

Layout Of Site Proposed, Source Drawing: SRM Architects, File 20052, March 2023

## Functional Servicing Report

### Rev 7 May 09, 2023

### 16-18 Mill St, Georgetown, Ontario

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Table of Contents .....	1
1 Introduction .....	3
2 Proposed Development .....	4
2.1 Site Grading .....	4
2.2 Access .....	4
2.3 Water Supply .....	4
2.3.1 Fire Supply .....	5
2.4 Sanitary Service .....	5
2.5 Storm Service.....	6
3.0 STORMWATER MANAGEMENT .....	6
3.7 PRE-DEVELOPMENT/ALLOWABLE FLOW RATES .....	12
As the runoff from catchment AREA 205, 0.0185 hectares(R=0.25), towards the Creek will be less.....	13
3 Utilities .....	16
4 Conclusions .....	17
5 Closure .....	18
5.1 Contract .....	18
5.2 Limitations .....	18
5.3 Thanks.....	19
Egmond Associates Ltd – Terms of Engagement.....	20
Egmond Associates Ltd – Limitations .....	21
Appendix A Design Drawings	
Appendix B Fire Flow Calculations	
Appendix C Pre- and Post- Development Drainage Plans	
Appendix D Storm System Design Calculations	
Appendix E Rainwater Treatment	
Appendix F Stormceptor Design Sheet	

## 1 Introduction

Egmond Associates Ltd (EAL) was retained to prepare a report outlining the preliminary servicing requirements for the re-development of a residential site at 16 to 18 Mill St, Georgetown, Ontario as shown on the cover.

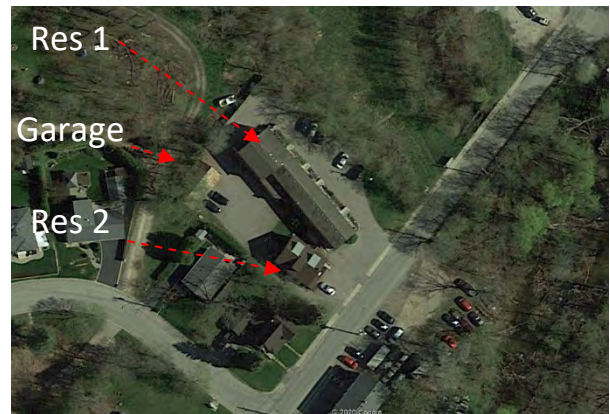
This report fulfils the requirements of the Functional Servicing Report, as well as the Stormwater Management Brief and Water Balance Assessment and references SRM Architects Project Number 20052, Plans A 1.1 to A 3.3 dated February 2023.

The Site, which consists of 16 to 18 Mill St, Georgetown, ON, is located on the North West side of Mill St, between Dayfoot Dr and McNabb St. It is 2272m<sup>2</sup> (0.227 ha) in area. Mill Street is planned to be widened in the future, which will remove 5m from the eastern property frontage, resulting in a future site area of 2071m<sup>2</sup> (0.207ha).

For ease of communication, the Project North is identified in the true North East direction such that Mill Street is on the Project East side of the property (Drawing 1). All following directions will be identified relative to Project North.

There are currently two multi unit residential buildings (Res 1 and 2) and a small outbuilding (Garage) on the Site which are to be demolished for the development of two new structure(s) as shown in the Google Aerial.

A geotechnical investigation was conducted on the Site by EAL in July 2020 (with revisions April 2022), and a Phase I Environmental Assessment was conducted by Watters Environmental Group Inc in September 2019.



A site layout was prepared by SRM Architects Inc. in February 2023, which is used as a basis for the design calculations in this report. The two buildings are expected to be constructed at the same time.

This report is based on the site plans and concepts as understood by EAL up to February 10, 2023.

## 2 Proposed Development

The proposed two structures as of February, 2023 are to be 4 storey residential buildings with 2 levels of underground parking (Appendix 'A'). The northern building footprint is to be 477.2 m<sup>2</sup> with a gross floor area of 1,673.68 m<sup>2</sup>. The southern building footprint is to be 441.1 m<sup>2</sup> with a gross floor area of 1,410.42 m<sup>2</sup>. The total buildings footprint is to be 918.3 m<sup>2</sup> with a gross floor area of 3,084.1 m<sup>2</sup>. There are planned to be 30 units (16 units North Building 1, 14 units South Building 2), which are to be a mix of 1 and 2 bedroom units. For servicing estimates, it is assumed that the average unit occupancy is to be 3 persons, for a total site occupancy of 90 persons (3 persons per unit\*30 units).

The landscaped area is to be 29 % of the total site area, 596.4 m<sup>2</sup>.

### 2.1 Site Grading

Based on the topographic survey by J. R. Finnie (Appendix 'A'), the general slope of the property is from West to East. The highest elevation on the site was 245.5m Above Sea Level (ASL) in the South West corner of the site. The South East corner at Mill St was approximately 244.5 m ASL and the North East corner at Mill St is approximately 242.8 m ASL. The North West corner adjacent to a green space is approximately 244.8 m ASL.

Proposed overland storm water flow routes are overland to Mill St in the East and to the green space on the North side of the site.

On the south side is a proposed 9.2 m building setback (driveway and greenspace area) and a 7.5 m setback from the canopy to the property line.

On the east side is a 5000 mm landscaped area (designated future road widening), is proposed a 1.5 m canopy set back and a 3 m front yard setback.

A 6m deep rear yard is proposed to be on the West side of the property. A 3.5m deep side yard is proposed to be on the North side of the property.

### 2.2 Access

Access to the site is provided via Mill Street on the north and south parts of the lot. Current driveway and parking area creates a "circular" path surrounding the structures. A small green space is between the existing buildings.

49 Parking residential, 4 barrier free, and 8 visitor parking spaces are to be provided. Residential spaces are mainly below ground. The proposed driveway access is to be near the south east corner of the site at Mill Street (see Appendix 'A'). Access ramps to the underground parking proposed are at the south west corner southern building.

### 2.3 Water Supply

Halton Region requires the community system to the site shall be capable of meeting maximum daily demand plus fire flow or maximum hourly demand.

Water supply for the site is provided from the municipal water supply via connection to an existing 300mm water main on Mill St (See drawings in Appendix A). The two existing structures are connected to the municipal water supply via individual water service lateral connections to the water main on Mill St. The condition and size of the existing lateral connections are not known, though we have not received complaints or notice of supply issues from the current owner.

There is an existing municipal fire hydrant on Mill St at the South East corner of the Site.

The water services for the proposed development will provide two lateral connections for the site to provide domestic supply and fire protection.

Usage rates and peaking factors of water consumption and allowable pressures are based on the Sustainable Halton Water and Wastewater Master Plan (AECOM, 2011). The domestic water requirements are based on 330 L/c/d (Litres/capita/day) as per the Master Plan.

	Existing	Proposed	Increase
Average Day domestic Demand	0.17 L/s	0.34 L/s	0.17L/s
Peak Day demand (1.9x daily demand)	0.33 L/s	.65 L/s	0.33 L/s
Peak hour demand (3.0x daily demand)	0.52 L/s	1.03 L/s	0.52 L/s
Fire Flow ( $C_{fire} - 0.8$ ), use North Building	Unavailable	80L/s (1 building)	Unavailable

Based on these calculations, the available water supply from the 300mm watermain on Mill St should be adequate to supply the required flows. The lateral connection(s) to the Site should be at least a 200mm pipe to meet these flow requirements. One or both of the existing lateral connections to the Site may be re-used if they are in good condition and meet the size requirements. The final connection design is beyond the FSR.

### 2.3.1 Fire Supply

The fire flow would be required for both buildings. EAL have assumed at any time, only a single building would be on fire, the north or larger building. The necessary water supply for fire flow is then determined to be 66.7 L/s. (Refer to Appendix 'B'). The Fire Hydrant test are attached in Appendix 'B'. The hydrant test shows flow of 5467 US GPM(344L/sec) at 20 psi. Therefore, the pressure and capacity satisfy the requirements for the firewater.

As per the Regional Municipality of Halton Water and Wastewater Linear Design Manual (2019, Version 4.0), the minimum spacing for fire hydrants for high density developments is 90m. There is an existing hydrant at the South East corner of the Site at Mill St, which is less than 90m from the furthest corner of the Site and therefore appears to be adequate at this time.

As part of the site plan approval process, the fire flow criteria shall be calculated and verified in accordance with the Ontario Building Code by the mechanical engineering consultant. The location of on-site hydrants and/or Siamese connections on the building shall also be verified by the mechanical/fire safety engineering consultant.

## 2.4 Sanitary Service

Sanitary service for 16 to 18 Mill St is provided by connection to the existing 300mm diameter (D) sanitary sewer on Mill St, with a hydraulic radius taken to be Diameter divided by 4 (D/4) or 75mm. The 300 sewer discharges to a 600mm diameter trunk sanitary sewer near Silver Creek. There is also a 375mm diameter sanitary sewer running between the site and Silver Creek. (See drawings in Appendix 'A').

The peak factor on average sewage is based on the Water and Wastewater Linear Design Manual (April 2019, V4.0, 3.2.3,P22) Harmon Formula. For the present and proposed site the peaking factor was estimated to be 4.23.

Usage rates for the sanitary sewer usage from the site at present and as proposed are taken from Water and Wastewater Linear Design Manual (April 2019, V4.0, Table 3-1,P21) to be  $0.003183 \times 10^{-3} \text{ m}^3/\text{person-sec}$ . Using this value, the following average and peak usage is estimated for the Site in Table 3.

	Existing	Proposed	Increase in flow

Wastewater demand average	0.14 L/s (0.00014 m <sup>3</sup> /sec)	0.29 L/s (0.00029 m <sup>3</sup> /sec)	0.14 L/s (0.00014 m <sup>3</sup> /sec)
Peak demand	0.61 L/s (0.00061 m <sup>3</sup> /sec)	1.22L/s(0.00122 m <sup>3</sup> /sec)	0.61 L/s(0.00061 m <sup>3</sup> /sec)

The design capacity of the existing sewers was estimated using the Manning Formula as specified in the Water and Wastewater Linear Design Manual (April 2019, V4.0, 3.3.1, P22) where  $Q \text{ (m}^3/\text{s)} = (1/n)(R^{2/3})(S^{1/2}) * A$  and where  $n = 0.13$ ,  $R$  is the hydraulic radius (m),  $S$  is the slope (m/m),  $r$  is the pipe diameter, and where  $A$  is the section of the pipe ( $\pi * r^2$ ). For the 300mm sanitary sewer with a slope of 0.58% the flow was estimated to be 0.095m<sup>3</sup>/s or 95 L/s.

The design capacity of the 600m trunk sewer with a slope of approximately 0.35% was estimated to be 0.363m<sup>3</sup>/s or 363 L/s.

The peak demand quantity represents a possible increase of 0.63 % to the total peak flow in the 300mm diameter sewer on Mill St. The peak demand quantity increase represents an increase of about 0.1 % increase of the total peak flow of the 600mm diameter trunk sanitary sewer. It is expected that the existing sewers have sufficient capacity to absorb the additional flow without upgrades. One expects the new sewers on Mill would facilitate the present development plans.

The sanitary sewer on site should be connected to the 300mm diameter sewer on Mill St with a lateral connection of minimum 150mm diameter. The final design of connections and the sanitary system is beyond the FSR.

## 2.5 Storm Service

There are no known storm drains on the Site. Storm water is discharged by overland sheet flow to Mill St and to the green space to the North. There are no storm drains on Mill St adjacent to the Site, so any water directed Mill St flowed north to catchbasins near to Silver Creek.

There is an 850mm diameter storm sewer in Mill St which should be used to accept water from on-site storm drains to be installed during the development. Pre-Development and Post Development Drainage Plans are attached in **Appendix 'C1'**.

## 3.0 STORMWATER MANAGEMENT

### 3.1 STORMWATER MANAGEMENT CRITERIA

The stormwater management is based on the Town of Halton Hills Subdivision Manual 99-06-23, the Town of Halton Hills, Stormwater Management Policy (March 2009), supplemented by Credit Valley Conservation Stormwater Management Criteria (August 2012), and the MECP Stormwater Management Planning and Design Manual (March 2003). The site plan, drainage, and erosion plans by others are in Appendix B.

The 0.2071 ha site will be treated as a Single Lot Residential Development as it is smaller than 0.5 ha. The quality control shall:

- Have enhanced water quality treatment provided to the discharge of runoff from the site (80% TSS removal)
- Be based on consultation with the Region concerns, the Site is in Well Head Protection Area E which indicates that surface water can easily seep through the soil and influence ground water; and WHPA-Q1/Q2-C, which means that it takes between 2 to 5 years for groundwater at the site to reach a wellhead.

The control for stormwater quantity is to be as follows:

- Control post-development peak flows to the existing/pre-development levels for all storms up to and including the 100 year storm (2, 5, 20, 25, 50, and 100 year design storms).
- Maintain at least 5mm of on-site detention for erosion control protection.
- Control at minimum of 3mm of runoff from impervious surfaces.

- Major storm flows are to be routed overland to an appropriate outlet.

The post-development peak runoff generated from the site is to be attenuated to the existing/pre-development level, for the range of design storm events from 2 to 100 year storms. Based on the Town of Halton Hills Intensity Duration Frequency Chicago Rainfall Distribution equation. Parameters return periods between 2 and 100 years shown in **Table 4** below:

**Table 4**  
**CHICAGO RAINFALL DISTRIBUTION**  
 $I=A(B+t_d)^c$

STORM EVENT	2	5	10	25	50	100
A	586.10	946.46	1173.48	1368.91	1622.45	1777.20
B	6.0	7.0	8.0	8.0	9.0	9.0
C	-0.760	-0.788	-0.794	-0.789	-0.797	-0.795

Rainfall Intensities for 10 minutes time of concentration:

**Table 5**  
**Rainfall Intensities**

STORM EVENT	2	5	10	25	50	100
INTENSITY	71.26	101.51	118.25	140.95	155.24	171.05

Runoff flow calculations are done using the Rational Formula  $Q=2.78RIA$

Where Q= Runoff flow  
 R= Runoff Coefficient  
 I =Rainfall Intensity  
 A= Catchment Area

### 3.2 PROPOSED MINOR DRAINAGE SCHEME

The proposed storm sewer system within the site has been designed using the 5 Year IDF curve for Halton Hills. The site will be serviced by a minor drainage system consisting of a network of catchbasins connected to on-site storm sewers. The Storm Design Sheet is shown in **Appendix 'D1'**.

### 3.3 PROPOSED MAJOR STORM DRAINAGE SCHEME

According to the Town of Halton Hills, post-development runoff in excess of 2-Year up to (including) 100-Year storm should not exceed the pre-development of the same storm. The flow in excess of the 100 Year Pre-development will be directed by overland flow route towards the east access driveway to Mill Street.

### 3.4 EXISTING/ PRE-DEVELOPMENT DRAINAGE CONDITION

The site is 2071m<sup>2</sup> (0.207 ha) in area, with an estimated 109m<sup>2</sup> (0.011) ha being permeable landscaped surface, 537m<sup>2</sup>(0.054 ha) being roof, and 1425m<sup>2</sup> (0.143 ha) being asphalt pavement and hard surfaces.

Storm water flow routes are overland to Mill St in the East and to the green space on the North side of the site. Water directed towards Mill St sheet flows towards the catchbasins near Silver Creek, which ultimately flows into Silver Creek. There is an 850 mm diameter storm sewer in Mill St adjacent to the Site

which could be used for the re-development. The Pre-Development runoff coefficient of the Site is **0.87(See Table-6)**

As shown in Pre-Development Drainage Plan, the surface drainage is divided into two areas, **AREA 101**(draining towards the Creek) and **AREA 102** (draining towards Mill Street)

### 3.5 WEIGHTED RUNOFF COEFFICIENT FOR THE PRE-DEVELOPMENT CONDITION-(WHOLE SITE)

The predevelopment land use of the site encompasses two multi-unit residential buildings and a small outbuilding-garage which will be demolished for the proposed development. The Pre-Development Drainage Plan is shown in **Appendix 'C'**

In the table below existing landuse and runoff coefficients have been shown

**Table 6**

Existing Land Use	Area (m2)	Runoff Coefficient	Area x Runoff Coefficient
Building 1 Roof	342	0.90	307.80
Building 2 Roof	105	0.90	94.50
Sidewalk/Walkway	67	0.90	60.30
Garage	90	0.90	81.0
Asphalt Pavement	1358	0.90	1222.2
Grass	109	0.25	27.25
<b>Total Site</b>	<b>2071</b>		<b>1793.05</b>

$$\text{Pre Development Composite Runoff Coefficient} = 1793.05/2071 = 0.87$$

#### 3.5.1 WEIGHTED RUNOFF COEFFICIENT FOR PRE-DEVELOPMENT - AREA 101

The Drainage from this area is discharging towards the creek through sheet flow. Below is the detail of the area.

**Table 7**

Existing Land Use	Area (m2)	Runoff Coefficient	Area x Runoff Coefficient
Building 1 Roof	71	0.90	63.9
Sidewalk/Walkway	28	0.90	25.2
Asphalt Pavement	440	0.90	396
Grass	41	0.25	10.25
<b>Total Site</b>	<b>580</b>		<b>495.35</b>

$$\text{Pre Development Composite Runoff Coefficient} = 495.35/580$$



= 0.85

### 3.5.2 WEIGHTED RUNOFF COEFFICIENT FOR PRE-DEVELOPMENT - AREA 102

This area is discharging through sheet flow towards Mill Street. Below is the detail of the area.

**Table 8**

Existing Land Use	Area (m <sup>2</sup> )	Runoff Coefficient	Area x Runoff Coefficient
Building 1 Roof	271	0.90	243.90
Building 2	105	0.90	94.50
Walkway	39	0.90	69.3
Garage	90	0.90	81.0
Asphalt Pavement	918	0.90	826.2
Grass	68	0.25	17.0
Total Site	1491		1156.4

Post Development Composite Runoff Coefficient = 1156.4/1491  
 = **0.77**

The Pre-Development Drainage Plan is shown in **Appendix 'C'**

### 3.6 WEIGHTED RUNOFF COEFFICIENT FOR THE POST-DEVELOPMENT CONDITION-(WHOLE SITE)

In the table below existing landuse and runoff coefficients have been shown

**Table 9**

Existing Land Use	Area (m <sup>2</sup> )	Runoff Coefficient	Area x Run Coefficient
North Building Roof	415.00	0.90	429.50
South Building Roof	435.00	0.90	397.00
Sidewalk/Walkway	41.00	0.90	36.90
Central Corridor/One Story entrances	316.00	0.90	288.00
Asphalt Pavement	300.00	0.90	270.00
Grass	564.00	0.25	122.93

Total Site	2071		1544.33

Post- Development Composite Runoff Coefficient=  $1544.33/2071=0.75$

**3.6.1 WEIGHTED RUNOFF COEFFICIENT FOR THE POST-DEVELOPMENT(AREAS 201,202,203,204)**

Below are the areas detail runoff which is discharging towards Mill Street.

**Table 10 (AREA 201)**

Existing Land Use	Area (m <sup>2</sup> )	Runoff Coefficient	Area x Run Coefficient
South 3 <sup>rd</sup> Roof	105	0.90	94.50
Central Corridor/One Story entrances	316	0.90	284.40
Asphalt Pavement	300	0.90	270.00
Grass	325	0.25	81.25
Total Site	1046		730.15

**Post Development Composite Runoff Coefficient = 730.15/1046=0.70**

**Table 11(AREA 202)**

Existing Land Use	Area (m <sup>2</sup> )	Runoff Coefficient	Area x Run Coefficient
North Building Roof	415	0.90	373.50

**Table 12(AREA 203)**

Existing Land Use	Area (m <sup>2</sup> )	Runoff Coefficient	Area x Run Coefficient
South Building Fourth Story Roof	330	0.90	297.00

**Table 13(AREA 204)**

Existing Land Use	Area (m <sup>2</sup> )	Runoff Coefficient	Area x Run Coefficient
Front Walkway	42	0.90	37.80
Grass	54	0.25	13.5
Total	96		51.30

Post Development Composite Runoff Coefficient =  $51.30/96=0.53$

### 3.6.2 WEIGHTED RUNOFF COEFFICIENT FOR THE POST-DEVELOPMENT(AREA 205)

The Drainage from this area is discharging towards the Creek. Below is the detail of the area.

**Table 14 (AREA 205)**

Land Use	Area (m <sup>2</sup> )	Runoff Coefficient	Area x Runoff Coefficient
Grass	185	0.25	46.25
Total	185		46.25

Post-Development Composite Runoff Coefficient(5-Year) =  $46.25/185$   
 = **0.25**

The Post-Development Drainage Plan is shown in **Appendix 'C'**

### 3.7 PRE-DEVELOPMENT/ALLOWABLE FLOW RATES

As identified in Section 2.4, the storm service for the development should be connected to the 850mm diameter storm drain on Mill St, rather than relying on the existing sheet flow(**from Area 101**) down Mill St to a storm drain near Silver Creek. The Pre-Development flows are shown in **Table 15**. The allowable flows should be equal or less than the flows shown in **Table 15** for respective storm events.

The post-development flows generated from the development must not exceed the pre-development flows to the storm drain. Therefore, the flow rates described in **Table 17(Controlled)** above must not be exceeded after development.

Flow rates for pre-development condition, discharging towards Mill Street, are estimated using the Rational Method. The combined runoff coefficient C of the **Area 102** is estimated to be **0.77** as per **Table 8** above.

**Table 15 shows flow rates for the existing conditions after 10 minutes of the design storms. (Allowable Flows)**

Table 15: Existing conditions/ Pre-development Condition Flow rates						
	2-year	5-year	10-year	25-year	50-year	100-year
Flow L/s (m <sup>3</sup> /sec) At 10min	22.74 (0.023)	32.40 (0.032)	37.74(0.038)	44.99(0.045)	49.55(0.050)	54.59(0.055)

### 3.8 POST-DEVELOPMENT DRAINAGE FLOWS

Post-Development Drainage area is divided into Catchment Areas, **AREA 201** , **AREA 202**, **AREA 203**, **AREA 204** and **AREA 205**. The areas 201, 202, 203 and 204 are discharging towards Mill Street **AREA 205** discharging towards the Creek.

The post development flows to wards Mill Street without control are as follows:

**Table 16: Developed Condition Un-Controlled Flow Rates L/s**

	2-year	5-year	10-year	25-year	50-year	100-year
<b>AREA 201</b>	14.5	20.66	24.07	28.69	31.60	34.81
<b>AREA 202</b>	7.75	11.48	12.87	15.34	17.56	19.34
<b>AREA 203</b>	7.40	10.96	12.28	14.64	16.13	18.46
<b>AREA 204</b>	1.0	1.44	1.67	1.98	2.19	2.41
<b>TOTAL</b>	<b>30.65</b>	<b>44.54</b>	<b>50.89</b>	<b>60.65</b>	<b>67.48</b>	<b>75.02</b>

The post development flow rates are exceeding than the existing allowable release rates, we need to provide some type of quantity control to bring total flow draining towards to be less than the allowable flow rates.

We need to provided quantity control to bring the Post-Development flows less or equal to Pre-Development level.

Part of the detention storage required to control the post development peak flows can be obtained by using roof top ponding.

Two controlled flow drains (Zurn-Z-105 with two notch or equivalent) will be installed on north building roof. The calculated storage volume for the North Building Roof is 12.25m<sup>3</sup>. The storage calculations are shown in **Appendix 'D2'**. The storage provided is 13.7m<sup>3</sup>. The maximum depth of ponding will be 110mm.

The south building 4<sup>th</sup> floor roof is divided into three parts. The central part elevation is higher than the two other parts as shown on the Site Servicing Plan. One Zurn-Z-105 with one notch each, on each section of roof is being proposed. The discharge rate for the west and the east sections is **1.34 l/sec** for each roof drain, the central section roof drain discharge rate will be **1.04Litres/sec**, thus for three roof drains it will be **3.74 Litres/sec**. The storage calculations are shown in **Appendix D3** and **Appendix D4**.

As the runoff from catchment **AREA 205**, 0.0185 hectares(R=0.25), towards the Creek will be less than the runoff from Pre-Development Drainage **AREA 102**, 0.0580 hectares (R=0.85), we are full filling the Quality Control requirement for the flows discharging towards the Creek.

**The post development flows to wards Mill Street with control are as follows:**

	2-year	5-year	10-year	25-year	50-year	100-year
<b>AREA 201</b>	14.5	20.66	24.07	28.69	31.60	34.81
<b>AREA 202</b>	3.28	3.28	3.28	3.28	3.28	3.28
<b>AREA 203</b>	3.74	3.74	3.74	3.74	3.74	3.74
<b>AREA 204</b>	1.0	1.44	1.67	1.98	2.19	2.41
<b>TOTAL</b>	<b>22.52</b>	<b>29.12</b>	<b>32.76</b>	<b>37.74</b>	<b>40.81</b>	<b>44.24</b>

### 3.9 COMPARISION OF PRE-DEVELOPMENT AND POST-DEVELOPMENT FLOWS TO MILL STREET

	2-year	5-year	10-year	25-year	50-year	100-year
<b>PRE-DEVELOPMENT FLOWS</b>	<b>22.74</b>	<b>32.40</b>	<b>37.74</b>	<b>44.99</b>	<b>49.55</b>	<b>54.59</b>
<b>POST-DEVELOPMENT FLOWS</b>	<b>22.52</b>	<b>29.12</b>	<b>32.76</b>	<b>37.74</b>	<b>40.81</b>	<b>44.24</b>

It can be seen that the post-development flows discharging to Mill Street are not exceeding the pre-development flows, thus fulfilling the Town’s Stormwater Management requirements.

### 3.10 WATER BALANCE

The primary objective of the water balance Targets/Criteria is to capture and manage annual rainfall on the development site itself to preserve the pre-development hydrology or “water balance”, which typically consists of three components: runoff,

infiltration and through a combination of infiltration, evapotranspiration, landscaping rainwater reuse or other low impact development practices. To achieve the minimum on-site retention requires proponent to retain all runoff from small design rainfall event-typically 5mm. <b>Table 18 Water Balance</b>				
Site Area	Area ( m2)	Fraction of Total Area(%)	Initial Abstraction	Initial Abstraction Over Total Site
Building Roofs	850	41.0	1.00	0.41
Asphalt Pavement	300	14.5	1.00	0.145
Landscape	564	27.2	5.0	0.272
Central Corridor/ One Story Entrances	316	15.3	1.00	1.36
Walkway	41	2.0	1.00	0.02
<b>TOTAL</b>	<b>2071</b>	<b>100.00</b>	<b>32.30</b>	<b>2.207</b>

The remaining Water Balance to be captured = 5.0 – 2.207  
 =**2.793mm**

To fulfil the 5mm of rainwater balancing condition, we are proposing the remaining 2.793mm of water rain water from the new roof will be discharged to an infiltration trench. The rainwater will percolate into native soil, thus reducing the runoff from the site.

The calculations of storage

Storage required for  
 Water Balancing =2071 x 0.002793  
 =5.78m<sup>3</sup>

We cannot propose infiltration of the rainwater due to proximity of the building foundations to the property line. The other option is to reuse roof rainwater for flush tanks and also to use it landscaping.

Estimation of Rainwater Use:

- (i) **Flush Tanks:**
  - Population = 90
  - Average Use of Flush tanks/ Person/day =5
  - Average Capacity of the flush tank =9.8 Litres
  - Use of Rainwater for Flush Tanks =90x5x9.8  
=4,410 Litres/day
  
- (ii) **Landscaping**
  - Area of Landscaping =564m<sup>2</sup>
  - Average Water Use per Week =25mm
  - Average Water Use/Day =25/7  
=3.5mm  
=0.0035m
  - Water Use =564x0.0035  
=1.97 m<sup>3</sup>  
=1970 Litres/Day
  
- Total Use of Rainwater/Day =4410+1970  
=6,380 Litres > 5780 Litres Okay.**

This shows all the rainwater stored in the harvesting tank will be consumed, thus fulfilling the water balance requirements

The service room area will be used for the harvesting tank, this will reduce the cost of the construction.

Harvesting Tank = 4.327mx3.5mx1.0m(0.15m Freeboard)  
= **12.87m<sup>3</sup> > 5.78m<sup>3</sup> Okay**

The rainwater storage will be more than the double of the water balance requirement. The stored water can be utilized in longer dry spell.

As per MOE requirements rainwater to be treated to remove fine suspended particles. We are proposing two **Vortex Fine Filter-WISY Model WFF 150**. Each Filter will treat 5,500 square feet of roof area. For filter and associated detail refer to **Appendix 'E'**. The mechanical engineer will provide detail at the time of Building Permit stage

### 3.11 QUALITY CONTROL

To address the Town's requirement for quality control, stormceptor or similar are required. To provide stormwater quality control as required by the City and MOE of 80 % TSS removal, the stormceptor unit Model EF04 (or approved equal) has been recommended for the proposed development. This model as per the manufacturer's report is expected to treat 93% TSS removal. It will capture more than 90% of runoff volume. The Stormceptor Design Sheet is attached in Appendix 'F'. Construction Erosion and Sediment Control

Erosion and sediments must be controlled during the construction phase. During site grading, there is a possibility for runoff containing high levels of sediments to be directed towards adjoining properties, Mill St, and the existing storm infrastructure. Therefore, prior to grading, sediment control fences must be installed along the site perimeter where runoff may discharge from the site. Material stockpiles are to be placed in appropriate locations to minimum erosion. The proposed erosion control plan is in Appendix 'A'.

When catchbasins and manholes are installed, they must be protected with inlet sediment control devices such as woven geotextile filter cloth. The inlet protection must be in place until all building and landscaping work has been completed.

Inspection of maintenance of the silt fences and inlet protection shall be carried out weekly while construction is underway, as well as after every rainfall event of at least 13mm (10 minutes of 2-year design storm).

After construction and landscaping is completed, silt fences and inlet protection may be removed along with any accumulated settlement. The current plan is in **Appendix 'A'**.

### 3 Utilities

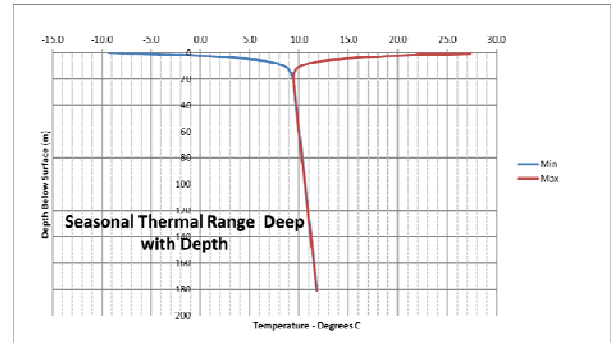
The site is in an urban area serviced by Halton Hills Hydro, Enbridge Gas, Cogeco Cable, and Bell Canada. The size and type of connection within the Mill Street right-of-way for each utility will be confirmed as part of the site plan approval process for the development.

Bell, Cogeco, Turriss Communications of Georgetown nor other providers for cell, tv, internet have been contacted as we expect currently these can all serve the site.

The electrical design and Halton Hills Hydro servicing application have been completed by the mechanical engineer, Millenium Engineering, which will be submitted separately from this report.

Gas loadings and design are underway by Millenium Engineering and will be submitted separately from this report.

For heating and cooling an alternate energy source one might consider is geothermal using closed loop vertical wells stretching to about 180 m in depth each. Based on local climate a subsurface conditions a possible thermal profile is below. A thermal conductivity in the range of 2 to 4 W/(m\*K) and a thermal diffusivity in the range of 0.07 m<sup>2</sup>/day might be possible (a field thermal conductivity test would be needed).





## 4 Conclusions

The proposed development will see the construction of a new residential building at 16 to 18 Mill St, Georgetown, Ontario. The proposed development can be serviced utilizing the existing and proposed infrastructure. Our conclusions and recommendations for servicing of the proposed development are summarized as follows:

### Water Servicing

- The calculated domestic flow demand due to the proposed development is **0.34 L/s** average, **0.65 L/sec** maximum per day, peak demand hour **1.03L/s** and
- This represents an increase of **0.17 L/s** average, **0.33 L/s** over maximum per day, and **0.52 L/s** over peak demand hour over the existing site usage.
- The calculated fire flow demand due to the proposed development is **66.7 L/s** for one building. If the second building is added assuming a simultaneous fire allow for double that amount.
- The proposed development will be serviced by at minimum a 200 mm lateral service connection to the 300 mm diameter watermain on Mill St.
- The existing watermain is expected to be capable of handling the increased flows due to the development.
- Additional confirmation of the fire and domestic branch sizing and fire flow requirements should be provided by the mechanical engineering consultant at the building permit stage of approval.

### Sanitary Servicing

- The estimated peak demand in sanitary flow of the proposal is 1.22 L/s
- This represents an increase of 0.61 L/s over the existing site usage.
- The proposed development will be serviced by at minimum a 150mm lateral service connection to the 300 mm sanitary sewer on Mill St.
- The existing sanitary sewer appears is capable of handling the increased flows due to the development, noting a new sewer appears to be under construction on mill street.

### Stormwater Servicing

- The existing storm water flow is via sheet flow to Mill St and to the green space to the North.
- Storm Flow to Mill Street for the Post-Development condition will be increased as more area is draining to Mill Street as compare to the Pre-Development conditions. To reduce or equal the post-development flows to pre-development levels, we are proposing roof control drains on the fourth story of both buildings.
- To fulfil Water balance requirements, a harvesting tank of 12.87m<sup>3</sup> is being proposed which is double the size of the water balance requirements.
- The soil conditions at the site have high potential for infiltration. It is recommended that runoff generated on the landscaped areas be infiltrated on site.
- The Site is in Well Head Protection Area E and WHPA-Q1/Q2-C
- An oil-grit separator, Stormceptor Model EF04, is being proposed which will remove 93% of TSS And will capture more than 90% of runoff volume.
- A 300mm diameter minimum pipe should be used for connecting on-site stormwater management facilities to the 850 mm storm sewer on Mill St.
- The existing storm sewer is expected to be capable of handling the flows due to the development.

