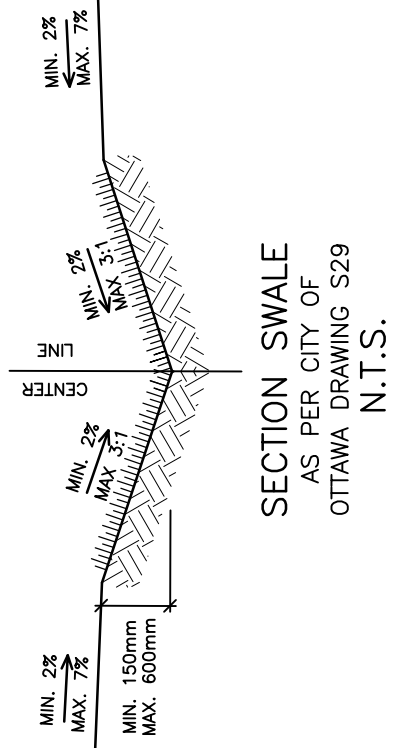
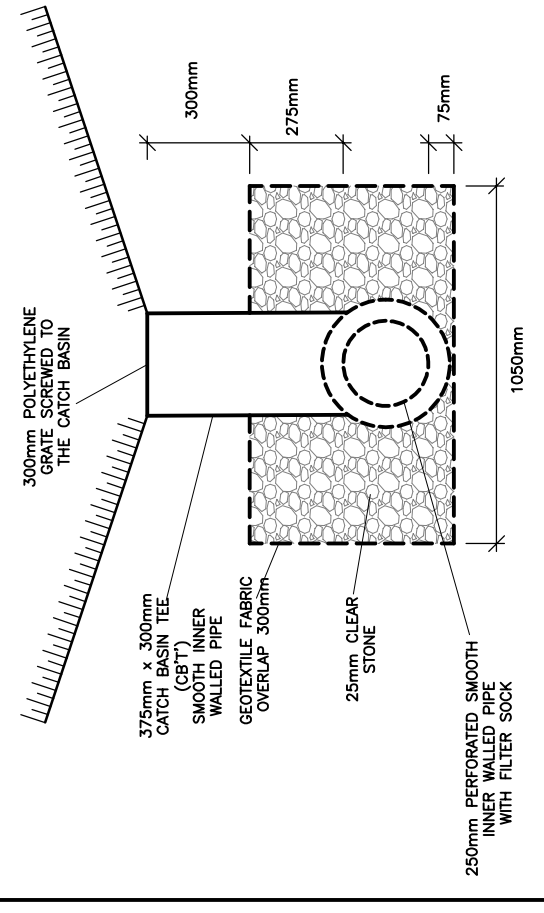


