

SOSCIA

PROFESSIONAL ENGINEERS INC.

PROFESSIONAL ENGINEERS & PROJECT MANAGERS

FUNCTIONAL SERVICING REPORT

NIVAS DEVELOPEMENT

PROPOSED RESIDENTIAL AND COMERCIAL DEVELOPEMENT

**101 MAIN STREET, MARKDALE
ONTARIO**

OCT, 2022

SOSCIA PROJECT # 21-044

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1.0 SITE DESCRIPTION

The subject site is at 101 Main Street, Markdale, at the north-east of Cambrai and Main Street in the Municipality of Grey Highlands, in Grey County, Ontario. The subject site is vacant lot with an area of approximately 8.91948 ha (89194.8 m²). The lot is bound by agricultural fields to the northeast and southeast, Main Street East to the northwest and residential lands to the south. The subject property features a wetland located at the north corner of the property that the entire property drains towards.

An existing sanitary and water pipe is located at Main Street, also an existing water pipe at Bradley Street which will service the lot post development.

2.0 DEVELOPMENT PROPOSAL

The proposed development is to develop the site into a residential/commercial subdivision consisting of total freehold residential of 154 units including 24 semidetached, 130 townhouses units. Please note, the commercial development part of the subject site with area of 0.8306 ha will be submitted separately under SPA submission, therefore we excluded the commercial drainage area from this report calculation. In addition, the commercial area and future development areas (refer to draft plan) have their own quality/quantity control system which will be discussed separately. The proposed layout is illustrated on drawing C1.0 in appendix. The subdivision will involve the creation of number of new street, also concrete walkways, landscaped, swm pond and environmental land. The road access to the development is proposed to be from Main Street, Bradley Street.



3.0 STORM WATER MANAGEMENT PLAN

3.1 EXISTING CONDITION

The subject property consists of approximately 8.91948 ha of undeveloped area and is currently used as agricultural land with a treed area in the north corner as well as east and west side of the site. There is an existing pumping station at west side of the site fronting Main Street East. As previously mentioned the entire property drains toward a wetland feature located at the north corner of the subject site. Once the wetland is at capacity, runoffs convey toward south through the existing ditches servicing Main Street East. Eventually, runoff discharge west across Main Street East via a 500mm diameter corrugated steel pipe (CSP) culvert to the ditch that runs in between Markdale Cemetery and the residential lots on Lawler Drive before ultimately discharging into Rocky Saugeen River to the west. A topographic survey of the property was completed on February 15th, 2022, by Tham Surveying limited. A copy of the topographic survey is provided in appendix.

According to Gamsby and Mannerow Engineers stormwater management Report, dated Jan 2008, the external drainage draining toward the subject site is approximately 3.25 ha

3.2 STORMWATER QUANTITY

The post-development storm drainage for the project will generally follow pre-development conditions. The generated runoff from the project will be conveyed via a catchbasin and storm sewer system, and also overland flow to a dry pond located at the north side of the site, outletting through a hickenbottom outlet structure with an orifice tube to release stormwater at pre-development. The HEC-HMS version 4.5 computer software was used for the subject site hydrology study to determine the peak runoff rates for pre-development and post-development conditions. The SCS Curve Number infiltration (loss) method and SCS Unit Hydrograph runoff (transform) method was used for determining the stormwater runoff. Please refer to the appendix for details. The proposed dry pond has been designed with 4:1 side slope as per MECP guidelines. Calculations contained in Appendix A indicate that 7416.7 m³ of quantity control storage volume in the dry pond is required.

An emergency spillway will be located on the west side of the dry pond, directing any major storms toward the existing ditches servicing Main Street. Eventually, runoff discharge west across Main Street East via a 500mm diameter corrugated steel pipe (CSP) culvert to the ditch that runs in between Markdale Cemetery and the residential lots on Lawler Drive before ultimately discharging into Rocky Saugeen River to the west.

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The project's storm sewer will be sized for the minor storm, defined as all storms up to and including the 5-year storm event. Major storm runoff will be conveyed via overland flow routes also to the proposed swm pond.

3.3 END-Of-PIPE CONTROLS

The proposed storm water management plan has been designed using a treatment train approach. An OGS unit will be utilized to provide pre-treatment to runoff prior to discharging flows to the SWM facility. The OGS unit is designed to treat runoff from minor events (less than 25mm) before releasing flows to the SWM facility. Flows from events greater than the 25mm storm may bypass the OGS unit. Please refer to appendix for details. In addition, based on table 3.2 of the MOECC SWM Manual, we considered a quality storage volume of 2541.6 m³ (240 m³/ha) to provide 60% long-term S.S. removal for dry pond.

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4.0 WATER DISTRIBUTION SYSTEM

4.1 Existing Water Servicing

The existing 150 mm watermain on Main Street and 150mm watermain on Cambrai Rd will service the site.

4.2 Proposed Water Servicing

The proposed internal water distribution system will be designed according to MOE Design guidelines For Drinking –Water Systems and the Fire Underwriter Survey document. As mentioned before, in this submission we only concentrate on 154 freeholds residential including 24 semidetached and 130 street townhouse units with total area of 7.651334 ha for calculating the population.

The estimated water demands under various conditions are summarized below:

Table 4-1: Water Demand Calculations

Units	Persons / Unit	Total Population	Avg. Day Demand (L/s)	Max. Day Demand (L/s)	Max. Hour Demand (L/s)	Fire Flow (L/s)	Max Day plus Fire Flow (L/s)
154	2.2	339	1.77	4.86	7.3	101.3	106.16

Hydrant test was performed by Hydrant testing Ontario on Aug 25, 2022 and the results have been presented in Appendix.

Extrapolating data from the hydrant test indicates that the max day plus fire scenario (4.86+101.3 = 106.16 l/s) for the subject site has been an expected pressure of 172.4 kPa, which is greater than the minimum required pressure residual (140kPa). The results of the flow test show that we have sufficient pressure and flow to service our proposed development.

A preliminary water distribution servicing concept is shown on the Servicing Drawing (S1). The site is proposed to be serviced by the existing 150mm diameter watermain located on Main Street and 150mm watermain on Cambrai Rd. The internal watermain distribution system will be 150mm in diameter, which is sufficient to meet the maximum day and fire flow demands. Refer to Appendix C for the water design calculations

5.0 SANITARY SERVICING

5.1 Existing Sanitary Servicing

As per the Grayview and County Road 12 Swage pumping Station, Sanitary sewers and forcemains In markdale papered by Genivar dated May 2010 (attached in appendix), there is an existing 200 mm pipe that convey the collected flow by gravity to the MH211 A and then to the pumping station at Grey Rd #12. The pumping stations pump the sewage through the existing 125mm sewer Forcemain to the distribution system.

5.2 PROPOSED Sanitary Servicing

The proposed development is for the construction of 154 units. Using MOE design guideline, the 339 population have a design flow of 8.92 L/s. The sanitary design calculations are included in Appendix. The following criteria were used in determining the sanitary flows from the proposed development;

- 154 units at an occupancy rate of 2.2 persons/unit;
- A total of 339 residents at an average per capita flow rate of 450 l/c/d; and
- A peaking factor based on Harmon Peaking equation applied to the average daily wastewater flows;
- Based on the above criteria, the peak design wastewater flow rate from the proposed development is 8.92 L/s.

All of the units within the proposed development are to be serviced through an internal network of min 200mm diameter sanitary sewers. Please note, based on Sanitary Plan and Profile prepared by Tatham Engineering, drawing NO PP-4, the adjacent development sanitary system will discharge into the Main Street pumping station. Therefore, the subject site internal network will connect to the proposed sanitary pipe by the adjacent property. The layout of the sanitary sewers servicing the proposed development is shown on the Servicing Drawing (S1). Due to the lack of information, the pumping station and downstream sanitary capacity will be checked in the next submission.

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6.0 BEST MANAGEMENT PRACTICES

The proposed siltation control measures for the site will be designed in accordance with the Municipality of Grey highlands development standards. The course of action with respect to implementation of the required controls would be as follows:

- 1) Siltation Control Fence around the perimeter of the site prior to the commencement of any site construction activity.
- 2) Temporary Entrance Mud-Mat to minimize mud tracking from the site.
- 3) Sediment Traps for proposed CB's on site. The openings will be wrapped with geo textile filter fabric or silt sacks and covered with 20mm crusher run limestone. The filter fabric will be removed when the structures are raised to final grade prior to the placement of the asphalt pavement.

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7.0 CONCLUSION

In summary, the functional servicing analysis established the following:

STORMWATER SERVICING

The internal storm sewer system will collect and convey generated runoff from subject site to a stormwater management pond. A quality treatment unit (Stormceptor unit model EF4 or approved equivalent) will be installed to yield a minimum TSS removal rate of 80% for quality control purposes.

WATER SUPPLY

To establish a loop water supply system to the development, the internal 150mm water distribution system will be connected to the existing watermains on Main Street east, and Bradley Street. The results of the flow test show that we have sufficient pressure and flow to service our proposed development

SANITARY

The subject site internal sanitary sewer will be connected to Rayville development sewer system to discharge to the Main Street Pump Station.

Sincerely,

PREPARED BY:

Yours truly,



Sandro Soscia, P. Eng.
SOSCIA Professional Engineers Inc.



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APPENDIX A

SITE DEVELOPMENT DATA:

LOT 1

LOT AREA 38,921.48 m² (3.8921 ha)

PROPOSED ZONING - RM.
TOWNHOUSE LOT AREA 200 m² min. FRONTAGE WIDTH 6.00 m min.
SEMI-DETACHED LOT AREA 300 m² min. FRONTAGE WIDTH 9.00 m min.