A proposed layout for utility connections is shown in the Site Servicing Plan SS1.

## **5 Closure**

### **5.1 Contract**

The client authorized EAL to carry out the work set out in the report in accordance with the scope of work as set out herein.

### **5.2 Limitations**

The present work is for the sole use of EAL, and the client in the Spring/Summer 2022 Site evaluation. Others with an interest in the Site such as contractors, purchasers, etc., must undertake their own investigations respecting the Site, and are advised that the work is to the terms of reference only. Neither EAL nor the client warrant or represent the report has found, detected or reported on all Site conditions or Site environmental conditions. All documents cited, photos other than taken by EAL, drawings reviewed and reproduced are provided at no markup cost beyond 5% to cover insurances and are provided at original cost only. Copyright belongs to the original source. Refer and obtain to original documents at libraries, publishers, etc. for use of these materials, as the present work using the materials for ease of reference using artistic standards in not intended to negate any commercial use or value of the works by others.

### 5.3 Thanks

The client is thanked for retaining EAL for the present project. Please call us if you have questions regarding the report.

#### **Egmond Associates Ltd**

Environmental & Geotechnical Engineers  
Julie vanderMeulen, B.Eng. MaSc, Project Technical Works  
John Van Egmond, P.Eng., P.E.,  
Principal

#### **Premier Engineering Solutions Inc**

Civil Engineers  
Muhammad Ismail P.Eng.  
Principal



gmond Associates Ltd – Terms of Engagement (9)

**GENERAL**

Egmond Associates Ltd (EAL or The Consultant herein and may include subcontractors shall render the Services, as specified in the attached Scope of Services or set out in the final report to the Client, and agreed by the Client for project in accordance with the following terms of engagement. If required, in EAL's opinion, to respond to a subpoena, EAL, its staff, etc. will be paid at their normal charge out rates by the Client. The Client will pay for the amounts invoiced by the consultant on receipt of the invoice.

**COMPENSATION**

Charges for the service(s) rendered will be made in accordance with the Consultant's Schedule of Fees and Disbursements as the services are rendered. Consultant's current schedule of fees is as published to Clients periodically and available on request or as attached hereto. All Charges will be payable in Canadian Dollars unless specified. Invoices will be due and payable on receipt from the date of the invoice without holdback. Interest on overdue accounts is prime plus 10%, collection fees being extra and payable on collection (where allowed. If the account is not paid the reports may not be used or released, and if released all liabilities are the sole responsibility of the Client and the reader and user of the report and he/she/they shall bear all liability and shall save and hold harmless EAL, its staff, shareholders, suppliers, etc. against any and all costs, claims, etc. EAL's limitations shall apply.

**REPRESENTATIVES**

Each party shall designate a representative who is able to act on behalf of that party and receive notices under this Agreement (default President, if individual then individual.

**TERMINATION**

Either party may terminate the contract without cause upon thirty (30 days' notice in writing, the engagement terminating by default after 180 days following the final report, unless extended by ongoing work (storing of samples extends lien rights. Payment is due for all costs and expenses to the consultant immediately upon termination. If either party breaches this contract, the non defaulting party, may terminate the agreement after giving seven (7 days' notice (email, writing, verbal to remedy or begin remediation of the breach. Payment is due for all costs and expenses to the consultant immediately on termination of the contract if the consultant elects to exercises termination under this paragraph.

**COOPERATION**

The consultant's field, laboratory and other work and engineering do not include herein a duty or duty of care to deal with issues other than those set out in the terms of engagement, or as stated in the final report submitted by the Consultant. The Consultant will co-operate, as the Consultant deems appropriate, with the Client's other team members as applicable during portion of work which coincide.

**LIMITATION OF LIABILITY**

EAL shall not be responsible for the costs, consequences, etc. of:

- (1) the failure of others, retained by the Client, to perform work to the satisfaction of the Client;
- (2) the design, use or defects of reports, equipment, etc. supplied by the Client;
- (3) interactions of other systems, damage to other systems resulting from investigations;
- (4) damages to utilities, which were identified and located, or which were not identified by the Client;
- (5) any decisions made by the Client (if for example made contrary to the Consultant's advice;
- (6) any consequential loss, injury, or damages suffered by the Client, including but not limited to loss of use,
- (7) earnings and or business interruption.
- (8) the unauthorized distribution of any confidential document or report prepared by or on behalf of the Consultant for the exclusive use of the Consultant and the Client.

the EAL limitations, general soils terms, and report further set out in the limitations. The total amount of all claims the Client may have against the Consultant or any present or former partner, executive, shareholder, employee, or employee thereof under this engagement, including, but not limited to claims for negligence, negligent misrepresentation and breach of contract, shall be strictly limited to half the amount of any professional or other liability insurance the Consultant may have available for such claims. If the client has no paid its bills in full the limitation shall be the unpaid amount only as at the date of the last invoice. The Client agrees its claims can only be against the Consultant under this contract, and not against the employees, shareholders, executives, etc. No claim may be brought against the Consultant in contract or tort by the Client or those who rely on the report more than (2 years after the services were completed or terminated under this engagement. Those who may not rely on the report have no rights in contract or under tort.

**DOCUMENTS**

All of the documents prepared by the Consultant or on behalf of the Consultant in connection with the Project are instruments of service for the execution of the Project. The Consultant retains the property and copyright in these documents, whether the Client advances to further projects on the matter of the engineering or not. These documents are not for use on other projects or in ways contrary to the report.

**FIELD SERVICES DURING CONSTRUCTION**

Where applicable, field services where recommended by the Consultant for the Client's project are the minimum thought necessary by the Consultant, whether the Consultant is retained or not. If not retained, EAL shall have no liability, and those responsible for engaging and or providing the field services shall be responsible. Where the Consultant's services are limited, the extent of such limitations may be in the report, or as set out in the limitations, or as set out herein, or as set out in subsequent correspondence, but in no event shall EAL be liable for field services beyond the extent retained by the Client nor for any actual or other damages if subsequent work shows the material conditions were not as expected or work was done improperly, and EAL shall not be a proximate cause of failure, if others fail to carry out any portion of their work or responsibilities.

**DISPUTE RESOLUTION**

If requested in writing by either the Client or the Consultant, the Client and the Consultant shall attempt to resolve any dispute between them arising out of or in connection with these Terms of Engagement or other vehicle for services between the Client and the Consultant, by entering into structured non-binding negotiations with a mediating (Peter Wallace, P.Eng. on a without prejudice basis. The mediating party shall be appointed by agreement of the parties. If the matter cannot be settled within a period of thirty (30 calendar days with the mediator, the dispute shall be finally resolved by arbitration under the rules of Ontario or by an arbitrator appointed by agreement of the parties or by reference to a Judge of the Courts in Mississauga, Ontario, Canada.

**SCHEDULE OF FEES** (Base year is July 2020, rates will be adjusted based on inflation:

- Principals - \$400/hr
- Engineers/Technical Consultants - \$220/hr
- Junior Engineer - \$150/hr
- Scientists - \$220/hr
- Technical Staff - \$125/hr
- Others on Payroll x 3
- Expenses - over \$10,000 per invoice, payable directly by the Client
- Expenses - cost plus 15 % (except as agreed by the Client
- Travel Cost (Portal to Portal - regular airline or car (0.5 x price of gasoline x kilometres plus expenses
- Court Time Multiply by 4
- Minimum Contract \$1000
- Rates in Canadian Dollars.
- Other rates available as needed upon request.



### Egmond Associates Ltd – Limitations

This document describes the limitations of the report and contract, which may have impact on the use and reading of the documents provided by Egmond Associates Ltd (EAL herein, regarding interpretations, uses, liabilities, etc. Others than EAL and the Client are notified that use of the EAL reports, etc. by said same others, may be or is subject to the restrictions of use, limitations of liabilities, etc. as set out in the contract and its general conditions.

#### **SECTION 1: RESPONSIBILITIES**

1.1 Technical Arbiter - EAL was retained to provide the Professional Services described as outlined in the report. Tests and observations were conducted using standard test procedures and laboratory protocols as defined and applied by EAL or its suppliers. EAL are the sole arbiter of technical matters pertaining to the work undertaken in the contract.

1.2 Terms of Reference - EAL provided the Client with written reports meeting the terms of reference as outlined in the report for the use of EAL and the Client in the period identified in the report, or for six months after completion of the report, whichever is shorter. The normal EAL Terms of Engagement shall apply. Any contract by the Client, which uses absolute terms that would negate insurance coverage, etc., shall be taken to mean "reasonable" as defined by EAL periodically. Contracts written by the Client or almost exclusively, that is where the Client input is over 5% of the document or where absolute terms are used, shall be subject to completion and interpretation as determined solely by EAL periodically for either the contract or the technical matters pertaining thereto, particularly as the contract may include any absolute terms.

1.3 Reference Points - Where reference points are used by EAL, EAL has referenced its data and observations to reference points set as part of surveying or construction staking by others.

1.4 Directing Work - Except as specifically provided for in the contract, the Client has not made EAL responsible for directing the work of contractors or others.

1.5 Safety - Nothing in EAL's responsibilities or work shall construe to make EAL responsible for job or site safety after the EAL field work or for other than its own activities when on site. Site safety is the sole responsibility of others, for example the contractor controlling the site. Where EAL makes recommendations for safety in the case of imminent danger as determined by EAL, others than EAL shall pay for such actions as may be required and agree to hold and save harmless the Client and EAL against any and all costs, etc.

1.6 Performance - EAL was not, is not, and will not be responsible for the failure of others to perform in accordance with their particular contract documents. EAL services shall in no way relieve others of their (i.e. the others responsibilities).

1.7 Change in Information - The Client (and others using the EAL report was and is responsible to provide EAL with all known information regarding existing and proposed conditions of the site and undertaking. Any new information, which becomes available to the Client (and others, which differs materially from that used to prepare any reports and information by EAL, in the EAL report and documents it prepared will also be provided. The Client holds harmless EAL, its affiliates, and the respective directors, officers, employees, agents and subcontractors, from all claims, damages, losses, related expenses, etc., involving subterranean structures, movements, contamination, etc. which were not called to EAL's attention, that were not shown on plans, or that were shown in documents not provided to EAL.

1.8 Agreements with Contractors - EAL must be a beneficiary in any hold harmless or indemnity agreements, etc. between the Client and its contractors.

1.9 Approvals - The Client agreed that public officials and authorities and even codes may be interpreted differently by public officials etc., than interpreted by EAL or the Client, and that this difference is neither predictable or within responsibility of EAL and shall not be cause for claim or extras.

1.10 Tender Period - Contractors bidding work shall normally be given not less than 45 days for carrying out their own investigations on matters pertaining to the site, and when changed in the contract, shall notify the contractors and EAL.

1.11 Valid Reports - Valid EAL reports are embossed and signed and stamped as original, and other reports are not valid for any purpose.

1.12 Error - The Client and EAL agreed that design professionals strive to be correct when developing reports, plans and designs, and that even so errors, etc. may arise where there is no negligence, etc., and as such no error is actionable in that circumstance. Others, by making use of EAL reports outside of the contract accept this agreement as binding and valid. Others using the report do so then at their sole risk. The reader of our reports, acknowledge that engineering judgment, based on given data, may vary from individual to individual, and may change with time, and that changing engineering judgment and opinion and that varied engineering judgment and opinion can be different without implying error. Also, that an engineering judgment or opinion is defined facts, which like judicial judgment, is a weighing of facts and reaching a conclusion, and that such EAL judgments and opinions and resultant impacts on schedules, costs, etc. are not actionable.

#### **SECTION 2: REPORTS AND RECORDS**

2.1 Copies - As agreed, EAL furnished copies of each report to the Client. If no comments were received from the Client within 15 days of the issuing of a report, it was agreed and understood, without further comment, that the report was entirely satisfactory for the Client's use and for its intended purpose, and this limits comments in any post completion phase without further engineering consideration and investigation.

2.2 Use of Report in Event of Non Payment - The Client and EAL agreed, if the Client does not pay for EAL services as agreed (in whole and in part, that the Client would return all reports and other work to EAL on demand, and that reports and other work will not be used by the Client or its suppliers or others for any purpose whatsoever. Use of these materials by others than EAL in the event of non payment, are at the sole and total risk of the user.

2.3 Reports - The Client and EAL agreed that the reports, notes, and other documents, as instruments of service, remain the property of EAL.

2.4 Disclosure Required by Law - Nothing in this project shall make EAL liable in law to report any or all conditions, except those conditions which EAL believes in capacity pertains to items of imminent danger.

#### **SECTION 3: CONTINUITY OF SERVICES, DISPUTES, CARE**

3.1 Continuity - It is customary for the consultant, EAL in this case, who provides recommendations to be retained, to provide observation and related services during further, construction, etc. If EAL is not retained to provide continuing services the Client agreed to hold EAL harmless from all claims, damages, losses and expenses, including attorneys' fees, arising out of any interpretations, clarifications, substitutions or modifications provided by the Client or others. Others using the report do so at their total and sole liability, and by using the report agree to save and hold harmless EAL and the Client against all and any consequences of the use of the report, etc.

3.2 ADR - The Client and EAL agree that the Client will use Alternative Dispute Resolution (ADR in its contracts and disputes with contractors on the project. When disputes result, due to use by others, the dispute shall be submitted to EAL and its legal provider for binding resolution using their prevailing rates.

3.3 Care - The Client and EAL agreed that EAL used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession, as interpreted and determined by EAL periodically, and that this standard is determined solely by EAL for this project.

3.4 Risk - The Client and EAL agreed, many risks potentially affect EAL by virtue of entering into an agreement to provide services on behalf of the Client. For the Client to obtain the benefit of a fee, which included a reasonable allowance for dealing with EAL liability, the Client agreed to limit the liability as fully as allowed by law of EAL to the Client and to all others for claims arising out of the services. Further, others than the Client and EAL, by making use of the report accept all risks, liabilities, etc. that may arise from that use.

3.5 Contractor - The Client and EAL agreed, that if EAL are retained to provide for job site services during construction, the Client agreed that it is good practice that the contractor (subcontractor is completely and solely responsible for maintaining and implementing legal working conditions methods, means, techniques sequences, procedures, acts, etc., as the contractor controls the site. EAL's work is not intended to be, nor is it, a review of the safety practices or compliance to any particular code. EAL's presence does not relieve the contractor from adhering to all applicable laws, codes and good practice.

3.6 Life - The Client and EAL agreed that if imminently hazardous or potentially hazardous conditions or chemical conditions are found or interpreted by EAL during the provision of EAL services, EAL shall be entitled, without liability and without concern for claims by the Client or others for damages, to take all steps it solely deems reasonable to protect human life first, and the environment second, and will be reimbursed for such activities as needed. Others using the report by that non allowed use agree to fully protect and save harmless EAL and the Client.

3.7 Extras and Extra Work - For work in excess of the contract, the EAL standard Fee Schedule in the Terms of Engagement will apply (prices subject to change).

#### **SECTION 4: WORK INCLUDED**

4.1 Work included shall be as set out by EAL in the report or proposal, and shall be as interpreted by EAL. Not covered are moulds, asbestos, soils, environmental matters, structural matters, etc. unless specifically part of the project. Further, some issues which are specifically part of the project may be costly or intractable to resolution and the client shall not hold EAL responsible for the successful resolution.

#### **SECTION 5: SUMMARY OF LIMITATIONS**

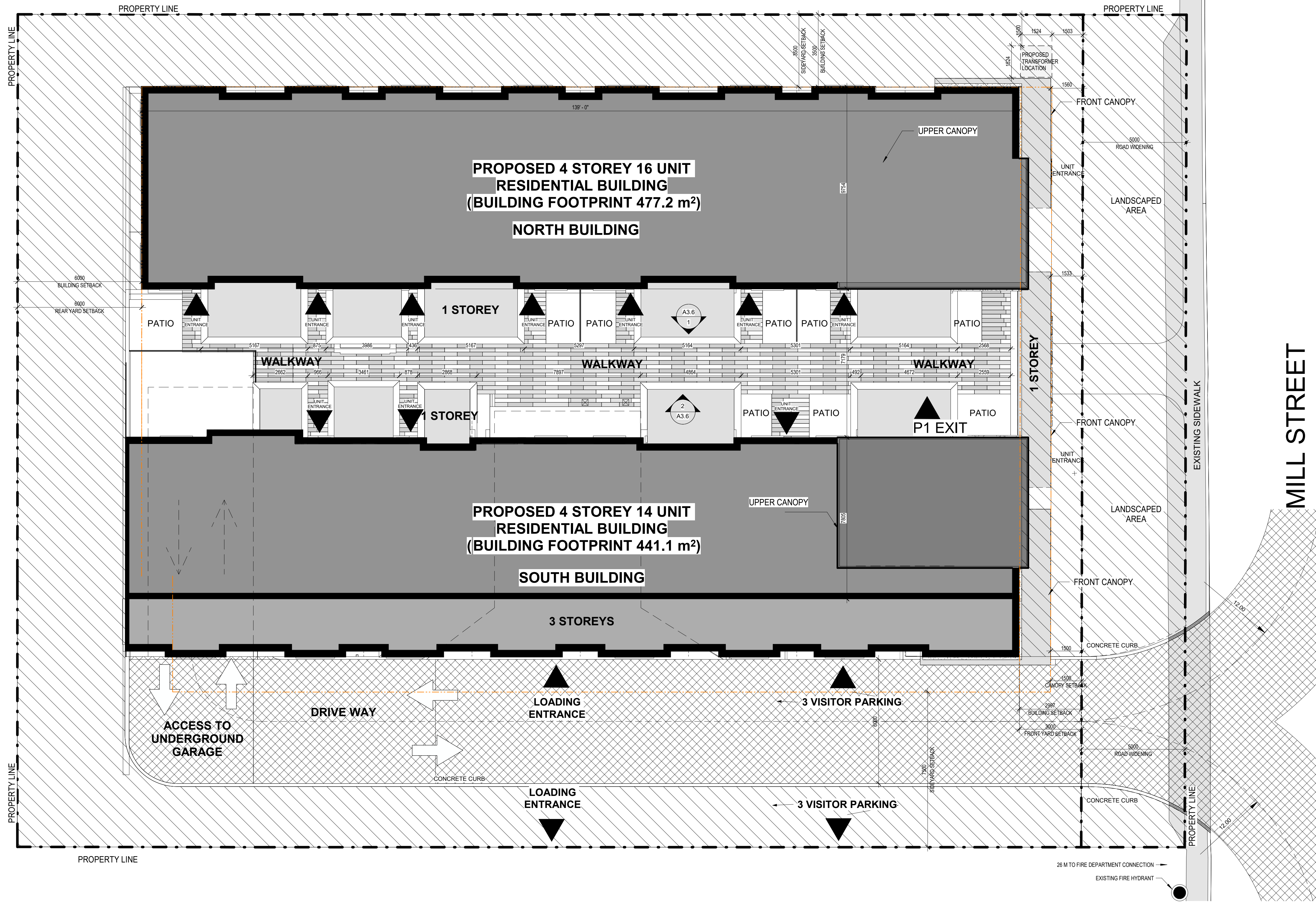
5.1 The user/reader of the EAL report is warned that the Client and EAL have agreed to specific limitations on liabilities, etc. Others than EAL and the Client, agree their use or release of the report is at their sole risk, cost, etc. In general the Client and EAL agreed that EAL is the sole arbitrator of technical matters pertaining to the project and methods for the purpose of the report. The report may set out further limitations. Any clauses found non enforceable in the contract or above, may be severed without impacting the applicability of the rest of the contract or the above by EAL at its discretion.

## Appendix A

- A1 Site Plan A1.1 – r2
- A2 Interior Courtyard Elevations A3.3
- A3 Topographic Survey 2011 TOPO
- A4 Site Servicing Plan SS1
- A5 Grading and Drainage Plan SG1
- A6 Erosion and Sediment Control Plan  
ESC-003
- A7 General Notes and Detail DWG  
NOTES-004
- A8 300mm Watermain 78-200-20
- A9 Prop. 300mm Dia. PVX WM  
Replacement Mill Street G-1658
- A10 Easement G-2080

# GREENSPACE - SILVER CREEK

TYPICAL PARKING FLOOR AREA = 15,502 SF  
 GROUND FLOOR APPROX AREA = 7,515 SF  
 2ND FLOOR AREA = 8,360 SF  
 3RD FLOOR AREA = 9,356 SF  
 4TH FLOOR AREA = 7,957 SF



**SITE DATA**  
 16 & 18 Mill Street, Georgetown, Ontario

DATA	EXISTING ZONE	PROPOSED ZONE	PROPOSED ZONE
EXISTING ZONING		ZONING - LDR1-2	
PROPOSED ZONING	ZONING - MDR2-SPECIAL (APARTMENTS)		
LOT AREA (m <sup>2</sup> ) - PRE-ROAD WIDENING	2271.69 (m <sup>2</sup> )		
LOT AREA (m <sup>2</sup> ) - POST-ROAD WIDENING	2078.51 (m <sup>2</sup> )		
MINIMUM LOT FRONTAGE (m)	11.0 (m)	11.0 (m)	40.23 (m)
SETBACKS	FRONT YARD (m)	4.5 (m)	6.0 (m) pre-road widening 3.0 (m) post-road widening
	INTERIOR SIDE YARD (m)	7.5 (m)	3.5 (m) (north) & 9.18 (m) (south)
	EXTERIOR SIDE YARD (m)	6.0 (m)	3.5 (m)
	REAR YARD (m)	7.5 (m)	6.0 (m)

**BUILDING DATA**

DATA	REQUIRED	PROVIDED
TOTAL DENSITY (# of units)	145 (units per ha.)	30 units (Pre-Road Widening, 133 units per ha) 146 units (Post-Road Widening, 146 units per ha)
BUILDING AREA (m <sup>2</sup> ) - NORTH BUILDING	XX (m <sup>2</sup> )	450.8 (m <sup>2</sup> )
BUILDING AREA (m <sup>2</sup> ) - SOUTH BUILDING	XX (m <sup>2</sup> )	461.3 (m <sup>2</sup> )
TOTAL		912.1 (m <sup>2</sup> )
GROSS FLOOR AREA (m <sup>2</sup> ) - NORTH	XX (m <sup>2</sup> )	1,672.8 (m <sup>2</sup> )
GROSS FLOOR AREA (m <sup>2</sup> ) - SOUTH	XX (m <sup>2</sup> )	1,417.7 (m <sup>2</sup> )
TOTAL		3,090.5 (m <sup>2</sup> )
FLOOR SPACE INDEX (FSI) INCLUDING BELOW GRADE - NORTH BUILDING	XX (m <sup>2</sup> )	GFA + P1 & P2 COMM AND SERVICE / LOT AREA = 1.5
FLOOR SPACE INDEX (FSI) INCLUDING BELOW GRADE - SOUTH BUILDING	XX (m <sup>2</sup> )	GFA + P1 & P2 COMM AND SERVICE / LOT AREA = 1.3
FLOOR SPACE INDEX (FSI) ABOVE GRADE ONLY - NORTH BUILDING	XX (m <sup>2</sup> )	GFA / LOT AREA = 0.81
FLOOR SPACE INDEX (FSI) ABOVE GRADE ONLY - SOUTH BUILDING	XX (m <sup>2</sup> )	GFA / LOT AREA = 0.68
NUMBER OF STOREYS	6 MAX.	4
BUILDING HEIGHT (m)	25 (m) MAX.	13.2 (m)

**LANDSCAPING DATA**

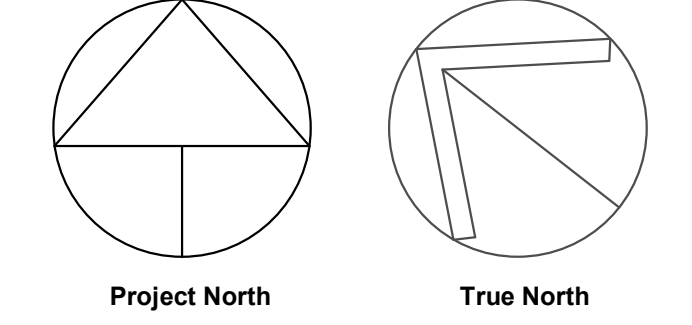
DATA	REQUIRED	PROVIDED
LANDSCAPE AREA (percentage)	XX (%)	29 (%)
LANDSCAPE AREA (m <sup>2</sup> )	XX (m <sup>2</sup> )	748 (m <sup>2</sup> )

**VEHICLE PARKING DATA**

DATA	REQUIRED	PROVIDED
RESIDENTIAL PARKING (NORTH BUILDING)	In apartment building - 1.5 spaces for each residential unit = 45	
RESIDENTIAL PARKING (SOUTH BUILDING)	In apartment building - 1.5 spaces for each residential unit = 45	49
TOTAL	45	49
BARRIER FREE PARKING (INCLUDED IN RES. COUNT)	-	4
VISITOR PARKING	30 UNITS * 0.25 = 8	8
TOTAL		57

**BICYCLE PARKING DATA**

DATA	REQUIRED	PROVIDED
RESIDENTIAL BICYCLE PARKING	N/A	2
TOTAL		2



- GENERAL NOTES**
- DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS.
  - ALL WORK SHALL COMPLY WITH THE 2012 ONTARIO BUILDING CODE AND AMENDMENTS.
  - CONTRACTORS MUST CHECK AND VERIFY ALL DIMENSIONS AND SPECIFICATIONS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
  - ALL CONTRACTORS AND SUB-CONTRACTORS SHALL HAVE A SET OF APPROVED CONSTRUCTION DOCUMENTS ON SITE AT ALL TIMES.
  - ALL DOCUMENTS REMAIN THE PROPERTY OF THE ARCHITECT. UNAUTHORIZED USE, MODIFICATION, AND/OR REPRODUCTION OF THESE DOCUMENTS IS PROHIBITED WITHOUT WRITTEN PERMISSION. THE CONTRACT DOCUMENTS WERE PREPARED BY THE CONSULTANT FOR THE ACCOUNT OF THE OWNER.
  - THE MATERIAL CONTAINED HEREIN REFLECTS THE CONSULTANT'S BEST JUDGEMENT IN LIGHT OF THE INFORMATION AVAILABLE TO HIM AT THE TIME OF PREPARATION. ANY USE WHICH A THIRD PARTY MAKES OF THE CONTRACT DOCUMENTS, OR ANY RELIANCE ON OR DECISIONS TO BE MADE BASED ON THEM ARE THE RESPONSIBILITY OF SUCH THIRD PARTIES.
  - THE CONSULTANT ACCEPTS NO RESPONSIBILITY FOR DAMAGES, IF ANY, SUFFERED BY ANY THIRD PARTY AS A RESULT OF DECISIONS MADE OR ACTIONS BASED ON THE CONTRACT DOCUMENTS.

2	2022-04-11	ISSUED FOR OPA/ZBA
1	2022-04-06	ISSUED FOR REZONING

No.	Date	Revision

Project No. 20052  
 Project Date 2022-04-11  
 Drawn by TJM  
 Checked by MYV  
 Plot Date / Time 2023-02-24 11:45:06 AM

**srm**  
 ARCHITECTS INC.

16 & 18 MILL STREET,  
 GEORGETOWN  
 DEVELOPMENT

**SITE PLAN**

**PRELIMINARY**

Drawing Scale As indicated  
 Status  
 COORDINATION  
 Drawing No. Revision No.  
**A1.1 - r2**

**NOTES:**  
 As recommended within the Environmental Noise Assessment prepared by SLR Consulting (Canada) Ltd., dated December 14, 2020, An Acoustical Consultant (a qualified professional) shall be retained to review and confirm the final building design to ensure compliance with the recommendations made within the report.

**1 SITE PLAN**  
 1 : 100

C:\Users\msaifir\Documents\20052\_16 & 18 Mill St Georgetown\_V10\_msaifir\N1510.rvt



**MATERIAL LEGEND**

1. Aluminum Siding - Light Brown Wood Finish
2. Precast Concrete Panel - Formliner Stone Masonry
3. Precast Concrete Panel - Formliner Brick Masonry
4. Precast Concrete Panel
5. Thermally broken Anod. Alum. Window and Frame
6. Preformed Aluminum Flashing - Dark Anodized
7. Tempered Glass Gaurd Rail
8. Thermally broken Anod. Alum. Door and Frame - Light Cherry Finish
9. Thermally broken Anod. Alum. Double Door and Frame - Paint TBD
10. Metal Panel - Dark Anodized Finish
11. Metal Panel - Dark GRAY Anodized Finish
12. Backlit Metal Chanel Lettering
13. Aluminum Siding - Light Cherry Wood Finish



**1 NORTH BUILDING INTERIOR COURTYARD ELEVATION**  
1:100



**2 SOUTH BUILDING INTERIOR COURTYARD ELEVATION**  
1:100

**GENERAL NOTES**

1. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS.
2. ALL WORK SHALL COMPLY WITH THE 2012 ONTARIO BUILDING CODE AND AMENDMENTS.
3. CONTRACTORS MUST CHECK AND VERIFY ALL DIMENSIONS AND SPECIFICATIONS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
4. ALL CONTRACTORS AND SUB-CONTRACTORS SHALL HAVE A SET OF APPROVED CONSTRUCTION DOCUMENTS ON SITE AT ALL TIMES.
5. ALL DOCUMENTS REMAIN THE PROPERTY OF THE ARCHITECT. UNAUTHORIZED USE, MODIFICATION, AND/OR REPRODUCTION OF THESE DOCUMENTS IS PROHIBITED WITHOUT WRITTEN PERMISSION. THE CONTRACT DOCUMENTS WERE PREPARED BY THE CONSULTANT FOR THE ACCOUNT OF THE OWNER.
6. THE MATERIAL CONTAINED HEREIN REFLECTS THE CONSULTANT'S BEST JUDGEMENT IN LIGHT OF THE INFORMATION AVAILABLE TO HIM AT THE TIME OF PREPARATION. ANY USE WHICH A THIRD PARTY MAKES OF THE CONTRACT DOCUMENTS, OR ANY RELIANCE ON OR DECISIONS TO BE MADE BASED ON THEM ARE THE RESPONSIBILITY OF SUCH THIRD PARTIES.
7. THE CONSULTANT ACCEPTS NO RESPONSIBILITY FOR DAMAGES, IF ANY, SUFFERED BY ANY THIRD PARTY AS A RESULT OF DECISIONS MADE OR ACTIONS BASED ON THE CONTRACT DOCUMENTS.

No.	Date	Revision

**srm** ARCHITECTS INC.

Project No: 20052  
 Project Date: 2022-04-11  
 Drawn by: MSW  
 Checked by: MYV  
 Plot Date / Time: 2023-02-24 11:45:31 AM

**16 & 18 MILL STREET,  
GEORGETOWN  
DEVELOPMENT**

**INTERIOR COURTYARD  
ELEVATIONS**

Drawing Scale: As indicated  
 Status:                      

COORDINATION  
 Drawing No.                      Revision No.                      

