LAB MANUAL ON CIVIL ENGINEERING DRAWING – II

PREPARED BY

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<center>**Experiment No: 01**</center>

<center>**RCC Slab culvert with right angled wing wall**</center>

Aim:

To draw the plan of RCC Slab culvert with right angled wing wall using the various commands in AutoCAD.

COMMANDS USED:

Zoom, units, limits, dimension, line, offset. Fillet, trim, break, arc, copy, rotate, move, mirror,

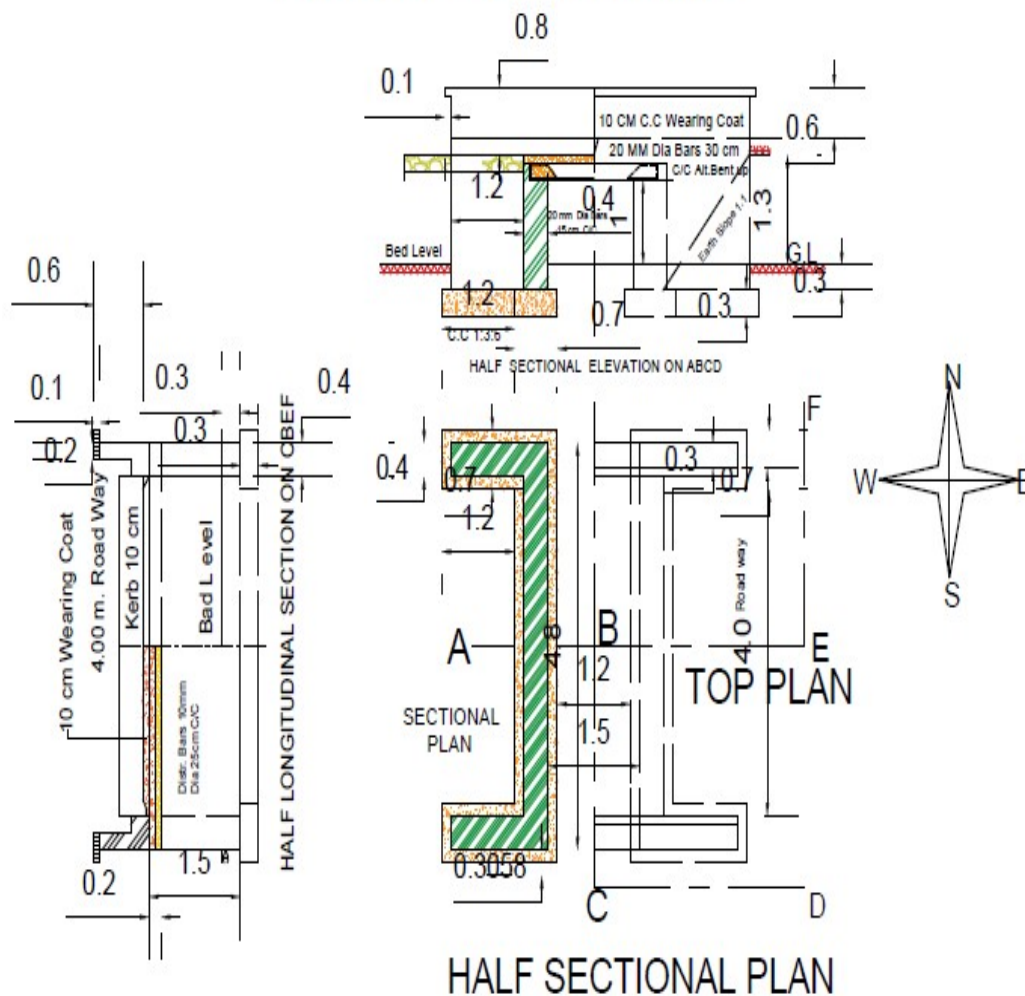Hatch, extend, erase,text, Osnap.

PROCEDURE:

1. The limits are set before starting the drawing. The lower left corner is set as default (0.0000, 0.0000). The upper right corner is set as (150.000, 150.000) .

2. By using units command, set the types as decimal/precision as 0.0000 and units to scale drag and drop content as millimeters. By using line command, the outer line of the plan is drawn with the required dimension.

3. By using offset command, the outer line of the plan is drawn with the required dimension. By using offset command, the thickness of the slab is drawn as per drawing.