TOTAL FREEHOLD RESIDENTIAL LOTS 88
SEMI-DETACHED LOTS 12
STREET TOWNHOUSE LOTS 76

LOT 2

LOT AREA 45,897.86 m² (4.5898 ha) INCL. SWM & ENVIRO. PROTECTED AREA

PROPOSED ZONING - RM.
TOWNHOUSE LOT AREA 200 m² min. FRONT WIDTH 6 m min.
SEMI-DETACHED LOT AREA 300 m² min. FRONT WIDTH 9 m min.

TOTAL FREEHOLD RESIDENTIAL LOTS 66
SEMI-DETACHED LOTS 12
STREET TOWNHOUSE LOTS 54

LEGAL DESCRIPTION
PART OF
LOT 101
CONCESSION 1
NORTHEAST OF THE TORONTO AND SYDENHAM ROAD
GEOGRAPHIC TOWNSHIP OF ARTEMISIA
MUNICIPALITY OF GREY HIGHLANDS
COUNTY OF GREY

SURVEY INFORMATION TAKEN FROM PLAN OF SURVEY
OF PART OF LOT 101 CONCESSION 1 NORTHWEST OF
THE TORONTO AND SYDENHAM ROAD GEOGRAPHIC
TOWNSHIP OF ARTEMISIA MUNICIPALITY OF GREY
HIGHLANDS COUNTY OF GREY.

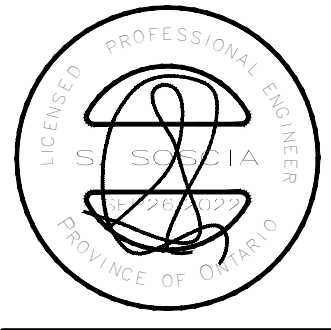
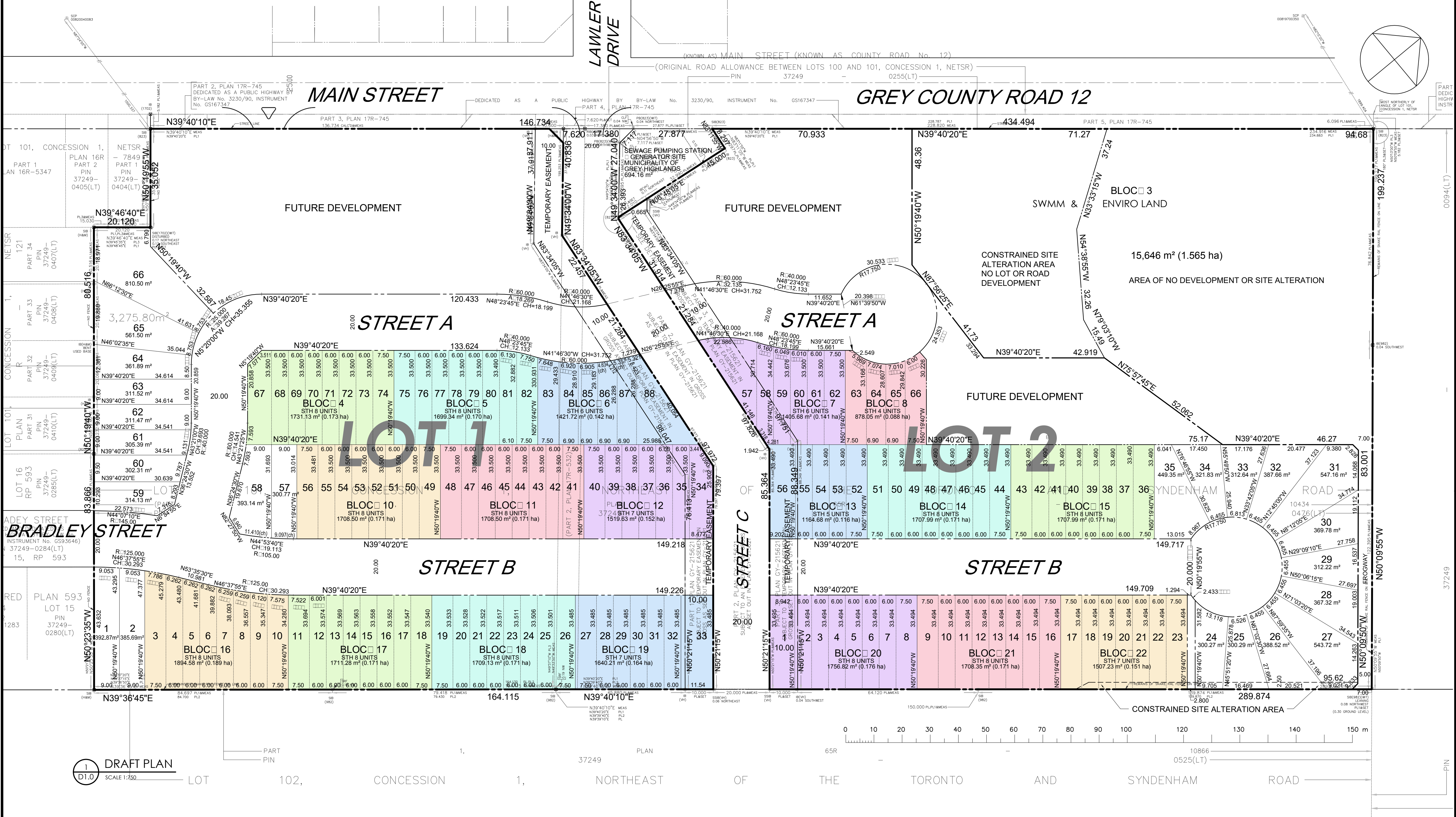
DONE BY THAM SURVEYING LIMITED, ONTARIO LAND
SURVEYORS
JANUARY 08, 2022
8888 CEELE STREET UNIT 7 VAUGHAN, ONTARIO
TEL: 905.761.8521 FAX: 905.761.8523

KEY MAP
SCALE: N.T.S.

Contractor must check and verify all dimensions and be responsible for same, reporting any discrepancies to the Engineer before commencing work.
Prints shall not be used for construction until signed "Approved For Construction" by the Engineer.
Prints are not to be scaled.
All drawings, prints and specifications are the property of the Engineer and shall be returned to him on completion of the work.
All work shall be performed in accordance with the latest edition of the ONTARIO BUILDING CODE, NATIONAL BUILDING CODE and regulatory regulations of the TOWNSHIP OF KING Building Department.
These notes are to be read in conjunction with all drawings and specifications.

The Contractor shall check all dimensions and other data from the job and report any discrepancies to the Architects before proceeding.

No.	Date:	Revision:
1	SEP.26,2022	ISSUED FOR SUBMISSION



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Project:
**RESIDENTIAL
AND COMMERCIAL
DEVELOPMENT**
101 MAIN STREET
MARKDALE, ONTARIO.

Sheet title: SUBDIVISION DRAFT PLAN	Job. no. 21-044
Scale: AS SHOWN	Date: APR.16,2021
Drawn: A.P.	Checked: S.S.
	Dwg. No. D1.0

NOTE:
BLOCK NUMBERS ARE APPROXIMATE, FOR
STATISTICAL PURPOSES ONLY

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APPENDIX B

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APPENDIX C


DUE TO SNOW COVERAGE AT THE TIME OF SURVEY,
SOME ABOVE GROUND FEATURES MAY BE ABSENT.
THIS WILL BE ADDRESSED IN THE FUTURE DATE
WHEN THERE IS NO SNOW IN THE GROUND.

DISTANCES SHOWN HEREON ARE GROUND DISTANCES AND CAN BE CONVERTED TO GRID DISTANCES BY MULTIPLYING BY A COMBINED SCALE FACTOR OF 0.99954894.

BEARINGS SHOWN HEREON ARE GRID BEARINGS AND ARE DERIVED FROM SPECIFIED CONTROL POINTS 00071900350 (N49030362.70S, E5285890.90E) AND 00820040083 (N4907817.647, E527456.090) AS SHOWN ON THIS PLAN AND ARE BASED ON U.T.M., ZONE 17, CENTRAL MERIDIAN 81° 00' WEST LONGITUDE, NAD83 (ORIGINAL).

BEARINGS ON THE FOLLOWING PLANS HAVE BEEN ROTATED COUNTER-CLOCKWISE BY 00°14'50" TO ACCOUNT FOR DIFFERENT REFERENCE MERIDIANS - PL3 AND PL4. ALL TIES TO CONCRETE FOUNDATION, UNLESS NOTED OTHERWISE.