OWNER:
NIVO DEVELOPMENTS INC.
 255 MICHAEL COMPLAND DRIVE
 OTTAWA, ONTARIO, K2M 0M5
 613-224-6200

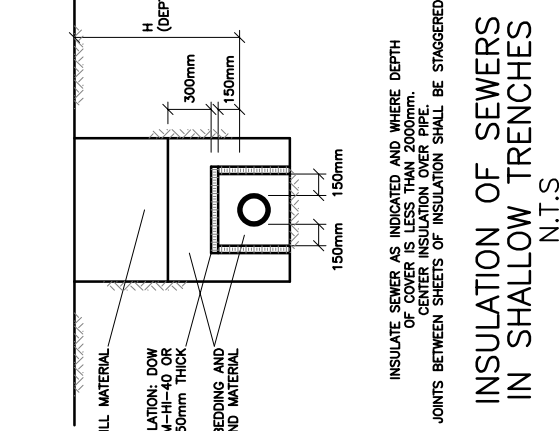
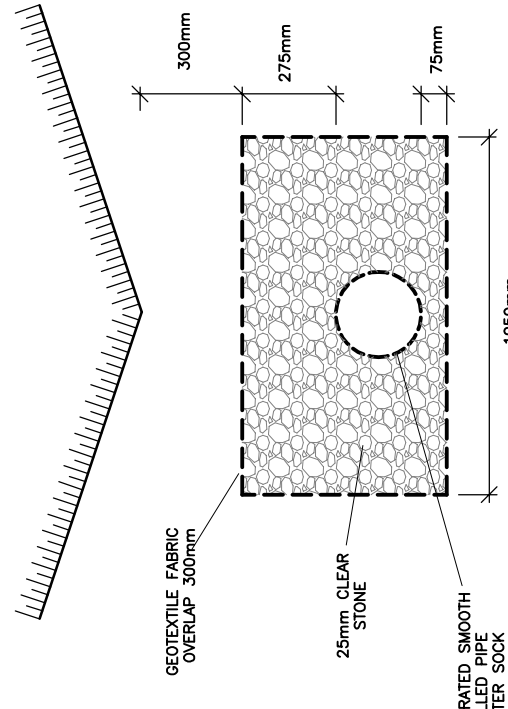
SECTION SWALE AS PER CITY OF OTTAWA DRAWING S29 N.T.S.



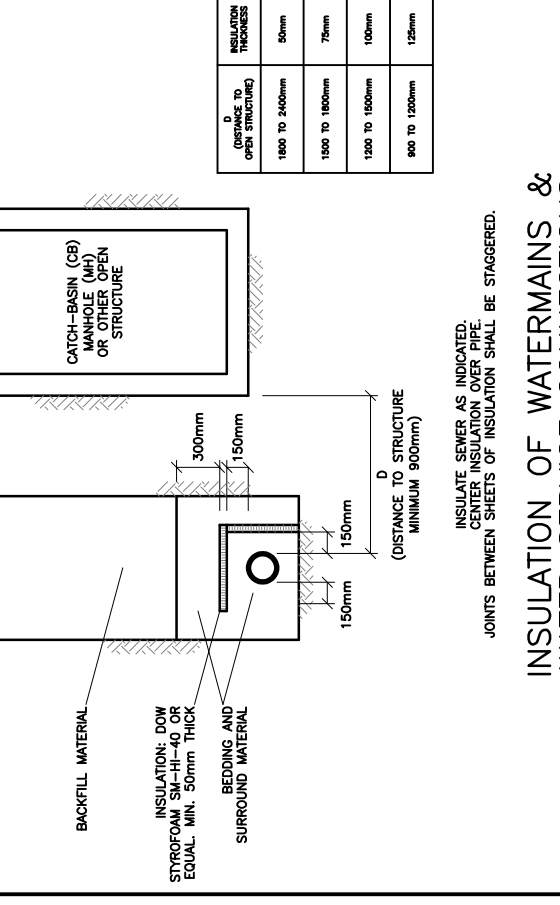
SUB-DRAIN (CONNECT TO STORM MANHOLE OR CATCH BASIN) N.T.S.



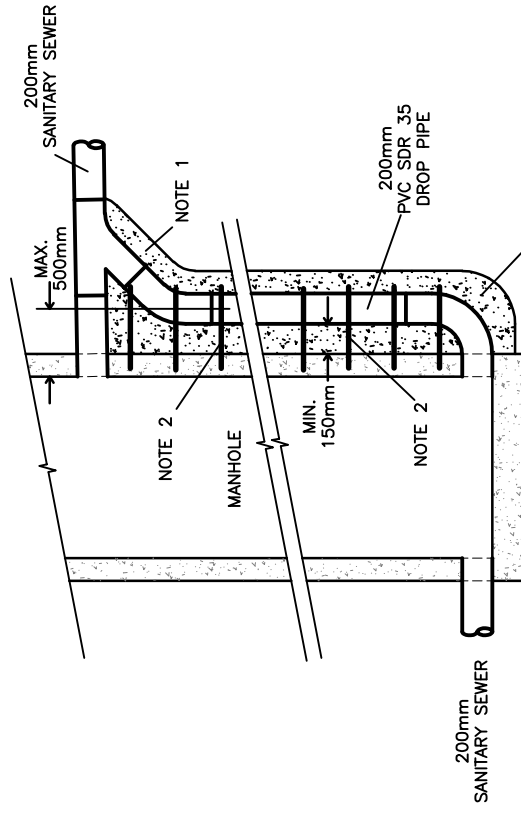
SUB-DRAIN (CONNECT TO STORM MANHOLE OR CATCH BASIN) N.T.S.



