEERING

ECV 2302: MEASUREMENTS OF CIVIL ENGINEERING WORKS

END OF SEMESTER EXAMINATION

SERIES: APRIL 2016

TIME: 2 HOURS

### INSTRUCTIONS TO CANDIDATES

You should have the following for this examination

- Answer booklet
- Pocket calculator
- Standard method of measurement for Civil Engineering works

This paper consists of **FIVE** questions

Answer any **THREE** questions

Maximum marks for each part of a question are as shown



## QUESTION ONE

Take off all quantities for retaining wall in shown in drawing no 01. (20marks)

## QUESTION TWO

Take off all quantities for the pipeline shown in drawing no 02. (20marks)

## QUESTION THREE

Take off all quantities for the site clearance works shown drawing no 03. (20marks)

## QUESTION FOUR

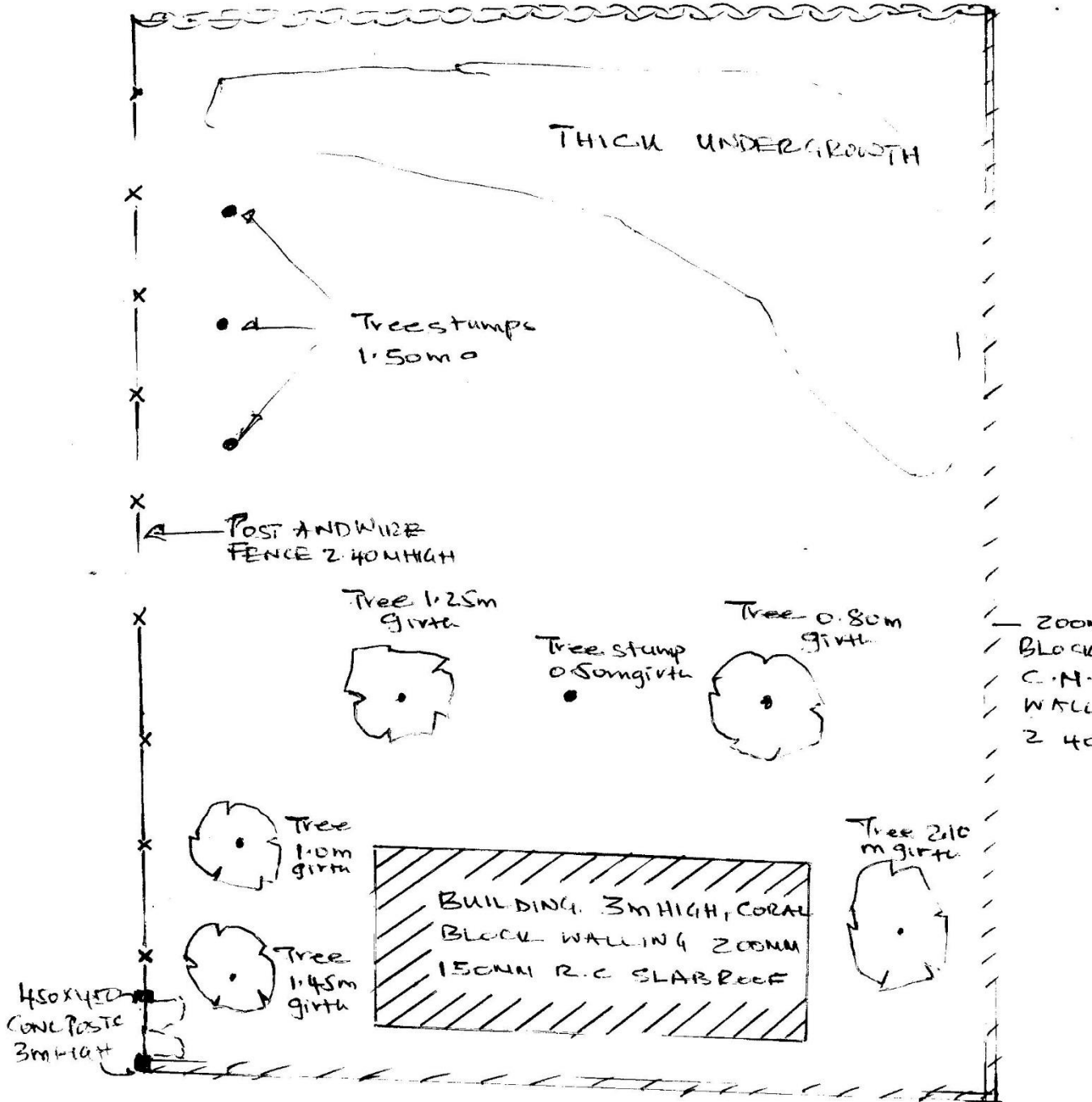
- a) Briefly describe the following types of contracts
  - i) Schedule contracts
  - ii) Target contracts
  - iii) Lump sum contracts (8marks)
  