**PRELIMINARY**

**A3.3**

TOPOGRAPHIC SKETCH FOR BUILDING PERMIT APPLICATION

**PART OF LOT 19  
CONCESSION 9**  
GEOGRAPHIC TOWNSHIP OF ESQUESING  
**TOWN OF HALTON HILLS**  
REGIONAL MUNICIPALITY OF HALTON

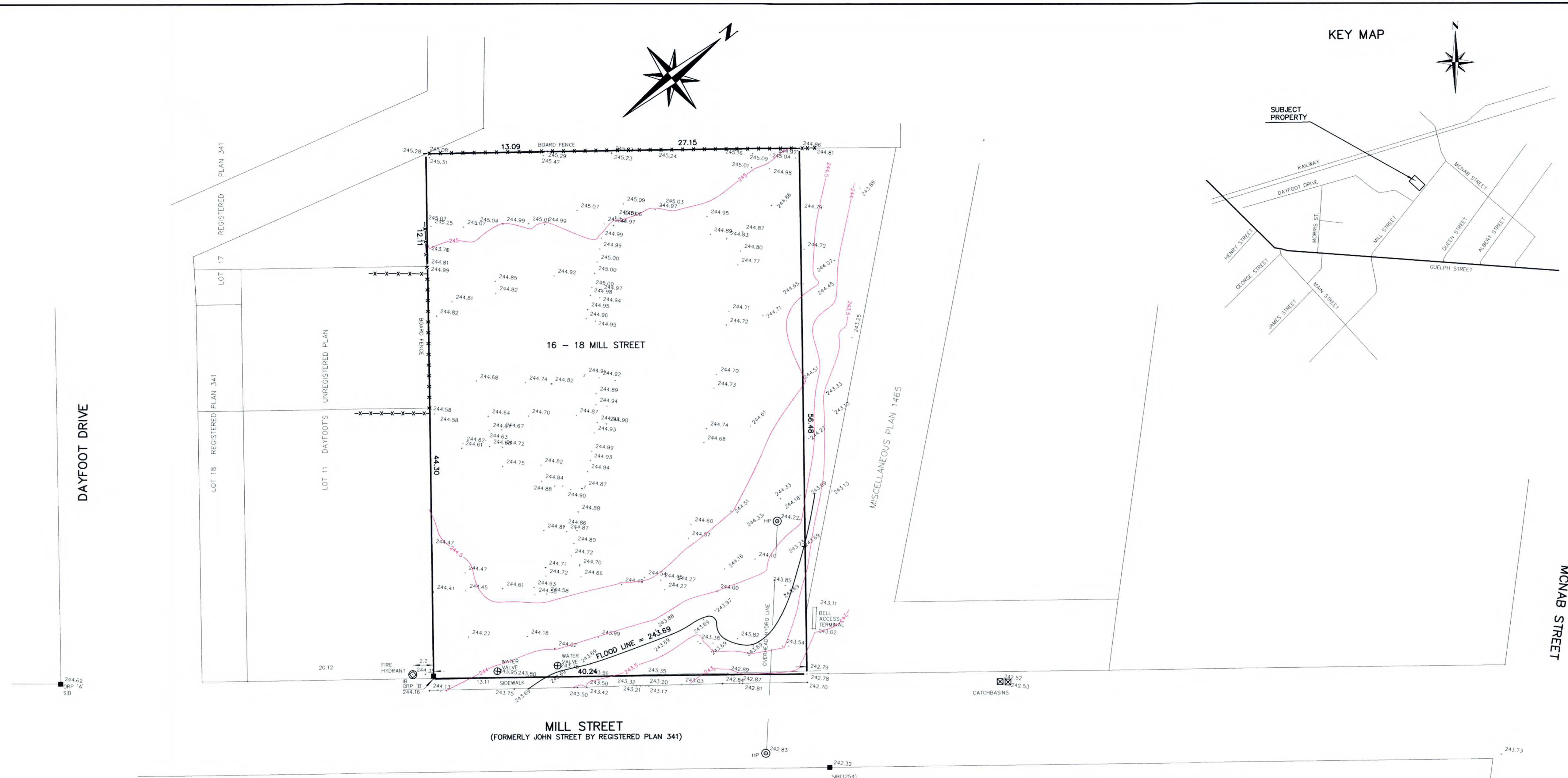
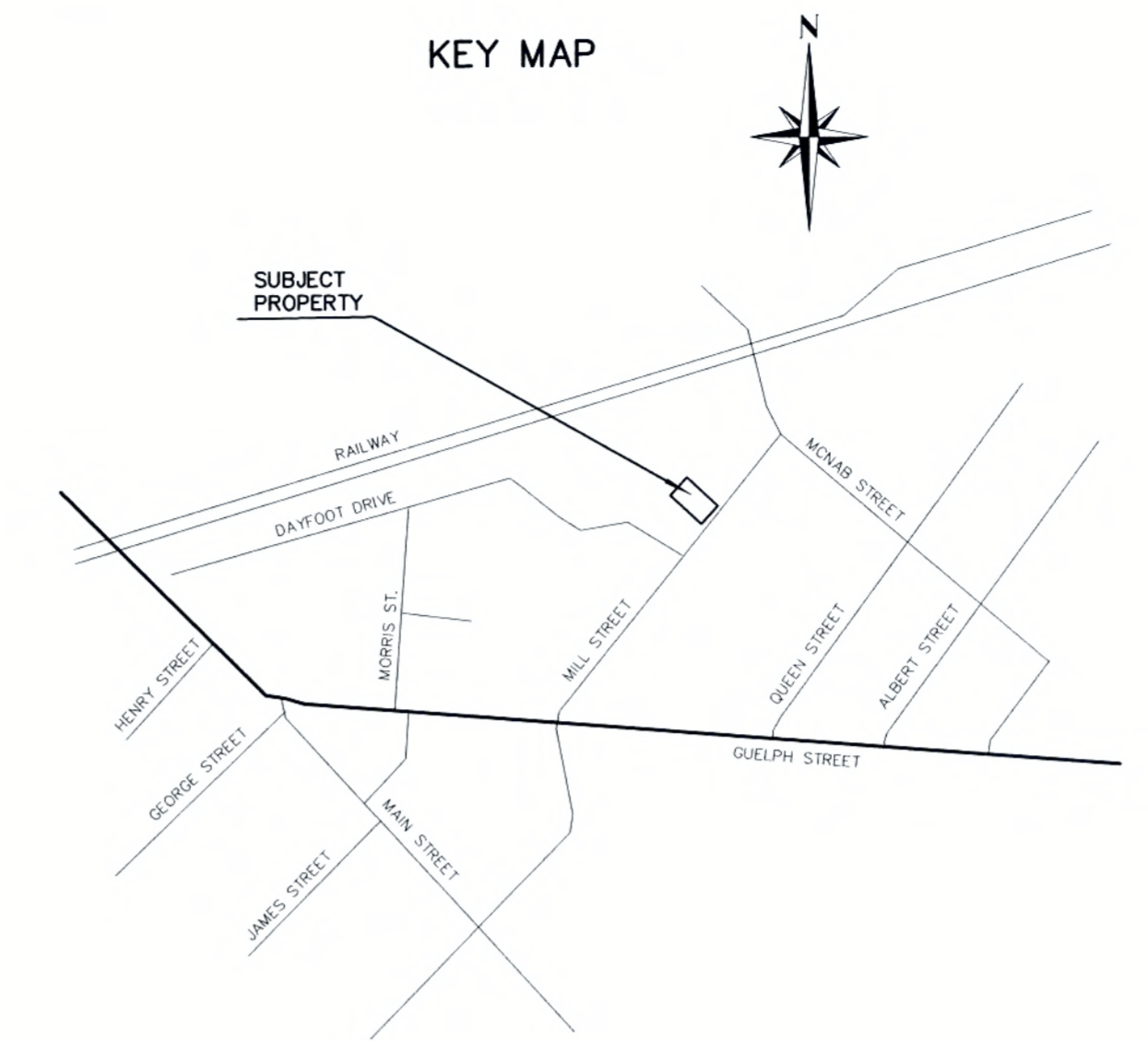
J. R. FINNIE O.L.S.  
SCALE: 1:250 METRIC



**METRIC**  
DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

**CAUTION**  
THIS IS NOT A PLAN OF SURVEY AND SHALL ONLY BE USED FOR THE PURPOSE INDICATED IN THE TITLE BLOCK.

FLOOD LINE ELEVATION OF 243.69 WAS PROVIDED BY CREDIT VALLEY CONSERVATION. GEODETIC DATUM WAS NOT GIVEN.



**NOTES**

ELEVATIONS ARE GEODETIC, DERIVED FROM SIMULTANEOUS OBSERVATIONS OF SATELLITES, AS CORRECTED BY NRCAN'S PPP SERVICE, AND ARE RELATED TO THE CGVD 2013 DATUM.  
VELOCITY MODEL FOR NAD83(CSRS) NAD83v70VG  
DISTANCES SHOWN ON THIS PLAN ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.99966.

COORDINATES ARE TO AN URBAN ACCURACY AS PER s.14(2) OF O.REG. 216/10.

POINT ID	ELEVATION	
ORP 'A'	244.62	
ORP 'B'	244.16	

**SURVEYOR'S CERTIFICATE**

I CERTIFY THAT:

1. THIS SURVEY WAS COMPLETED ON THE 10th DAY OF JANUARY, 2020.

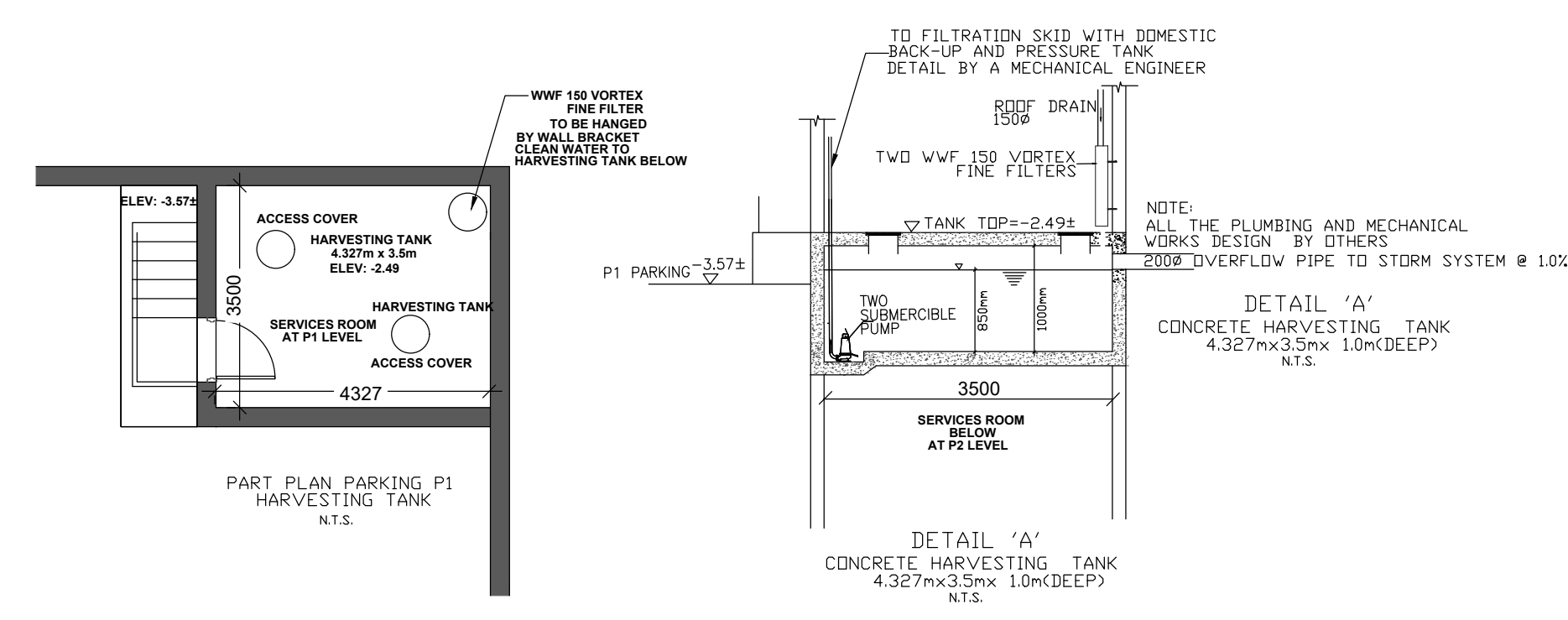
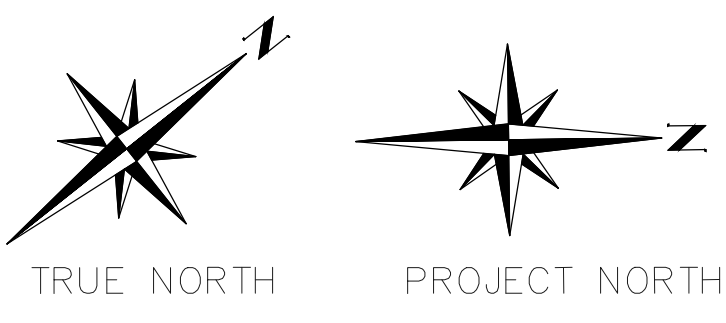
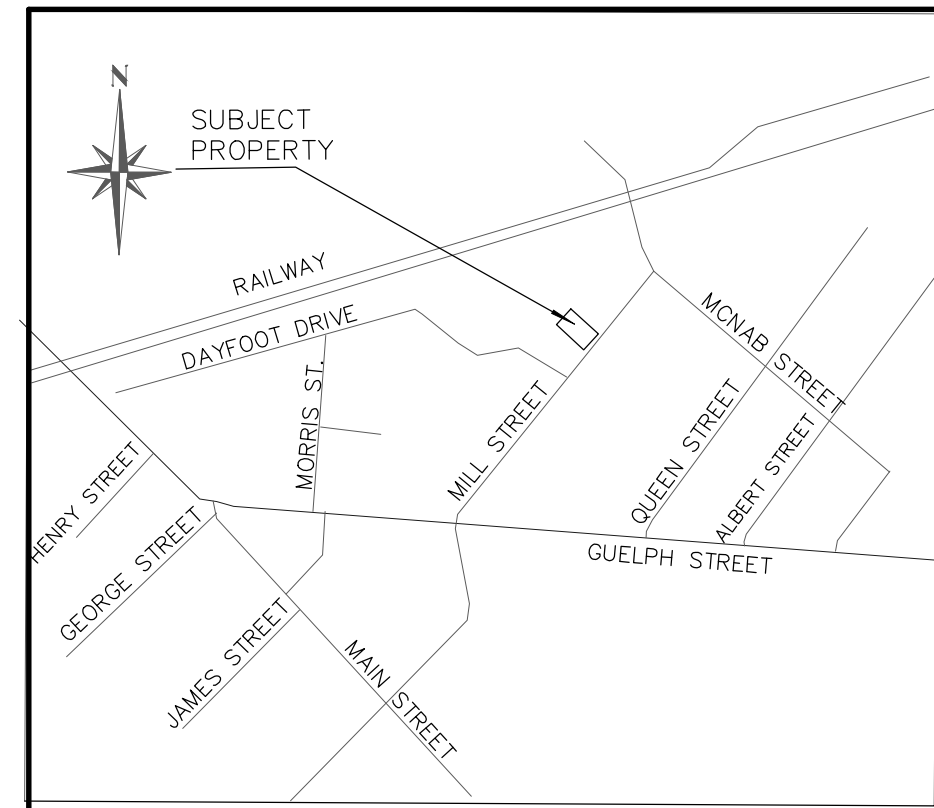
JANUARY 17, 2020

DATE

*J. R. Finnie*  
J. R. FINNIE  
ONTARIO LAND SURVEYOR

CLIENT: AGK MULTI-RES GP LTD.

**J. R. FINNIE**  
ONTARIO LAND SURVEYOR  
BOX 31, ERIN ON NOB 1T0  
PH (519) 833-2380 FAX (519) 833-0208  
EMAIL: rfinnie@finnie.com  
www.jfinnie.com



**NOTE:**  
THIS DRAWING TO BE READ IN CONJUNCTION WITH GRADING PLAN(SG1) & GENERAL NOTES AND DETAIL DRAWINGS (NOTES-004)

**LEGEND**

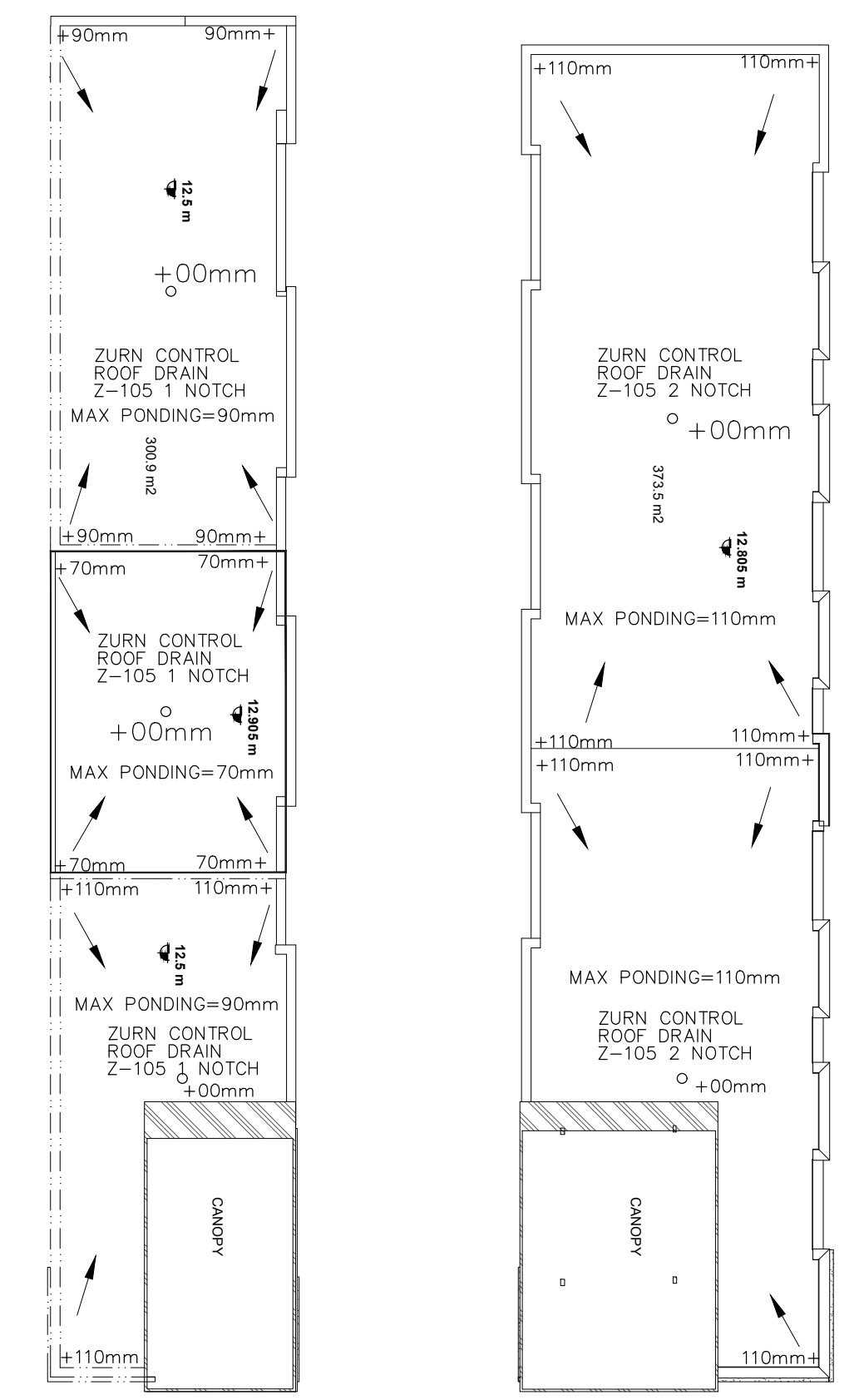
PROP STM MH	PROPOSED STORM MAINTENANCE HOLE
PROP SAN MH	PROPOSED SANITARY MAINTENANCE HOLE
PROP CB	PROPOSED CATCH BASIN
⊕	PROP DETECTOR CHECK VALVE
⊙	PROP DOMESTIC WATER METER
⊖	PROP BACK CHECK VALVE

**BENCHMARK NOTE:**  
ELEVATIONS ARE GEODETIC, DERIVED FROM SIMULTANEOUS OBSERVATIONS OF SATELLITES, AS CORRECTED BY NRCAN'S PPP SERVICE, AND HAVE BEEN CONVERTED FROM THE FROM THE CGVD2013 DATUM TO THE CGVD1978 DATUM.

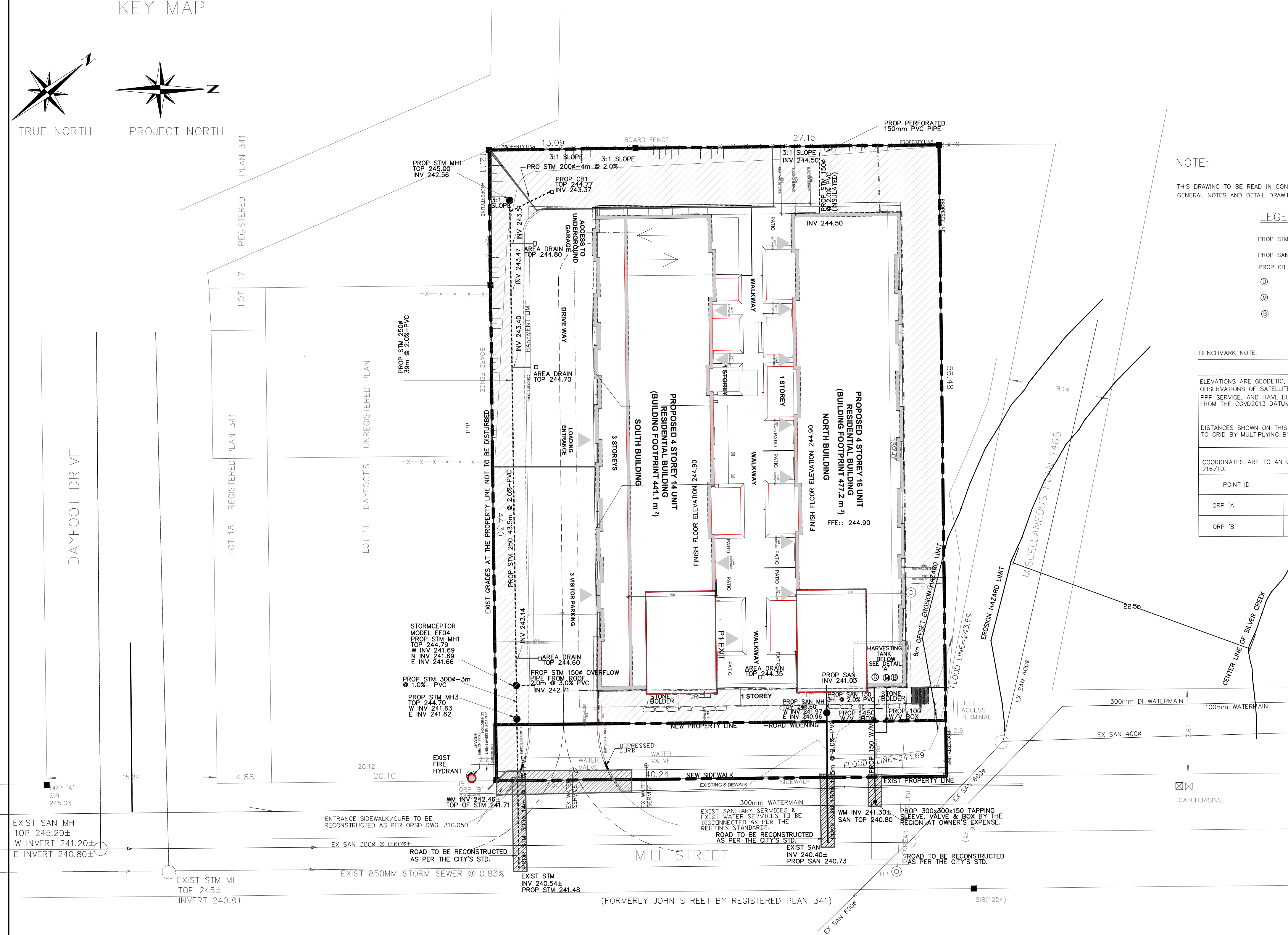
DISTANCES SHOWN ON THIS PLAN ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.99966.

COORDINATES ARE TO AN URBAN ACCURACY AS PER s.14(2) OF O. REG. 216/10.

POINT ID	ELEVATION
ORP 'A'	245.03
ORP 'B'	244.57



ROOF PLAN



**BENCHMARK NOTE**

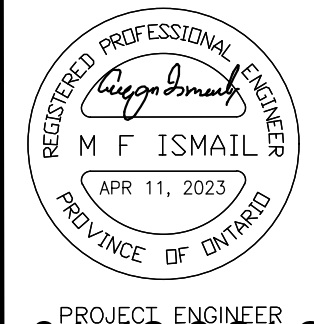
TOPOGRAPHIC INFORMATION MEASURED 2007. THIS IS NOT A PLAN OF SURVEY.  
BENCHMARK: IHBM 064  
ELEVATION: 253.45  
TEMPORARY BENCHMARK ELEVATION: 254.28  
TOP OF RAILROAD SPIKE IN THE SOUTH SIDE OF THE FRS HYDRO POLE EAST OF NORMANDY BOULEVARD ON GUELPH STREET.  
The location and extent of all existing utilities are not necessarily shown on this plan, and where shown, are to be considered approximate only. All Contractors shall inform themselves of the exact location and extent of all existing services prior to the start of construction, and shall assume all liabilities for damage to them or delays resulting from their actual extent and location.

NO.	REVISION	DATE	BY	CHKD.
4	REVISED AS PER THE TRCA'S COMMENT.	APR 11 2023	MFI	
3	ISSUED FOR APPROVAL AS PER SP CHANGES & TOWN'S COMMENTS	FEB 28 2023	MFI	
2	ISSUED FOR APPROVAL	APR 29 2022	MFI	
1	ISSUED FOR APPROVAL	DEC 09 2020	MFI	

**LEGEND**

UNDERGROUND UTILITIES	
○ LS	LIGHT STANDARD
○ TL	TRAFFIC LIGHT
○ S	SIGN
○ B	BELL POLE
○ H	HYDRO POLE
○ W	WATERMANS
○ G	GASMANS
○ B	BELL CABLES
○ C	CAP OR PLUG
○ G	GUY AND ANCHOR
○ M	MANHOLE EXISTING
○ M	MANHOLE PROPOSED
○ C	CATCHBASIN EXISTING
○ C	CATCHBASIN PROPOSED
○ S	STANDARD IRON PIPE

RD	DESIGN
RD	DESIGN
RD	CHECKED BY
MI	PROJ. SUPVR.



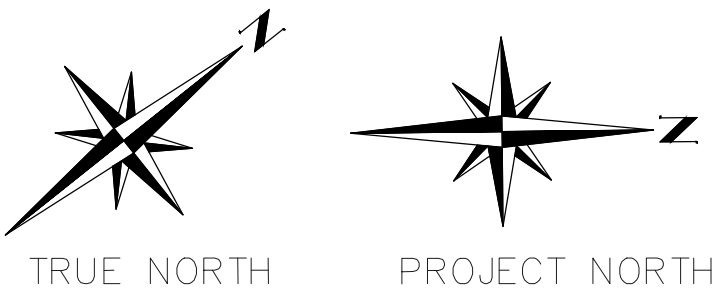
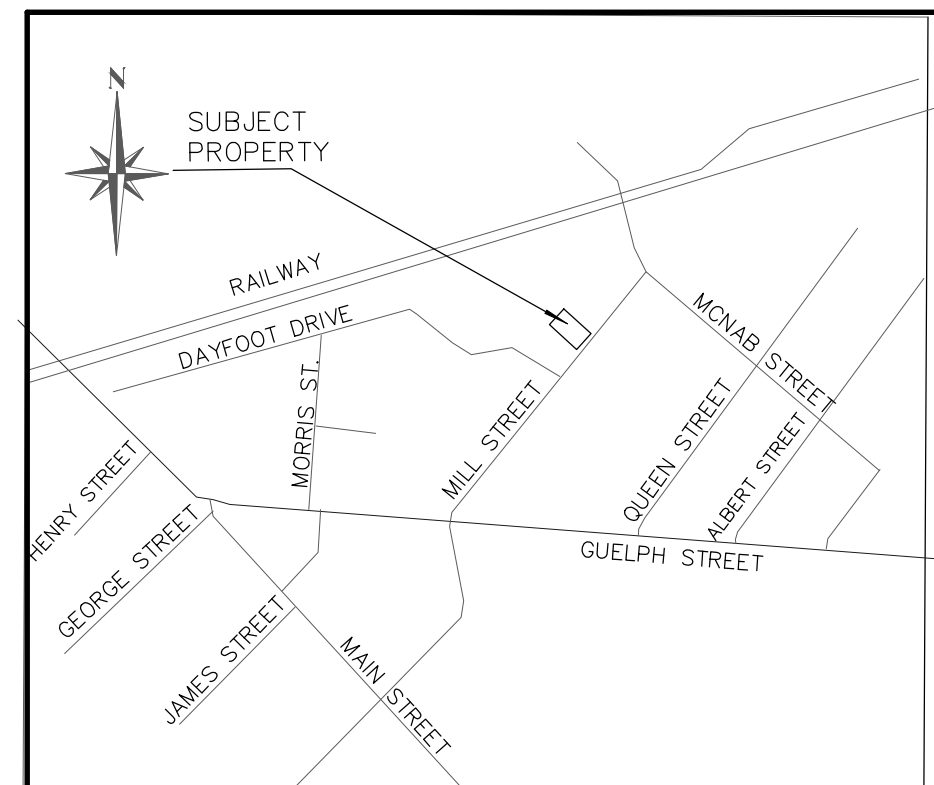
**TOWN OF HALTON HILLS  
REGION OF HALTON**

PREMIER ENGINEERING SOLUTIONS  
CIVIL ENGINEERS

3294 ALPACA AVENUE, MISSISSAUGA ONTARIO L5M 7V3  
PHONE: (905) 817-1294 FAX: (905) 817-1299

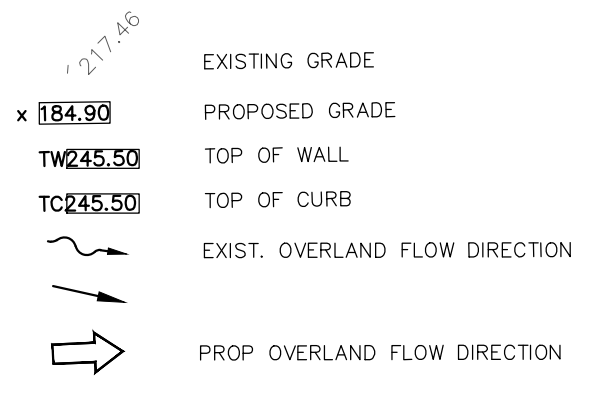
**RESIDENTIAL DEVELOPMENT  
16-18 MILL STREET  
HALTON HILLS, ON  
SITE SERVICING PLAN**

FIELD NOTES	DATE
SCALE 1:200	
DWG No. SS1	
MUN. REF. No.	REV.
SITE PLAN APPLICATION	4



**DRAINAGE NOTES**

- BACKFILL AROUND MANHOLES AND CATCHBASINS SHALL BE OF MINIMUM 1.5 M APPROVED GRANULAR MATERIAL, COMPACTED BY MECHANICAL MEANS TO 100% S.P.M.D.D.
- STORM MANHOLES SHALL BE AS PER O.P.S.D. 701.30 TO 701.060 INCLUSIVE. FRAMES AND LIDS TO BE PER O.P.S.D. 401.01.
- CATCHBASINS SHALL BE AS PER OPSD. 705.010 WITH FRAME AND GRATES AS PER OPSD. 400.110. CATCHBASIN CONNECTIONS SHALL BE AS PER OPSD. 708.030. 60 LEAD 250mm DIA. PVC SDR-35, CONFORMING TO CSA SPECIFICATION B182.2 AND B182.4 OR LATEST REVISION THEREOF.
- ALL LATERALS TO BE CONNECTED TO THE NEW PIPE USING MANUFACTURED TEE AND TO THE EXISTING PIPE USING PRE-MANUFACTURED SADDLE AND STAINLESS STEEL STRAP. MARKERS SHALL BE PROVIDED AT THE END OF PIPE FOR ALL SERVICES.
- ALL STORM SEWERS SHALL BE CONCRETE PIPE. STORM SEWER OF 375mm DIA OR LESS MAY BE SUBSTITUTED TO POLYVINYL CHLORIDE (P.V.C.) UPON APPROVAL FROM THE TOWN OF HALTON HILLS ENGINEERING DEPARTMENT. ALL PVC STORM SEWER WITH FITTINGS SHALL MEET THE CSA AND ASTM REQUIREMENTS AS NOTED WITHIN OPSD 1841. THE BASIC MANUFACTURE MATERIAL OF THE PIPE SHALL CONFORM TO ASTM D-3034 AND OPS51841.
- FINGER SUBDRAINS SHALL BE 100mm DIA., 6.0m MIN. LENGTH, PERFORATED & WRAPPED IN FILTER FABRIC ON ALL FOUR SIDES.
- ALL SURFACE DRAINAGE WILL BE SELF CONTAINED, COLLECTED AND DISCHARGED AT A LOCATION TO BE APPROVED PRIOR TO THE ISSUANCE OF A BUILDING PERMIT.
- THE EXISTING DRAINAGE PATTERN WILL BE MAINTAINED EXCEPT NOTED.
- ALL STORM SYSTEM MATERIAL, MANUFACTURE, METHOD OF CONSTRUCTION SHALL CONFORM WITH CITY OF HALTON HILLS STANDARDS AS PER "TOWN OF HALTON HILLS SUBDIVISION MANUAL, 1999-06-23".
- THE CONSULTANTS RELY ON SURVEYS AND DIMENSIONS BY OTHERS.