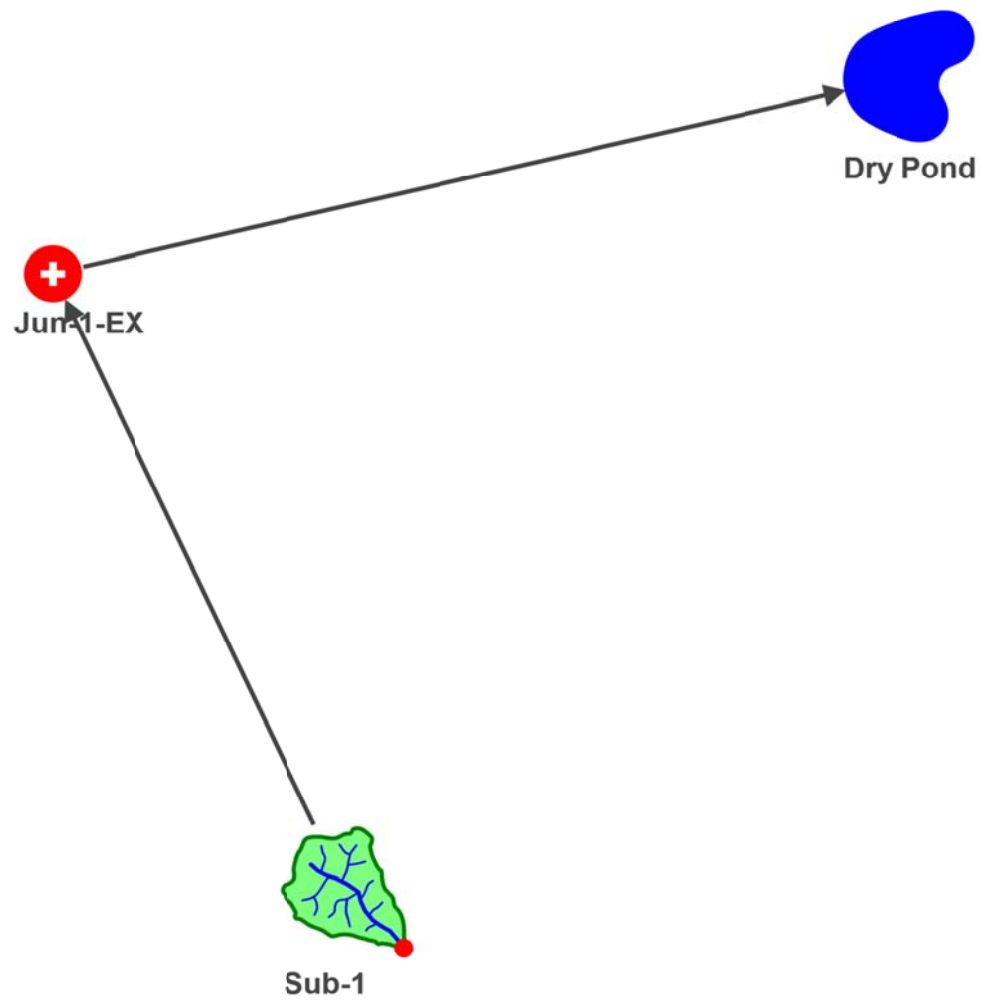
DRAWN BY: M.N.	CHECKED BY: T.H.S.	CAD NUMBER: 21-206POS	JOB NUMBER: 21-206
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THIS PLAN IS NOT VALID
UNLESS IT IS AN EMBOSSED
ORIGINAL COPY
ISSUED BY THE SURVEYOR.
In accordance with
Regulation 1026, Section 29(3).

DRAWN BY: M.N.	CHECKED BY: T.H.S.	CAD NUMBER: 21-206POS	JOB NUMBER: 21-206
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Dry Pond 100 Yr Watershed Routing Diagram

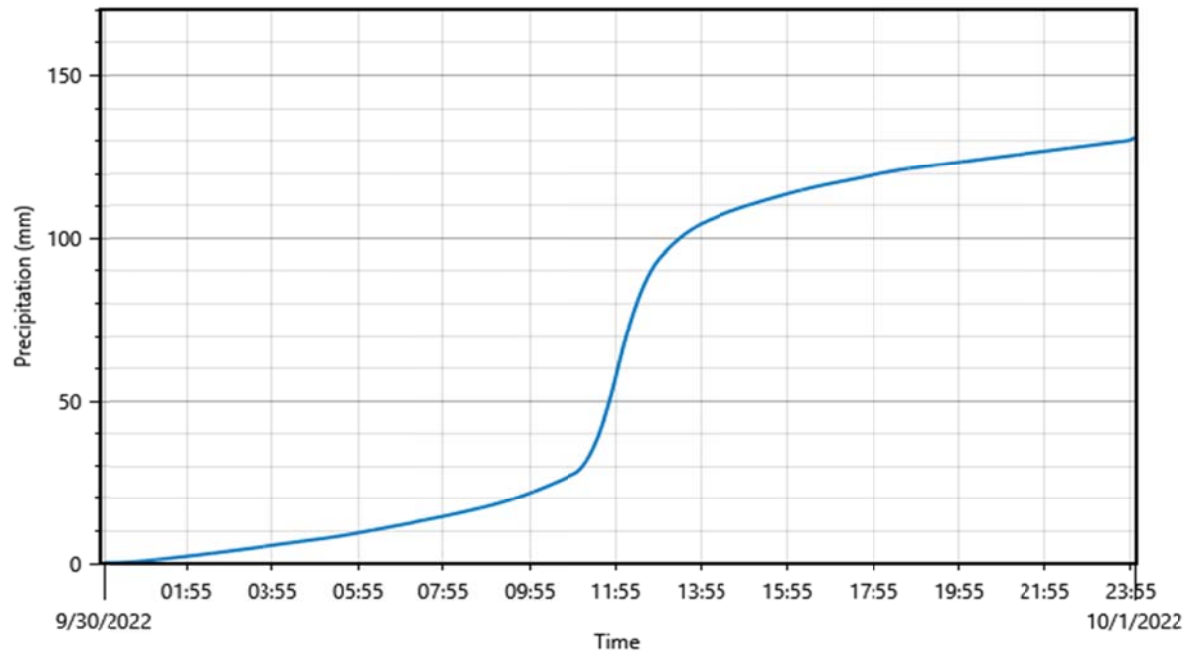


Design Storm

Precipitation type: Rainfall Distribution

Rainfall Distribution: Chicago Design Storm

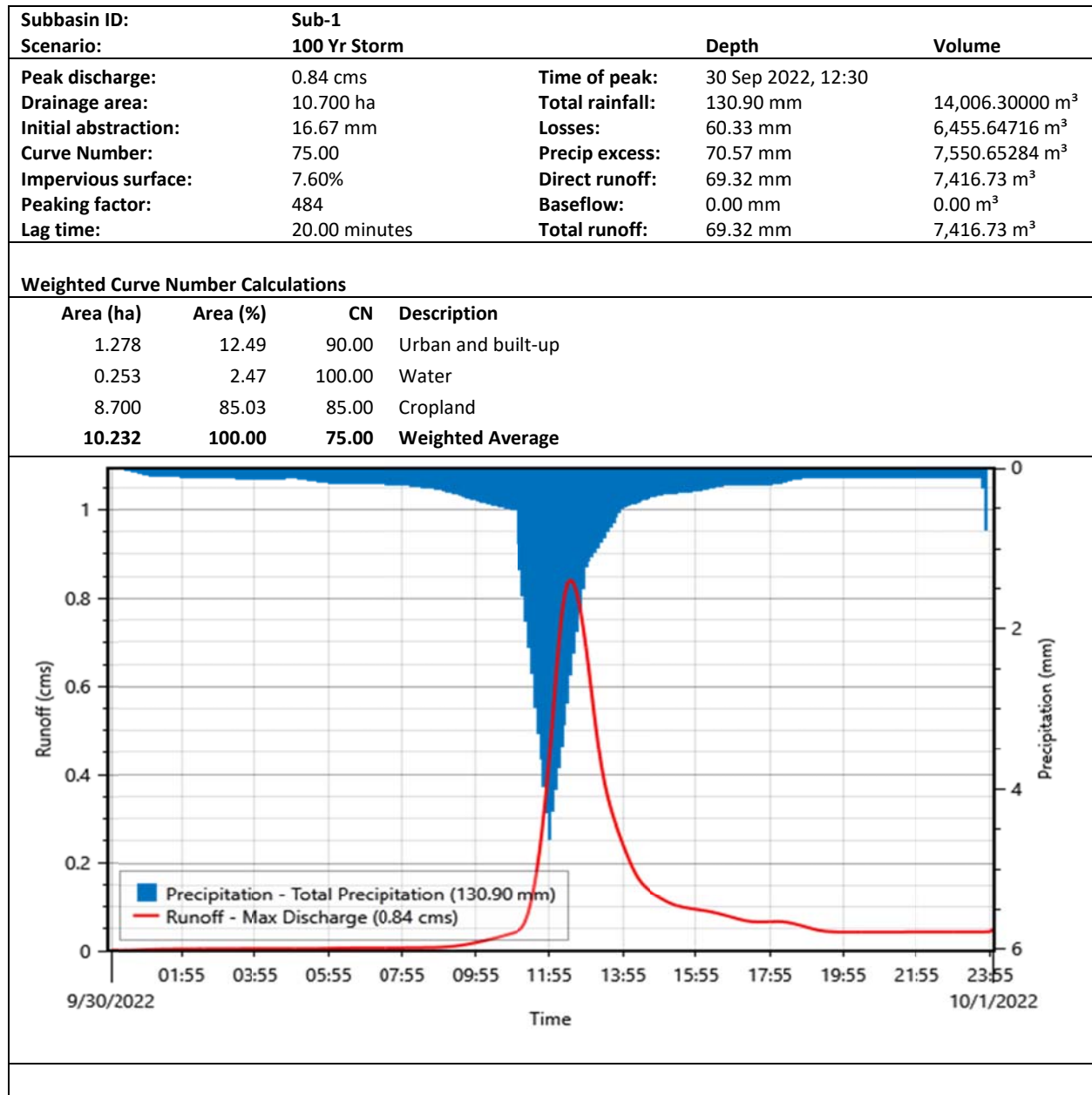
Rainfall depth: 130.9 mm



Watershed Summary

Subbasin ID	Drainage Area (ha)	Initial Abstraction (mm)	Curve Number	Impervious Surface (%)	Lag Time (minutes)	Peak Discharge (cms)
Sub-1	10.700	16.67	75.00	7.60	20.00	0.84