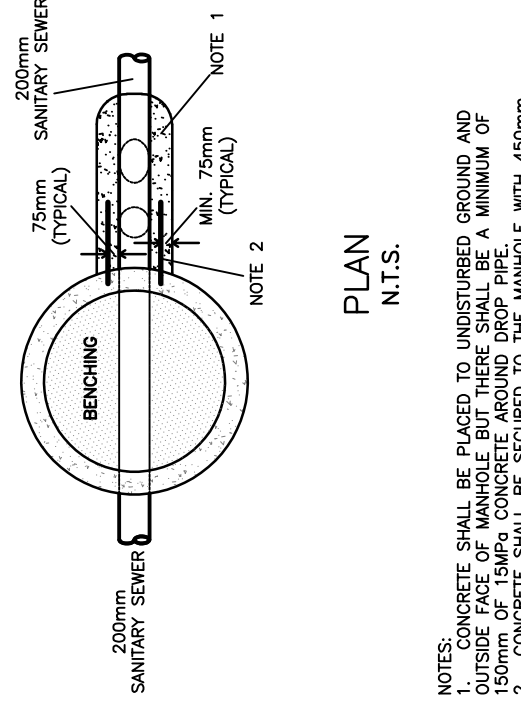
INSULATION OF SEWERS IN SHALLOW TRENCHES N.T.S.



INSULATION OF WATERMAINS & WATER SERVICE CONNECTIONS AT OPEN STRUCTURES AS PER CITY OF OTTAWA DRAWING NO. W23 N.T.S.

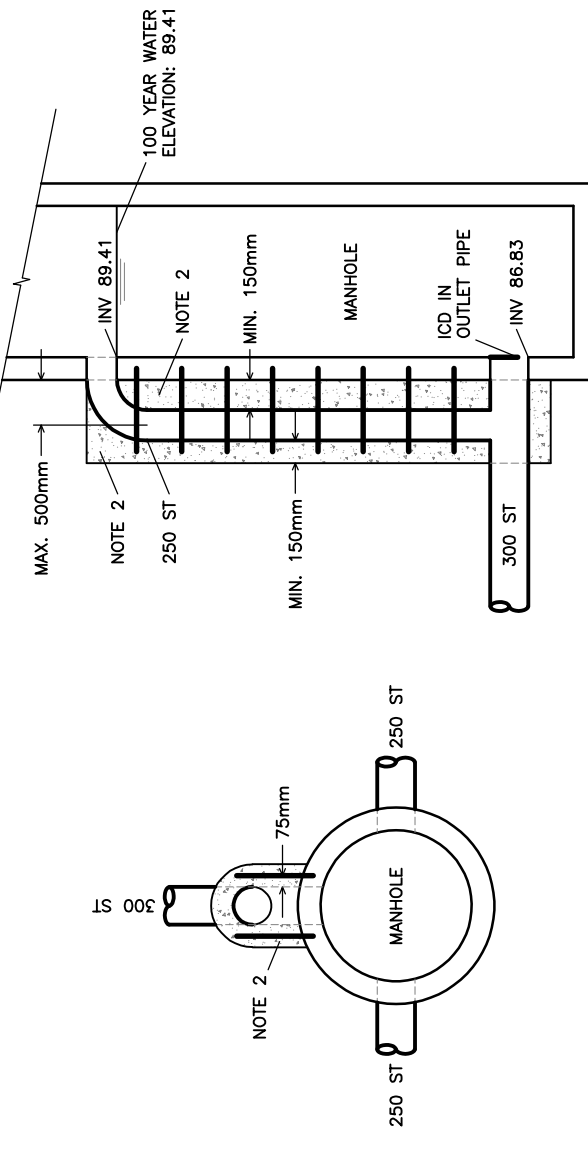


DROP PIPE STRUCTURE AT MANHOLE MH-SA.6 N.T.S.