- b) List and give brief explanation of three items of excavation ancillaries (6marks)
- c) List and give brief explanation of three items of concrete ancillaries (6marks)

## QUESTION FIVE

- a) Describe the following terms used in civil engineering works
  - i. Prime cost items
  - ii. Nominated subcontractors
  - iii. Provisional sums
  - iv. Contingency (6marks)
  
- b) Outline any **FOUR** methods of tendering (8marks)
  
- c) Describe the following works carried out in bill preparation
  - i) Squaring
  - ii) Abstracting
  - iii) Billing (6marks)

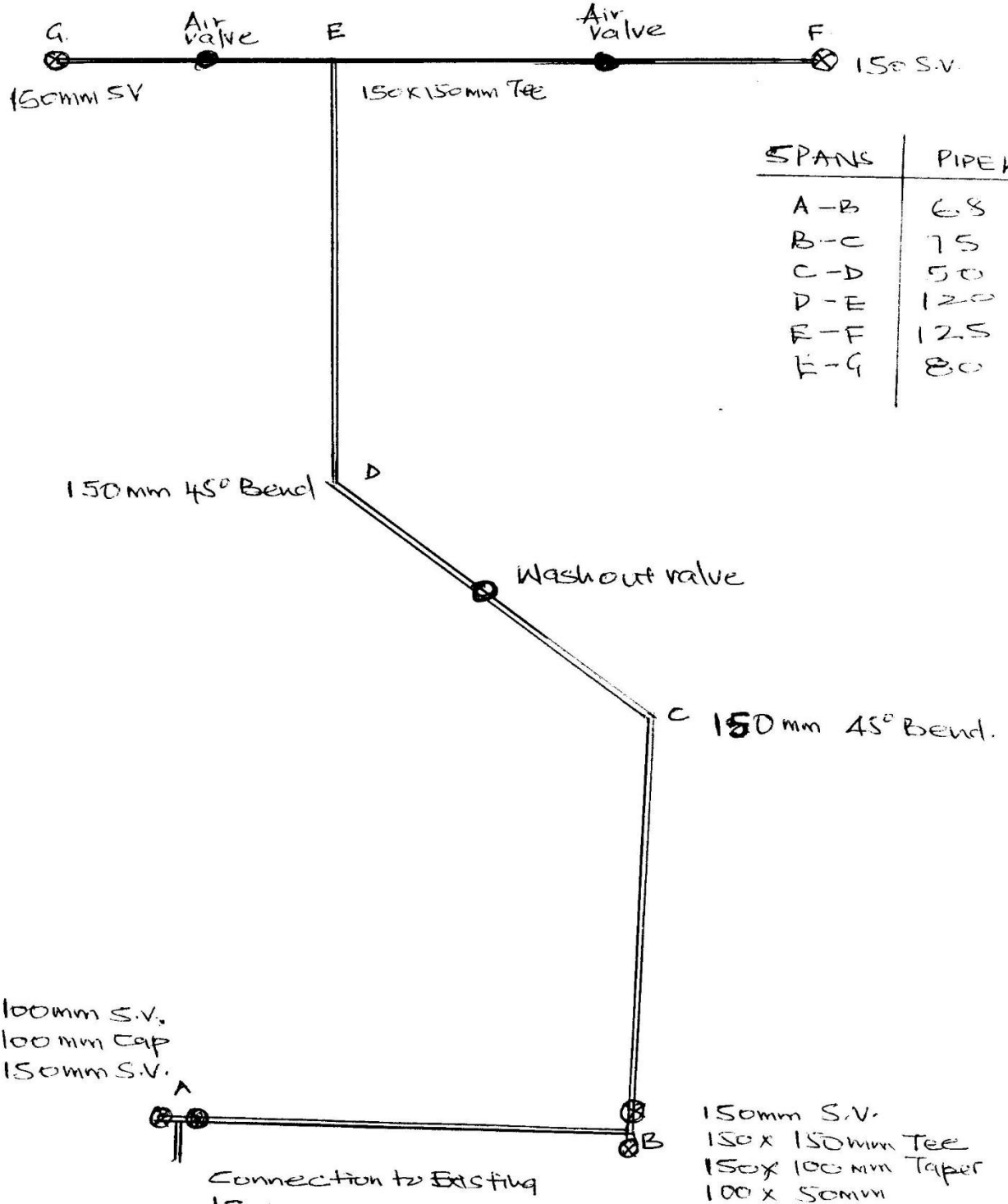


# SITE CLEARANCE



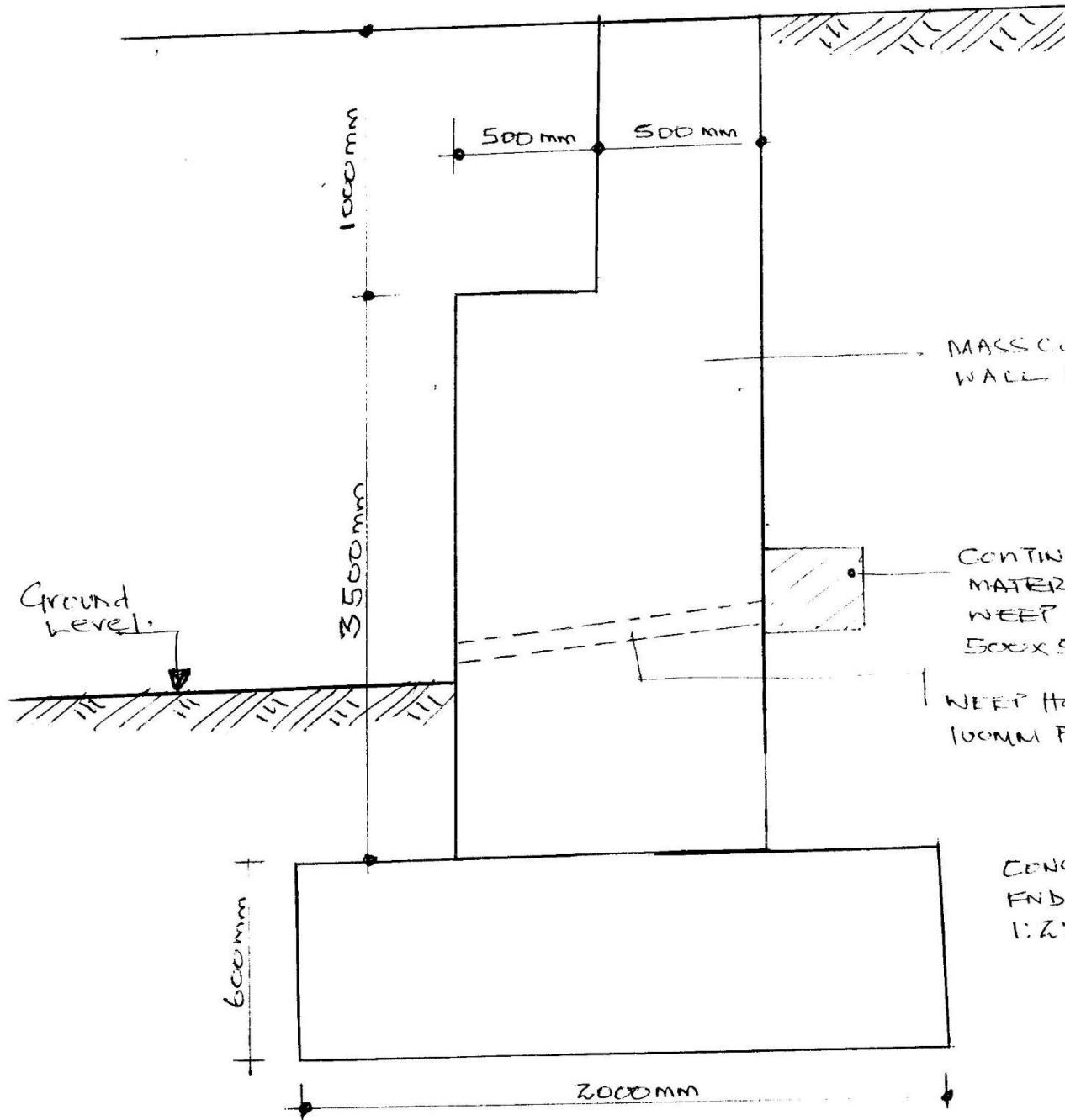
# WATER MAINS.

Note - Water mains to be laid below grass verge.  
To be laid 750mm below existing ground level.



# RETAINING WALL

## SECTION THROUGH WALL



500 mm

500 mm