Subbasins

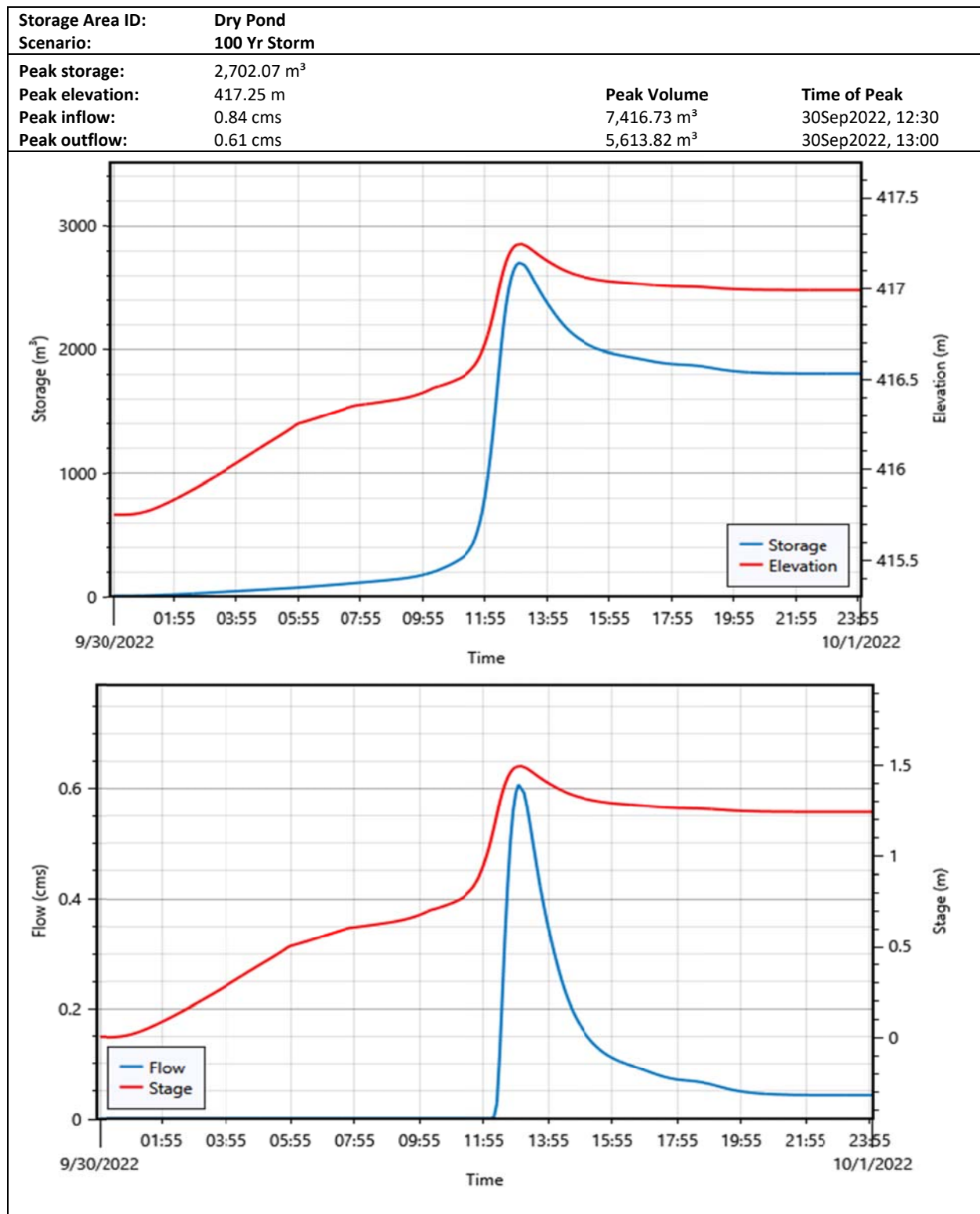


Nodes

Element ID	Element Type	Peak Inflow (cms)	Peak Outflow (cms)	Peak Diverted Flow (cms)
Jun-1-EX	Junction	0.84	0.84	

Storage Areas

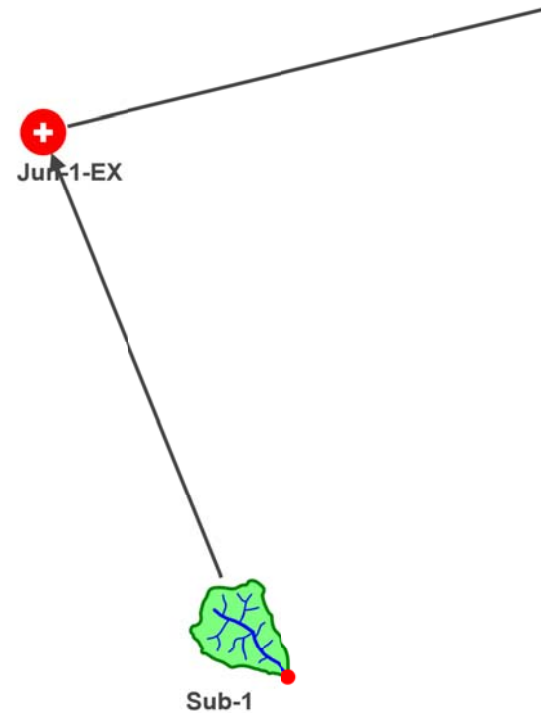
These are the storage areas that are defined:



25 mm

Watershed Routing Diagram

Results	100 Yr Storm (Dry Pond)
Minimum Inflow (cms)	0
Maximum Inflow (cms)	0.84
Inflow TTP (hrs)	12.5
Stage TTP (hrs)	12.9167
Outflow TTP (hrs)	13
Inflow Volume (m ³)	7416.73178
Inflow Depth (mm)	69.32
Inflow Average (cms)	0.09
Minimum Outflow (cms)	0
Maximum Outflow (cms)	0.61
Outflow Volume (m ³)	5613.82373
Outflow Depth (mm)	52.47
Outflow Average (cms)	0.06
Minimum Storage (m ³)	0.00087
Maximum Storage (m ³)	2702.07324
Minimum Pool Elevation (m)	415.75
Maximum Pool Elevation (m)	417.25



Domestic Flow Calculations

Population = 339
Average Day Demand = 450 L/cap
= 105.94 L/min
= 1.766 L/s

Max. Daily Demand Peaking Factor = 2.75
Max. Daily Demand = 291.3 L/min
= 4.855 L/s

or
Max. Hourly Demand Peaking Factor = 4.13 6935.597 US GPM
Max. Hourly Demand = 437.5 L/min
= 7.292 L/s
Domestic Flow= 437.5 L/min

Fire Flow Calculation
Based on Fire Underwriters Survey

1 F= 220 C (sqrt (A))

Where F= Fire flow in Lpm
C= construction type coefficient
= 1 Ordinary construction

A = total floor area in sq.m. excluding basements, includes garage

	Area Applied
Largest Fl	1888.7 m2
Area abov	1889 m2
Area belo	0 m2

= 2360.95 sq.m.

F = 10689.7 L/min

Round to nearest 1000 l/min
F = 11000 L/min

2 Occupancy Reduction
0.15 reduction for normal residential occupancy
F = 9350 L/min

3 Sprinkler Reduction
0 Reduction for NFPA Sprinkler System
F = 9350 l/min

4 Separation Charge
0.15 North Side | m to 20m
0 South Side >45m
0.25 East sude m to 3.0m
0.25 West Side m to 3.0m
0.65 Total Separation Char 6077.50 L/min

F = 15427.5 L/min
101.3 L/s
F = 1605.808 US GPM

Sprinkler Reduction Factor(f2)		
No Sprinkler System	Sprinklered	Sprink. + Supervised
0	0.3	0.5

Construction Type "C" Factor			
Wood Frame	Ordinary Construction	Non Combustible	Fire Resistive
1.5	1	0.8	0.6

Occupancy Factor (f1)*C" Factor				
Rapid Burning	Free Burning	Combustible	Limited Combustible	Non-Combust
25%	15%	0%	-15%	-25%

Exposure Charge"C" Factor					
0 to 3m	3.1 to 10m	10.1 to 20m	20.1 to 30m	30.1 to 45m	> 45m
25%	20%	15%	10%	5%	0%



Hydrant Testing Ontario

REPORT #2239

Tel: 289-354-1942
Info@HTOntario.ca

Date: Aug 25, 2022

To: Victor Ortiz | Delbrook Group
Project Coordinator
10376 Yonge Street, Suite 307
Richmond Hill, ON L4C 3B8

RE: Watermain Capacity Testing at Main Street East Markdale.

Please find report for watermain capacity testing at various locations along Main Street East and adjacent watermain. Testing was conducted on August 23, 2022 as per NFPA291 and AWWA-M17.

Hydrant Test Plan



HYDRANT TEST REPORT



Zone ID

MARKDALE

TEST #

1

DATE: 23-Aug-22

TIME: 11:35 AM

OPERATOR: ROB GAMACHE

R -TEST HYDRANT

BRACKENBURY ST / LAWLER RD

HYDRANT No. 12

HYDRANT MODEL:

McAVITY

COLOUR: BLUE

STATIC PRESSURE: 66

AWWA 24.24%

RESIDUAL PRESSURE: 50

Q - FLOW HYDRANT

210 MAIN STREET E

HYDRANT No. 11

HYDRANT MODEL:

McAVITY

COLOUR: BLUE

Logger Type	Outlet Dia. (in.)	Coefficient	Pitot Nozzle Reading (psi)	Flow (USGPM)
Hose Monster Little Boy	2	1.31	12.5	553
Hose Monster Little Boy	2	1.31	12.5	553
Total Flow (USGPM)				1105