**NOTE:**

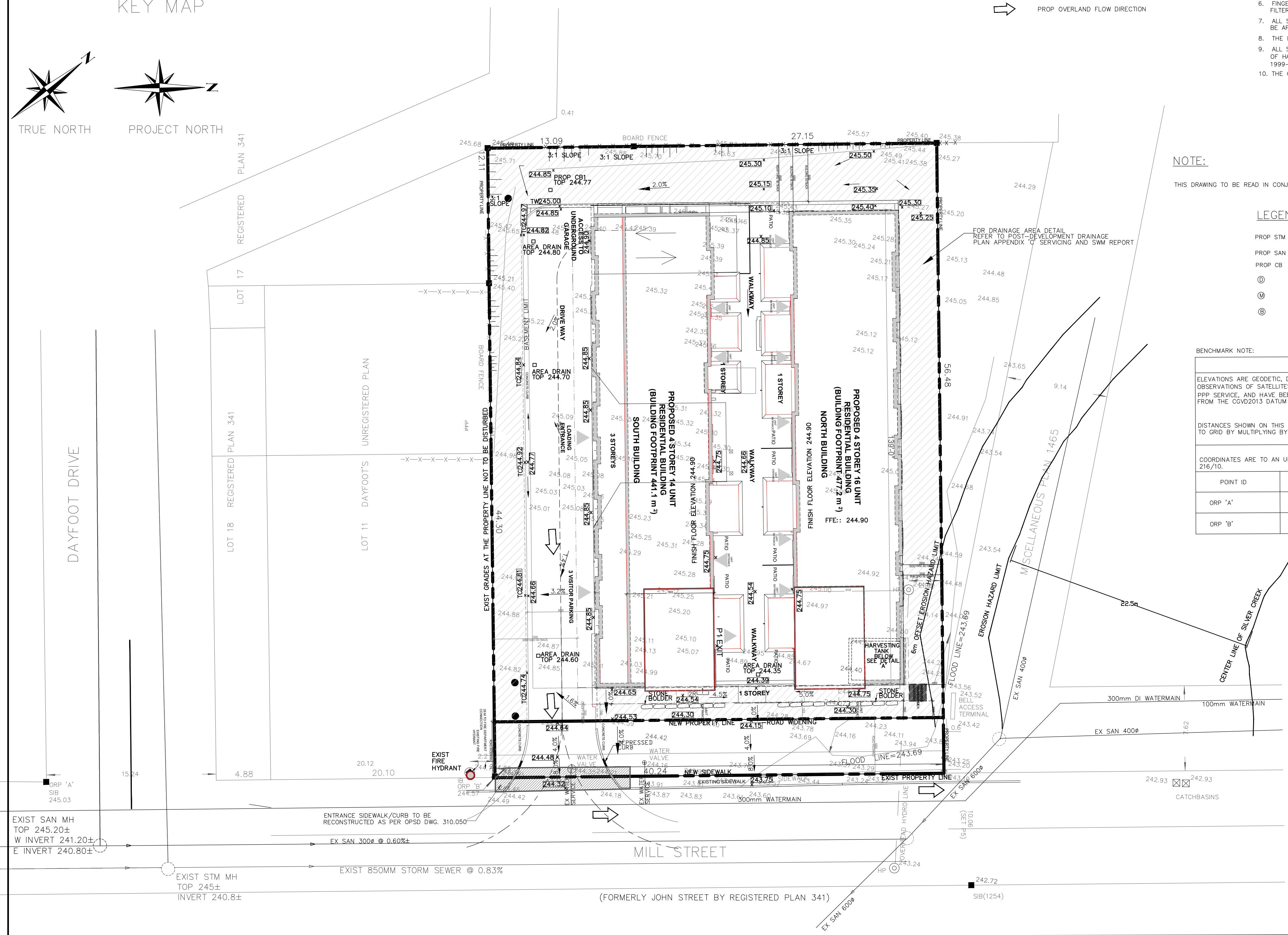
THIS DRAWING TO BE READ IN CONJUNCTION WITH SITE SERVICING PLAN(S1) & NOTES-004 DRAWINGS

**LEGEND**

- PROP STM MH PROPOSED STORM MAINTENANCE HOLE
- PROP SAN MH PROPOSED SANITARY MAINTENANCE HOLE
- PROP CB PROPOSED CATCH BASIN
- ⊕ PROP DETECTOR CHECK VALVE
- ⊙ PROP DOMESTIC WATER METER
- ⊖ PROP BACK CHECK VALVE

**BENCHMARK NOTE:**

NOTES	
ELEVATIONS ARE GEODETIC, DERIVED FROM SIMULTANEOUS OBSERVATIONS OF SATELLITES, AS CORRECTED BY NRCAN'S PPP SERVICE, AND HAVE BEEN CONVERTED FROM THE FROM THE CGVD2013 DATUM TO THE CGVD1978 DATUM.	
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COORDINATES ARE TO AN URBAN ACCURACY AS PER s.14(2) OF O.REG. 216/10.	
POINT ID	ELEVATION
ORP 'A'	245.03
ORP 'B'	244.57



**BENCHMARK NOTE:**

ELEVATIONS ARE GEODETIC, DERIVED FROM SIMULTANEOUS OBSERVATIONS OF SATELLITES, AS CORRECTED BY NRCAN'S PPP SERVICE, AND HAVE BEEN CONVERTED FROM THE FROM THE CGVD2013 DATUM TO THE CGVD1978 DATUM.

NO.	REVISION	DATE	INIT.
3	ISSUED FOR APPROVAL AS PER SP CHANGES & TOWN'S COMMENTS	FEB 28 2023	MFI
2	ISSUED FOR APPROVAL	APR 29 2022	MFI
1	ISSUED FOR APPROVAL	DEC 09 2020	MFI

**BENCHMARK NOTE**  
 TOPOGRAPHIC INFORMATION MEASURED 2007. THIS IS NOT A PLAN OF SURVEY.  
 BENCHMARK: HBM 064  
 ELEVATION: 253.45  
 TEMPORARY BENCHMARK  
 ELEVATION: 254.28  
 TOP OF RAILROAD SPIKE IN THE SOUTH SIDE OF THE FRS HYDRO POLE EAST OF NORMANDY BOULEVARD ON GUELPH STREET.  
 The location and extent of all existing utilities are not necessarily shown on this plan, and where shown, are to be considered approximate only. All Contractors shall inform themselves of the exact location and extent of all existing services prior to the start of construction, and shall assume all liabilities for damage to them or delays resulting from their actual extent and location.

LEGEND	
○ LIGHT STANDARD	— UNDERGROUND UTILITIES
○ T TRAFFIC LIGHT	— HYDRO CABLES
○ S SIGN	— W WATERMANS
○ B BELL POLE	— G GASMANS
○ H HYDRO POLE	— B BELL CABLES
○ HD HYDRANT	— CAP OR PLUG
○ G GUY AND ANCHOR	— SANITARY SEWER
○ M MANHOLE EXISTING	— STORM SEWER
○ M MANHOLE PROPOSED	— COMBINED SEWER
□ CATCHBASIN EXISTING	
■ CATCHBASIN PROPOSED	
■ S.B. STANDARD IRON BAR	

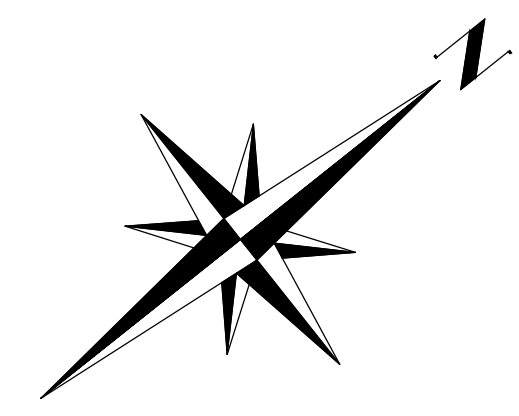
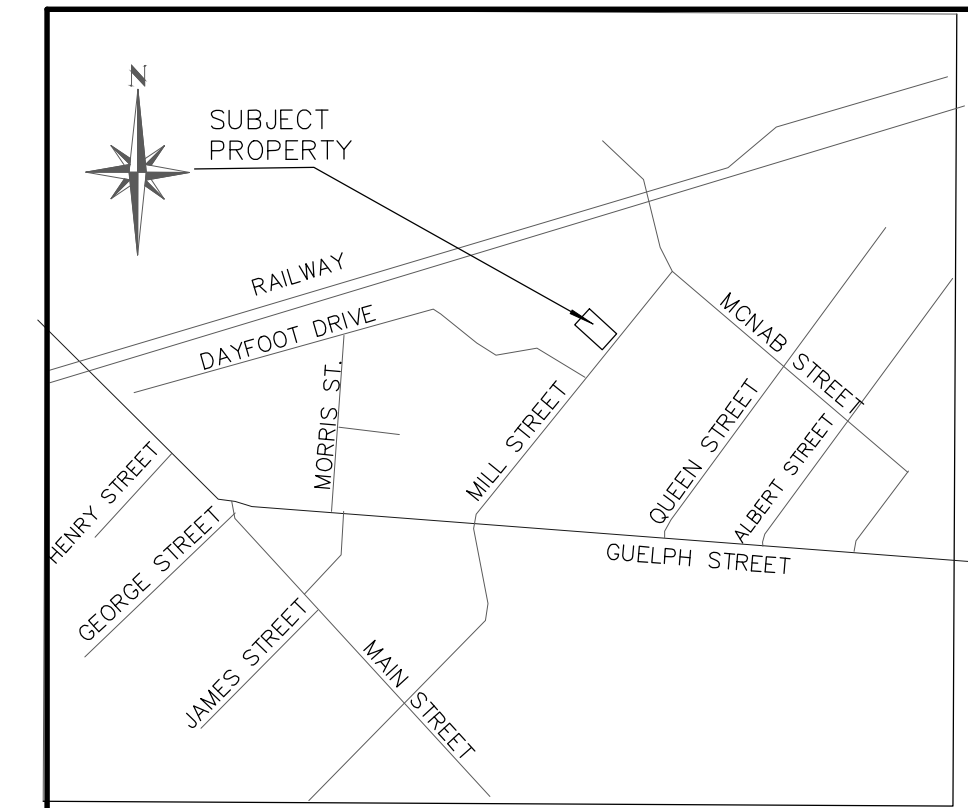
RD DESIGN  
 RD CHECKED BY  
 MI PROJ. SUPVR.  
 PROJECT ENGINEER

**TOWN OF HALTON HILLS**  
**REGION OF HALTON**  
 PREMIER ENGINEERING SOLUTIONS  
 CIVIL ENGINEERS  
 3294 ALPACA AVENUE, MISSISSAUGA ONTARIO L5M 7V3  
 PHONE: (905) 817-1294 FAX: (905) 817-1299

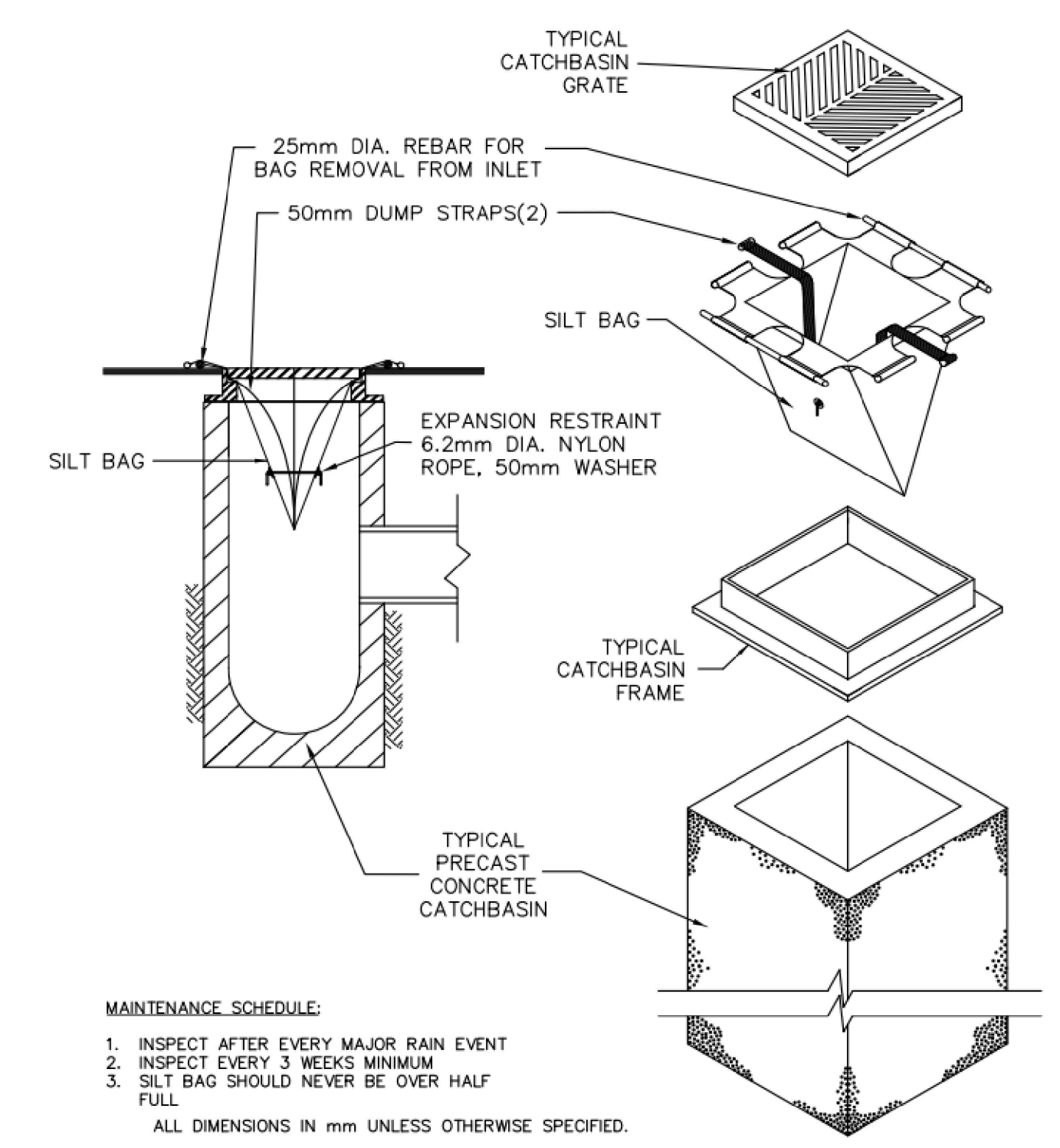
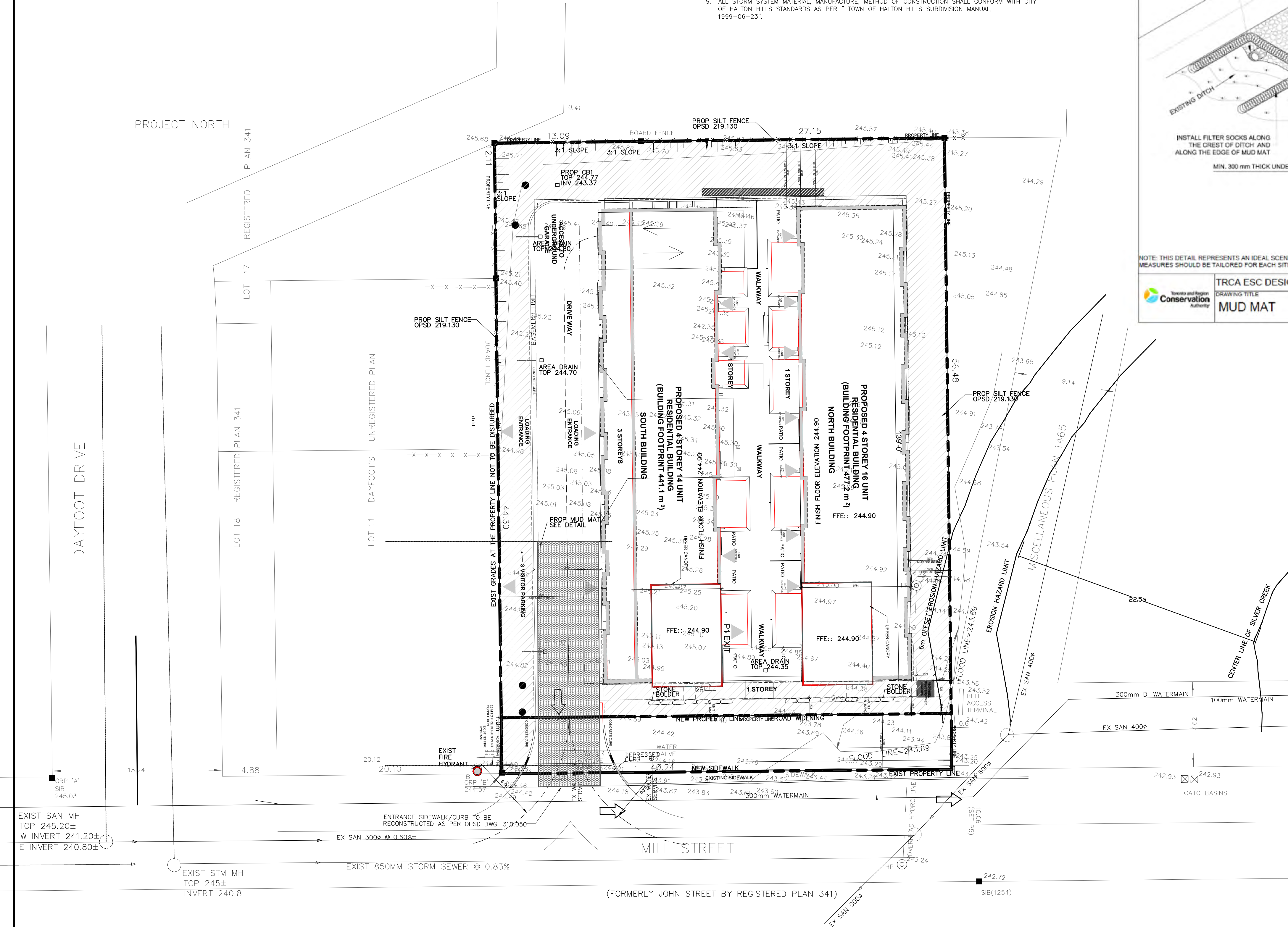
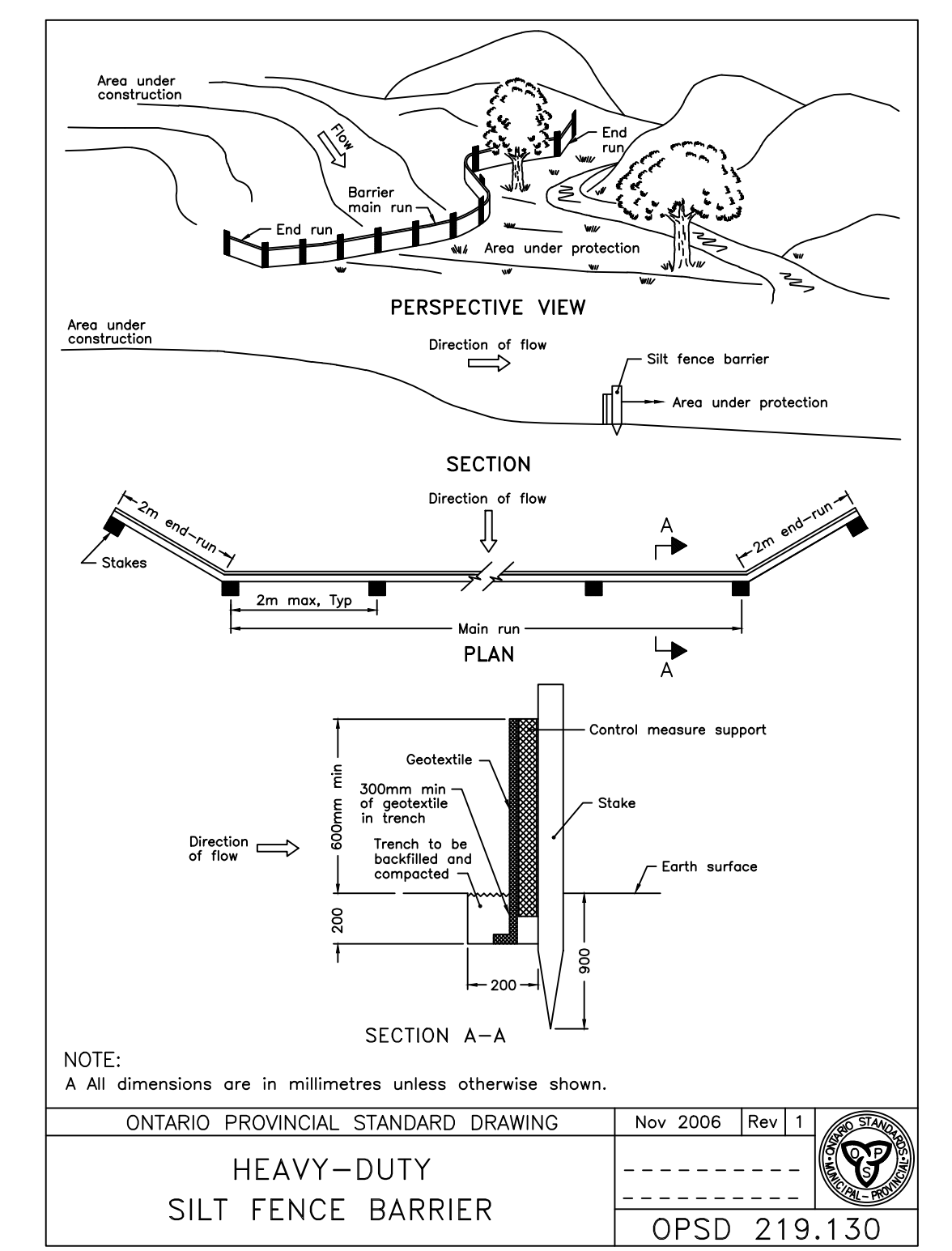
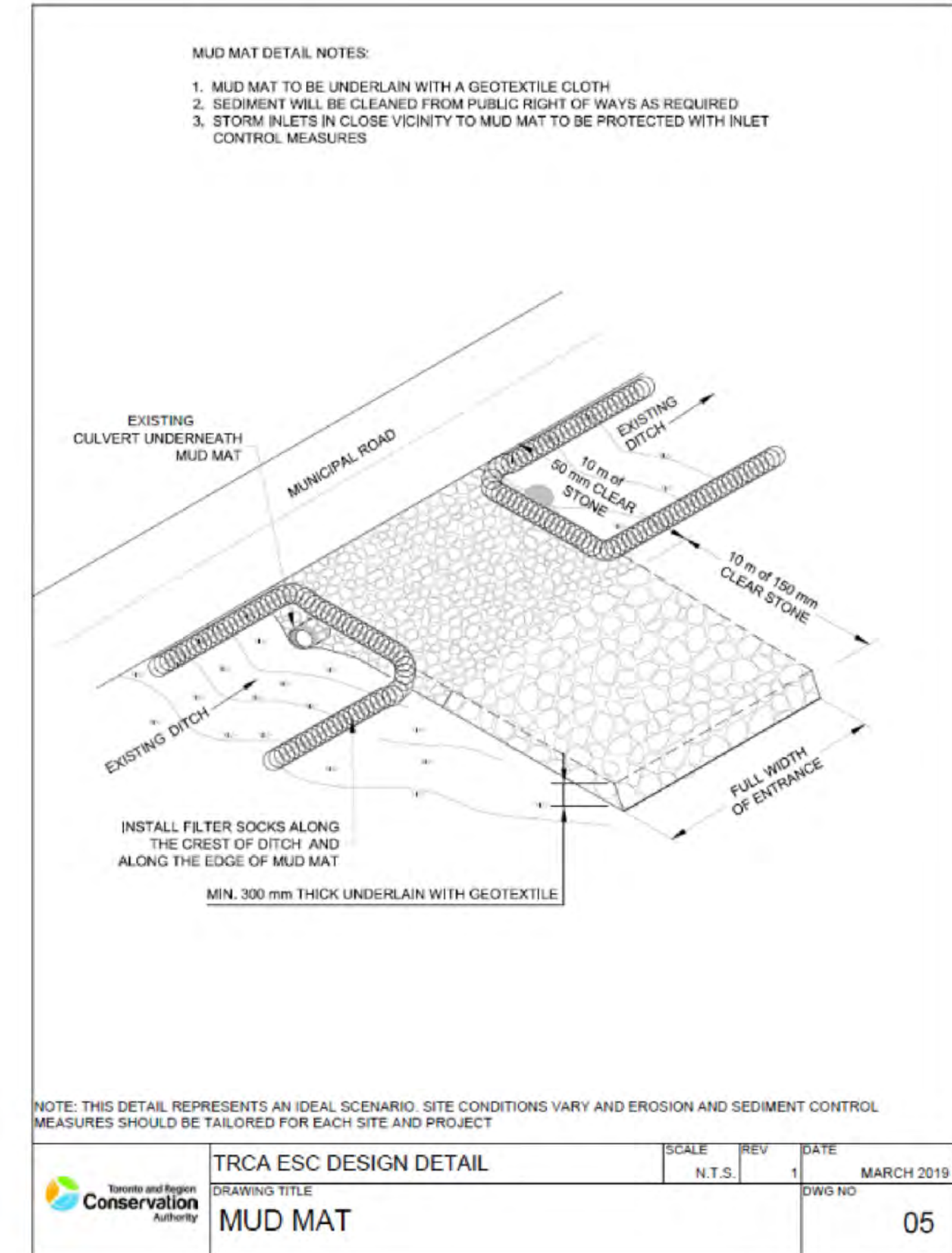
REGISTERED PROFESSIONAL ENGINEER  
 M F ISMAIL  
 FEB 28, 2023  
 PROVINCE OF ONTARIO

**RESIDENTIAL DEVELOPMENT**  
**16-18 MILL STREET**  
**HALTON HILLS, ON**  
**GRADING AND DRAINAGE PLAN**

FIELD NOTES	
DATE	
SCALE	1:200
DWG. No.	SG1
MUN. REF. No.	
SITE PLAN APPLICATION	3



- DRAINAGE NOTES**
- BACKFILL AROUND MANHOLES AND CATCHBASINS SHALL BE OF MINIMUM 1.5 M APPROVED, GRANULAR MATERIAL, COMPACTED BY MECHANICAL MEANS TO 100% S.P.M.D.D.
  - STORM MANHOLES SHALL BE AS PER O.P.S.D. 701.30 TO 701.060 INCLUSIVE. FRAMES AND LIDS TO BE PER O.P.S.D. 401.01.
  - CATCHBASINS SHALL BE AS PER OPSD. 705.010 WITH FRAME AND GRATES AS PER OPSD. 400.110. CATCHBASIN CONNECTIONS SHALL BE AS PER OPSD. 708.030. CB LEAD - 250mm DIA., PVC SDR-35, CONFORMING TO CSA SPECIFICATION B182.2 AND B182.4 OR LATEST REVISION THEREOF.
  - ALL LATERALS TO BE CONNECTED TO THE NEW PIPE USING MANUFACTURED TEE AND TO THE EXISTING PIPE USING PRE-MANUFACTURED SADDLE AND STAINLESS STEEL STRAP. MARKERS SHALL BE PROVIDED AT THE END OF PIPE FOR ALL SERVICES.
  - ALL STORM SEWERS SHALL BE CONCRETE PIPE. STORM SEWER OF 375mm DIA OR LESS MAY BE SUBSTITUTED TO POLYVINYL CHLORIDE (P.V.C.) UPON APPROVAL FROM THE TOWN OF HALTON HILLS ENGINEERING DEPARTMENT. ALL PVC STORM SEWER WITH FITTINGS SHALL MEET THE CSA AND ASTM REQUIREMENTS AS NOTED WITHIN OPSD 184.1. THE BASIC MANUFACTURE MATERIAL OF THE PIPE SHALL CONFORM TO ASTM D-3034 AND OPSD184.1.
  - FINGER SUBDRAINS, SHALL BE 100mm DIA., 6.0m MIN. LENGTH, PERFORATED & WRAPPED IN FILTER FABRIC ON ALL FOUR SIDES.
  - ALL SURFACE DRAINAGE WILL BE SELF CONTAINED, COLLECTED AND DISCHARGED AT A LOCATION TO BE APPROVED PRIOR TO THE ISSUANCE OF A BUILDING PERMIT.
  - THE EXISTING DRAINAGE PATTERN WILL BE MAINTAINED EXCEPT NOTED.
  - ALL STORM SYSTEM MATERIAL, MANUFACTURE, METHOD OF CONSTRUCTION SHALL CONFORM WITH CITY OF HALTON HILLS STANDARDS AS PER "TOWN OF HALTON HILLS SUBDIVISION MANUAL, 1999-06-23".



**BENCHMARK NOTE:**

**NOTES**

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DISTANCES SHOWN ON THIS PLAN ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.99966.

COORDINATES ARE TO AN URBAN ACCURACY AS PER s.14(2) OF O.REG. 216/70.

POINT ID	ELEVATION
ORP 'A'	245.03
ORP 'B'	244.57

**CATCHBASIN SEDIMENT CONTROL**  
N.T.S.

**SURVEYOR'S CERTIFICATE**

I CERTIFY THAT:

1. THIS SURVEY WAS COMPLETED ON THE 10th DAY OF JANUARY, 2020.

SEPTEMBER 23, 2020

DATE

CLIENT: AGK MULTI-RES GP LTD.

**J. R. FINNIE**  
ONTARIO LAND SURVEYOR  
BOX 31, ERIN ON N0B 1T0  
PH (519) 833-2380 FAX (519) 833-0208  
EMAIL: j.finnie@jrfinnie.com  
www.jrfinnie.com

c J. F. FINNIE O.L.S. - 2020

DRAWN BY: jf PROJECT: 20111TOP0-81

NO.	REVISION	DATE	INIT.
3	REVISED AS PER THE TOWN'S COMMENTS	APR 11 2023	MFI
2	REVISED AS PER THE SITE PLAN CHANGES AND TOWN'S COMMENTS	FEB 28 2023	MFI
1	ISSUED FOR APPROVAL	DEC 09 2021	MFI

LEGEND	UNDERGROUND UTILITIES	RD
○ LS LIGHT STANDARD	— H — HYDRO CABLES	DESIGN
○ TL TRAFFIC LIGHT	— W — WATER MAINS	RD
○ S SIGN	— G — GAS MAINS	RD
○ B BELL POLE	— C — CABLES	CHECKED BY
○ H HYDRO POLE	— CAP OR PLUG	MI
○ HYD. HYDRANT	— SANITARY SEWER	PROJ. SUPVR.
○ GUY AND ANCHOR	— STORM SEWER	
○ MANHOLE EXISTING	— COMBINED SEWER	
○ MANHOLE PROPOSED		
○ CATCHBASIN EXISTING		
○ CATCHBASIN PROPOSED		
○ S.I.B. STANDARD IRON BAR		

<b>TOWN OF HALTON HILLS</b> <b>REGION OF HALTON</b> PREMIER ENGINEERING SOLUTIONS CIVIL ENGINEERS 3294 ALPACA AVENUE, MISSISSAUGA ONTARIO L5M 7V3 PHONE: (905) 817-1294 FAX: (905) 817-1299	<b>RESIDENTIAL DEVELOPMENT</b> <b>16-18 MILL STREET</b> <b>HALTON HILLS, ON</b> <b>EROSION AND SEDIMENT CONTROL PLAN</b>	FIELD NOTES DATE SCALE: 1:200 DWG No. ESC-003 MUN. REF. No. SITE PLAN APPLICATION
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PROJECT ENGINEER: M.F. ISMAIL (PROVINCIAL ENGINEER)  
DATE: APR 11, 2023  
PROVINCE OF ONTARIO

WATERMAIN NOTES

- 1. WATERMAINS 150MM TO 300MM DIAMETER TO BE P.V.C. CL150 (DR-18) WITH GASKETED JOINTS.
2. ALL PVC WATER SERVICE PIPES SHALL BE CERTIFIED TO CAN/CSA B137.3.
3. ALL COOPER "K" SOFT WATER SERVICE PIPE SHALL BE CERTIFIED TO ASTM B88.
4. ALL WATER SERVICE PIPES SHALL BE PROVIDED WITH RESTRAINTS AS PER OBC DIV. B7.3.4.9.
5. WATER SERVICE CONNECTIONS TO BE AS PER O.P.S.D. 1104.01. PIPE FOR ALL SERVICE CONNECTIONS UP TO 50MM DIA. SHALL BE TYPE K SOFT COPPER TUBING.
6. A MIN. HORIZONTAL SEPARATION OF 2.5M MUST BE MAINTAINED BETWEEN WATERMAINS AND SANITARY OR STORM SEWERS, INCLUDING SERVICE LATERALS.
7. A MIN. VERTICAL SEPARATION OF 0.5M BETWEEN WATERMAINS AND SEWERS MUST BE MAINTAINED IF WATERMAIN IS INSTALLED ABOVE SEWER OR 0.50M IF SEWER IS ABOVE WATERMAIN.
8. WATERMAIN BEDDING TO BE SUITABLE GRANULAR BEDDING MATERIALS AS PER O.P.S.D. 1102.01, CLASS "B".
9. ALL HYDRANTS AS PER O.P.S.D. 1105.01 TO HAVE STEAMER CONNECTIONS. HYDRANTS TO BE SUPPLIED WITH:
TWO (2) 63.5MM (2 1/2") WITH CSA STANDARD THREAD, 63.5MM I.D., 79.4 O.D., 5 THREADS PER 25MM, 31.75MM SQUARE OPERATING NUT; AND
ONE (1) 100MM (4") STORZ PUMPER CONNECTION AS PER CAN/ULC #5-520, 31.75MM SQUARE OPERATING NUT, AND STORZ CAP PAINTED GLOSS BLACK.
10. HYDRANTS SHALL BE INSTALLED SUCH THAT THE ROD STEM LENGTH SHALL NOT EXCEED 1.7M MEASURED FROM THE BREAK-OFF FLANGE. IF HYDRANT BARREL LENGTH EXCEEDS 1.7M THEN A HYDRANT THAT CAN BE RAISED FROM THE BOTTOM WITHOUT INCREASING ROD LENGTH IS TO BE USED.
11. ALL METALLIC WATERMAINS, FITTINGS, HYDRANTS AND RESTRAINTS TO HAVE CATHODIC PROTECTION IN ACCORDANCE WITH REGION OF HALTON STANDARD DRAWINGS RH 420.01 AND RH 420.02.
12. ALL SACRIFICIAL ANODES SHALL CONFORM TO A.S.T.M. B-418 TYPE II AND SHALL BE MADE OF HIGH GRADE ELECTROLYTIC ZINC, 99.99% PURE.
13. ANODE INSTALLATION IS NOT REQUIRED WITHIN VALVE-CHAMBERS, DRAIN CHAMBERS OR AIR RELEASE CHAMBERS.
14. ALL WELD CONNECTIONS TO BE COATED WITH "IC MASTIC" OR APPROVED EQUIVALENT.
15. FOR ALL ANODES CONNECTED TO NEW PIPE, FITTINGS OR TO EXISTING METALLIC WATERMAINS, A CADWELDER AND CA-15 OR EQUIVALENT CARTRIDGE SHALL BE USED. ANODE INSTALLATION SHALL BE PERFORMED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
16. WHERE NEW PIPE IS TO BE CONNECTED TO EXISTING DUCTILE IRON OR CAST IRON PIPE A 14.5KG MAGNESIUM ANODE IS TO BE CONNECTED TO THE FIRST LENGTH OF EXISTING PIPE, AS PER REGION OF HALTON STANDARD DRAWING RH 420.01.
17. ALL VALVES TO OPEN LEFT (COUNTER-CLOCKWISE) AND SHALL HAVE 50MM SQUARE STANDARD AWWA OPERATING NUT.
18. ALL PLUGS, CAPS, TEES, AND BENDS SHALL BE MECHANICALLY RESTRAINED AS PER MANUFACTURERS SPECIFICATIONS. RESTRAINTS SHALL MEET UNI-B-13-92.
19. WHERE WATERMAIN IS PLACED IN FILL OR IN PREVIOUSLY DISTURBED GROUND ALL JOINTS TO BE MECHANICALLY RESTRAINED.
20. MINIMUM DEPTH OF COVER OVER WATERMAIN SHALL BE 1.70M MEASURED FROM THE ROAD CENTRELINE ELEVATION.
21. THE DEPTH OF WATER SERVICES AT PROPERTY LINE SHOULD BE A MINIMUM OF 1.7M AND A MAXIMUM OF 2.0M. THE DISTANCE BETWEEN THE GROUND ELEVATION AND THE TOP OF THE ROD SHOULD BE BETWEEN 0.5M AND 1.0M.
22. WATER SERVICES CROSSING THE STORM SEWER/SANITARY SEWER SHALL HAVE MIN. 0.5M OF CLEARANCE TO PASS OVER/BELOW SEWER. ALL PIPE JOINTS TO BE 2.4M FROM THE INTERSECTION. ADEQUATE STRUCTURAL SUPPORT IS REQUIRED TO PREVENT EXCESSIVE DEFLECTION OF JOINTS AND SETTLING (OBC DIV. B7.3.5.7).
23. GATE VALVES CONFORMING TO A.W.W.A. C500 STANDARDS ARE REQUIRED ON WATERMAINS 300MM AND UNDER. LINE GATE VALVES SHALL HAVE AUGER OF SCREW TYPE VALVE BOXES.
24. ALL WATERMAIN FITTINGS SHALL HAVE MECHANICAL JOINTS.
25. VERTICAL AND HORIZONTAL ALIGNMENT OF WATERMAIN TO BE ACHIEVED BY DEFLECTION OF JOINTS AS PER MANUFACTURER'S SPECIFICATIONS. DEFLECTION IN THE BARREL IS NOT PERMITTED.
26. TRACER WIRE IS TO BE INSTALLED ON ALL NEW INSTALLATIONS OF PVC WATERMAIN PIPE FOR LOCATING PURPOSES. A SOLID 10 GAUGE T.W.U. COPPER WIRE IS TO BE INSTALLED ALONG THE PIPE, STRAPPED TO THE PIPE AT 6 METRE INTERVALS. JOINTS IN THE WIRE BETWEEN VALVES ARE NOT PERMITTED.
27. THE INSPECTOR MAY TEST THE TRACING WIRE FOR CONDUCTIVITY. IF THE TRACING WIRE IS NOT CONTINUOUS FROM VALVE TO VALVE, THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, REPLACE OR REPAIR THE WIRE.
28. ALL WATER CUSTOMERS SUPPLIED BY A WATERMAIN TO BE SHUT DOWN SHALL BE NOTIFIED BY THE CONTRACTOR AT LEAST 72 HOURS IN ADVANCE OF THE SHUT DOWN AS PER REGION OF HALTON SPECIFICATIONS. NOTIFICATION SHALL TAKE PLACE UNDER THE ENGINEER'S DIRECTION.
29. OPERATION OF EXISTING WATERMAINS SHALL BE BY REGION OF HALTON STAFF ONLY.
30. THE BACKFILLING UNDER THE EXISTING ROAD AND PARKING AREAS WILL BE GRANULAR 'A' WITH 100% SPD COMPACTION.