4. By using trim command the excess lines are trimmed.

5. By using line command, Half foundation and Top plan of R.C.C slab culvert is drawn as per the given drawing.

6. The lines that cannot be trimmed using trim command are eliminated by break command.

7. By using Hatch command, bed pitching is drawn as per the given drawing.

8. The Half sectional elevation is drawn by extending the outer line of the plan using extend command.

9. The section is drawn on the adjacent side of the elevation by extending the lines.

10. The various representations of Parapet, Bed Block, and C.C Block in foundation, sand filling are completed in the section using hatch command.

11. Using save command, the file having plan, elevation and section is saved by giving the corresponding path name.

RESULT:

The Half Foundation, top Plan and Half sectional elevation of R.C.C slab culvert is is drawn using AutoCAD.

R.C.C. SLAB CULVERT 1.50 m SPAN with standard modular bricks

0.8

0.1

10 CM C.C Wearing Coat 0.6

20 MM Dia Bars 30 cm
C/C Alt.Bent up

1.2   0.4

Bed Level

1.2

C.C 1:3:6   0.7   0.3   0.3

HALF SECTIONAL ELEVATION ON ABCD

0.6

0.1   0.3   0.4

0.3

0.2

10 cm Wearing Coat
4.00 m. Road Way
Kerb 10 cm
Bad L evel

HALF LONGITUDINAL SECTION ON CBEF

Distr. Bars 10mm
Dia 25cm C/C

0.4   0.3

1.2

A   B   E
1.2   TOP PLAN

SECTIONAL
PLAN   1.5

0.3058

C   D

1.5

0.2

HALF SECTIONAL PLAN

N
W   E
S

Experiment No: 02

Drawing of a Drainage siphon from given specifications

Aim:

To draw the plan of a Drainage siphon using the various commands in AutoCAD.

COMMANDS USED:

Zoom, units, limits, dimension, line, offset. Fillet, trim, break, arc, copy, rotate, move, mirror, Hatch, extend, erase,text, Osnap, polyline, ortho
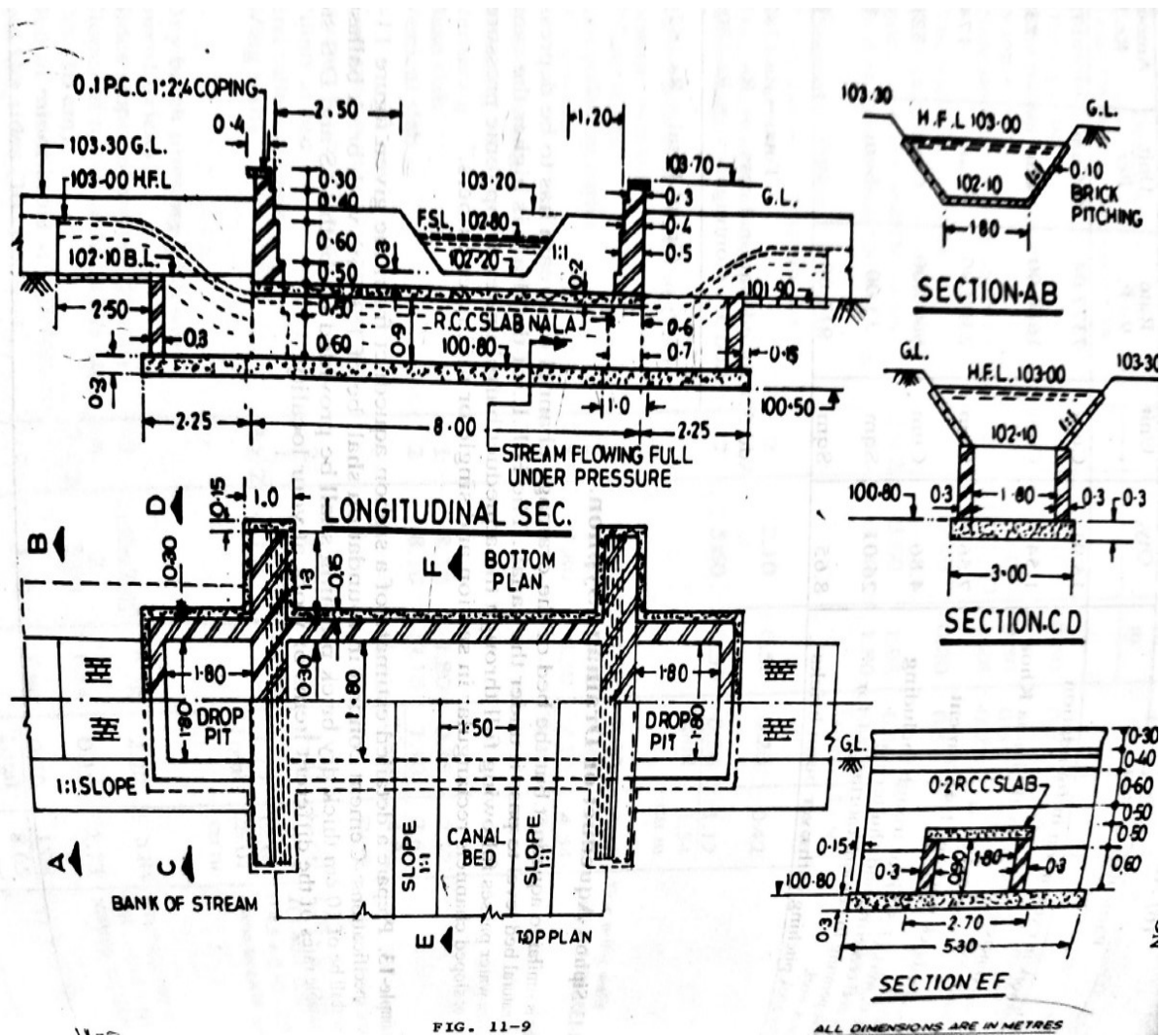
PROCEDURE:

1. The limits are set before starting the drawing. The lower left corner is set as default (0.0000, 0.0000). The upper right corner is set as (200.000, 200.000) .

2. By using units command, set the types as decimal/precision as 0.0000 and units to scale drag and drop content as millimeters. By using line command, the outer line of the plan is drawn with the required dimension.

3. By using offset command, the wall thickness of the RCC slab is drawn as per drawing.

4. By using trim command the excess lines are trimmed.

5. By using line command and polyline command flow line is drawn in Longitudinal section.

6. By using line command and extend command half top and foundation plan of longitudinal section is drawn as per the given drawing.

7. The lines that cannot be trimmed using trim command are eliminated by break command.

8. By using Hatch command, Brick pitching and Concreting part is drawn as per the given drawing.

9. The section A-A, section B-B and section C-C is drawn on the adjacent side of the elevation by extending the lines.

10. The various representations of Brick pitching, concreting section and sand filling are completed in the section using hatch command.

11. Using save command, the file having plan, elevation and section is saved by giving the corresponding path name.

RESULT:

The Longitudinal section, Half top and Foundation plan and various sections of drainage syphon are drawn using AutoCAD.

FIG. 11-9

<div align="center">

Experiment No: 03

Detailed drawing of septic tank up to 50 users with soak pit

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Aim:

To draw the detailed drawings of septic tank up to 50 users with soak pit and necessary connection from the water closet using the various commands in AutoCAD.

COMMANDS USED:

Zoom, units, limits, dimension, line, offset. Fillet, trim, break, arc, copy, rotate, move, mirror,