PROJECTED Flow @ 20 psi

1955

USGPM

1616

IGPM

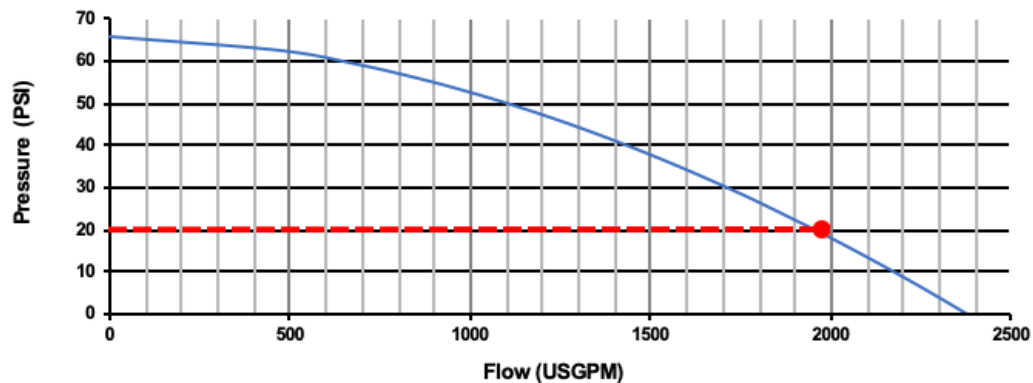
123

L/s

NFPA Rating:

CLASS AA - BLUE

Pressure - Flow Graph at Test Hydrant



HYDRANT TEST REPORT



Zone ID

MARKDALE

TEST #

2

DATE: 23-Aug-22

TIME: 11:35 AM

OPERATOR: ROB GAMACHE

R -TEST HYDRANT

CRAMBAL ROAD

HYDRANT No. 48

HYDRANT MODEL:

McAVITY

COLOUR: BLUE

STATIC PRESSURE: 51

AWWA 23.53%

RESIDUAL PRESSURE: 39

Q - FLOW HYDRANT

210 MAIN STREET E

HYDRANT No. 11

HYDRANT MODEL:

McAVITY

COLOUR: BLUE

Logger Type	Outlet Dia. (in.)	Coefficient	Pitot Nozzle Reading (psi)	Flow (USGPM)
Hose Monster Little Boy	2	1.31	13	564
Hose Monster Little Boy	2	1.31	13	564
Total Flow (USGPM)				1127

PROJECTED Flow @ 20 psi

1882

USGPM

1555

IGPM

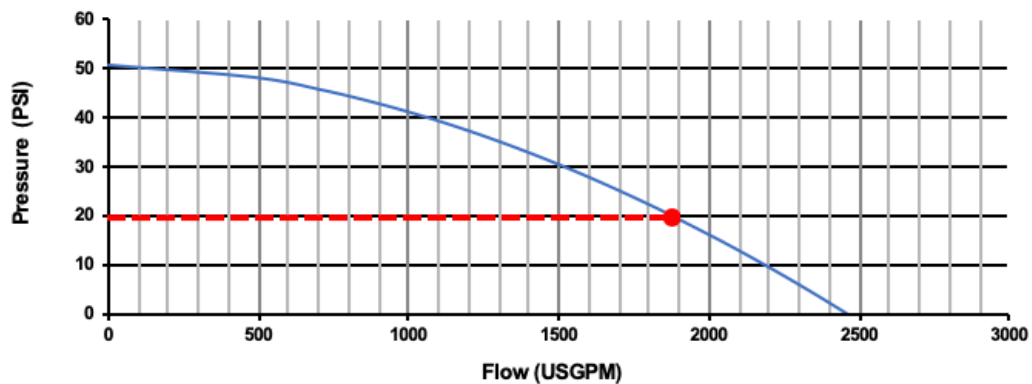
119

L/s

NFPA Rating:

CLASS AA - BLUE

Pressure - Flow Graph at Test Hydrant



HYDRANT TEST REPORT



Zone ID

MARKDALE

TEST #

3

DATE: 23-Aug-22

TIME: 12:05 PM

OPERATOR: ROB GAMACHE

R - TEST HYDRANT

CRAMBAL ROAD

HYDRANT No.

48

HYDRANT MODEL:

McAVITY

COLOUR:

BLUE

STATIC PRESSURE:

51

AWWA

21.20%

RESIDUAL PRESSURE:

40.19

Q - FLOW HYDRANT

BRADEY STREET

HYDRANT No.

52

HYDRANT MODEL:

McAVITY

COLOUR:

BLUE

Logger Type	Outlet Dia. (in.)	Coefficient	Pitot Nozzle Reading (psi)	Flow (USGPM)
Hose Monster Little Boy	2	1.31	11.5	530
Hose Monster Little Boy	2	1.31	11.5	530
Total Flow (USGPM)				1060

PROJECTED Flow @ 20 psi

1873

USGPM

1548

IGPM

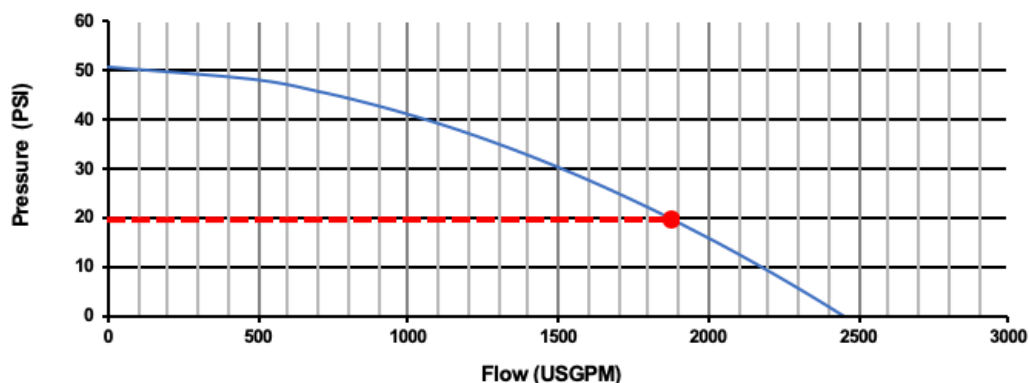
118

L/s

NFPA Rating:

CLASS AA - BLUE

Pressure - Flow Graph at Test Hydrant



Test Conclusion

System pressure fluctuations were observed during the test day. The Town Operator confirmed the high water demand user situated within the town causes pressure fluctuations during normal daily demand.

For added value, our team conducted three tests to provide a broader picture of the systems performance with a possibility that the development site may take its feed from the watermain in Bradey Street.

The system at the time of testing produced the following:

Test No.1	Approx. L/s Projected at 20 psi	Hydrant Colour
1	123	BLUE
2	119	BLUE
3	118	BLUE

Hydrants are classified in accordance with their rated capacities as per NFPA291.

Colour	Class	Available Flow@20psi residual
BLUE	AA	1500 GPM or more
GREEN	A	1000 - 1499 GPM
ORANGE	B	500 - 999 GPM
RED	C	Below 500 GPM

We strongly feel that all attempts have been made to ensure that the required data as stipulated was captured, stored and presented in an accurate, efficient and timely manner for the required period.

We look forward to working with you in the future.

Please feel free to contact the undersigned should you require any further information.

Best Regards



Rob Gamache E.P
Manager of Operations
HTO
(289) 354-1942

Municipality of Grey Highlands

101 Main Street, Markdale

Residential Flow Rate - 450 litres/capita/day

Commercial Flow Rate - 180000 L/ha/day

Extraneous average daily flow - 0.23 L/s/ha

Peaking Factor = $1 + [14 / (4 + P^{0.5})]$, P=Population in thousands

SANITARY SEWER DESIGN SHEET

LOCATION	RESIDENTIAL						COMMERCIAL			IND. & INST.				Infiltration	Infiltration	Total
	No. of Units	Population Per Unit	Total Population	Average Day (L/s)	Peaking Factor	Peak Day Flow (L/s)	Gross Floor Area (m ²)	Daily Sanitary Volume / ha (L/ha/d)	Peak Flow (L/s)	Gross Floor Area (m ²)	Daily Sanitary Volume / m ² (L/d)	Peaking Factor	Peak Flow (L/s)	Area (Ha)	Flow (L/s)	Flow (L/s)
No. Of Units	154	2.2	339	1.77	4.06	7.2	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.16
Total	154					0.0	0.00	180000	0.00	0.00	0.00	0.00	0.00	7.65	1.76	1.76
															Total Net Flow	8.92