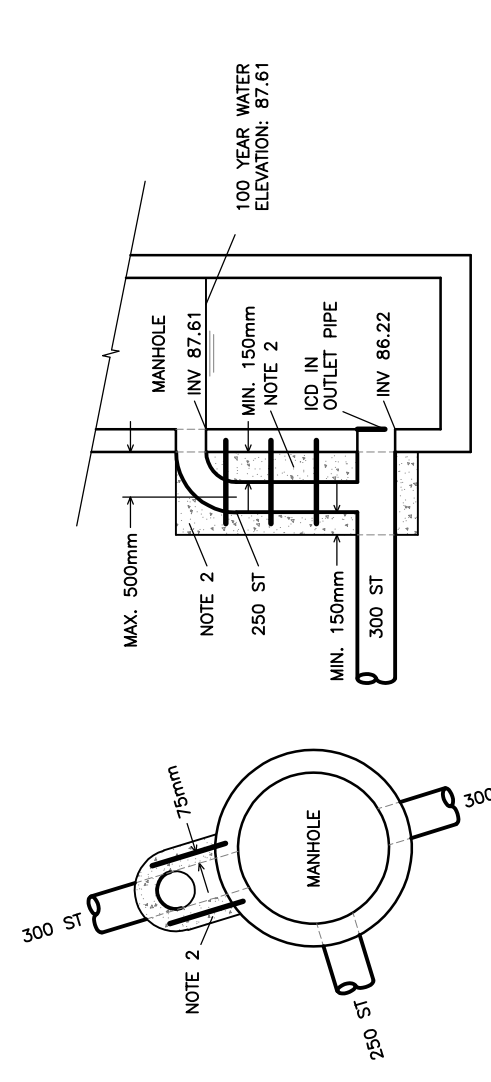
NOTES:
 1. CONCRETE SHALL BE PLACED TO UNDISTURBED GROUND AND OUTSIDE FACE OF MANHOLE BUT THERE SHALL BE A MINIMUM OF 150mm CONCRETE TO BE SECURED TO THE MANHOLE WITH 450mm ANCHORS PLACED AT 300mm ON CENTER.
 2. CONCRETE SHALL BE SECURED TO THE MANHOLE WITH 450mm ANCHORS DOWN EITHER SIDE OF DROP PIPE AT 300mm CENTERS.

SECTION N.T.S.



OVERFLOW DROP PIPE AT MANHOLE CB/MH-4 N.T.S.