GENERAL NOTES

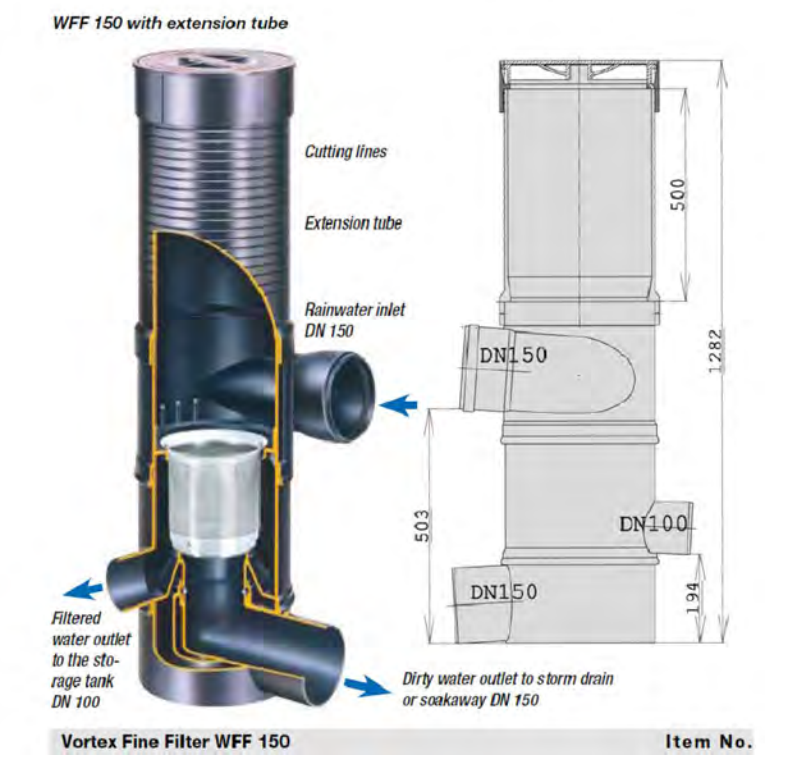
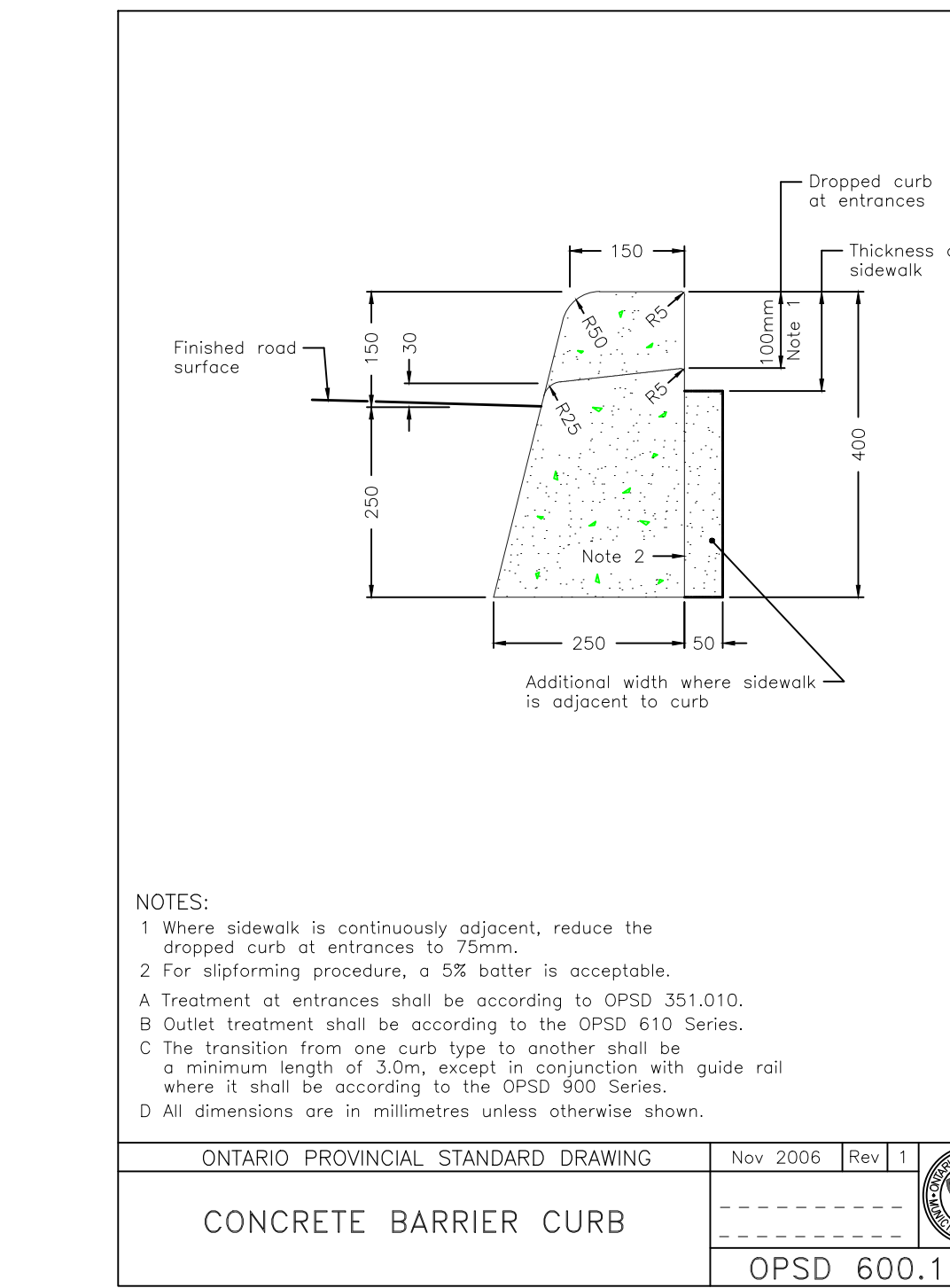
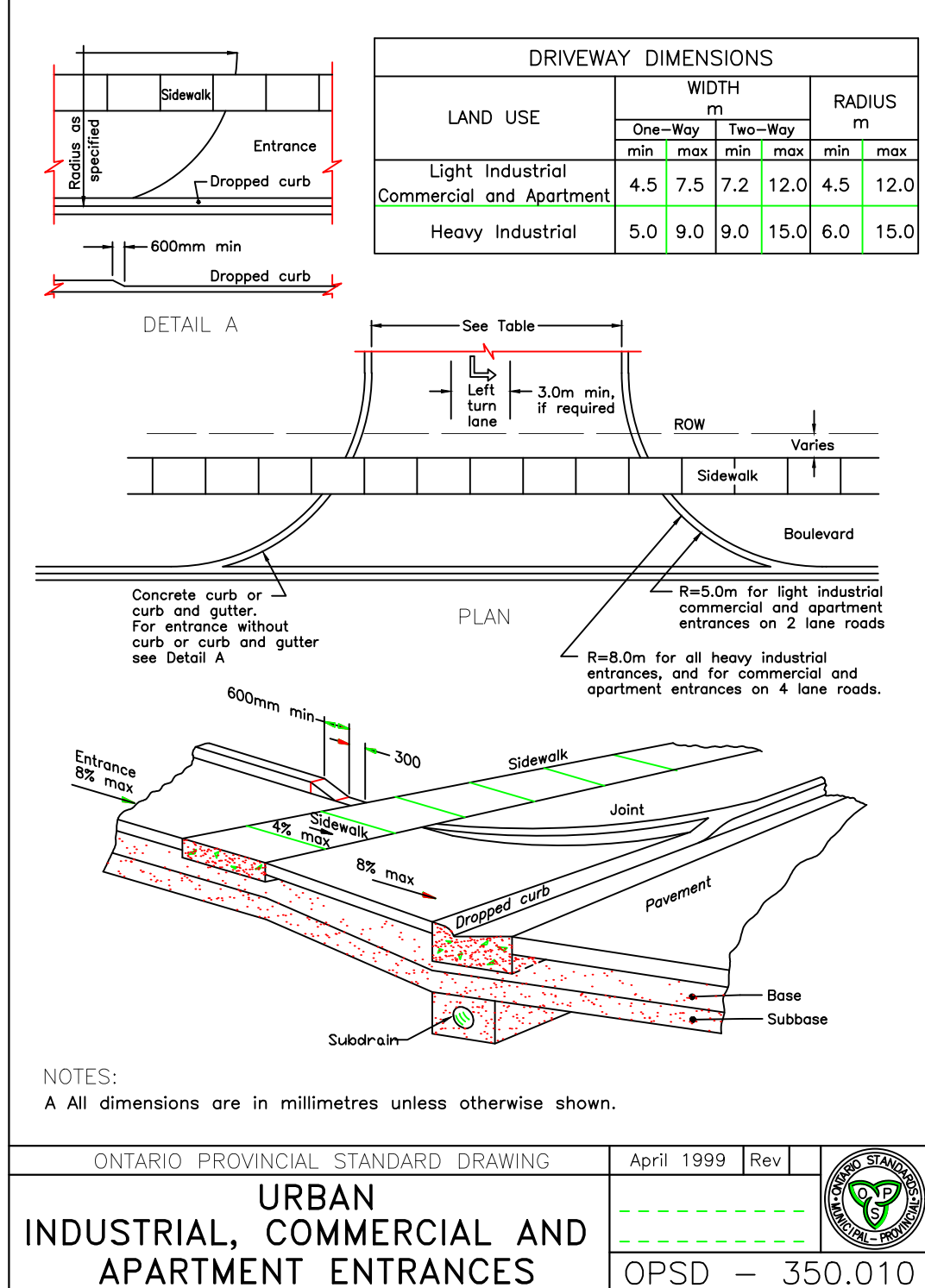
- 1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. THE LOCATION OF ALL UNDERGROUND AND ABOVEGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THESE DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE LOCATION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.
3. ALL AREAS DISTURBED BY THE CONTRACTOR DURING THE CONSTRUCTION OF THE WORKS SHOWN HEREIN SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER AS DETERMINED BY PLANNING AND PUBLIC WORKS DEPARTMENT. ALL GRASS AND VEGETATION COVERED AREAS SHALL BE RESTORED BY PLACING 100MM OF TOPSOIL AND NO. 1 NURSERY SOIL TO ESTABLISH A GRASS COVER TO THE SATISFACTION OF THE TOWN UNLESS NOTED OTHERWISE.
4. TOWN OF HALTON HILLS AND REGION OF HALTON STANDARD DRAWINGS AND O.P.S.D. WITH REGIONAL AMENDMENTS FOR SANITARY SEWERS AND WATERMAINS SHALL CONSTITUTE PART OF THE ENGINEERING DESIGN AND CONSTRUCTION CONTRACT.
5. ALTERNATIVE MATERIALS MAY BE ACCEPTABLE, PROVIDED APPROVAL HAS FIRST BEEN OBTAINED FROM THE TOWN ENGINEER AND/OR THE REGIONAL COMMISSIONER OF PLANNING AND PUBLIC WORKS.
6. NO BLASTING IS PERMITTED.
7. ANY AREAS WITHIN R.O.W. WHICH REQUIRE FILL IN EXCESS OF 0.30M ARE SUBJECT TO COMPACTION TESTS AND SUCH TESTS MUST SHOW A MIN. COMPACTION OF 98% S.P.D. AT ALL DEPTHS.
8. MANHOLE AND VALVE CHAMBER COVERS ARE TO BE SET FLUSH WITH BASE COURSE ASPHALT AND ADJUSTED TO FINAL GRADE PRIOR TO INSTALLING TOP LIFT OF ASPHALT.
9. ALL TRENCHES WITHIN EXISTING RIGHT-OF-WAY ARE TO BE BACKFILLED IN ACCORDANCE WITH OBC DIV.57.3.5.1 AND TOWN OF HALTON HILLS REQUIREMENTS.
10. ALL WATERMAIN AND SANITARY SEWER INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS) AS AMENDED BY THE REGIONAL MUNICIPALITY OF HALTON.
11. THE LOCATION OF ALL EXISTING WATERMAIN, SANITARY SEWER, UTILITIES AND SERVICES ARE APPROXIMATE. THE CONTRACTOR MUST VERIFY THE LOCATION, VERIFY SIZE AND ELEVATION IN THE FIELD PRIOR TO CONSTRUCTION.
12. DRIVEWAY MATERIAL IS ASPHALT UNLESS OTHERWISE SPECIFIED.
13. UNLESS OTHERWISE NOTED, ALL NEW SANITARY SEWERS ARE TO BE PVC SDR 35 ASTM D3034 WITH GRANULAR 'A' BEDDING AND COVER AS PER OPSD 802.010 WITH GRANULAR 'B' BACKFILL.
14. UNLESS OTHERWISE NOTED, ALL EXISTING SANITARY LATERALS ARE TO BE REPLACED WITH PVC SDR28, 125MM DIA. CONNECTIONS FOR SINGLE FAMILY AND SEMI-DETACHED DWELLINGS AND 150MM DIA. CONNECTIONS FOR ALL OTHERS, AND ARE TO BE REPLACED FROM THE NEW SEWER MAIN TO EXISTING LATERALS AT THE PROPERTY LINE.
15. UNLESS OTHERWISE NOTED, ALL THE EXISTING SANITARY MANHOLES ARE TO BE EITHER REMOVED OR BROKEN DOWN 1.0M BELOW ROAD GRADE AND BACKFILLED WITH NON-SHRINK BACKFILL TO SUBGRADE. THE AFFECTED AREA SHALL BE COMPLETELY RESTORED. FRAMES AND COVERS ARE TO BE SALVAGED AND RETURNED TO THE REGIONAL STORES, 1179 BRONTE RD., OAKVILLE.
16. WATERMAIN MATERIAL IS TO BE EITHER DUCTILE IRON PRESSURE CLASS 350 AS PER AWWA C-150 OR PVC SDR-18 CL-150 AS PER AWWA C-900.
17. UNLESS OTHERWISE NOTED, ALL EXISTING WATER SERVICES ARE TO BE REPLACED WITH A MIN. 25MM DIA. COPPER FOR RESIDENTIAL DWELLINGS AND 25MM DIA. COPPER FOR INDUSTRIAL AND COMMERCIAL PREMISES AS PER OPSD 1104.010. UNLESS OTHERWISE NOTED, SERVICES ARE TO BE REPLACED FROM THE MAIN TO THE PROPERTY LINE WITH A NEW CURB STOP AND SERVICE BOX AT THE PROPERTY LINE.
18. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY CAPS, PLUGS AND BLOW OFFS REQUIRED FOR TESTING THE NEW WATERMAIN.
19. MAXIMUM ALLOWABLE PIPE JOINT DEFLECTION OF THE WATERMAIN SHALL BE 50% OF THE MANUFACTURER'S SPECIFICATIONS. PIPE BARREL DEFLECTION IS STRICTLY PROHIBITED.
20. ALL PVC STORM PIPES SHALL BE CERTIFIED TO CAN/CSA B182.2 OR CAN/CSA B182.4.
21. ALL CONCRETE STORM PIPES SHALL BE CERTIFIED TO CSA SERIES A257.
22. FROST PROTECTION SHALL BE PROVIDED AS PER OBC DIV. B7.3.5.4., AND THE MINIMUM COVER SHALL BE 1.2M.
23. CORROSION PROTECTION IS REQUIRED FOR ALL METALLIC PIPE, VALVES, FITTINGS SERVICES AND HYDRANTS. CATHODIC PROTECTION (ZINC ANODE) AS PER THE DETAILS IN THE REGIONAL DESIGN SPECIFICATIONS, OR 8 MIL MEDIUM DENSITY POLYETHYLENE ENCASEMENT AS PER AWWA C-105 SHALL BE USED.
24. AFTER REMOVING VALVE BOXES AND HYDRANTS, BACKFILL WITH COMPACTED GRANULAR 'A'. WHERE EXISTING VALVE CHAMBERS ARE TO BE ABANDONED, ALL VALVES WITHIN THE CHAMBER ARE TO BE LEFT IN PLACE AND THE CHAMBER IS TO BE BROKEN DOWN TO 1.0M BELOW FINAL GRADE AND BACKFILLED WITH NON-SHRINK WITH NON-SHRINK BACKFILL TO SUBGRADE. THE AFFECTED AREA SHALL BE COMPLETELY RESTORED. ALL HYDRANTS SHOWN FOR REMOVAL SHALL BE RETURNED TO REGIONAL STORES AT 1179 BRONTE RD., OAKVILLE. UNLESS OTHERWISE NOTED, ALL VALVES WHICH ARE SHOWN FOR REMOVAL SHALL BE DISPOSED OF BY CONTRACTOR.
25. EXISTING WATERMAIN IS TO BE EITHER REMOVED OR PLUGGED AND ABANDONED AS REQUIRED.
26. HYDRANTS ARE TO BE INSTALLED SUCH THAT THE LOWER ROD/STEM LENGTH SHALL NOT EXCEED 1.7M MEASURED FROM THE BREAK-OFF FLANGE.
27. REGIONAL MUNICIPALITY OF HALTON APPROVED MECHANICAL RESTRAINTS ARE TO BE USED ON ALL STANDARD BENDS, VALVES, FITTINGS AND HYDRANTS. REFER TO TABLE.
28. THE CONSULTANTS RELY ON SURVEYS AND DIMENSIONS BY OTHERS.

STORM SEWER NOTES

- 1. MAIN LINE PVC PIPE AS PER DR 35 CSA B182.2-06 CERTIFIED ASTM D3034-04g, F679-03. PVC PIPE TO BE AS PER DR28 CSA B182.2-06 CERTIFIED ASTM D3034-04g.
2. BEDDING FOR FLEXIBLE PIPE SHALL BE AS PER OPSD 802.010, 802.013 OR 802.014.
3. ULTRA-RIB PIPE IS NOT PERMITTED WITHIN THE MUNICIPAL RIGHT OF WAY.
4. MAINTENANCE HOLES AS PER OPSD, 701.010 (1200mm), 701.011 (1500mm), 701.012-1(1800mm) OR 701.013 (2400mm). FRAME AND COVER AS PER OPSD 401.010 TYPE B OPEN (STORM).
5. BENCHING SHALL BE AS PER OPSD 701.021.
6. DROP STRUCTURES TO BE AS PER OPSD 1003.01 (EXTERNAL AND 1003.01-2(INTERNAL).
7. SINGLE CATCHBASINS SHALL BE AS PER OPSD 705.02 COMPLETE WITH GOSS TRAP.
8. SERVICE CONNECTION AND UTILITY CUTS TO BE BACKFILLED WITH UNSHRINKABLE FILL.
9. CATCHBASINS LEAD TO BE 200mm PVC DR35 FOR SINGLE CATCHBASINS AND 250mm FOR DOUBLE CATCHBASINS UNLESS OTHERWISE SPECIFIED.
10. STORM SEWER LESS THAN 375mm TO BE PVC AND EQUAL OR GREATER THAN 375mm TO BE CONC.
11. THE BACKFILLING UNDER THE EXISTING ROAD AND PARKING AREAS WILL BE GRANULAR 'A' WITH 100% SPD COMPACTION.

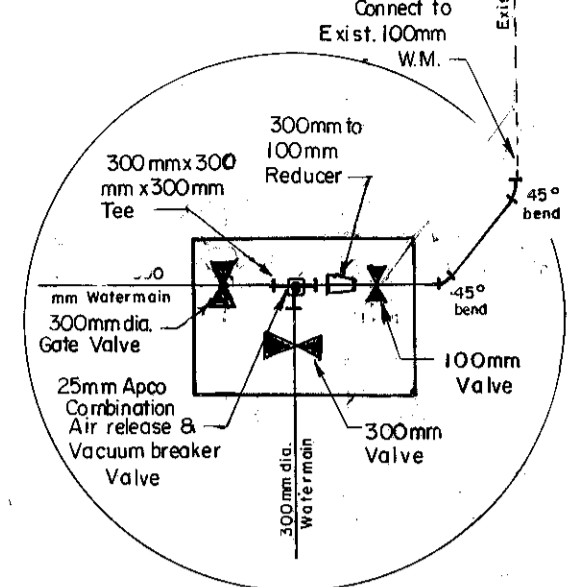
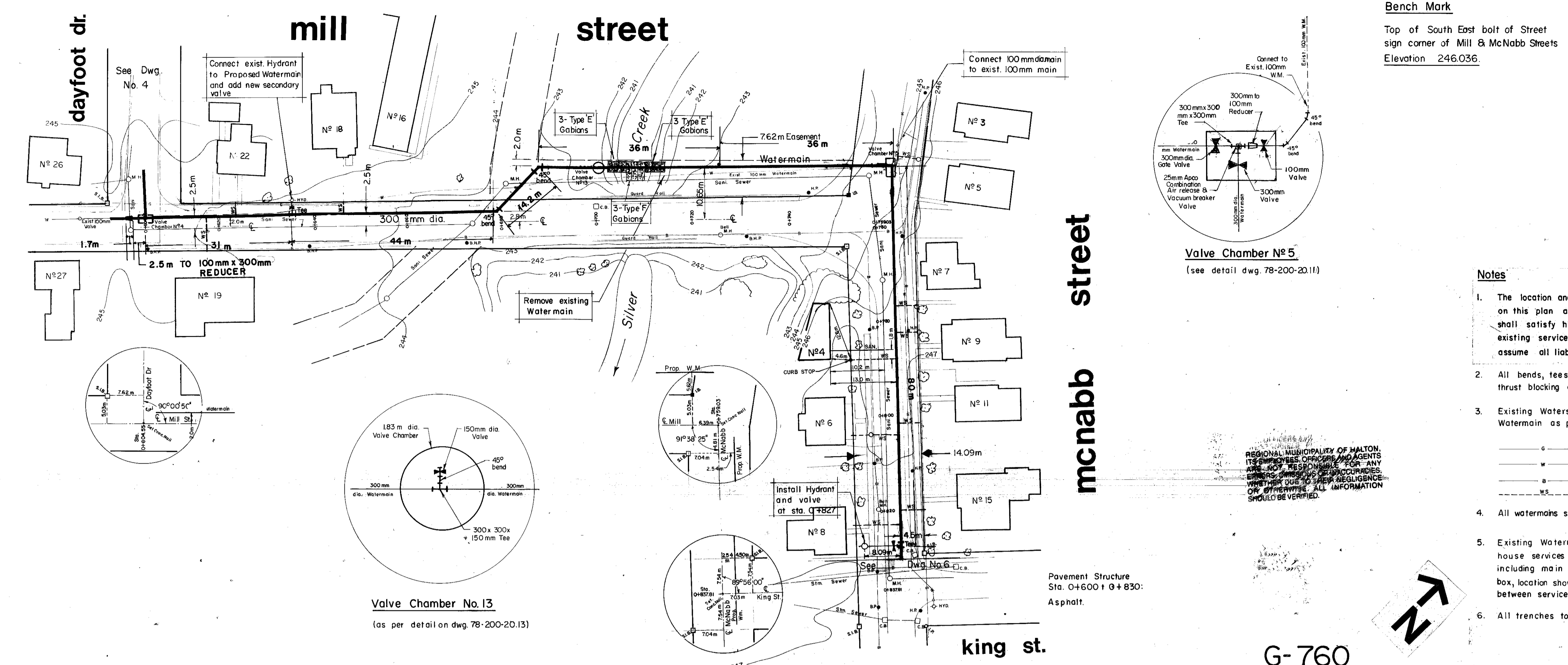
SANITARY SEWER NOTES

- 1. SANITARY MANHOLES AS PER O.P.S.D. 701.010 WITH FRAMES AND COVERS AS PER O.P.S.D. 401.01 TYPE "A" UNLESS OTHERWISE NOTED ON THE DRAWINGS.
2. BENCHING IN MANHOLES TO BE AS PER O.P.S.D. 701.021 AS AMENDED BY THE REGION OF HALTON. BENCHING IN SANITARY MANHOLES TO BE TO THE OVERTOP OF THE PIPE.
3. SAFETY PLATFORMS AS PER O.P.S.D. 404.020 TO BE INSTALLED ONLY IN MANHOLES WHERE DEPTHS EXCEED 10.0M AS DIRECTED BY THE REGION AND AS INDICATED ON THE PROFILE DRAWINGS.
4. ALL PVC SANITARY PIPES SHALL BE CERTIFIED TO CAN/CSA B181.2,CAN/CSA B182.2 OR CAN/CSA B182.4.
5. SANITARY SERVICE CONNECTIONS TO BE 125MM DIA FOR SINGLE RESIDENTIAL CONNECTIONS AND 150MM DIA FOR DUAL RESIDENTIAL AND SINGLE NON-RESIDENTIAL CONNECTIONS. SANITARY SERVICE CONNECTIONS TO BE MINIMUM 2% GRADE AND SHALL BE NON-WHITE IN COLOUR.
6. SERVICES TO BE MIN. 2.15M AND MAX. 2.75M DEEP AT PROPERTY LINE. RISERS SHALL BE USED WHERE NOTED AS PER OPSD 1006.01.
7. CLASS "B" BEDDING ON ALL SEWERS AND CONNECTIONS TO BE AS PER O.P.S.D. 1005.02 UNLESS NOTED OTHERWISE.
8. GRANULAR BACKFILL AROUND MANHOLES SHALL BE COMPACTED BY MECHANICAL MEANS TO A MINIMUM OF 95% S.P.D.
9. THE BACKFILLING UNDER THE EXISTING ROAD AND PARKING AREAS WILL BE GRANULAR 'A' WITH 100% SPD COMPACTION.

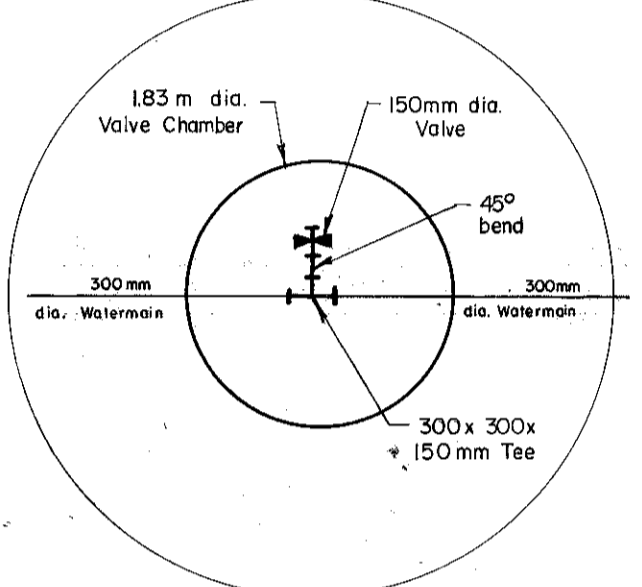


WISY MODEL WVF 150 FOR RAINWATER TREATMENT (REFER TO THE WISY CATALOGUE- APPENDIX D SWM REPORT)

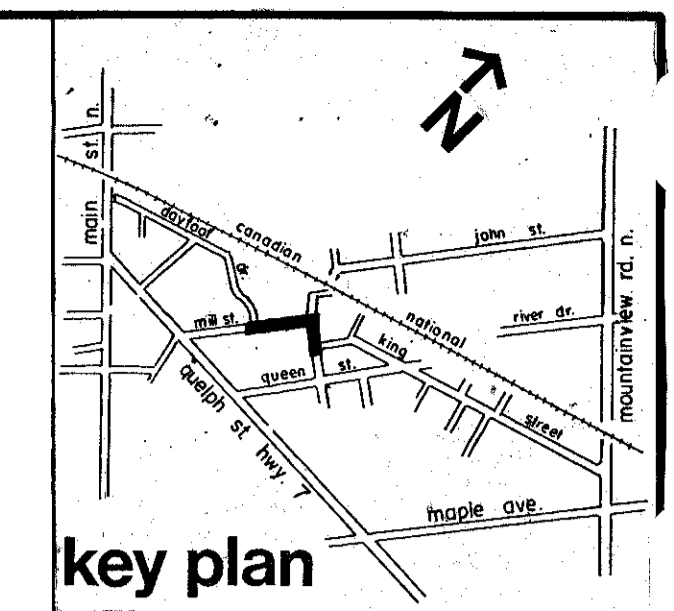
Table with columns for BENCHMARK NOTE, LEGEND, TOWN OF HALTON HILLS REGION OF HALTON, RESIDENTIAL DEVELOPMENT, and FIELD NOTES. Includes project details, professional seals, and drawing information.



Valve Chamber No. 5  
(see detail dwg. 78-200-2011)



Valve Chamber No. 13  
(as per detail on dwg. 78-200-2013)



key plan

Bench Mark  
Top of South East bolt of Street  
sign corner of Mill & McNabb Streets  
Elevation 246.036.