CONTRACT No. 109254C

MUNICIPALITY OF GREY HIGHLANDS

GRAYVIEW AND COUNTY ROAD 12

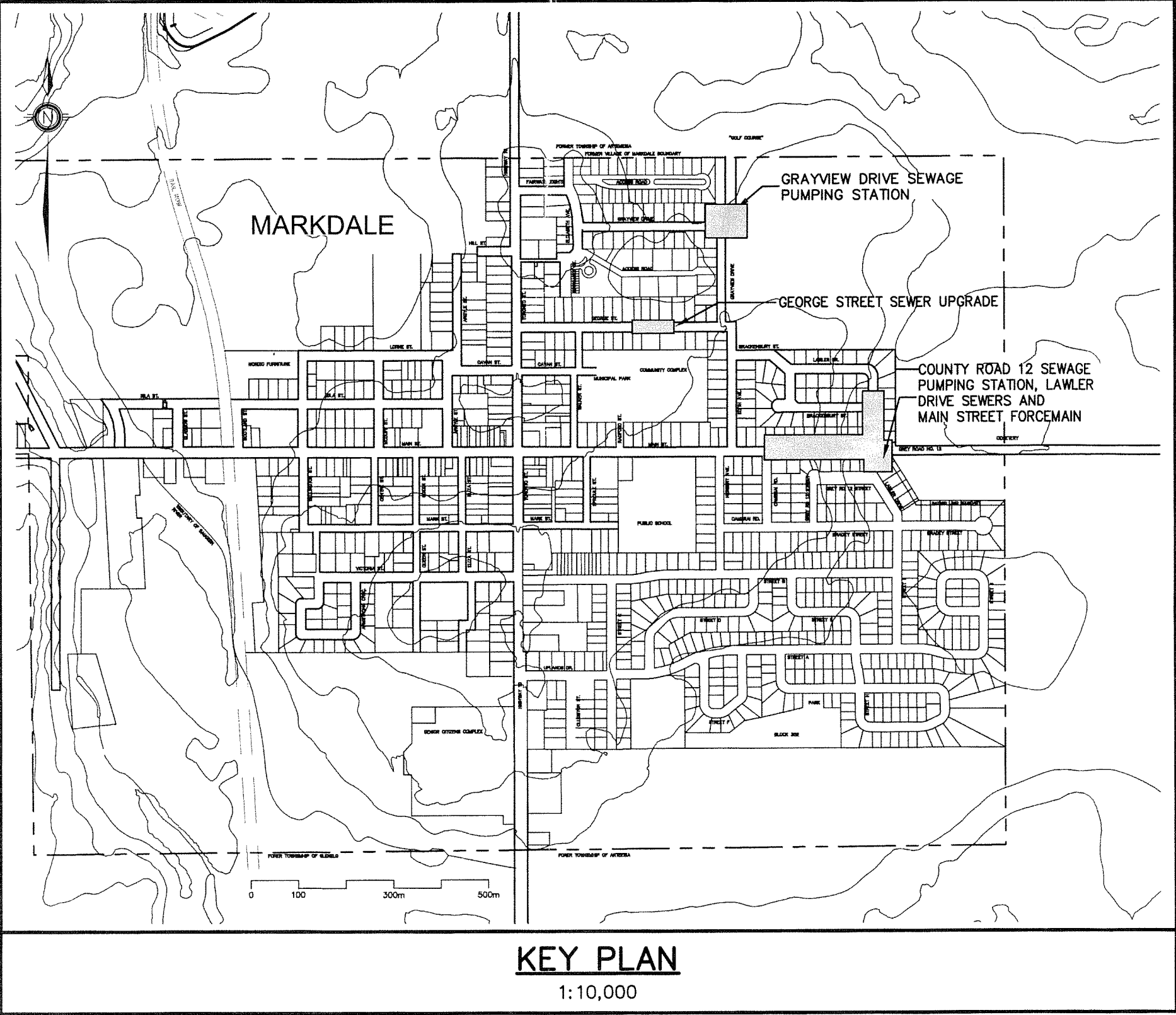
SEWAGE PUMPING STATION, SANITARY SEWERS

AND FORCEMAINS IN MARKDALE


MAYOR: BRAIN MULLIN

JUNE 2010

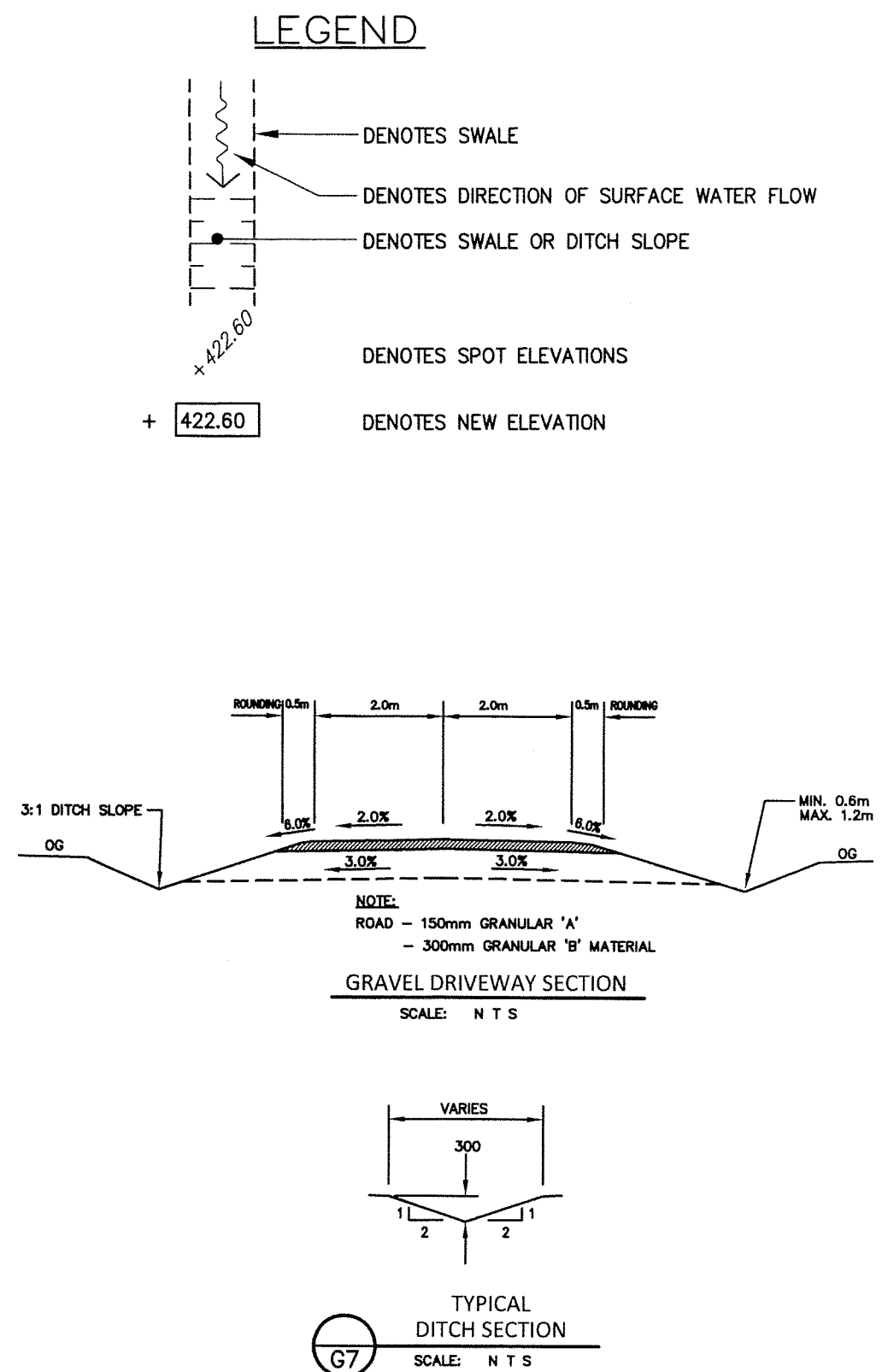
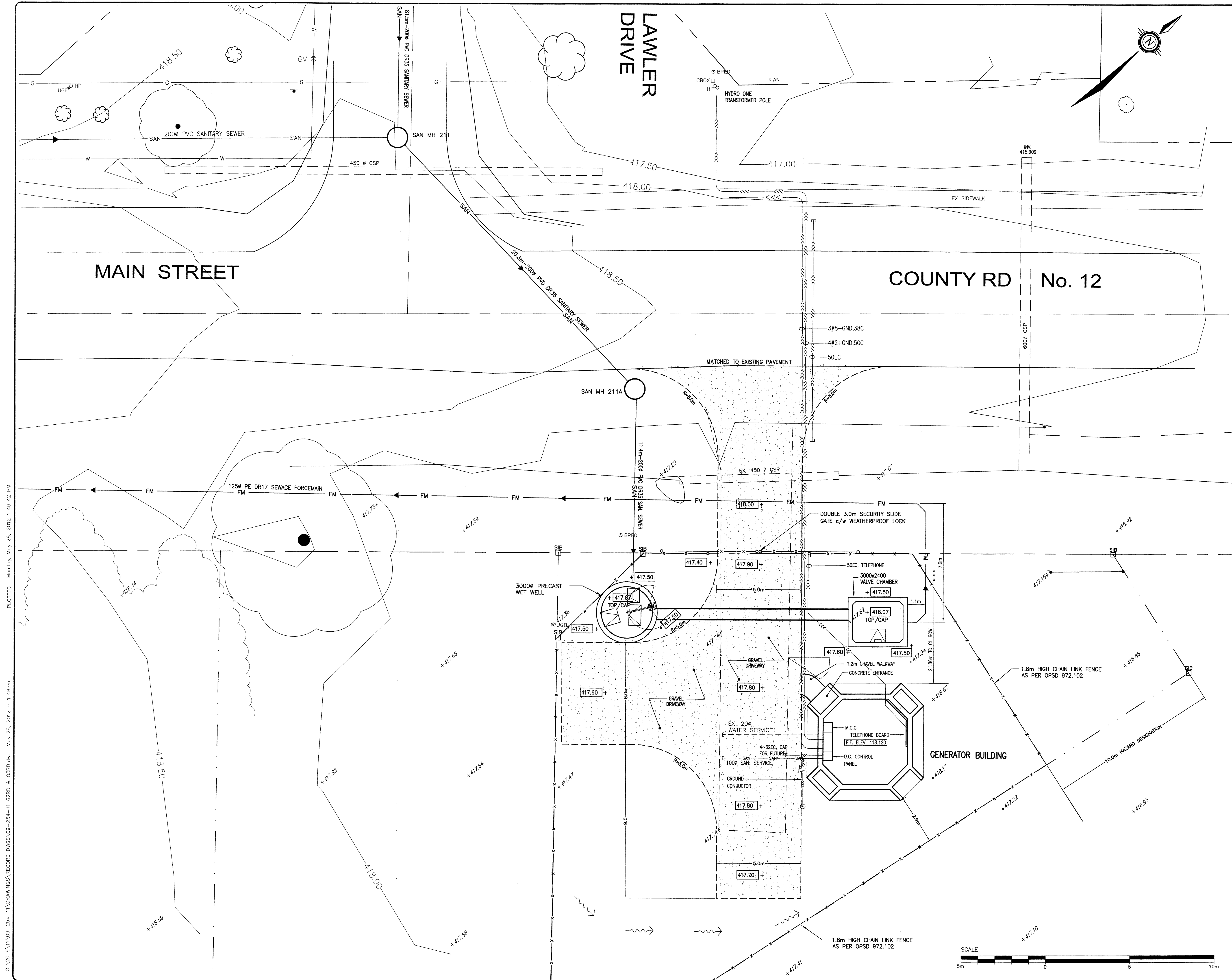
DRAWING INDEX	
DRAWING No.	DRAWING NAME
09-254-11 - G1RD	TITLE SHEET, DRAWING INDEX, AREA PLAN AND PROJECT IDENTIFICATION
09-254-11 - G2RD	SITE DEVELOPMENT AND YARD PIPING PLAN - GRAYVIEW SEWAGE PUMPING STATION
09-254-11 - G3RD	SITE DEVELOPMENT AND YARD PIPING PLAN - COUNTY ROAD 12 SEWAGE PUMPING STATION
09-254-11 - G4RD	PLAN AND PROFILE - GRAYVIEW DRIVE
09-254-11 - G5RD	PLAN AND PROFILE - COUNTY ROAD 12
09-254-11 - G6RD	PLAN AND PROFILE - LAWLER DRIVE
09-254-11 - G7RD	PLAN AND PROFILE - GEORGE STREET
09-254-11 - G8RD	PLAN AND PROFILE - GRAYVIEW DRIVE
09-254-11 - M1RD	GRAYVIEW SEWAGE PUMPING STATION AND WET WELL - PLAN AND SECTION
09-254-11 - M2RD	COUNTY ROAD 12 SEWAGE PUMPING STATION AND WET WELL - PLAN AND SECTION
09-254-11 - M3RD	SEWAGE PUMPING STATION - WET WELL STANDARDS & DETAILS
09-254-11 - E1RD	ELECTRICAL SITE PLANS
09-254-11 - E2RD	SINGLE LINE DIAGRAMS AND DETAILS
09-254-11 - E3RD	ELECTRICAL DETAILS