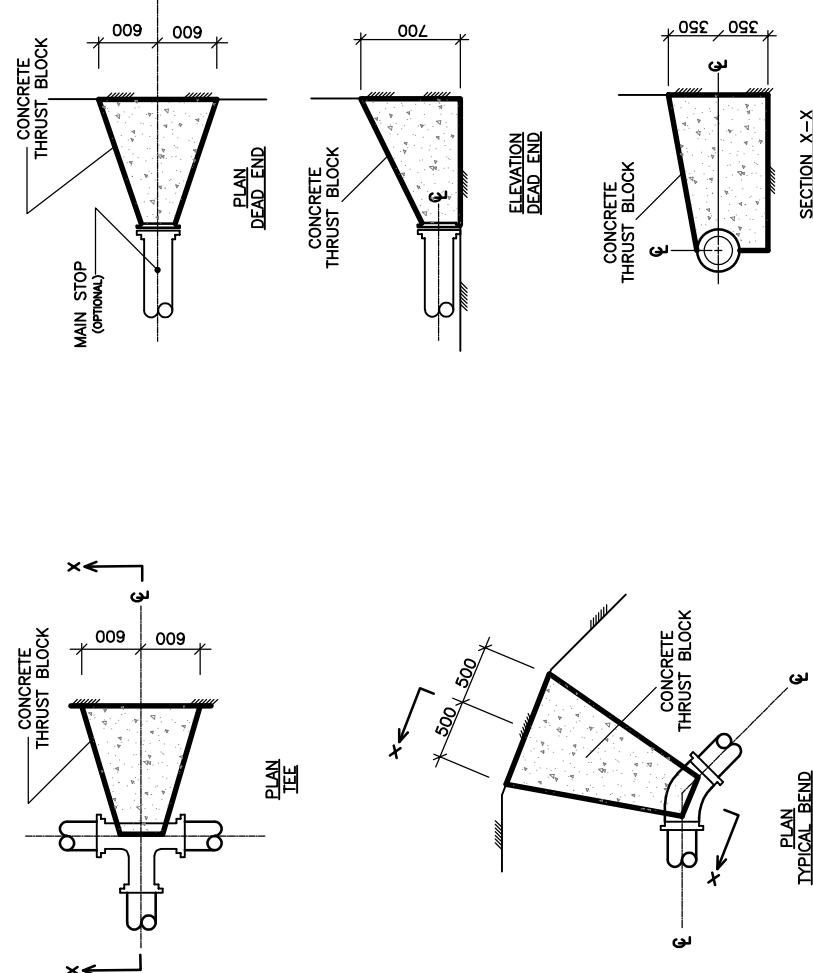
OVERFLOW DROP PIPE SHALL BE PLACED TO UNDISTURBED GROUND AND OUTSIDE FACE OF MANHOLE. CONCRETE SHALL BE A MINIMUM OF 150mm 15 MPa CONCRETE AROUND DROP PIPE. THERE SHALL BE A MINIMUM OF 150mm 15 MPa CONCRETE AROUND DROP PIPE. THE CONCRETE SHALL BE SECURED TO THE MANHOLE WITH 450mm ANCHORS DOWN EITHER SIDE OF DROP PIPE AT 300mm CENTERS.



OVERFLOW DROP PIPE SHALL BE PLACED TO UNDISTURBED GROUND AND OUTSIDE FACE OF MANHOLE. CONCRETE SHALL BE A MINIMUM OF 150mm 15 MPa CONCRETE AROUND DROP PIPE. THERE SHALL BE A MINIMUM OF 150mm 15 MPa CONCRETE AROUND DROP PIPE. THE CONCRETE SHALL BE SECURED TO THE MANHOLE WITH 450mm ANCHORS DOWN EITHER SIDE OF DROP PIPE AT 300mm CENTERS.

OVERFLOW DROP PIPE AT MANHOLE CB/MH-10 N.T.S.