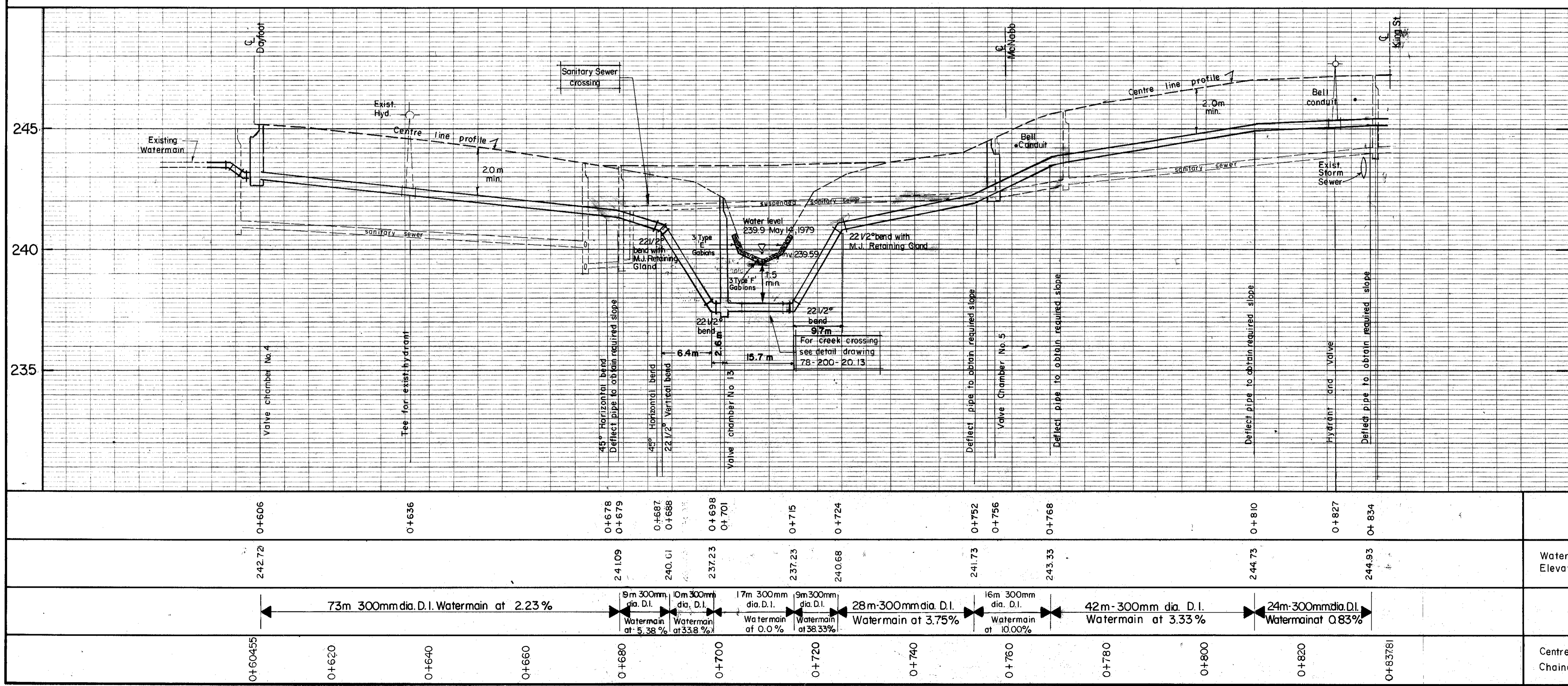
Notes

- The location and extent of existing utilities shown on this plan are approximate only. The contractor shall satisfy himself as to the location of all existing services prior to construction and shall assume all liability for damage.
- All bends, tees, crosses and plugs to be installed with thrust blocking as per Regional Standards 421 & 422.
- Existing Water Services to be re-connected to new Watermain as per Regional Standard 431.
  - g Existing Gas mains
  - w Existing Watermain
  - b Existing Buried Bell Canada cable
  - ws Existing Water service
- All watermains shall be Class 52 Cement lined Ductile Iron.
- Existing Watermain to be abandoned. Connect existing house services from new watermain to property line, including main stop, type K copper and curb stop and box, location shown approx. only. Minimum separation between services along new watermain shall be 1.0m.
- All trenches to be sawcut.

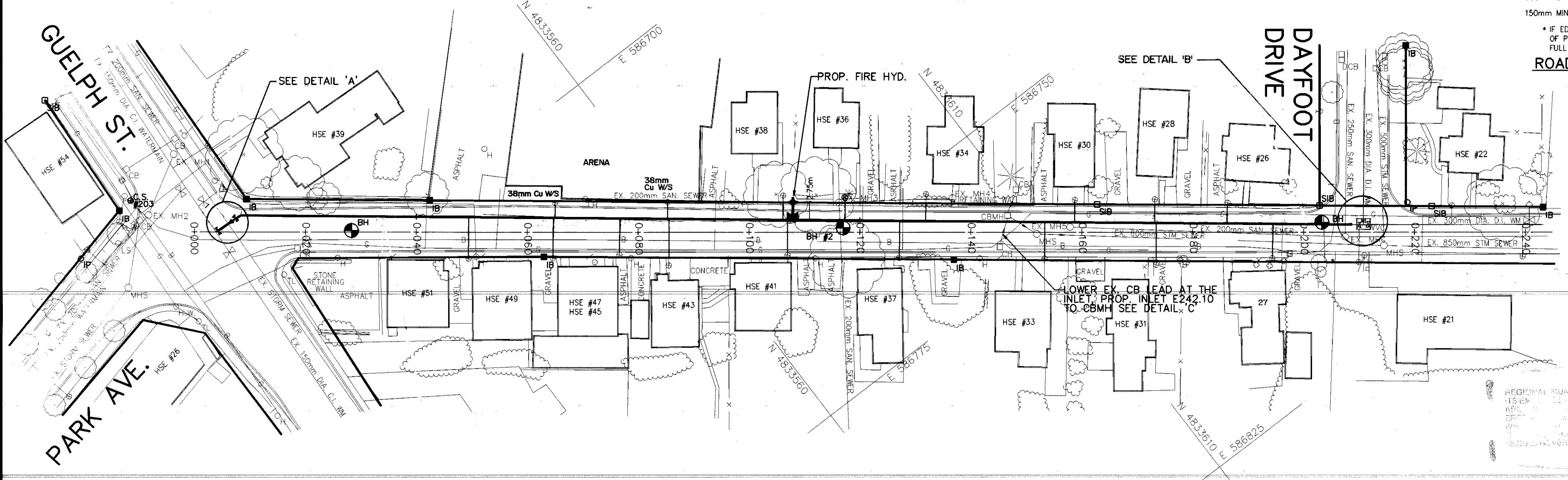
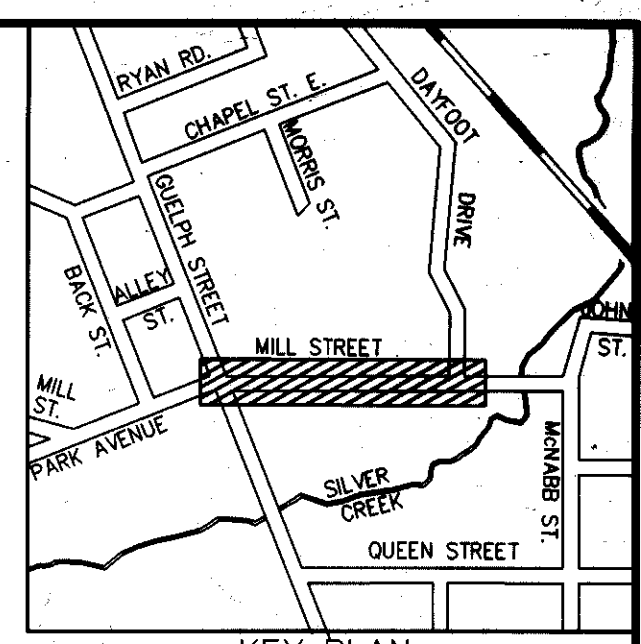
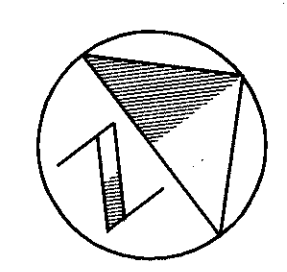
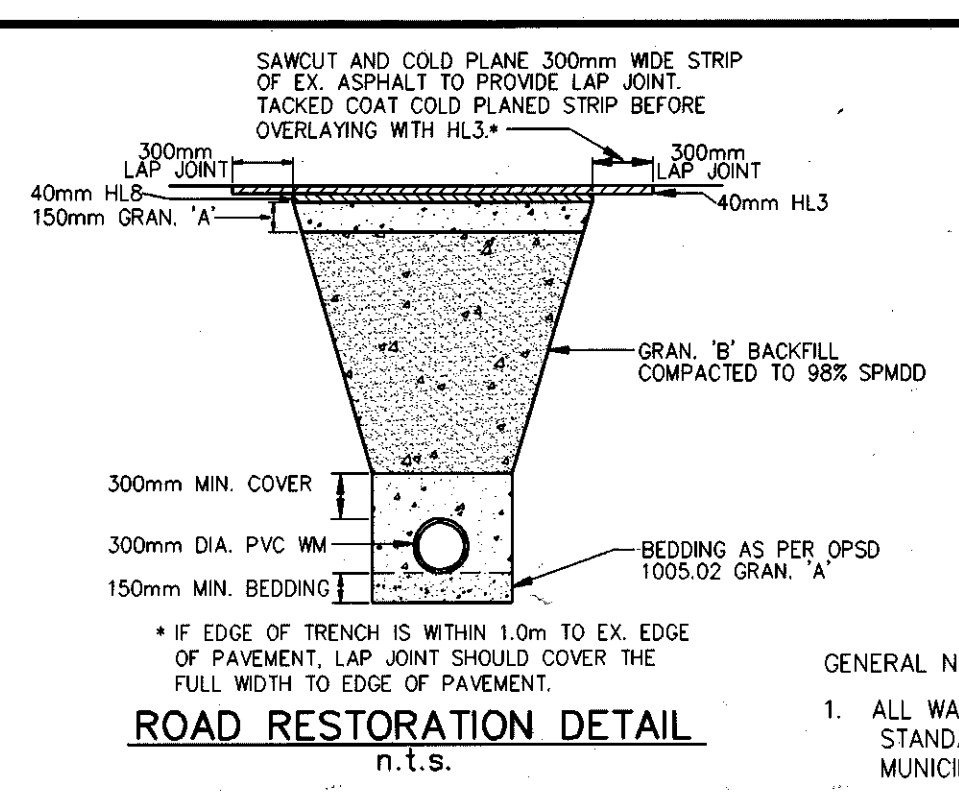
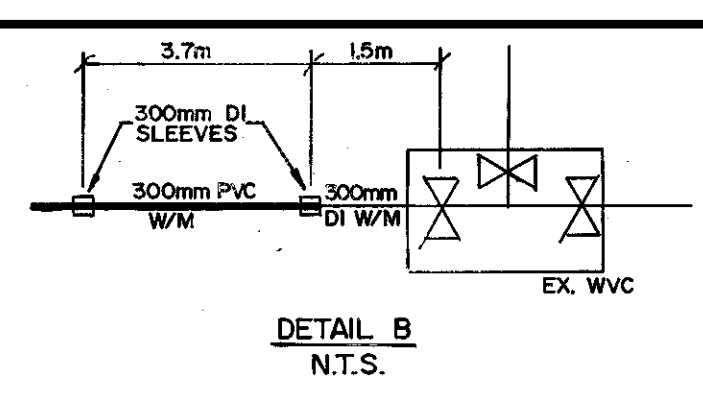
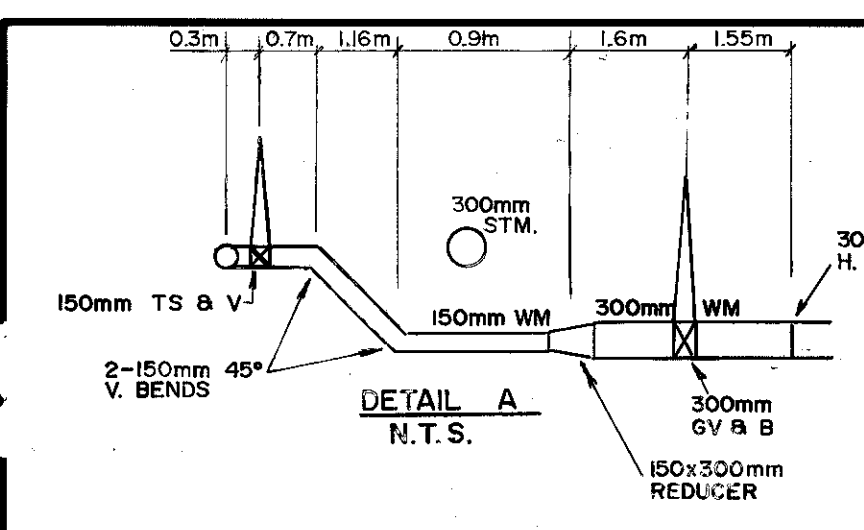
REGIONAL MUNICIPALITY OF HALTON  
ITS OFFICERS, EMPLOYEES AND AGENTS  
ACCEPT NO RESPONSIBILITY FOR ANY  
ERRORS, OMISSIONS OR INACCURACIES  
WHICH MAY OCCUR DUE TO NEGLIGENCE  
OR OTHERWISE. ALL INFORMATION  
SHOULD BE VERIFIED.

Pavement Structure  
Sta. 0+600 to 0+830:  
Asphalt.

G-760



6	81-2-17	D.P.R.	TRANSFER TO WM SECTION BOOK
5	81-2-16	D.P.R.	AS CONSTRUCT WM
4	25 June 80	A.W.	Region Review
3	23 May 80	A.W.	Region Review
2	18 Apr. 80	W.F.P.	Region Review
1	8 Jan. 80	A.W.	Region Review
NO Date By REVISIONS			
Design	L.W.	Checked	aru Date
Drawn	A.W.	Checked	
Scale		REFERENCES	
Hor. 0 5 10 20 25			
Vert. 0 1 2 3 4 5			
APPROVALS			
Municipal		FIELD NOTES	
Regional		STAMP	
Manager of Design		Professional Engineer	
Director of Public Works		Professional Engineer	
CONSULTANT			
R.E. Clipsham Limited Surveyors • Consulting Engineers Halton Hills (Georgetown) Ontario L7G 4K1			
MUNICIPALITY			
REGIONAL MUNICIPALITY OF HALTON			
PUBLIC WORKS DEPARTMENT			
TITLE			
300mm Watermain Mill Street and McNabb Street Station 0+604.55 to 0+837.81			
MUNICIPAL DRAWING NO.		REGIONAL DRAWING NO.	
78-200-20			
CONTRACT NO.		SHEET 5 OF 24	
W-469-80			



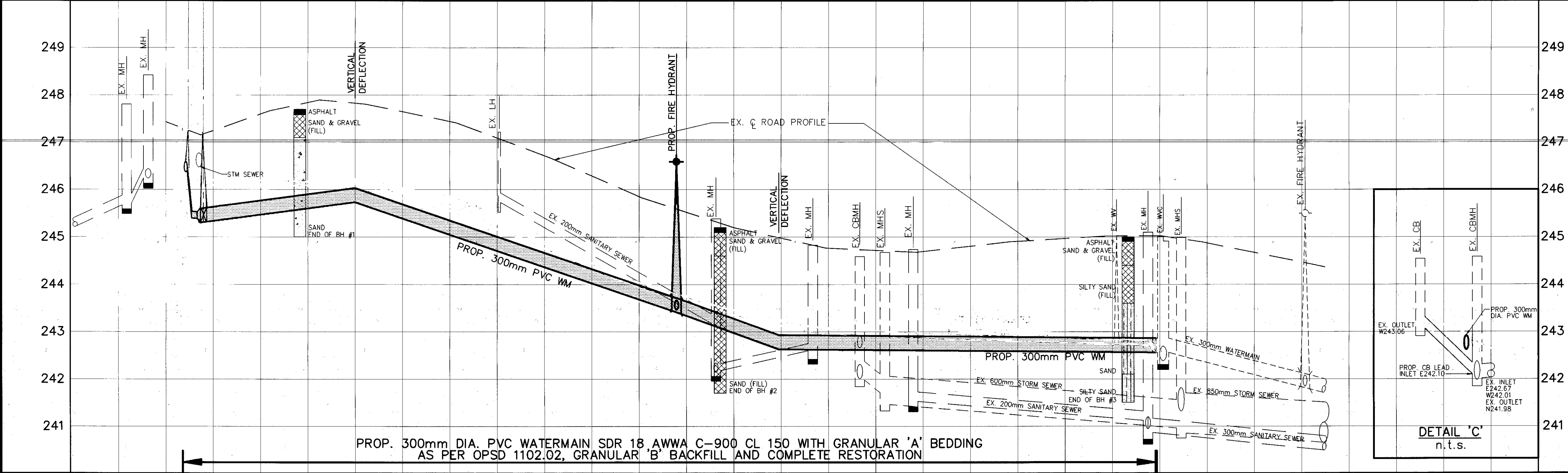
C.S. #203  
STATION: -0+011.51  
OFFSET: 5.57m LT.

MILL STREET

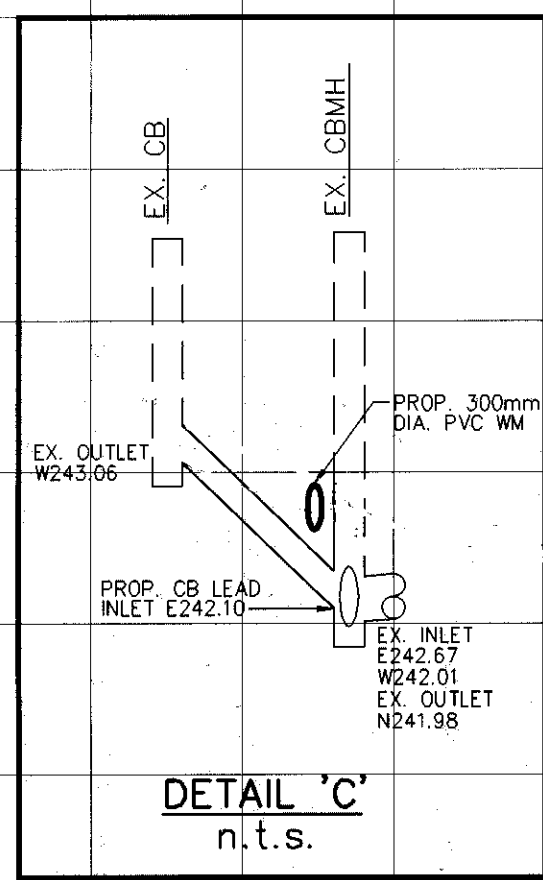
C.S. #202  
STATION: 0+279.86  
OFFSET: 3.74m LT.

- GENERAL NOTES
- ALL WATERMAIN INSTALLATION SHALL CONFORM TO ONTARIO PROVINCIAL STANDARD DRAWINGS AND SPECIFICATIONS AS AMENDED BY THE REGIONAL MUNICIPALITY OF HALTON.
  - THE LOCATIONS OF EXISTING WATERMAIN AND SERVICES ARE APPROXIMATE ONLY AND MAY NOT ALL BE SHOWN. THE CONTRACTOR MUST VERIFY THE ELEVATION, SIZE AND LOCATION OF THE EXISTING WATERMAIN AND SERVICES IN THE FIELD PRIOR TO CONSTRUCTION.
  - THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY CAPS, PLUGS, AND BLOW OFFS REQUIRED FOR TESTING.
  - ALL EXISTING WATER SERVICES TO BE REPLACED WITH 20MM DIAMETER COPPER AS PER OPSD-1104.01 UNLESS OTHERWISE NOTED, AND TO BE REPLACED FROM THE PROPOSED WATERMAIN TO THE PROPERTY LINE WITH A NEW CURB STOP AND SERVICE BOX.
  - TEMPORARY WATER SERVICES SHALL BE PROVIDED TO ALL RESIDENCES AFFECTED BY THE WATERMAIN REPLACEMENT.
  - REGIONAL MUNICIPALITY OF HALTON APPROVED MECHANICAL RESTRAINTS SHALL BE USED ON ALL FITTINGS AS PER MANUFACTURER SPECIFICATIONS.
  - ALL TREES IN THE RIGHT-OF-WAY SHALL BE PROTECTED.

WATERMAIN DATA				
ITEM	STATION	CONSTR. OFFSET	STD. DWG. INVERT ELEV.	REMARKS
PROP. 150x150mm TEE, 300x150mm REDUCER & 300mm G.V. & BOX	0+003.26	0.48m LT.	246.00	SEE NOTE 6
PROP. 45° VERTICAL BEND	0+003.41	2.31m LT.	246.00	
PROP. 22 1/2° HORIZ. BEND & 45° VERTICAL BEND	0+004.09	2.73m LT.	245.25	SEE NOTE 6.
PROP. 11 1/4° H. BEND	0+005.18	2.95m LT.	245.27	SEE NOTE 6.
VERTICAL DEFLECTION	0+040.00	2.75m LT.	245.75	
PROP. FIRE HYDRANT	0+107.90	2.18m LT.	1105.01	243.41 COMPLETE WITH ANCHOR, TEE AND 150mm GATE VALVE
VERTICAL DEFLECTION	0+130.50	2.13m LT.	242.64	
CONNECT PROP. 300mm WM TO EX. 200mm WM & WVC	0+208.23	1.34m LT.	242.56	REMOVE EX. REDUCER AND CONNECT PROP. 300mm WM TO EX. 300mm DIA. D.I. WM



PROP. 300mm DIA. PVC WATERMAIN SDR 18 AWWA C-900 CL 150 WITH GRANULAR 'A' BEDDING AS PER OPSD 1102.02, GRANULAR 'B' BACKFILL AND COMPLETE RESTORATION



NO	DATE	BY	REVISIONS	MANU CAD
1	NOV/95	EWS	AS CONSTRUCTED	X
Design	T.L.	Ch'kd	JLP	Date
Drawn	S.G.	Ch'kd	MC	OCTOBER 1993
Scale	Horiz. 10 0 10	Vert. 0.5 0 10	References	
Municipal	ISSUED		JUL 12 1994	Field Notes
Regional	HALTON REGION PUBLIC WORKS			Stamp
Commissioner of Public Works	S. R. PIPER			LICENCED PROFESSIONAL ENGINEER
Director of Design & Construction	94 0119			PROVINCE OF ONTARIO



STATIONS	EXISTING GROUND ELEVATION	PROPOSED WATERMAIN INVERTS
0+000	247.43	246.00
0+020	247.15	245.73
0+040	247.81	245.73
0+060	247.41	245.64
0+080	246.66	245.64
0+100	245.83	245.64
0+120	245.20	245.64
0+140	244.76	245.64
0+160	244.67	245.64
0+180	244.89	245.64
0+200	245.01	245.64
0+220	244.89	245.64
0+240	244.49	245.64
0+260	244.00	245.64

TITLE  
PROP. 300mm DIA. PVC WM REPLACEMENT  
MILL STREET  
HALTON HILLS (GEORGETOWN)  
FROM  
GUELPH ST. TO DAYFOOT DR.

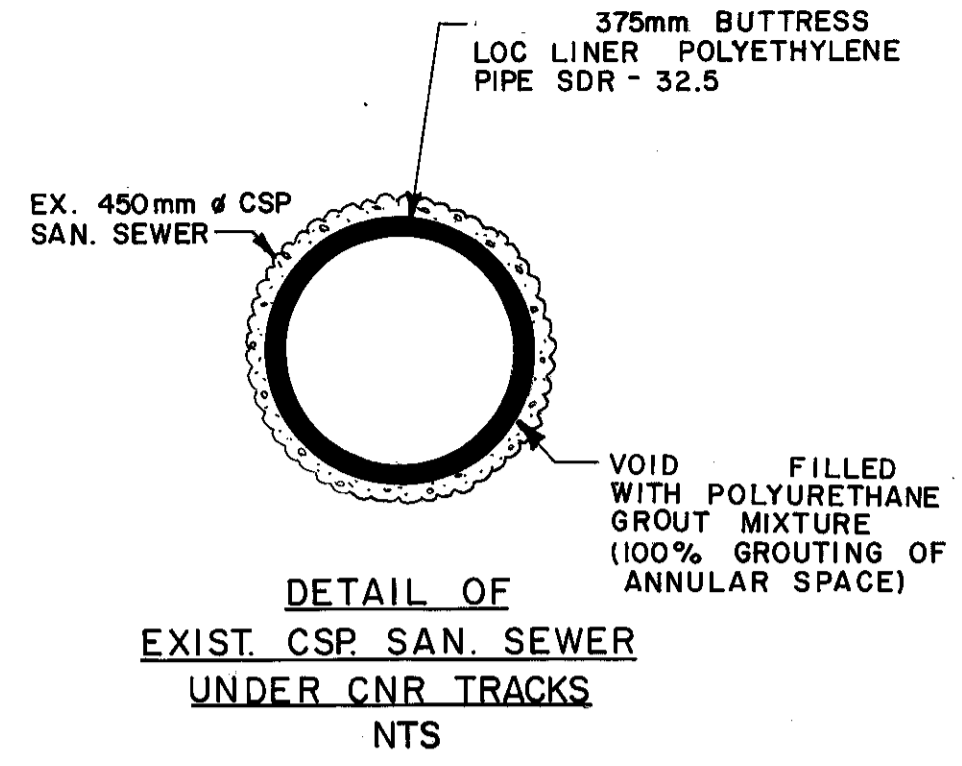
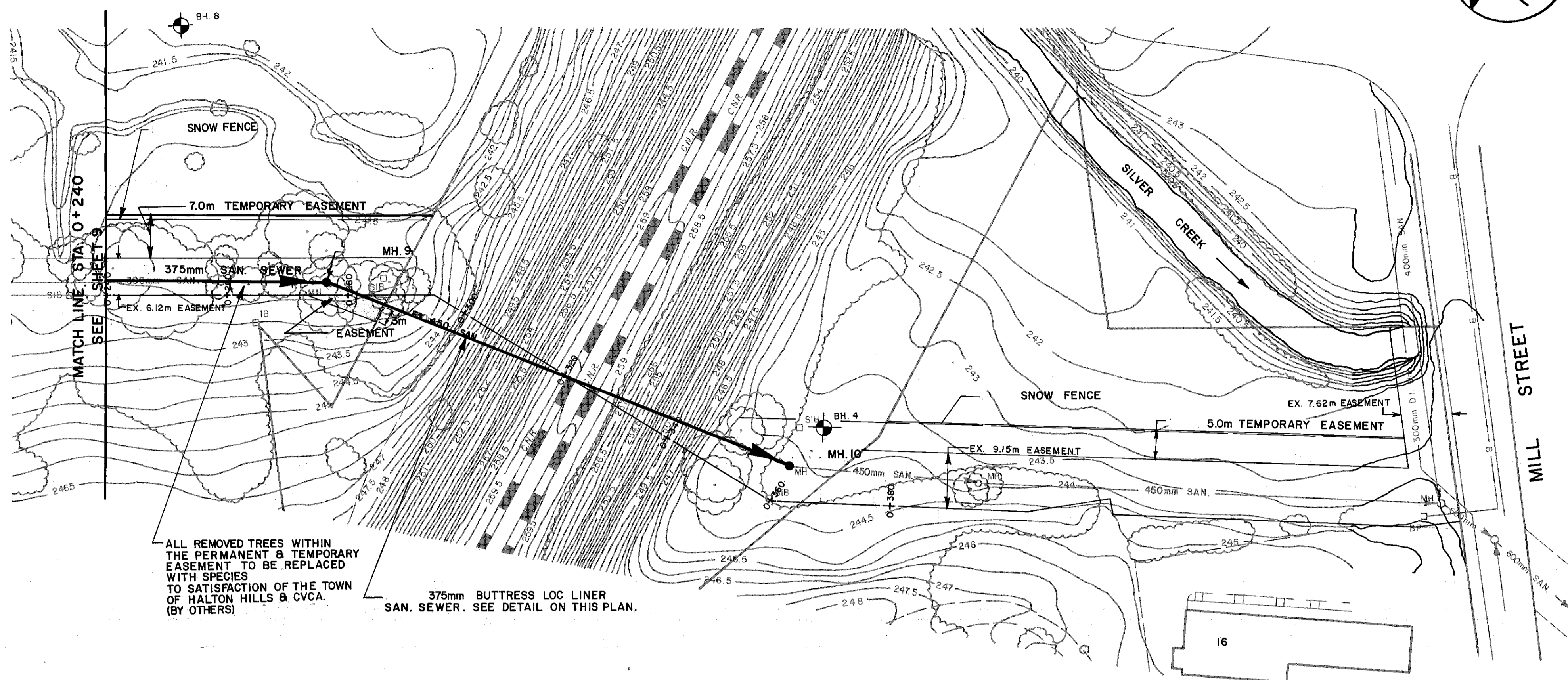
Consultant File No  
W-1386-94

Regional Drawing No  
**G - 1658**

CONTRACT No  
W-1386-94

Drawing No  
SHEET 1 OF 3



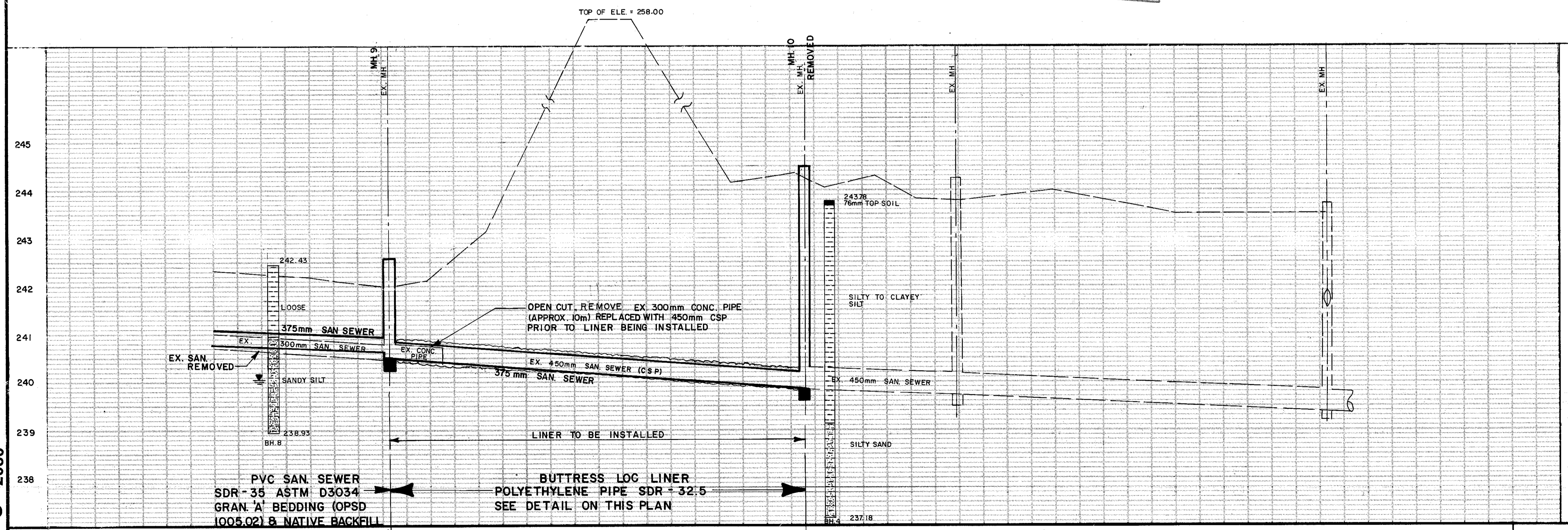


SANITARY SEWER DATA		INVERTS		GRATE	TOP OF GRATE	REMARKS
M.H.	STATION	CONSTR. OFFSET	STD.	INLET	OUTLET	
9	0+276.5	2.0m LT.	1001.01	N 240.61	S 240.50	401.03 242.62
10	0+363	6.0m LT.	1001.01	N 239.86	S 239.82	401.03 244.50

- NOTES**
- ALL SANITARY SEWER INSTALLATION SHALL CONFORM TO ONTARIO PROVINCIAL STANDARD DRAWINGS & SPECIFICATIONS AS AMENDED BY THE REGIONAL MUNICIPALITY OF HALTON.
  - ALTERATION TO WATERWAYS SHALL CONFORM TO CREDIT VALLEY CONSERVATION AUTHORITY'S PROCEDURES AND GUIDELINES. RESTORATION OF EASEMENTS SHALL CONSIST OF LEVELING AND TRIMMING OF BACKFILL AND THE APPLICATION OF SEED AND MULCH TO THE DISTURBED AREAS.
  - THE CONTRACTOR IS RESPONSIBLE FOR THE OBLIGATIONS OF THE FEDERAL FISHERIES ACT TO INSURE THAT DELETERIOUS SUBSTANCES DO NOT ENTER THE BODY OF WATER.
  - SURPLUS FILL MATERIAL WILL BE REMOVED OFF THE FLOOD PLANS AND THAT THE STOCKPILES OF MATERIAL SHOULD HAVE PROPER SEDIMENT CONTROL MEASURES.
  - DETAILS OF ANY SHORING REQUIRED BETWEEN PROPOSED MH. 9A TO MH. 10A MUST BE SUBMITTED TO THE RAILWAY PRIOR TO CONSTRUCTION.
  - ALL WORKS SOUTH OF PROPOSED MH. 9A TO BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH N.T.A. GENERAL ORDER E-10 AND CSA STANDARDS.

ALL REMOVED TREES WITHIN THE PERMANENT & TEMPORARY EASEMENT TO BE REPLACED WITH SPECIES TO SATISFACTION OF THE TOWN OF HALTON HILLS & CVCA. (BY OTHERS)

REGIONAL MUNICIPALITY OF HALTON  
THE ENGINEER AND AGENTS  
ARE NOT RESPONSIBLE FOR ANY  
ERRORS OR OMISSIONS IN THIS  
DRAWING UNLESS OTHERWISE  
SPECIFIED.



245	03/8/97	BS	AS CONST.	
245	Revisions			
244	Design.	BKW	Chk'd.	SRP
244	Drawn.	BS	Chk'd.	SRP
244	Scale: horiz. 1:10		References.	
244	vert. 1:5		Approvals	
243	Municipal.			
242	Regional.			
241	Consultant.			
240	Municipality.			

**Halton**

Regional Professional Engineer  
S. R. PIPER  
PROVINCE OF ONTARIO

Regional Commissioner of Public Works  
Director of Design & Construction  
24 05 19

STATION	SANITARY SEWER INVERTS	EXISTING SANITARY SEWER INVERTS
0+240		
0+260		
0+276.5	N 240.61 S 240.50	
0+280		
0+300		
0+320		
0+340		
0+360	N 239.86 S 239.82	
0+363		
0+380		

91.5m - 375mm SAN.  $\odot$  0.40%

83m - 375mm SAN. SEWER  $\odot$  0.77%

Contract No.	PR-1223
Contract No.	94-11/PR-1403
Sheet	10 of

PR-1223 01/3

G-2080

## **Appendix B**

- **Fire Demand Calculations**
- **Fire Hydrant Test**

# FIRE FLOW CALCULATIONS

## 160-18 MILL STREET, HALTON HILLS

Client:  
Building.:

2023-05-09

Fire Flow Calculation Procedure per Water Supply for Public Fire Protection, 1999 by Fire Underwriter Survey, p 20.

$$F = 220 C \sqrt{A}$$

where

F = Fire flow in Litres per minute (Lpm)

C = coefficient related to the type of construction

A = total floor area in the building being considered in square metres

**A. Determine Type of Construction**

=> Fire Resistance Construction

Therefore C = ( **0.60** For Fire-resistance construction(Fully protected frame, floors, roof)

**B. Determine Ground Floor Area**

As per the Site Statistic we have:

Floor Areas:

North Building:

First Floor	448.8m <sup>2</sup>
Second Floor	448.8m <sup>2</sup>
Third Floor	448.8m <sup>2</sup>
Forth Floor	448.8m <sup>2</sup>

South Building:

First Floor	440.8m <sup>2</sup>
Second Floor	440.8m <sup>2</sup>
Third Floor	440.8m <sup>2</sup>
Forth Floor	335.8m <sup>2</sup>

As the North Building floor are is greater than the South Building we will consider North Building in calculations of the floor area.