RECORD
DRAWING

01/09/2012	RECORD DRAWING
03/06/2010	ISSUE FOR TENDER
DATE	DESCRIPTION
REVISION / ISSUE	
Seal not valid unless signed and dated	
	
1450 1st Ave. W. Suite 101, Owen Sound, ON, N4K 6W2 Telephone: (519) 376-7612 / Fax: (519) 376-8008 Toll Free: 1-888-376-7612	
Title: TITLE SHEET, DRAWING INDEX, AREA PLAN & PROJECT IDENTIFICATION SANITARY SEWER SYSTEM MARKDALE	
Client: MUNICIPALITY OF GREY HIGHLANDS	
Design: M R S	Scale: AS SHOWN
Drawn: CAH/EK	Approved:
Checked: M R S	
Date: APRIL 2010	Design Engineer
DRAWING No.	09-254-11 - G1 RD

G:\2009\1\09-254-11\DRAWINGS\RECORD DWGS\109254-G1RD.dwg May 29, 2012 - 1:45pm PLOTTED Monday, May 28, 2012 1:45:27 PM



RECORD
DRAWING

BENCH MARK ELEVATION 423.080
TOP OF FIRE HYDRANT, AT SOUTH SIDE OF LAWLER DRIVE
LOCATED AT BEND, APPROXIMATELY 110 LINEAL METRES NORTH
FROM THE INTERSECTION OF LAWLER DRIVE & BRACKENBURY STREET.

CAUTION:
THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS
AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND
STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT
DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE
POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT
GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL
INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH
UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY
FOR DAMAGE TO THEM.

DATE	DESCRIPTION
09/01/2012	RECORD DRAWING
03/06/2010	ISSUE FOR TENDER
DATE	REVISION / ISSUE

Seal not valid unless signed and dated

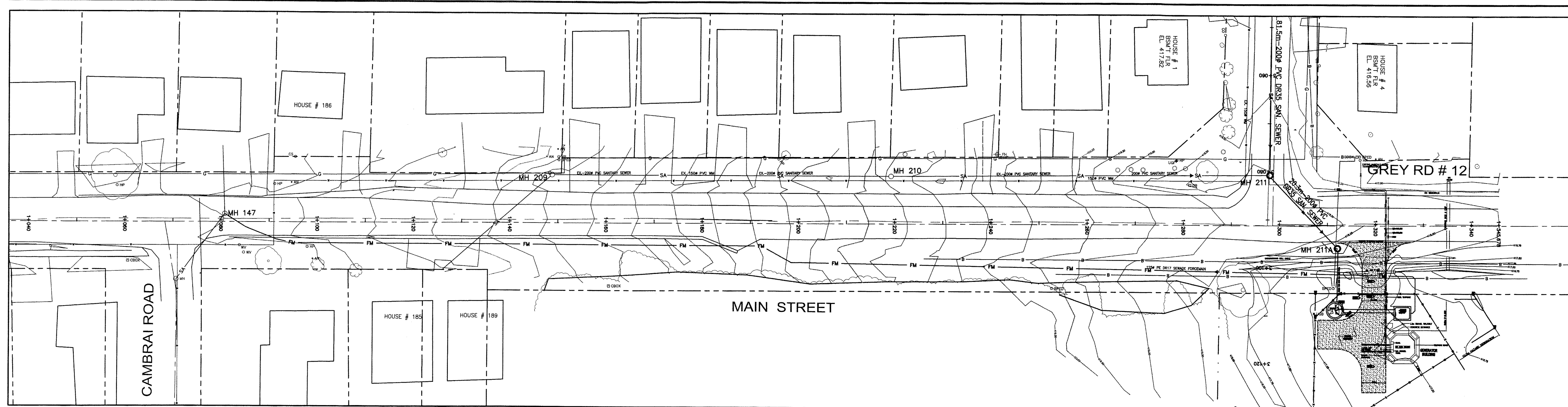
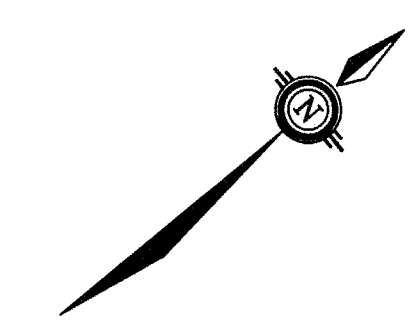
GENIVAR

1450 1st Ave. W, Suite 101, Owen Sound, ON, N4K 6W2
 Telephone: (519) 376-7612 / Fax: (519) 376-8008
 Toll Free: 1-888-376-7612

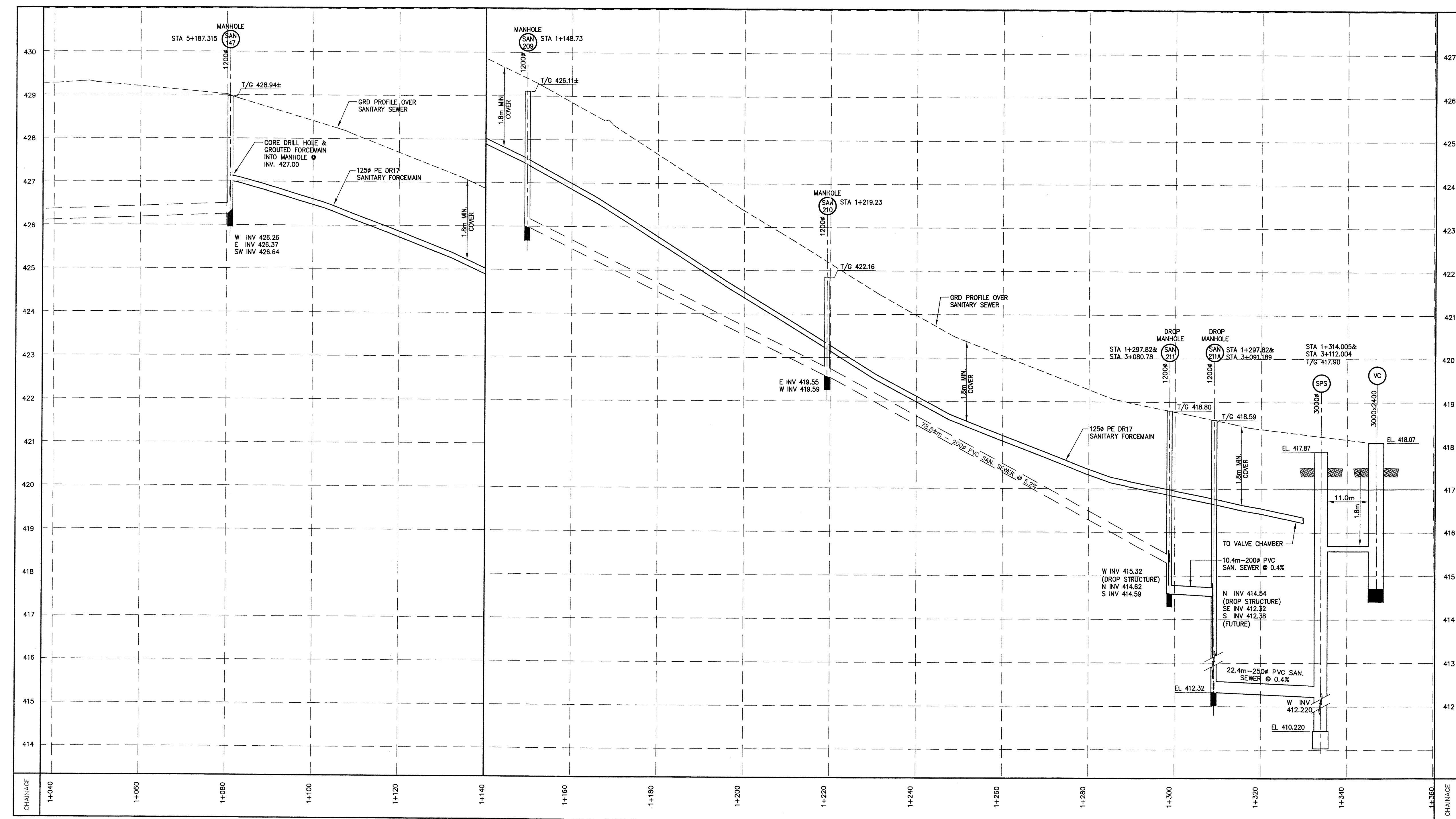
Title:
**SITE DEVELOPMENT & YARD PIPING PLAN
COUNTY ROAD No. 12
SEWAGE PUMPING STATION
SANITARY SEWER SYSTEM MARKDALE**