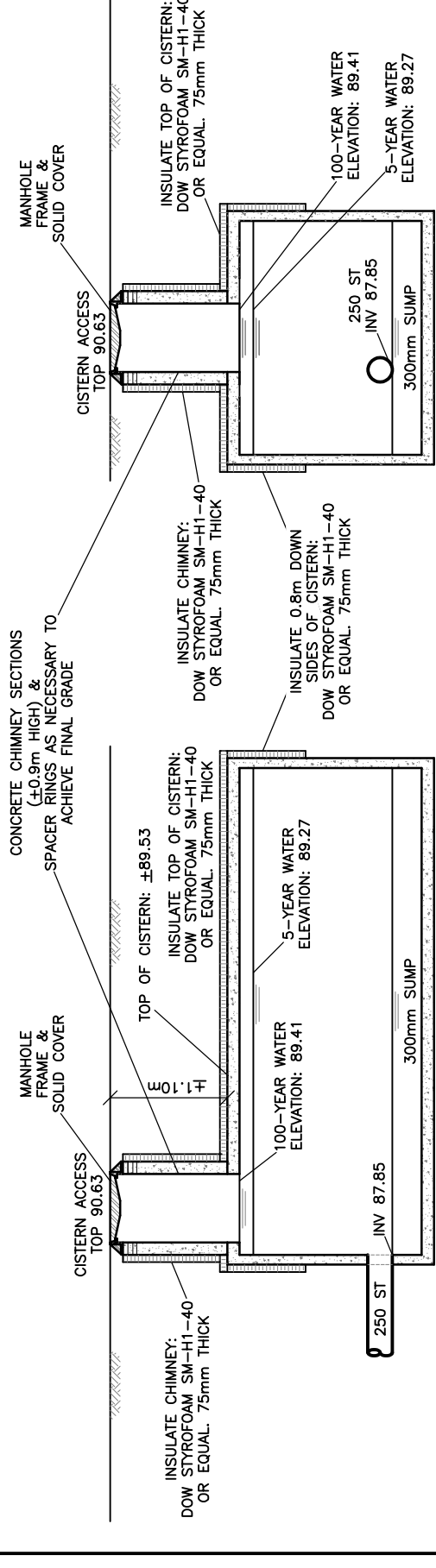
CONCRETE THRUST BLOCKS
 MODIFIED CITY OF OTTAWA DRAWING W95.3 FOR 200mm WATERMAIN AND SOILS HAVING A BEARING CAPACITY OF 90kPa



NOTES:
 1. CONCRETE SHALL BE PLACED TO WITHIN 50mm OF FACE OF THE BELL.
 2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.
 3. THRUST BLOCKS SHALL BE PLACED AGAINST THE THRUST BLOCK TO DETERMINE THE SIZE OF THE BELL.
 4. THRUST BLOCKS SHALL ALSO BE PLACED AGAINST THE THRUST BLOCK TO DETERMINE THE SIZE OF THE BELL.
 5. THE THRUST BLOCKS SHALL BE PLACED AGAINST UNDISTURBED SOIL AT THE BOTTOM AND SIDE OF THE BELL. THE THRUST BLOCKS SHALL BE PLACED AGAINST UNDISTURBED SOIL AT THE BOTTOM AND SIDE OF THE BELL. THE THRUST BLOCKS SHALL BE PLACED AGAINST UNDISTURBED SOIL AT THE BOTTOM AND SIDE OF THE BELL.
 6. EXCEPT FOR THE ADDITION OF WATER, CONCRETE FOR THRUST BLOCKS SHALL COME FROM A LOCAL SOURCE.
 7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY PERMITS AND APPROVALS FOR THE CONSTRUCTION OF THRUST BLOCKS.
 8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY PERMITS AND APPROVALS FOR THE CONSTRUCTION OF THRUST BLOCKS.