For Fire resistance buildings, consider two largest adjoining floors plus 50 percent of each of any floors immediately above them up to eight, when the vertical openings are inadequately protected. If the vertical openings and exterior vertical communications are properly protected (one hour rating), consider only the area of the largest floor plus 25 percent of each of the two immediately adjoining floors.

For conservative approach we are considering the first condition:

$$A = 448.8+448.8+448.8 \times 0.50+448.8 \times 0.50$$
$$= \mathbf{1,346.40 \text{ m}^2}$$

**D. Determined the Fire Flow**

$$F = 220 \times 0.60 \times (1346.40)^{0.50}$$
$$F = \mathbf{4,844 \text{ Lpm}}$$

**E. Determine Increase or Decrease for Occupancy**

As the Building is low Hazard, a factor of -25% can be applied but on conservative

Side we are considering it to a limited combustible, thus we apply 15% reduction factor to the Fire Flow calculated in 'D'

$$\begin{aligned} \text{Fire Flow} &= 4844 \times (1 - 0.15) && \text{Lpm} \\ &= 4,117 && \text{Lpm} \end{aligned}$$

**F. Determine Decrease for Automatic Sprinkler Protection**

**30% Reduction for Sprinkler Protected**

$$\begin{aligned} &= 4117 \times 0.30 && \text{Lpm} \\ &= 1,235.1 && \text{Lpm} \end{aligned}$$

**G. Determine the Total Increase For Exposures**

Face	Distance (m)	Charge	
West Side	More than 45m	0%	
East Side	16	15%	
North Side	More tah 45m	0%	
South Side	6	20%	
	<b>Total</b>	<b>35%</b>	of 4,117 Lpm
			<b>= 1440.95 Lpm</b>

**H. Req'd Fire Flow = E - F + G**

$$= 4117 - 1235.1 + 1440.95$$

$$= 4,233 \text{ Lpm}$$

$$F = 4,233 \text{ Lpm} \quad (2,000 \text{ Lpm} < F < 45,000 \text{ Lpm}; \text{OK})$$

Rounding to nearest 1,000L/s 4,000 Lpm

$$F = 1,055 \text{ US GPM}$$

$$= 66.7 \text{ L/s}$$

**G. Fire Demand + Maximum dialy Demand**

$$= 66.7 + 0.65 \quad (\text{See FSR Section 2.3.1})$$

$$= 67.35 \text{ L/Sec}$$

$$= 67.35 \text{ L/Sec}$$

$$= 1068 \text{ US GPM}$$

Fire Hydrant test :

Test #	Number of Outlets	Orifice Size (in)	Pitot Reading (psig)	Equivlnt Flow (usgpm)	Total Flow (usgpm)	Projected flow at 20psi (usgpm)	Gauge Pressure (psig)	Discharge Coefnt
<b>Static</b>	N/A	N/A	N/A	N/A	<b>0</b>	N/A	<b>80</b>	N/A
<b>1</b>	1	2.47	62	1146	<b>1146</b>	4948	<b>76</b>	0.8
<b>2</b>	2	2.47	40	921	<b>1842</b>	5467	<b>72</b>	0.8

Discharge available at 20 psi = 5467 US GPM > 1068 US GPM (Okay)

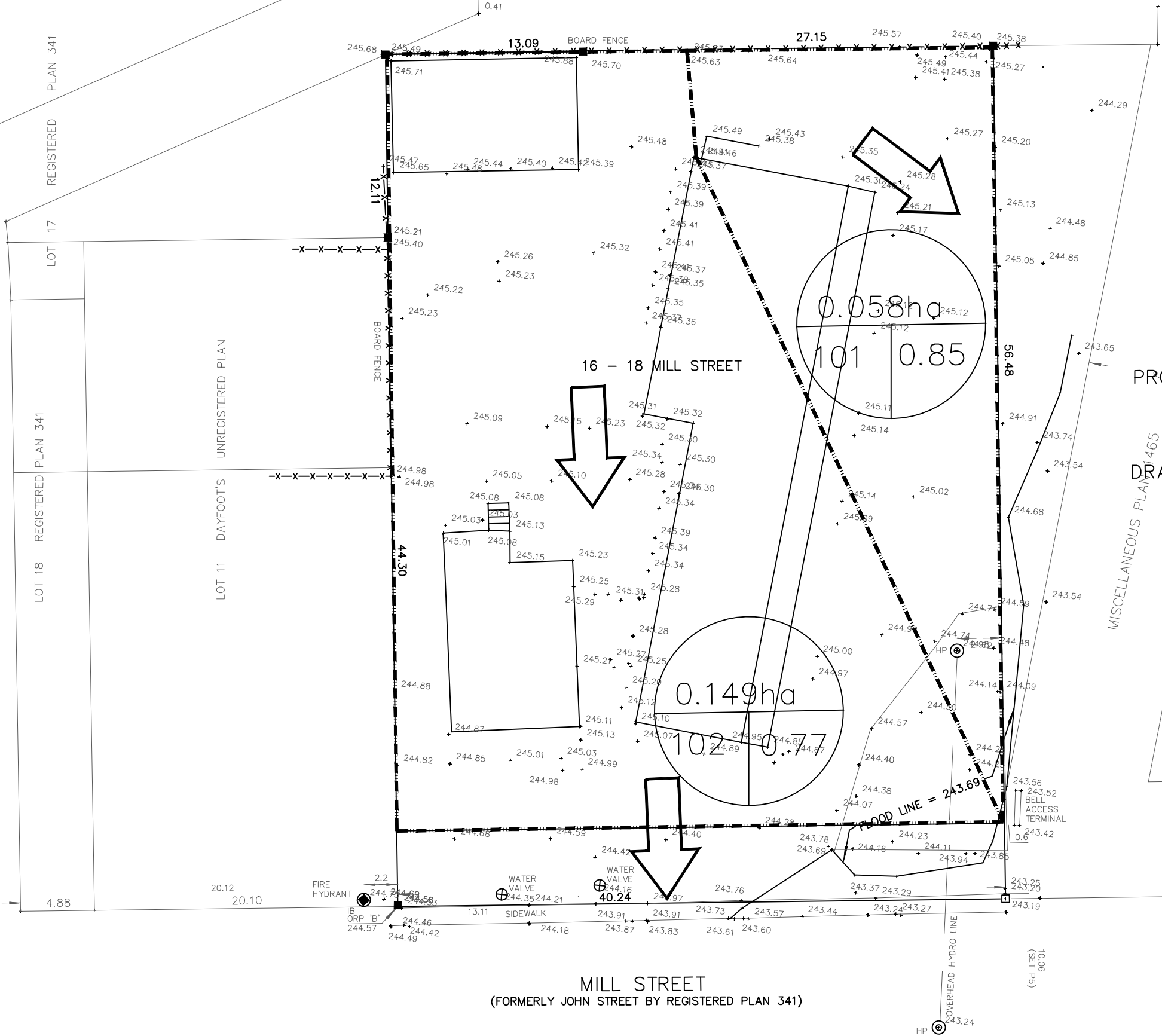
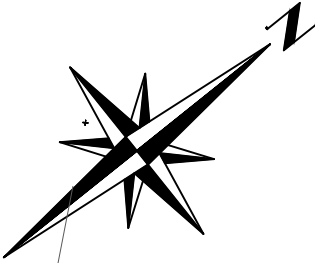
( Headlosses in the proposed water are negligible)



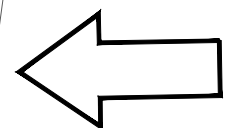
## **Appendix C**

- (i) Pre-Development Drainage Plan**
- (ii) Post-Development Drainage Plans**

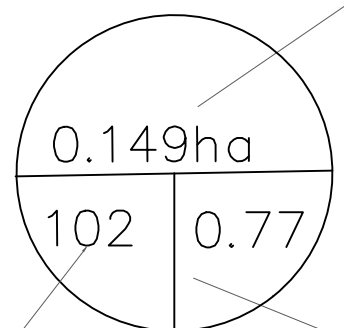
# APPENDIX C1 POST-DEVELOPMENT DRAINAGE PLAN



PROP MAJOR OVERLAND FLOW DIRECTION



DRAINAGE BOUNDARY



Drainage Area

Runoff Coefficient

Catchment No.

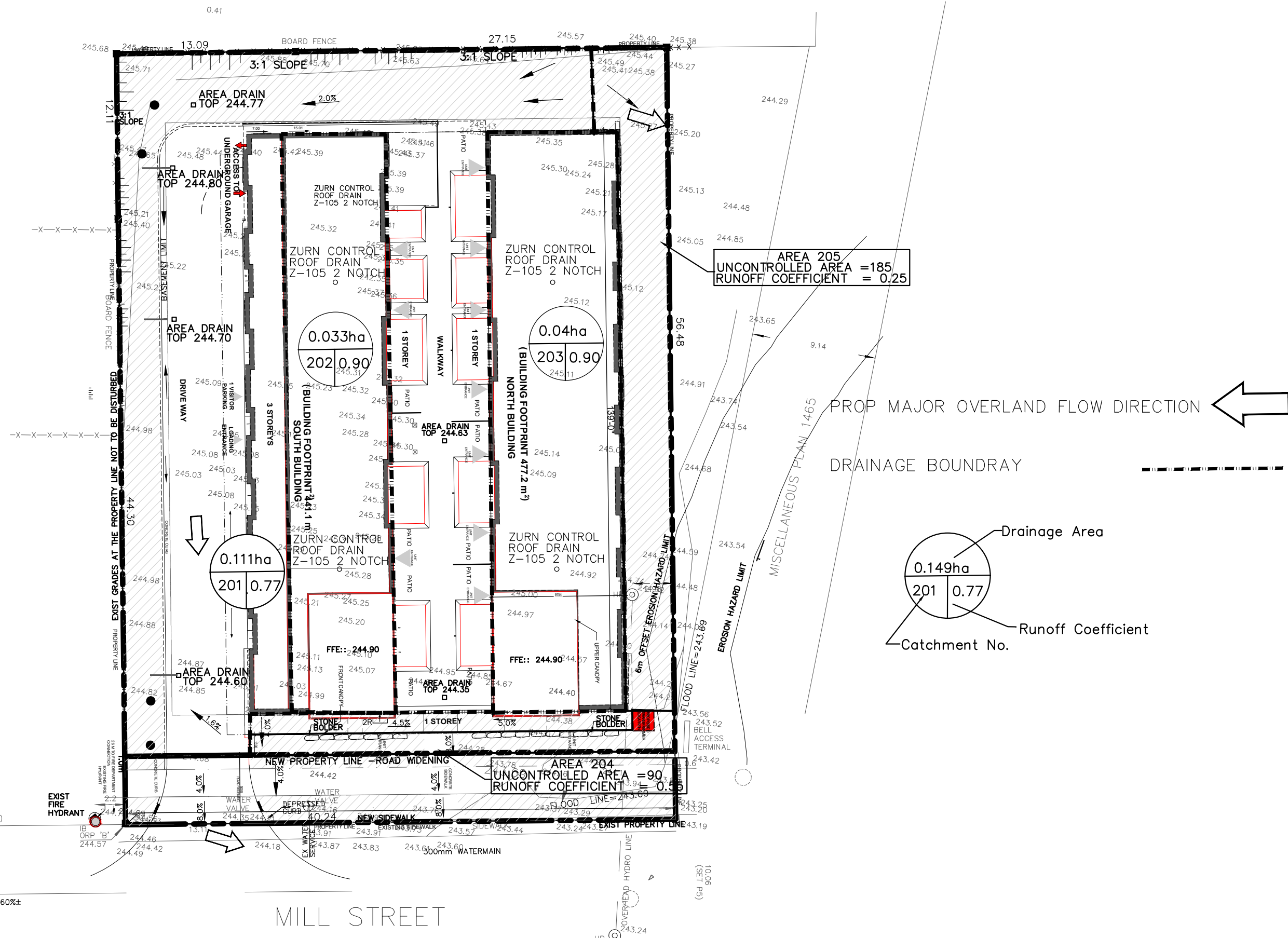
MILL STREET  
(FORMERLY JOHN STREET BY REGISTERED PLAN 341)

# APPENDIX C2 POST-DEVELOPMENT DRAINAGE PLAN

LOT 17 REGISTERED PLAN 341  
LOT 18 REGISTERED PLAN 341  
LOT 11 DAYFOOT'S UNREGISTERED PLAN

4.88

EX SAN 300@ 0.60%±



MILL STREET

## **Appendix D**

- D1 Storm System Design Calculations**
- D2 Storage Calculations North Building**
- D3 Storage Calculations South Building**



**Appendix D1  
STORM SEWER DESIGN SHEET**

$Q = 2.78AIR$

Where

Q peak flow in litres per second (L/s)

A area in hectares

I rainfall in millimetres per hour (mm/hr)

$= 946.46 / (tc + 7)^{0.788}$       5 Year Storm

where : tc is in minutes

R runoff coefficient

STREET			AREAS (ha)			Indivi. 2.78AR	Accum 2.78AR	Time of Conc.	Rainfall	Peak	SEWER DATA						Remarks
STREET	FROM	TO	R= 0.25	R= 0.5	R= 0.9				Intensity I	Flow Q (L/s)	Diameter (mm)	Slope %	Length (m)	Capacity (L/s) n= .013	Velocity (m/s) m/s	Time of Flow (minutes)	
Private	PROP CB 1	PROP STM	0.012			0.01	0.01	10.00	101.5	3.83	200	2.00	3.00	47.00	1.50	0.03	
Private	PROP STM MH1	PROP STORMCEPTOR				0.11	0.28	10.03	101.4	29.02	250	2.00	43.50	85.28	1.74	0.42	
Private	Building	PROP STORMCEPTOR				0.09	0.21	10.00	101.5	21.59	200	1.00	1.50	33.23	1.06	0.02	
Private	PROP STORMCEPTOR	PROP STM MH2				0.00	0.00	10.45	99.4	52.60	300	2.00	3.00	138.76	1.96	0.03	
Mill Street	PROP STM MH2	EX STM				0.00	0.00	10.48	99.3	52.54	250	2.00	14.00	85.28	1.74	0.13	
Calc by	MFI					Project:					Sheet No. 1 of 1						
Checked	MFI					RESIDENTIAL DEVELOPMENT											
Date	21-Feb-23					16-18 MILL STREET, HALTON HILLS											

**Appendix D2**  
**North Building Roof Storage Calculations (Four Story Roof)**  
**16-18 Mill Street**  
**Halton Hills, Ontario**

Formula Used for Runoff Calculations: Modified Rational Formula  
Runoff Flow= 2.78CIA  
Return Period 100 Year  
Rainfall Intensity:  $1777.20/(t_c + 9)^{0.795}$  where  $t_c$  is in hours  
Roof Area 0.0415 ha  
Available Roof are for Storage= 90%  
Roof area for storage= 0.0374 ha  
Runoff Coefficient 0.9  
No. of Roof Drains 2  
Number of Notches/Drain 1  
Max Water Depth 110 mm  
Flow per/mm depth 0.0149 Litres/sec  
Discharge per drain 1.64 l/s (one notch)  
Discharge from two Roof Drains 3.28 l/s  
Time of Concentration 10 min

Time (min.)	Rainfall Intensity mm/hr	Storm Runoff (l/s)	Runoff Volume (m <sup>3</sup> )	Release Volume (m <sup>3</sup> )	Storage Volume (m <sup>3</sup> )
10	171.05	17.76	10.66	1.97	8.69
12	157.97	16.40	11.81	2.36	9.45
14	146.95	15.26	12.82	2.75	10.06
16	137.52	14.28	13.71	3.15	10.56
18	129.36	13.43	14.51	3.54	10.97
20	122.22	12.69	15.23	3.93	11.29
22	115.91	12.03	15.89	4.33	11.56
24	110.29	11.45	16.49	4.72	11.77
26	105.25	10.93	17.05	5.11	11.93
28	100.70	10.46	17.57	5.51	12.06
30	96.57	10.03	18.05	5.90	12.15
32	92.81	9.64	18.50	6.29	12.21
34	89.36	9.28	18.93	6.69	12.24
<b>36</b>	<b>86.19</b>	<b>8.95</b>	<b>19.33</b>	<b>7.08</b>	<b>12.25</b>
38	83.26	8.64	19.71	7.47	12.24
40	80.54	8.36	20.07	7.87	12.20

Storage Provided = (374x0.10/3)  
= 13.7 > 12.25 m<sup>3</sup> O.K.

**Appendix D3**  
**South Building Roof Storage Calculations (Four Story Roof-West and East parts)**  
**16-18 Mill Street**  
**Halton Hills, Ontario**

Formula Used for Runoff Calculations: Modified Rational Formula  
 Runoff Flow= 2.78CIA  
 Return Period 100 Year  
 Rainfall Intensity:  $1777.20/(t_c + 9)^{0.795}$  where  $t_c$  is in hours  
 Roof Area 0.0122 ha  
 Available Roof are for Storage= 85%  
 Roof area for storage= 0.0104 ha  
 Runoff Coefficient 0.9  
 No. of Roof Drains 1  
 Number of Notches/Drain 1  
 Max Water Depth 90 mm  
 Flow per/mm depth 0.0149 Litres/sec  
 Discharge per drain 1.34 l/s (one notch)  
 Discharge from three Roof Drains 1.34 l/s  
 Time of Concentration 10 min

Time (min.)	Rainfall Intensity mm/hr	Storm Runoff (l/s)	Runoff Volume (m <sup>3</sup> )	Release Volume (m <sup>3</sup> )	Storage Volume (m <sup>3</sup> )
10	171.05	5.22	3.13	0.80	2.33
12	157.97	4.82	3.47	0.97	2.51
14	146.95	4.49	3.77	1.13	2.64
16	137.52	4.20	4.03	1.29	2.74
18	129.36	3.95	4.26	1.45	2.82
20	122.22	3.73	4.48	1.61	2.87
<b>22</b>	<b>115.91</b>	<b>3.54</b>	<b>4.67</b>	<b>1.77</b>	<b>2.90</b>
24	110.29	3.37	4.85	1.93	2.92
26	105.25	3.21	5.01	2.09	2.92
28	100.70	3.07	5.16	2.25	2.91
30	96.57	2.95	5.31	2.41	2.89
32	92.81	2.83	5.44	2.57	2.86

Storage Provided = (104x0.09/3)  
 = **3.1 > 2.92 m<sup>3</sup>** **O.K.**

**Appendix D4**  
**South Building Roof Storage Calculations (Four Story Roof-Central Section)**  
**16-18 Mill Street**  
**Halton Hills, Ontario**

Formula Used for Runoff Calculations: Modified Rational Formula  
 Runoff Flow= 2.78CIA  
 Return Period 100 Year  
 Rainfall Intensity:  $1777.20/(t_c + 9)^{0.795}$  where  $t_c$  is in hours  
 Roof Area 0.008 ha  
 Available Roof are for Storage= 90%  
 Roof area for storage= 0.0068 ha  
 Runoff Coefficient 0.9  
 No. of Roof Drains 1  
 Number of Notches/Drain 1  
 Max Water Depth 70 mm  
 Flow per/mm depth 0.0149 Litres/sec  
 Discharge per drain 1.04 l/s (one notch)  
 Discharge from three Roof Drains 1.04 l/s  
 Time of Concentration 10 min

Time (min.)	Rainfall Intensity mm/hr	Storm Runoff (l/s)	Runoff Volume (m <sup>3</sup> )	Release Volume (m <sup>3</sup> )	Storage Volume (m <sup>3</sup> )
10	171.05	3.42	2.05	0.63	1.43
12	157.97	3.16	2.28	0.75	1.53
14	146.95	2.94	2.47	0.88	1.59
16	137.52	2.75	2.64	1.00	1.64
18	129.36	2.59	2.80	1.13	1.67
<b>20</b>	<b>122.22</b>	<b>2.45</b>	<b>2.94</b>	<b>1.25</b>	<b>1.68</b>
22	115.91	2.32	3.06	1.38	1.69
24	110.29	2.21	3.18	1.50	1.68
26	105.25	2.11	3.29	1.63	1.66
28	100.70	2.02	3.39	1.75	1.63
30	96.57	1.93	3.48	1.88	1.60
32	92.81	1.86	3.57	2.00	1.56

Storage Provided = (68x0.08/3)  
 = **1.7 > 1.68m<sup>3</sup> Okay**

## **Appendix E**

### **Rainwater Treatment**



# PRODUCT CATALOGUE

Filtration | Building Services | Rainwater

Edition 22



NEW WFF 300 vortex fine filter with sealed cover



LESS THAN 0.2 WATTS  
**97%  
MORE EFFICIENT**  
IN STANDBY OPERATION  
WISY

New from WISY:  
Break tanks



 **made**  
 **in**  
 **Germany**

*Bird's eye view of the production plant in Hitzkirchen.*



*The production shop floor for rainwater filters in Hitzkirchen.*



*Rainwater storage tank production*



*Assembly line for rainwater units.*



## WHO WE ARE

*We have been designing and manufacturing self-cleaning filters with stainless-steel mesh since 1989. These filters are in use all over the world - both in production processes and modern rainwater harvesting systems.*

*WISY's energy-saving pump controllers for water pumps are breaking new ground when it comes to power consumption in standby mode. Our product portfolio is completed by our break tanks for separating the process water circuit from the mains water supply.*

*We are the world's leading engineers of rainwater harvesting equipment. We are offering an entire system for filtering and storing rainwater cleansed in four*

*stages, as well as all the other components you will need to create your own reliable water supply.*

**WISY quality - Made in Germany.**

## EXAMPLES OF OUR REFERENCE PROJECTS



*A rainwater harvesting system has been installed at **IKEA's premises in Rothenburg** (near Lucerne, Switzerland). The harvested rainwater is used not only to flush toilets, but can also be extracted from taps at various locations in order to irrigate outdoor areas. Collected from around one third of the roof area, the rainwater is piped to three WFF 300 vortex fine filters, cleansed and then stored underground ready for use.*



***Riomar Shopping Mall in Recife, Brazil** The rain is harvested from a roof area measuring 20,000 m<sup>2</sup> and filtered by 15 WFF 300 vortex fine filters. The clean water is stored in a 3000 m<sup>3</sup> rainwater storage tank and used as cooling water for the air-conditioning system. It is also used to flush toilets and irrigate outdoor garden areas.*

# TABLE OF CONTENTS

WISY FILTERS FOR EVERY APPLICATION	4 - 5	ACCESSORIES FOR WFF 100 AND 150	14 - 15
FILTER COLLECTOR FS	6 - 7	VORTEX FINE FILTER WFF 300	16 - 17
STANDPIPE FILTER COLLECTOR (STFS)	8 - 9	VORTEX FINE FILTER WFF 300, REDUCED SIZE	18
LINEAR 100 RAINWATER FILTER	10	VORTEX FINE FILTER WITH SPIRIT LEVEL	19
VORTEX FINE FILTER WFF 100	12		
VORTEX FINE FILTER WFF 150	13		
4-STAGE CLEANSING PRINCIPLE	20	OPTIMA PLUS RAINWATER UNIT	25
RAINWATER UNITS	21	MAXIMA RAINWATER UNIT	26
MULTIMAT RAINWATER UNIT	22	DELTA RAINWATER UNIT IN MODULAR DESIGN	27
SIGMA RAINWATER UNIT	23	PRESSURE CURVES	28
OPTIMA RAINWATER UNIT	24	ZETA 02 PUMP CONTROLLER	29
SIGURA 9 BREAK TANK	30	SIGURA 100 / 500 BREAK TANK	31
ASPRIPLUS SELF-PRIMING PUMP	32 - 33	FLOATING SUCTION FILTER SETS WITH NON-RETURN VALVE	39
MULTIGO SUBMERSIBLE PRESSURE PUMP	34 - 35	FLOATING FINE SUCTION FILTER (SAFF)	40
WISY IS SUPPLYING BERLIN WITH RAINWATER	36	FLOATING COARSE SUCTION FILTER (SAGF)	41
PROVEDO SUBMERSIBLE FEED PUMP	37	FIXED-MOUNTED SUCTION FILTERS FOR SUBMERSIBLE PUMPS	41
FLOATING SUCTION FILTER SETS WITHOUT NON-RETURN VALVE	38		
WISY RAINWATER STORAGE TANK WITH COMPLETE EQUIPMENT	42 - 43	STORM WATER RETENTION TANK	47
WISY RAINWATER STORAGE TANK WITH BASIC EQUIPMENT	44	RETENTION REGULATOR	48
WISY FLAT TANK	45	SOAKAWAY SYSTEM	49
STORM WATER RETENTION TANK	46	MODULAR SOAKAWAY CRATE	49
RAINCOLLECTOR RS	50	THE RAINWATER PEAR	54
RAINCATCHER RC	51	GARDEN RAINWATER SET	54
GARDEN RAINWATER COLLECTOR (GRS)	52	BETA SUBMERSIBLE GARDEN PUMP	55
STABILIX RAINWATER BARREL	53		
MULTISIPHON	56	HOSE COUPLINGS	61
OVERFLOW SIPHON DN 200	57	SUCTION AND PRESSURE HOSES	61
SMOOTHING INLET	57	PRESSURE HOSE ASSEMBLIES	62
ANTI-FLOODING FLAP VALVE	58	FLEXIBLE TUBES AND CONNECTING PARTS	62
MAINS WATER TOP-UP SET	58	WALL AND TUBE BUSHINGS	63
OPEN MAINS WATER OUTLET	59	TANK SEAL	63
FLOAT SWITCH	60	FITTINGS, SPARE PARTS	64 - 65
HIGH-FLEXIBILITY SUCTION HOSES	61	CABLE COUPLING SETS AND LABELS	66
TERMS OF SALES, SUPPLY AND PAYMENT	67	REFERENCES	67

FILTRATION

RAINWATER UNITS

BREAK TANKS

PUMPS

STORAGE TANKS

GARDEN

ACCESSORIES



**WFF 100**  
for pipe diameter DN 100



**LINEAR 100**  
for pipe diameter DN 100



## Industry and Apartment Houses

**WFF 150**  
for pipe diameter DN 150



**WFF 300**  
for pipe diameter DN 300



The roof area that can be connected to a rainwater harvesting system depends on the precipitation rate in the local area. The precipitation values in the tropics, for example, can differ significantly from those in temperate climate zones. The diameter of the drainage pipes specified by the planner is crucial.

## Family Homes

**STANDPIPE FILTER COLLECTOR STFS**  
for pipe diameter DN 70 to DN 100



**RAINCOLLECTOR RS**  
for pipe diameter 102/110 mm



**RainCatcher RC**  
for pipe diameter 102/110 mm



**FILTER COLLECTOR FS**  
for pipe diameter DN 70 to DN 100



**GARDEN RAINWATER COLLECTOR**  
for pipe diameter DN 70 to DN 100



## Garden Irrigation

# The WISY filter systems installed in a downpipe, underground or in the tank are an integral component of rainwater harvesting systems.

As a general rule, the roof drain is installed as a „gravity drain system“. The rainwater flows towards the storm drain or soakaway system through gutters, downspouts/downpipes, collecting and underground pipes.

It is therefore important to ensure that the cross section of piping in the flow direction of the water is not restricted.

The WISY filter systems installed in the downspout/downpipe or underground pipe guarantee that water can drain safely away from the roof areas of the building.

At the same time, the drainage pipes and the installed filter systems must be dimensioned to handle the flow rates (or „volumetric flow“) of drainage water from the connected roof areas.

## Maximum capacity of filters

Table indicating the drainage capacity of collecting and underground pipes (in which WISY filter systems are installed) in accordance with EN 12056

DN 100 Filter collector FS/STFS, WFF 100, LineAr 100, garden rainwater collector, RainCollector RS	4.2 l/s
DN 150 (WFF 150)	12.8 l/s
DN 300 (WFF 300)	80.6 l/s

**For horizontal pipes:** The max. flow rates of inflowing water apply when the connecting pipes are installed at a 1% gradient and a max. pipe fill level of 0.7.

*Using the drainage capacity of collecting and underground pipes as a basis, it is also possible to calculate the max. roof area which can be connected to the system.*

**Important:** Special installation measures must be taken when WISY filters are installed in pressure drainage systems. Please contact our technical support for further advice!

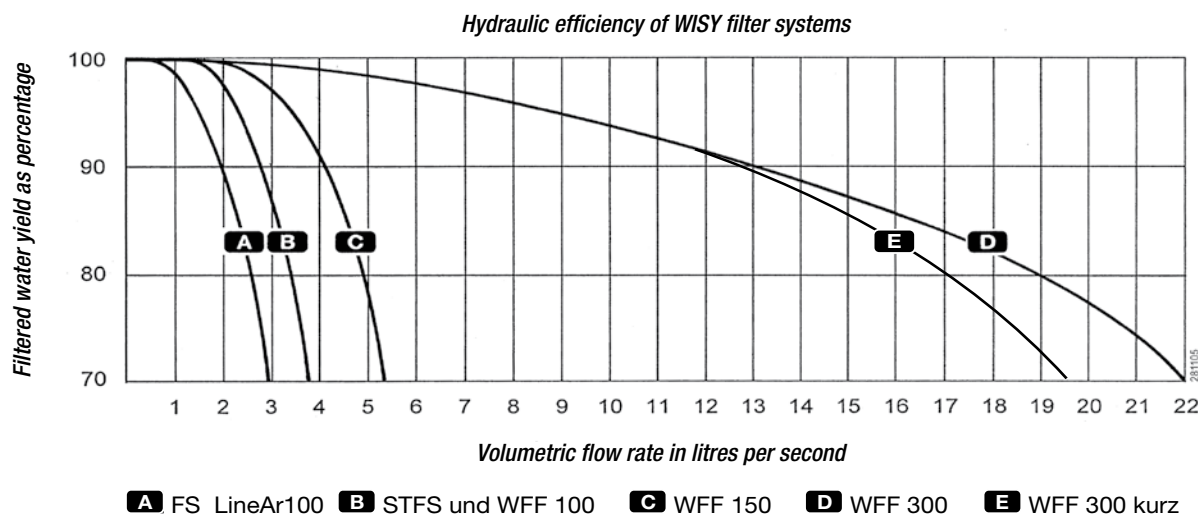
## Efficiency of WISY filter systems

According to WISY's own research, the average efficiency (or „hydraulic efficiency“) of WISY's filter systems is over 0.9 or 90%, i.e. more than 90% of the water flowing into the filter from the roof is filtered before it flows into the storage tank. The remaining water passes into the storm drain or soakaway system with any dirt particles separated out during the cleansing process.

The specified level of hydraulic efficiency refers to around 99% of all rainfall events in Germany and Central Europe. The filter efficiency is lower (around 40-60%) owing to the increased volumetric flow of water in only about 1% of rainfall events.

The majority of individual rainfall events fill the drainage pipes to less than 0.3 or 30%.

**Example:**  
A building with a projected roof area of 500 m<sup>2</sup> (5382 sq. ft.) for which a WFF 150 is installed. The volumetric flow of water into the WFF is 2.78 l/s during a rain shower of average intensity, i.e. 5m/m<sup>2</sup> in 15 minutes (the same as 5 litres/m<sup>2</sup> in 15 minutes). In the chart below, this flow rate corresponds to a hydraulic efficiency of over 95%.



- Filters rainwater from roof areas up to 150 m<sup>2</sup> in size (in temperate climate zones)
- For rainwater or process water
- Made of stainless steel or copper
- Easy to retrofit
- For downspouts/downpipes in all standard diameters
- Self-cleaning capability reduces maintenance

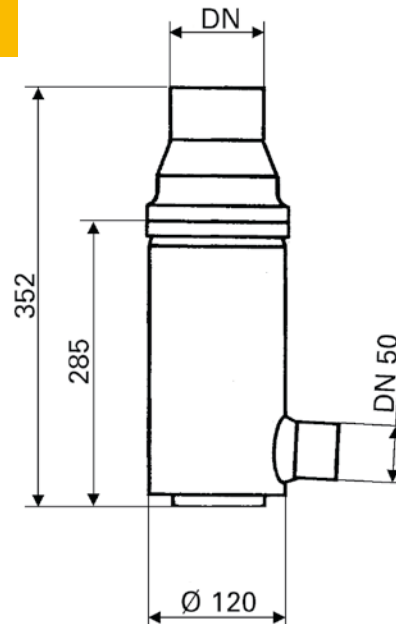
Rainwater filters for installation in downpipes made of metal or plastic. Consisting of upper housing, housing pot and filter insert. Housing available in stainless steel (VA) or copper (CU). Filter insert for all variants made of stainless steel, filter mesh size 0.28 mm (0.011 in.) (basic version) or 0.44 mm (0.017 in.), low maintenance. It is recommended to clean the filter in a dishwasher. Cleaning interval: 2-3 times per year. Outlet to the rainwater storage tank: DN 50. Drainage safety according to DIN EN 12056 / EN 752, complies with DIN 1989.