Client:	MUNICIPALITY OF GREY HIGHLANDS
Design:	C S W
Drawn:	CAH/EK
Checked:	M R S
Date:	MAY 2010
Drawing No.	09-254-11 - G3RD

G:\2009\11\09-254-11\DRAWINGS\RECORD DWG\09-254-11 G3RD & G3RD.dwg May 28, 2012 1:46pm



PLAN
SCALE 1:500



PROFILE
SCALE HORIZ=1:500, VERT=1:50

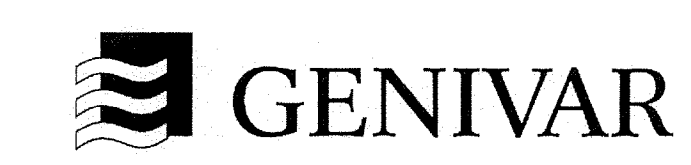
RECORD DRAWING

BENCH MARK ELEVATION 423.080
TOP NUT OF FIRE HYDRANT, AT SOUTH SIDE OF LAWLOR DRIVE
LOCATED AT BEND, APPROXIMATELY 110 LINEAL METRES NORTH
FROM THE INTERSECTION OF LAWLOR DRIVE & BRACKENBURY STREET.

CAUTION :
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AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND
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DATE	REVISION / ISSUE
01/09/2012	RECORD DRAWING
03/06/2010	ISSUE FOR TENDER
DATE	DESCRIPTION

Seal not valid unless signed and dated



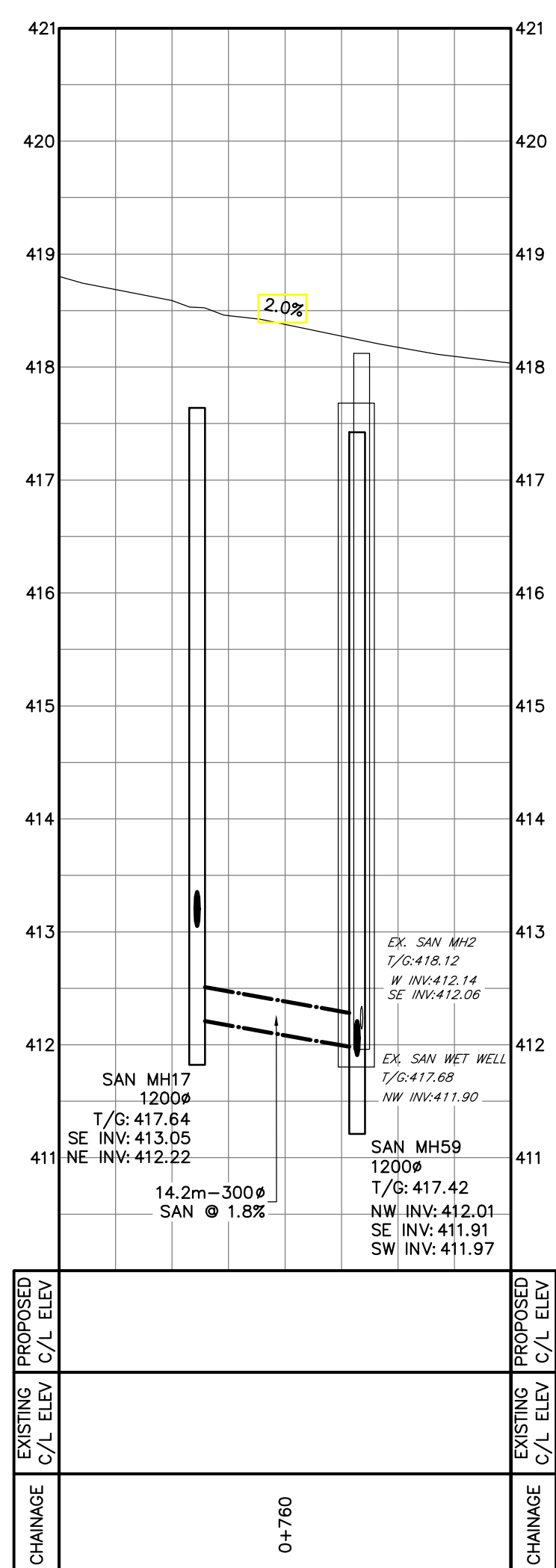
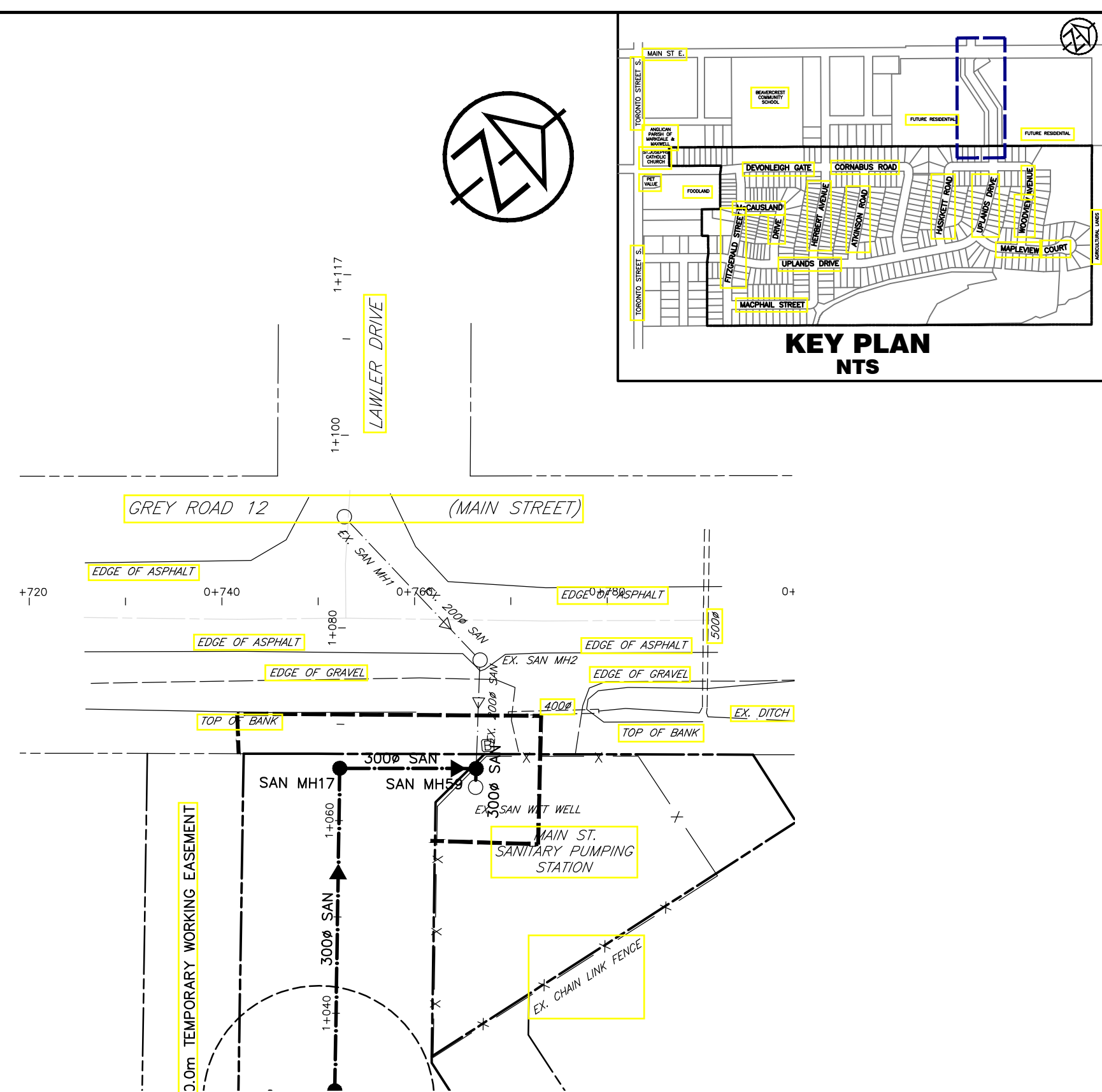
1450 1st Ave. W, Suite 101, Owen Sound, ON, N4K 6W2
Telephone: (519) 376-7812 / Fax: (519) 376-8008
Toll Free: 1-888-376-7812

Title:
**PLAN AND PROFILE
MAIN ST. EAST & COUNTY ROAD 12
SANITARY SEWER SYSTEM
MARKDALE**

Client:
MUNICIPALITY OF GREY HIGHLANDS

Design: M R S	Scale: 1:500
Drawn: E K	Approved:
Checked: M R S	
Date: MAY 2010	Design Engineer
DRAWING No.	09-254-11 - G5RD

G:\2009\1\09-254-11\DRAWINGS\RECORD DWGS\09-254-11 GARD to G7RD & MIRD to M3RD.dwg May 28, 2012 - 1:48:20 PM Monday, May 28, 2012 1:48:20 PM



Drawing Name: 117071-1-PP01.dwg, Plotted: Apr 25, 2022