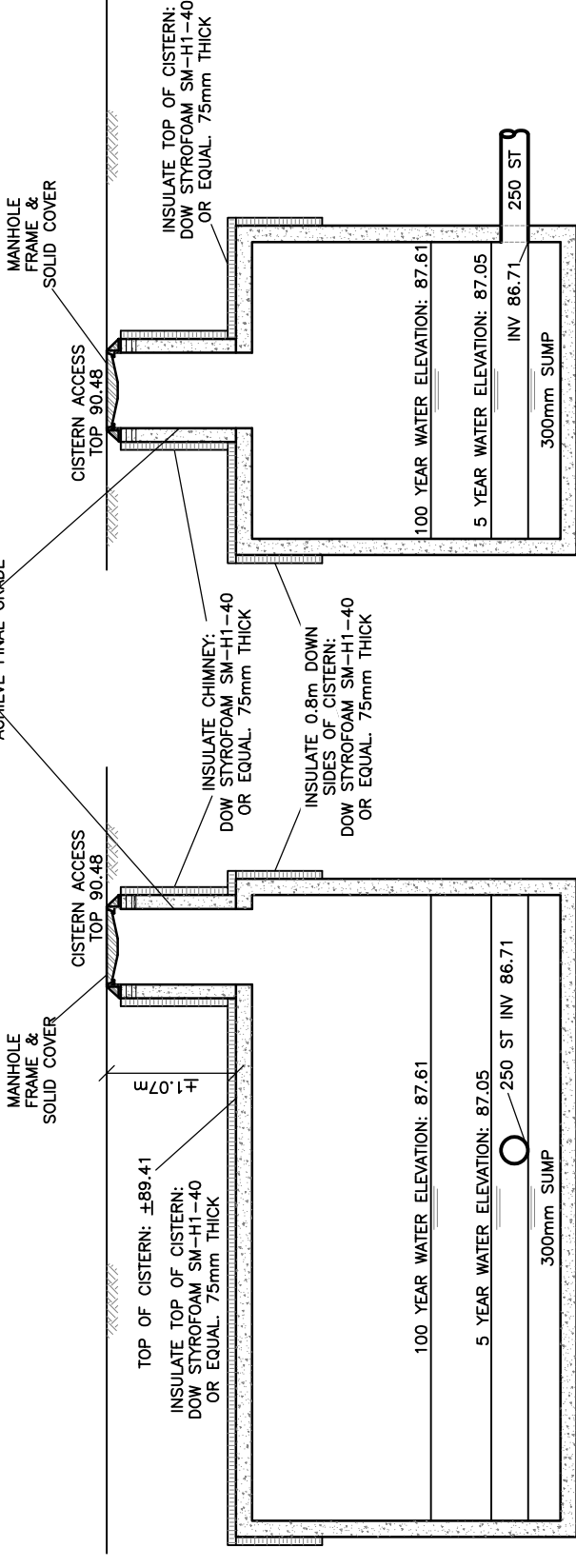
CONCRETE THRUST BLOCKS
 MODIFIED CITY OF OTTAWA DRAWING W95.3 FOR 200mm WATERMAIN AND SOILS HAVING A BEARING CAPACITY OF 90kPa

STORMWATER CISTERN 1 SECTION MACGREGOR 18,600 LITRE (4,100 GALLON) CONCRETE TANK INTERIOR DIMENSIONS: 4.975m (L) x 2.390m (W) x 1.860m (D) N.T.S.