Hatch, extend, erase,text, Osnap, polyline, ortho
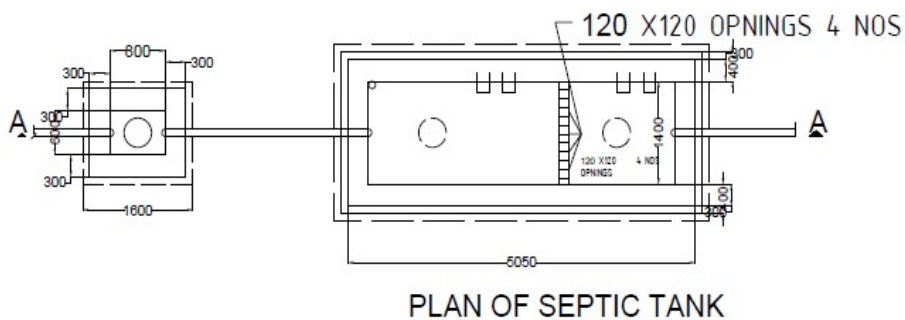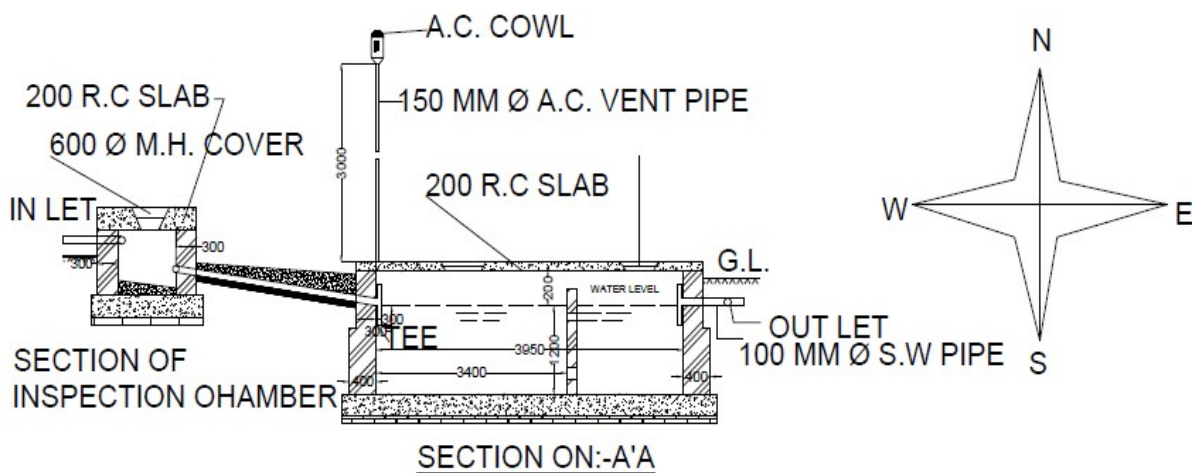
PROCEDURE:

1. The limits are set before starting the drawing. The lower left corner is set as default (0.0000, 0.0000). The upper right corner is set as (200.000, 200.000) .

2. By using units command, set the types as decimal/precision as 0.0000 and units to scale drag and drop content as millimeters. By using line command, the outer line of the plan is drawn with the required dimension.

3. By using offset command, the wall thickness of the RCC slab is drawn as per drawing.

4. By using trim command the excess lines are trimmed.

5. By using line command and polyline command flow line is drawn in Longitudinal section.

6. By using line command and extend command half top and foundation plan of longitudinal section is drawn as per the given drawing.

7. The lines that cannot be trimmed using trim command are eliminated by break command.

8. By using Hatch command, Brick pitching and Concreting part is drawn as per the given drawing.

9. The section A-A, section B-B and section C-C is drawn on the adjacent side of the elevation by extending the lines.

10. The various representations of Brick pitching, concreting section and sand filling are completed in the section using hatch command.

11. Using save command, the file having plan, elevation and section is saved by giving the corresponding path name.

RESULT:

The Longitudinal section, Half top and Foundation plan and various sections of drainage syphon are drawn using AutoCAD.

SECTION ON:-A'A

PLAN OF SEPTIC TANK

ALL DIMENSION ARE MILLIMETER

Experiment No: 04

Detailed drawing of a vertical drop type fall (Sarada fall)

Aim:

To draw the detailed drawings of a vertical drop type fall (sarada fall) using the various commands in AutoCAD.

COMMANDS USED:

Zoom, units, limits, dimension, line, offset. Fillet, trim, break, arc, copy, rotate, move, mirror,

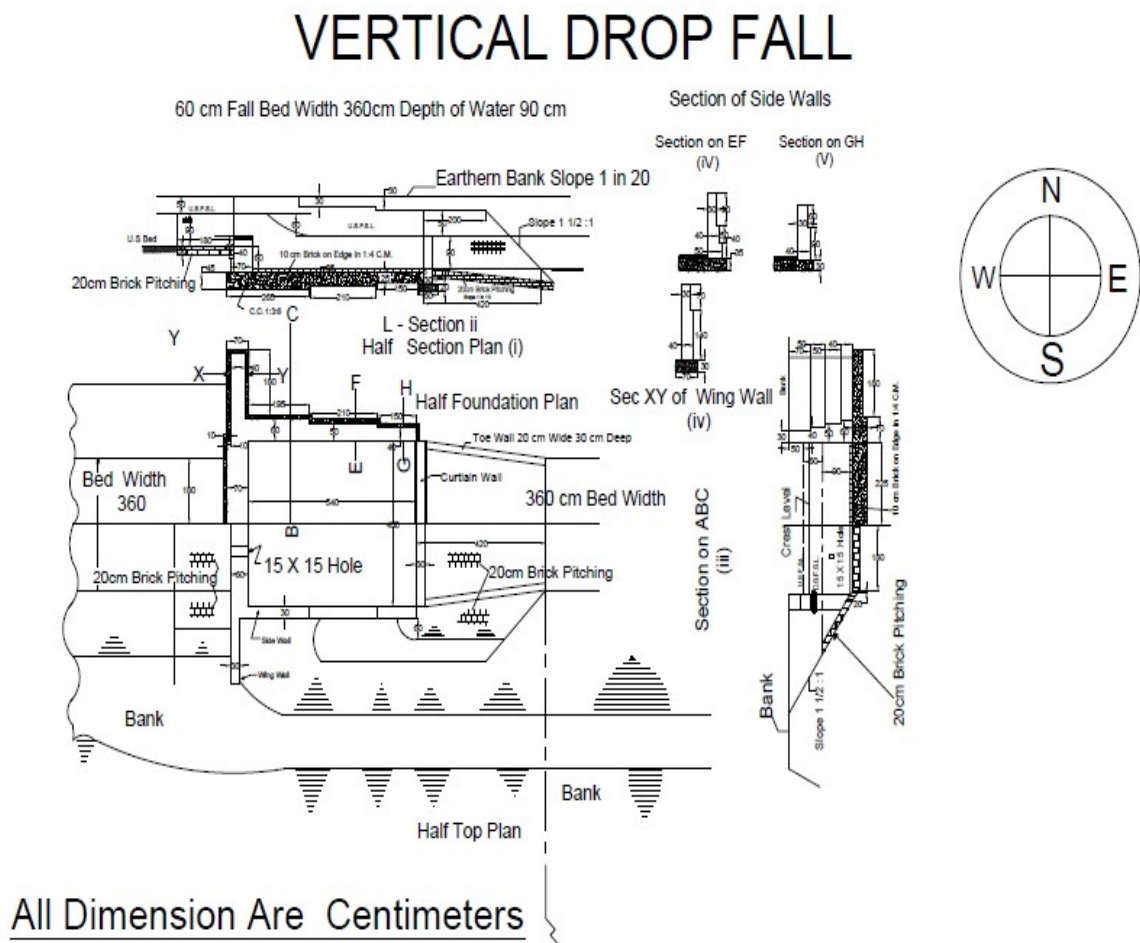Hatch, extend, erase,text, Osnap, polyline, ortho

PROCEDURE:

1. The limits are set before starting the drawing. The lower left corner is set as default (0.0000, 0.0000). The upper right corner is set as (200.000, 200.000) .

2. By using units command, set the types as decimal/precision as 0.0000 and units to scale drag and drop content as millimeters. By using line command, the outer line of the plan is drawn with the required dimension.

3. By using offset command, the foundation and wall thickness of the vertical fall is drawn as per drawing.

4. By using trim command the excess lines are trimmed.

5. By using line command and polyline command flow line, free board and bank section is drawn in Longitudinal section.

6. By using Hatch command , Brick pitching, concrete section , brick on edge are drawn in longitudinal section.

7. By using line command and extend command half top and foundation plan of longitudinal section is drawn as per the given drawing.

8. The lines that cannot be trimmed using trim command are eliminated by break command.

9. By using Hatch command, Brick pitching and Cutoff wall is drawn as per the given drawing.

10. The section ABCD is drawn on the adjacent side of the half top and foundation plan by extending the lines.

11. Using save command, the file having longitudinal section, half top and foundation plan and section is saved by giving the corresponding path name.

RESULT:

The Longitudinal section, Half top and Foundation plan and section ABCD of vertical fall are drawn using AutoCAD.

VERTICAL DROP FALL

All Dimension Are Centimeters

Experiment No: 05

Detailed drawing of Plumbing and Sanitary connection

Aim:

 To draw the detailed drawings of plumbing and sanitary connection using the various commands in AutoCAD.