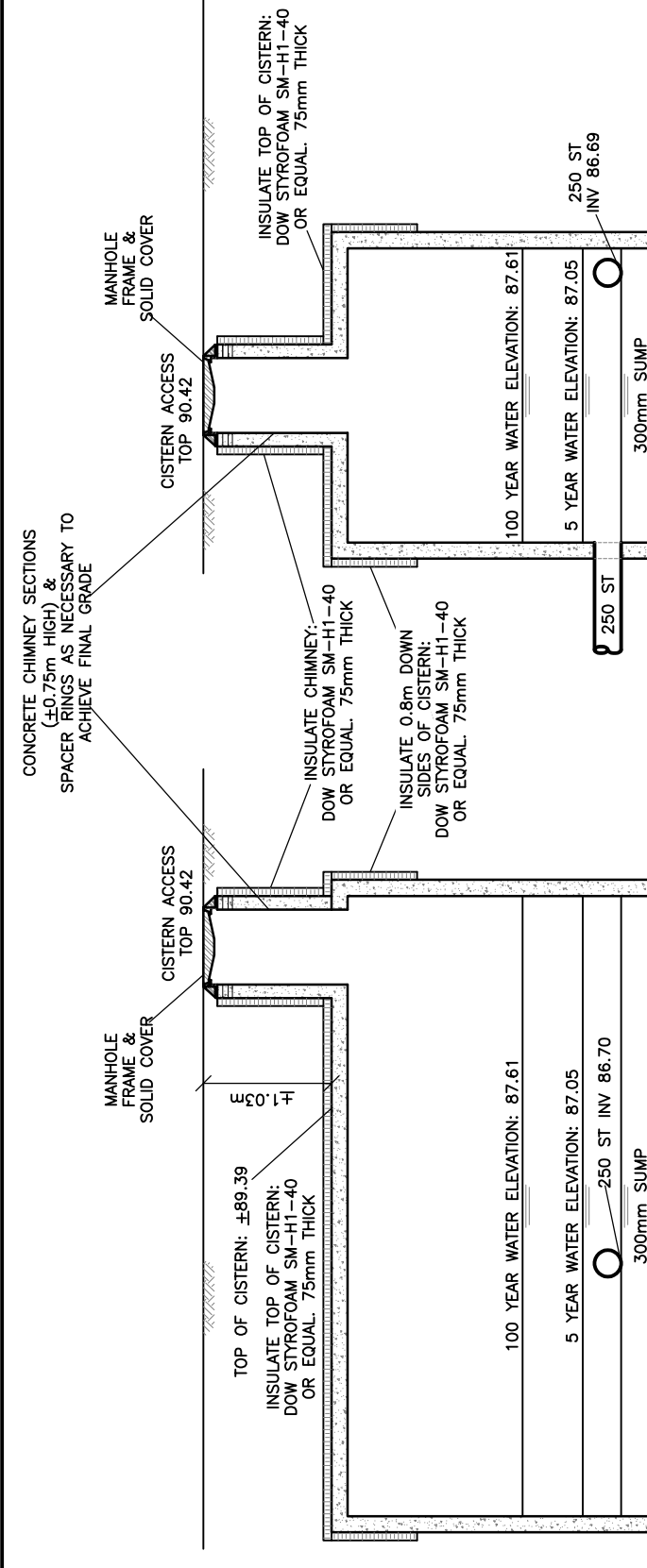
SIMPS SHALL BE CLEANED PERIODICALLY AT LEAST ONCE PER YEAR IN THE SPRING.

STORMWATER CISTERN 2 SECTION MACGREGOR 41,300 LITRE (9,000 GALLON) CONCRETE TANK INTERIOR DIMENSIONS: 5.795m (L) x 2.750m (W) x 2.855m (D) N.T.S.



SIMPS SHALL BE CLEANED PERIODICALLY AT LEAST ONCE PER YEAR IN THE SPRING.

STORMWATER CISTERN 3 SECTION MACGREGOR 41,300 LITRE (9,000 GALLON) CONCRETE TANK INTERIOR DIMENSIONS: 5.795m (L) x 2.750m (W) x 2.855m (D) N.T.S.



SIMPS SHALL BE CLEANED PERIODICALLY AT LEAST ONCE PER YEAR IN THE SPRING.

KEY PLAN



No.	DATE	REVISION
9	MAY 31-21	RE-ISSUED FOR APPROVAL
8	MAY 20-21	RE-ISSUED FOR APPROVAL
7	MAR 15-21	RE-ISSUED FOR APPROVAL
6	NOV 16-20	RE-ISSUED FOR APPROVAL
5	JUN 18-20	RE-ISSUED FOR APPROVAL
4	MAY 5-20	ISSUED FOR COORDINATION
3	SEP 27-19	RE-ISSUED FOR APPROVAL
2	AUG 9-19	ISSUED FOR APPROVAL
1	JUN 14-19	PRELIMINARY

D. B. GRAY ENGINEERING INC.
 700 Long Point Circle
 Ottawa, Ontario
 4gray@dbgrayengineering.com
 613-425-8044

PROJECT
**PROPOSED
 RESIDENTIAL DEVELOPMENT
 1164-1166 HIGHCROFT DR.
 MANOTICK, ONTARIO**

DRAWING TITLE
DETAILS

ENGINEER'S SEAL

 DRAWN: D.B.G.
 HOR. SCALE: 1:200
 VERT. SCALE: 1:200
 DATE: JUN 14-19
 JOB NO.: 180335
 DRAWING NO.: **C-8**
 OF 14
 NOT VALID UNLESS SIGNED & DATED