COMMANDS USED:

Zoom, units, limits, dimension, line, offset. Fillet, trim, break, arc, copy, rotate, move, mirror,
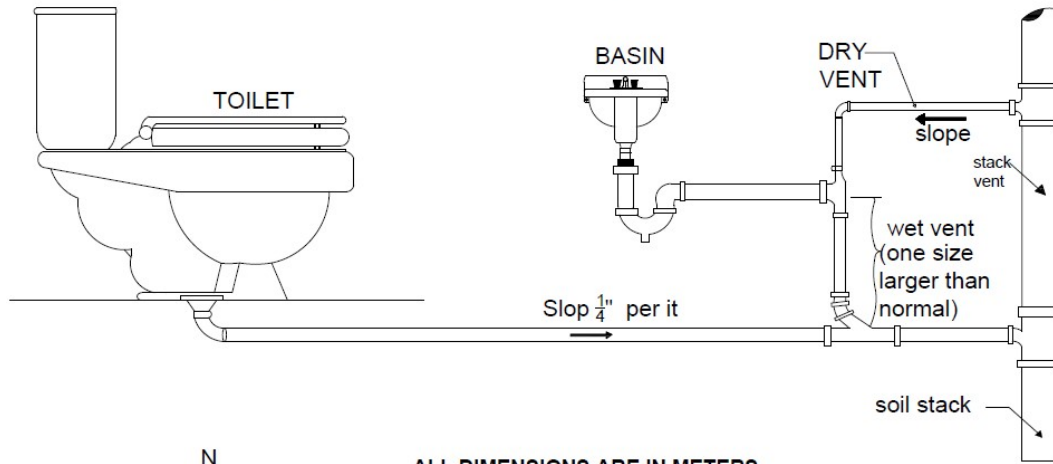
Hatch, extend, erase,text, Osnap, polyline, ortho

PROCEDURE:

1. The limits are set before starting the drawing. The lower left corner is set as default (0.0000, 0.0000). The upper right corner is set as (200.000, 200.000) .

2. By using units command, set the types as decimal/precision as 0.0000 and units to scale drag and drop content as centimeter.

3. By using line command, the branch pipe, vent pipe, stack vent is drawn with the required dimension.

4. By using offset command, the pipe diameter is drawn as per drawing.

5. By using trim command the excess lines are trimmed.

6. By using arc command the joints in pipe is drawn as per the drawing.

7. By using line and arc command, basin is drawn and by using hatch command tap of basin is drawn.

8. By using line command and poly line command the toilet pan , flush tank is drawn.

9. Using save command, the file is saved by giving the corresponding path name.

RESULT:

Plumbing and sanitary connections of building are successfully drawn using AutoCAD.

Plumbing and sanitary connection of building

TOILET

BASIN

DRY VENT

slope

stack vent

wet vent (one size larger than normal)

Slop ¼" per it

soil stack

ALL DIMENSIONS ARE IN METERS

N
W
E
S

Experiment No: 06

Detailed drawing of Hume Pipe culvert with splayed wing wall

Aim:

To draw the detailed drawings of half sectional elevation , cross section, top plan and longitudinal section using the various commands in AutoCAD.

COMMANDS USED:

Zoom, units, limits, dimension, line, offset. Fillet, trim, break, arc, copy, rotate, move, mirror,

Hatch, extend, erase,text, Osnap, polyline, ortho

PROCEDURE:

1. The limits are set before starting the drawing. The lower left corner is set as default (0.0000, 0.0000). The upper right corner is set as (200.000, 200.000) .

2. By using units command, set the types as decimal/precision as 0.0000 and units to scale drag and drop content as centimeter.

3. By using line command, the branch pipe, vent pipe, stack vent is drawn with the required dimension.

4. By using offset command, the pipe diameter is drawn as per drawing.

5. By using trim command the excess lines are trimmed.

6. By using arc command the joints in pipe is drawn as per the drawing.

7. By using line and arc command, basin is drawn and by using hatch command tap of basin is drawn.

8. By using line command and poly line command the toilet pan , flush tank is drawn.

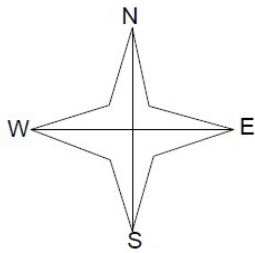9. Using save command, the file is saved by giving the corresponding path name.

RESULT:

Plumbing and sanitary connections of building are successfully drawn using AutoCAD.

PIPE CULVERT

Road

CROSS SECTION XY
OF WING WALL

HALF SECTIONAL ELEVATION ON ABCD

60 cm Dia Pipe

LONGITUDINAL SECTION

20cm Metalling 7

Earth Filling

Collar Joint

10 meter Road Way

60 cm Dia Pipe

TOP PLAN SHOWING
PORTION BELOW
GROUND DOTTED

Face Wall With Parapet above

SECTIONAL PLAN

Collar Joint

TOP PLAN

FOUNDATION PLAN

N

W   E

S