► *Stainless-steel housings can be installed in zinc or copper downpipes without risk of galvanic action*

## DN 70 to DN 100



Filter Collector FS, stainless steel

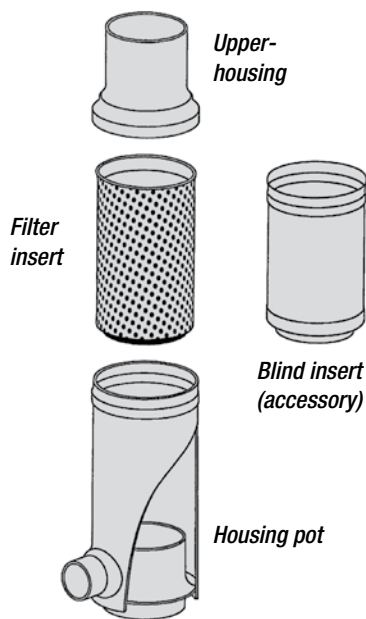


For Metal Downpipes	Nominal Size	Outside-Ø Downpipe	Item No.
---------------------	--------------	--------------------	----------

► <i>Stainless steel housing</i>			Mesh Size 0.28 mm
FS 100 VA	DN 100	102 mm	FS 0303
FS 87 VA	DN 87	89 mm	FS 0302
FS 80 VA	DN 80	82 mm	FS 0301
FS 76 VA	DN 76	76 mm	FS 0305
► <i>Copper housing</i>			
FS 100 CU	DN 100	102 mm	FS 0203
FS 87 CU	DN 87	89 mm	FS 0202
FS 80 CU	DN 80	82 mm	FS 0201
FS 76 CU	DN 76	76 mm	FS 0205
► <i>Zinc housing on demand</i>			

For Metal Downpipes	Nominal Size	Outside-Ø Downpipe	Item No.
---------------------	--------------	--------------------	----------

► <i>Stainless steel housing</i>			Mesh Size 0.44 mm
FS 100 VA	DN 100	102 mm	FS 0433
FS 87 VA	DN 87	89 mm	FS 0432
FS 80 VA	DN 80	82 mm	FS 0431
FS 76 VA	DN 76	76 mm	FS 0435
► <i>Copper housing</i>			
FS 100 CU	DN 100	102 mm	FS 0423
FS 87 CU	DN 87	89 mm	FS 0422
FS 80 CU	DN 80	82 mm	FS 0421
FS 76 CU	DN 76	76 mm	FS 0425
► <i>Zinc housing on demand</i>			



For plastic downpipes		Nominal Size	Outside-Ø Downpipe	Item No.
▶ <b>Stainless steel housing</b>				<b>Mesh Size 0.28 mm</b>
FS 110 VA	DN 100	110 mm		FS 0304
FS 76 VA	DN 70	75 mm		FS 0305
▶ <b>Copper housing</b>				
FS 110 CU	DN 100	110 mm		FS 0204
FS 76 CU	DN 70	75 mm		FS 0205

▶ <b>Stainless steel housing</b>				<b>Mesh Size 0.44 mm</b>
FS 110 VA	DN 100	110 mm		FS 0434
FS 76 VA	DN 70	75 mm		FS 0435
▶ <b>Copper housing</b>				
FS 110 CU	DN 100	110 mm		FS 0424
FS 76 CU	DN 70	75 mm		FS 0425

Spare Parts		Item No.
▶ Upper housing, <i>(please state nominal size)</i>		
made of stainless steel	(VA)	FO 0300
made of copper	(CU)	FO 0200
▶ Housing pot, <i>(please state nominal size)</i>		
made of stainless steel	(VA)	FT 0300
made of copper	(CU)	FT 0200
▶ Filter insert made of stainless steel, <i>(for all nominal sizes, height 17.5 cm / 6.89 in.)</i>		
Mesh size 0.28 mm (0.011 in.)		FE 0300
Mesh size 0.44 mm (0.017 in.)		FE 0301
▶ Filter insert coated in titanium nitride for protection against high levels of abrasive stress		
Mesh size 0.28 mm		FE 0400
Mesh size 0.44 mm		FE 0401

Accessories		Item No.
▶ Blind insert made of stainless steel (VA), <i>for all nominal sizes</i>		BE 0301
Ensures direct throughflow of water to the storm drain or soakaway system, during winter operation or maintenance		
▶ Rainwater barrel connecting hose, 1¼".		
Connects Filter Collector FS to a rainwater barrel, UV-resistant plastic spiral hose, length 42 cm (12.5 in.), with tension ring.		
	black	15803
	white	15813
	grey	15823
	brown	15833



**WISY filters with fine filtering**  
 guarantee optimum operational reliability,  
 separation of all dirt particles and  
 absolute drainage safety!

# STANDPIPE FILTER COLLECTOR (STFS)

FILTRATION

- Filters rainwater from roof areas up to 200 m<sup>2</sup> in size (in temperate climate zones)
- For rainwater or process water
- Stainless steel
- Standpipe and filter in a single unit
- For downspouts/downpipes in all standard diameters
- Self-cleaning capability reduces maintenance

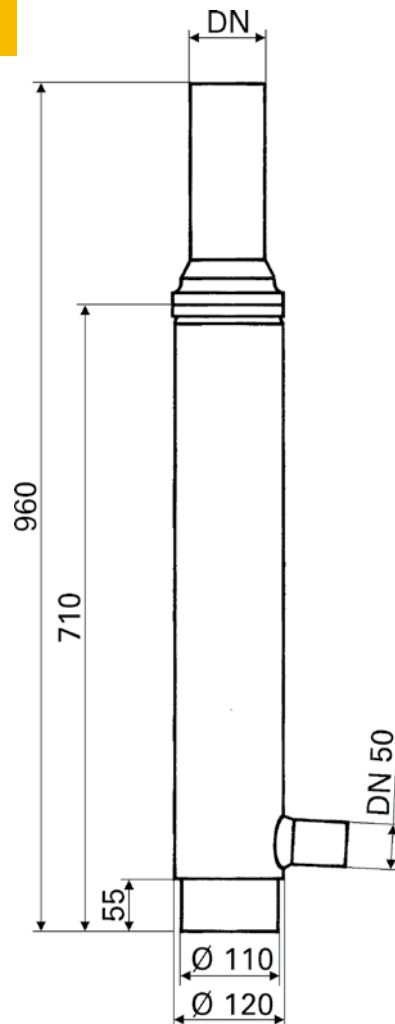
Rainwater filter and standpipe in one component for installation in the rainwater downpipe or underground, functions as both standpipe and filter collector, prevents backflow. Consisting of upper housing, housing pot and filter insert. All parts made of stainless steel. Filter mesh size 0.28 mm (0.011 in.) (basic version) or 0.44 mm (0.017 in.), extreme low maintenance. It is recommended to clean the filter in a dishwasher. Cleaning interval: 2-3 times per year. Outlet to the rainwater storage tank: DN 50. Outlet to storm drain for sewer pipe: DN 100.

Drainage safety according to DIN EN 12056 / EN 752, complies with DIN 1989.

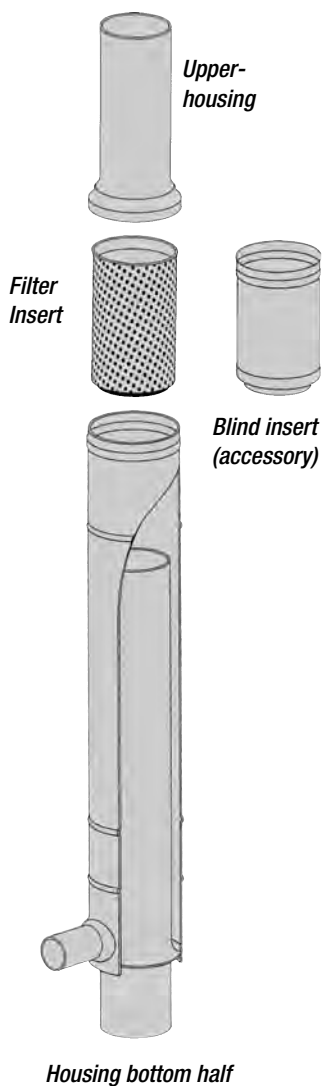
## DN 70 to DN 100



Standpipe Filter Collector (STFS)



For Metal Downpipes	Nominal Size	Outside Ø-Downpipe	Item No.
			<b>Mesh Size 0.28 mm</b>
▶ STFS 100 VA	DN 100	102 mm	SF 0303
▶ STFS 87 VA	DN 87	89 mm	SF 0302
▶ STFS 80 VA	DN 80	82 mm	SF 0301
▶ STFS 76 VA	DN 76	76 mm	SF 0305
			<b>Mesh Size 0.44 mm</b>
▶ STFS 100 VA	DN 100	102 mm	SF 0433
▶ STFS 87 VA	DN 87	89 mm	SF 0432
▶ STFS 80 VA	DN 80	82 mm	SF 0431
▶ STFS 76 VA	DN 76	76 mm	SF 0435
For plastic downpipes	Nominal Size	Outside Ø-Downpipe	Item No.
			<b>Mesh Size 0.28 mm</b>
▶ STFS 110 VA	DN 100	110 mm	SF 0304
▶ STFS 76 VA	DN 70	75 mm	SF 0305
			<b>Mesh Size 0.44 mm</b>
▶ STFS 110 VA	DN 100	110 mm	SF 0434
▶ STFS 76 VA	DN 70	75 mm	SF 0435



**Spare Parts**

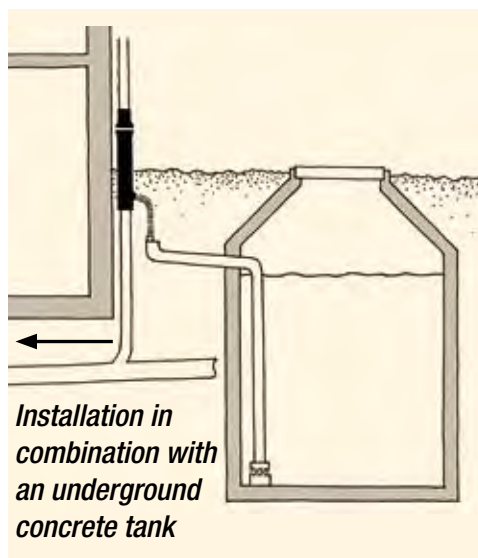
**Item No.**

- Upper housing made of stainless steel (VA, please state nominal size) SO 0300
- Housing pot made of stainless steel (VA) ST 0300
- Filter insert made of stainless steel (for all nominal sizes, height 17.5 cm / 6.89 in.)
  - Mesh size 0.28 mm (0.011 in.) FE 0300
  - Mesh size 0.44 mm (0.017 in.) FE 0301

**Accessories**

**Item No.**

- Blind insert made of stainless steel (VA), for all nominal sizes BE 0301  
Ensures direct throughflow of water to the storm drain or soakaway system during winter operation or maintenance.
- Filter insert with titanium nitride coating for industrial applications
  - Mesh size 0.28 mm (0.011 in.) FE 0400
  - Mesh size 0.44 mm (0.017 in.) FE 0401
- Stainless-steel standpipe clip (VA) with screw (10 x 120) and wall plug. For secure attachment. SF 0310



# LINEAR FILTER 100 STAINLESS STEEL

FILTRATION

- Filters rainwater from roof areas up to 200 m<sup>2</sup> in size (temperate climate zones)
- Only 5 cm height difference between inlet and outlet
- For installation in storage tank
- Made of stainless steel
- Easy to retrofit
- Low maintenance thanks to vertical filter mesh

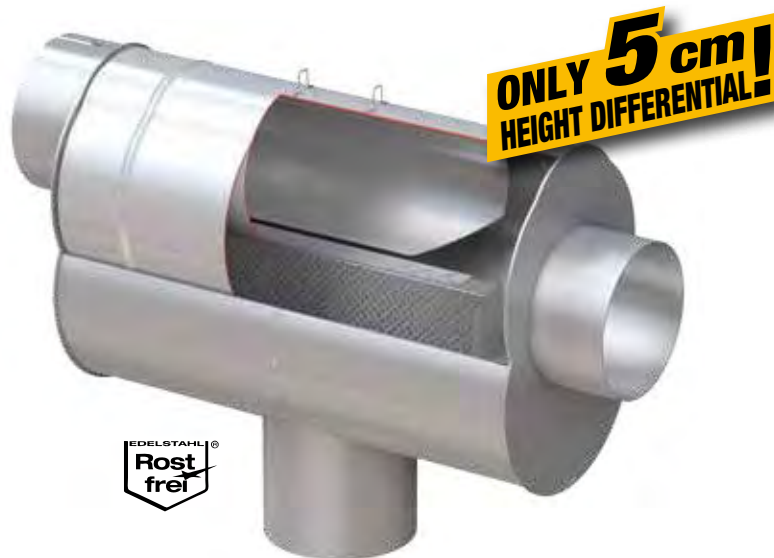


The filter insert is easy to remove for cleaning.

- 1 Stainless steel housing
- 2 Stainless steel filter insert
- 3 Rainwater inlet socket DN 100
- 4 Outlet to rainwater tank
- 5 Soakaway or storm drain outlet

## Sophisticated design

WISY's LineAr 100 rainwater filter has a vertical filter mesh. Leaves, moss and other suspended particles are simply flushed past the filter into the drain outlet. This is the crucial advantage of this design over filter surfaces that are almost horizontal and become clogged with dirt very quickly. The pipe diameter is uniform throughout the LineAr 100 rainwater filter. Even a tennis ball washed off the roof by rain can pass unhindered through the filter housing.



### LineAr 100 rainwater filter

Item No.

- LineAr 100 rainwater filter. 5 cm (2 in.) height difference between rainwater inlet and rainwater outlet. Filter body and filter element made of stainless steel 1.4301, filter mesh size 0.44 mm (0.017 in.).

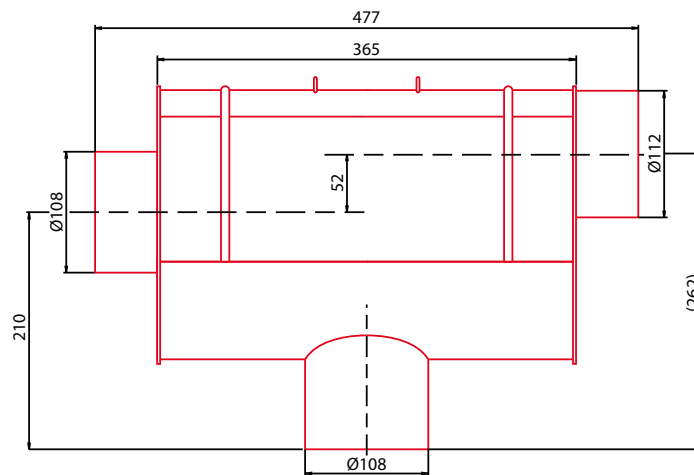
LF 1100

### Spare parts

Item No.

- Filter insert made of stainless steel, mesh size 0.44 mm (0.015 in)

LE 0301



All dimensions specified in mm

### Technical data

Height difference between rainwater inlet and soakaway or storm drain outlet	5 cm (2 in.)
Filter mesh size	0.44 mm (0.017 in.)
Water yield at 1.4 l/sec	> 90 %
Maintenance intervals	2 to 3 times per year
Diameter of connecting pipes inlet socket, drain pipe	DN 100

**LEED-Gold-Certified:  
Bishop Building**

on the south campus of Saint Francis Hospital in Tulsa (Oklahoma, USA) is awarded by the U.S. Green Building Council with LEED Gold Certification (Leadership in Energy and Environmental Design). The local rainwater is cleansed by three WFF 300 vortex fine filters, stored in a 190 m<sup>3</sup> cistern and used for irrigation.



**The WFF 300 vortex fine filter.**  
The rainwater flows into the filter unit through an above ground pipe that exits directly from the building wall. The outlets for the filtered water and the residual dirty water are installed below ground.

**Setia Headquarters,  
Kuala Lumpur, Malaysia.**

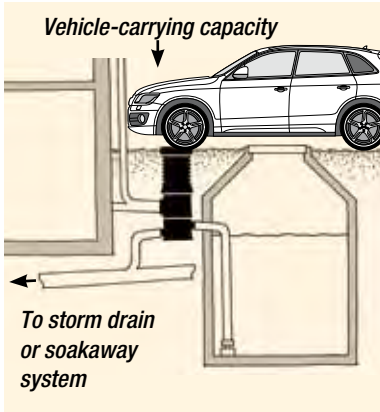
This building is the administrative headquarters of a major construction company. Rainwater is collected on the top floor, immediately below the roof of the building. It is filtered by three WFF 300 vortex fine filters. The filtered water then flows into a 240 m<sup>3</sup> tank which is also located on the top floor. The water harvested by this system is used to irrigate the gardens and flush toilets. It is also used to supplement the cooling water for the air-conditioning system.





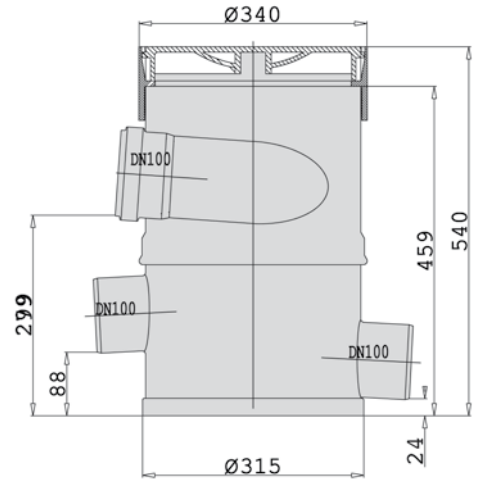
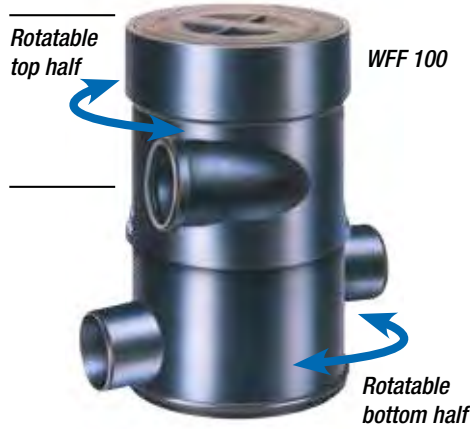
# VORTEX FINE FILTER WFF 100

- Filters rainwater from roof areas up to 200 m<sup>2</sup> in size (in temperate climate zones)
- For rainwater or process water
- With extension tube and cover
- Self-cleaning capability reduces maintenance

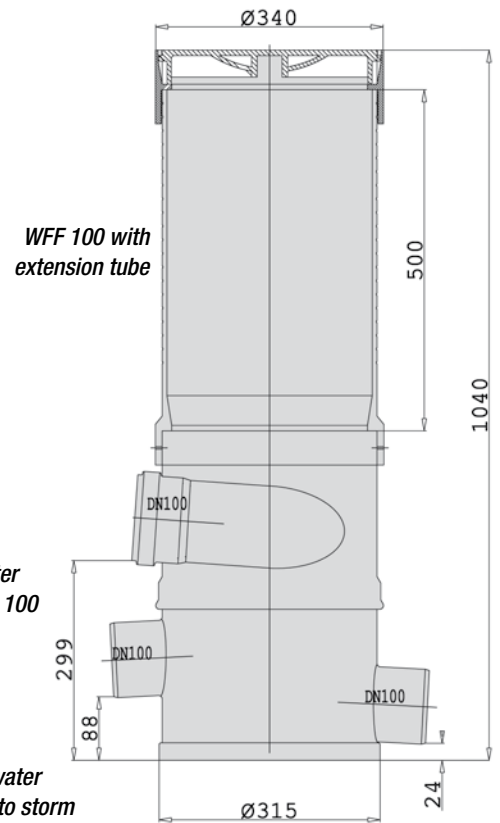


Rainwater filter for installation in horizontal rainwater pipes underground or in the open air (e.g. for industrial applications). Optionally available with 50 cm (1.6 ft.) extension tube for raising the inspection opening to ground level. Freely rotatable rainwater inlet. Tested to German standard ATV: Vehicle-duty capacity up to 30 t. Polypropylene housing (PP). Stainless steel filter insert, low-maintenance. It is recommended to clean the filter insert in the dishwasher. Filter mesh size 0.28 mm (0.011 in.) (basic version) or 0.44 mm (0.017 in.). Drainage safety according to DIN EN 12056 / EN 752, complies with DIN 1989.

### WFF 100 without extension tube



### WFF 100 with extension tube



### WFF 100



### Vortex Fine Filter WFF 100

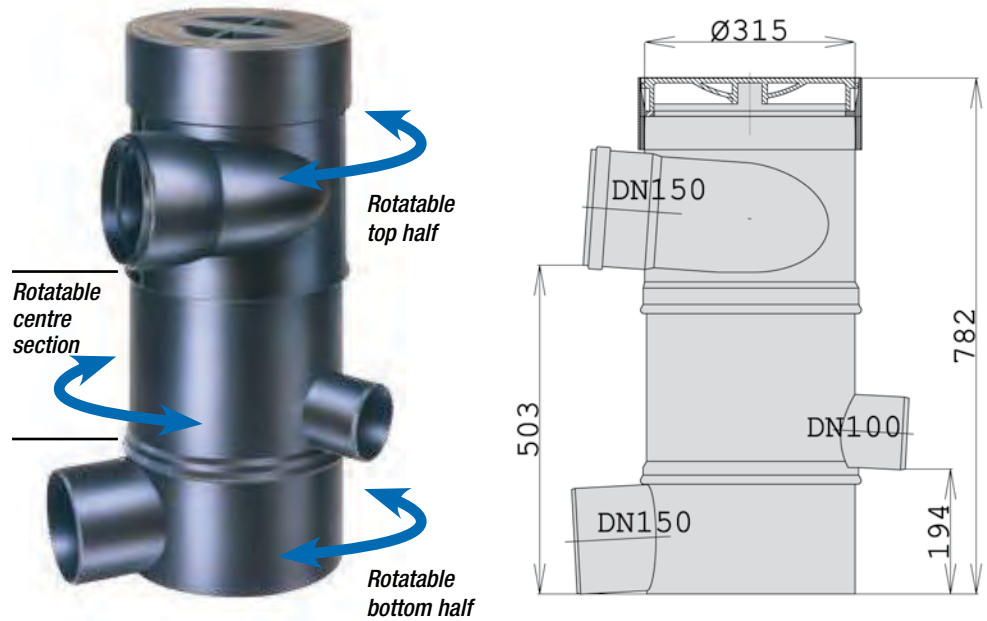
### Item No.

consists of housing, end ring with housing cover and lifting handle (30 cm/11.8 in.) in the following versions:

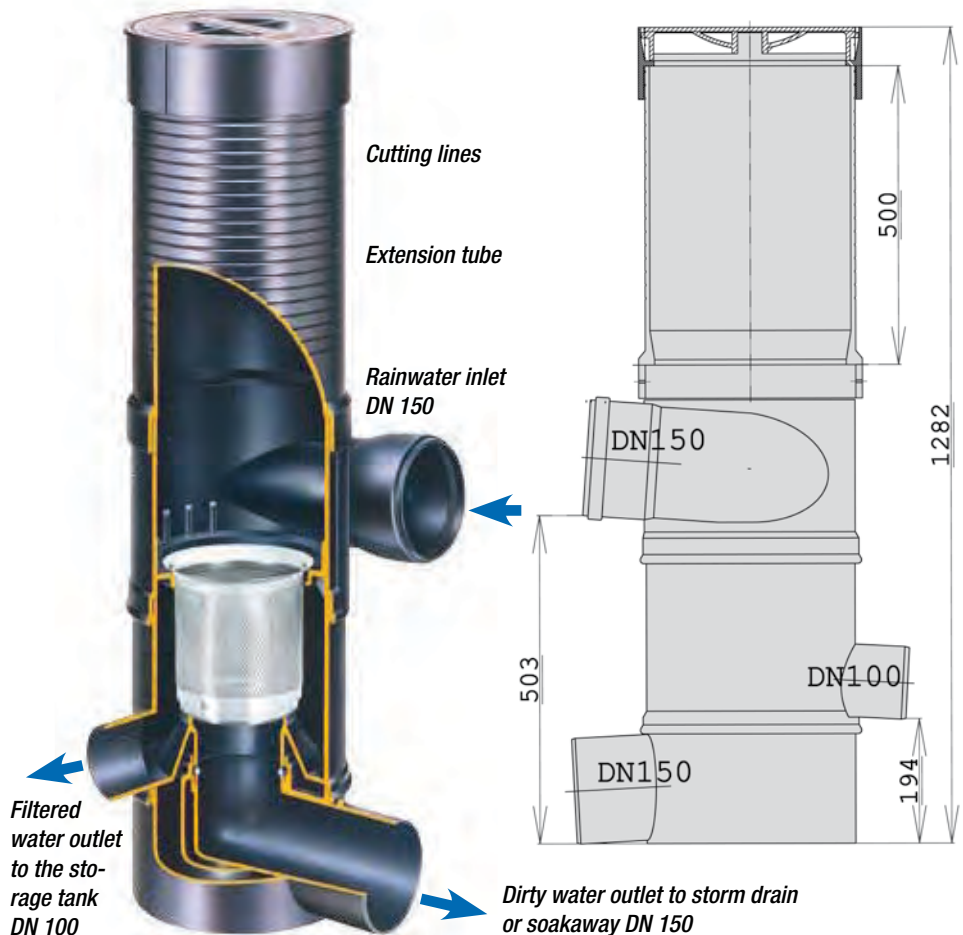
- |                          |                                   |         |
|--------------------------|-----------------------------------|---------|
| ▶ With extension tube    | filter insert 0.28 mm (0.011 in.) | WF 2011 |
| ▶ With extension tube    | filter insert 0.44 mm (0.017 in.) | WF 2012 |
| ▶ Without extension tube | filter insert 0.28 mm (0.011 in.) | WF 2002 |
| ▶ Without extension tube | filter insert 0.44 mm (0.017 in.) | WF 2001 |

- Filters rainwater from roof areas up to 500 m<sup>2</sup> in size (in temperate climate zones)
- For rainwater or process water
- Direction of inlets and outlets can be freely rotated
- With extension tube and cover
- Self-cleaning capability reduces maintenance

WFF 150 without extension



WFF 150 with extension tube



**Vortex Fine Filter WFF 150**

**Item No.**

consists of housing, end ring with housing cover and lifting handle (30 cm/11.8 in.) in the following versions:

- |                          |                                   |         |
|--------------------------|-----------------------------------|---------|
| ▶ With extension tube    | filter insert 0.28 mm (0.011 in.) | WF 1011 |
| ▶ With extension tube    | filter insert 0.44 mm (0.017 in.) | WF 1012 |
| ▶ Without extension tube | filter insert 0.28 mm (0.011 in.) | WF 1002 |
| ▶ Without extension tube | filter insert 0.44 mm (0.017 in.) | WF 1001 |

# ACCESSORIES FOR WFF 100 AND 150

## Spare Parts for WFF 100 and 150

## Item No.

- ▶ Housing cover WN 1002
- ▶ End ring ZW 1000



- ▶ Filter insert WFF 100, made of stainless steel (VA), height 15.5 cm (6.10 in.)  
Mesh size 0.28 mm (0.011 in.) WE 0305  
Mesh size 0.44 mm (0.017 in.) WE 0306



- ▶ Filter insert WFF 150, made of stainless steel (VA), height 21.5 cm (8.46 in.)  
Mesh size 0.28 mm (0.011 in.) WE 0300  
Mesh size 0.44 mm (0.017 in.) WE 0301

- ▶ Filter insert for WFF 100 with titanium nitride coating for industrial applications, height 15.5 cm (6.10 in.)  
Mesh size 0.28 mm (0.011 in.) WE 0402  
Mesh size 0.44 mm (0.017 in.) WE 0403

- ▶ Filter insert for WFF 150 with titanium nitride coating for industrial applications, height 21.5 cm (8.46 in.)  
Mesh size 0.28 mm (0.011 in.) WE 0404  
Mesh size 0.44 mm (0.017 in.) WE 0405



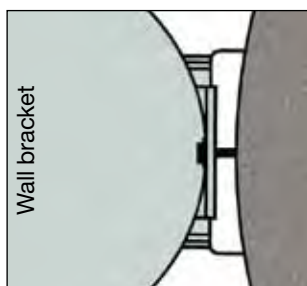
- ▶ Stainless-steel lifting handle (VA) to lift out filter insert for maintenance  
Length 30 cm (11.8 in.) (standard) WA 0301  
Length 63 cm (2 ft.) WA 0302  
Length 100 cm (3.3 ft.) WA 0303

- ▶ Demonstration model WFF 100: Prepared for demonstration purposes WS 2001
- ▶ Demonstration model WFF 150: Prepared for demonstration purposes WS 1001

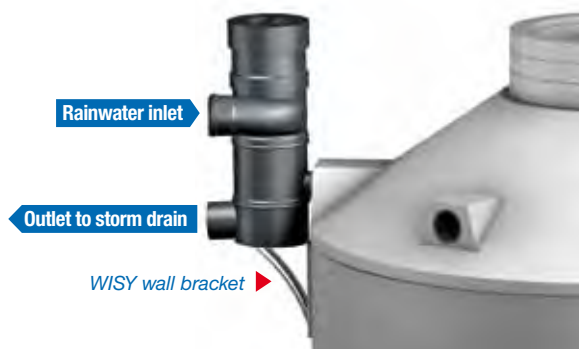
## Accessories for WFF 100 / 150

## Item No.

- ▶ Stainless-steel wall bracket (VA) for concrete rainwater storage tank WH 0400



For secure attachment: The wall bracket can fit any curvature of storage tank.



- ▶ Additional extension tube length 50 cm (1.6 ft.) made of polypropylene (PP) to raise the inspection opening to ground level. The extension tubes are fitted with a collar to fit the filter housing. Cutting lines around outer circumference make it easy to cut the tube accurately to the required mounting depth. WV 1010





▶ Stainless-steel wall-mounting bracket (VA) for installing filter on a vertical wall

WH 0303



▶ Blind insert made of stainless steel (VA) Ensures direct throughflow of water to the storm drain or soakaway system, during winter operation or maintenance (*not illustrated*) for WFF 100 for WFF 150

BE 0305

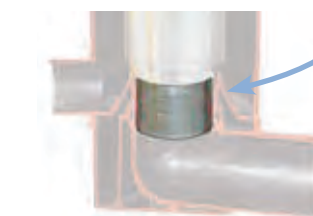
BE 0302



▶ Stainless-steel soakaway strainer (VA) For trapping the fine and coarse dirt from the rinsing and excess water if the water is released into an underground soakaway system rather than a storm drain. Mesh size 1.6 mm (0.063 in.) for WFF 100, height 8.5 cm (3.3 in.) for WFF 150, height 18.5 cm (7.28 in.)

VS 0304

VS 0301



The WFF 150 in operation at a car wash in Washington USA

# VORTEX FINE FILTER WFF 300

- Filters rainwater from roof areas up to 3000 m<sup>2</sup> in size (in temperate climate zones)
- For rainwater or process water
- Optionally with sealed plastic cover
- Optional vehicle duty up to 60t
- DN 300 pipe connection
- Self-cleaning capability reduces maintenance

Rainwater filter for installation underground or in the open air (e.g. for industrial applications). Vehicle-duty capacity tested to German standard ATV: Vehicle-duty capacity up to 60 t depending on cover version. Polypropylene housing (PP). Stainless steel filter insert. Filter mesh size 0.38 mm (0.015 in.). Consists of housing, plastic or steel cover, low maintenance filter insert, baseplate and 50 cm lifting handle. Drainage safety according to DIN EN 12056 / EN 752, complies with DIN 1989.



**60t vehicle-duty capacity**  
 Tested to German standard ATV:  
 Vehicle-duty capacity up to 60t  
 (DIN 1072/SLW 60)

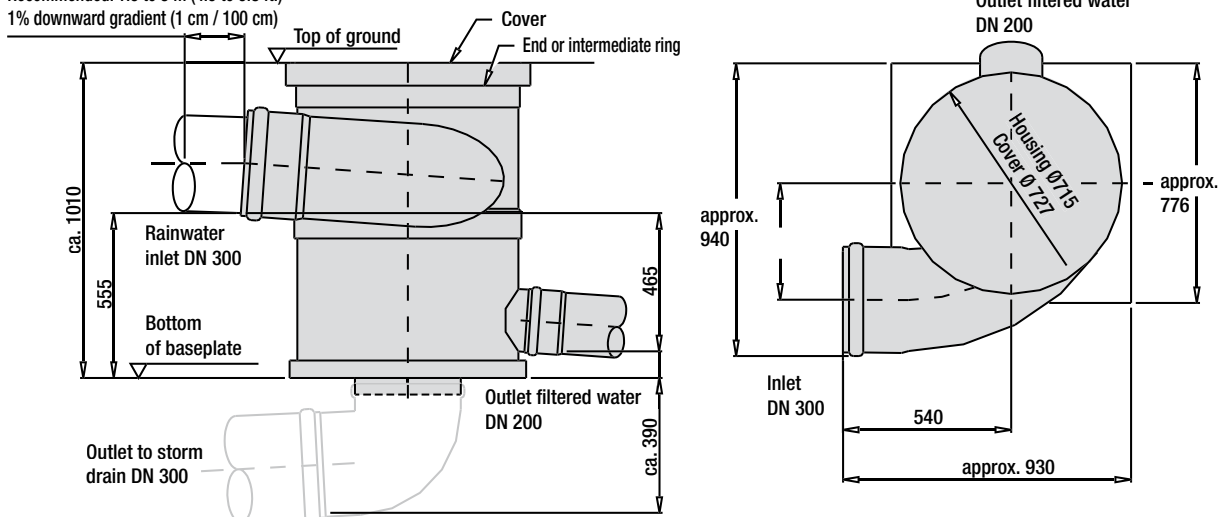
### Vortex Fine Filter WFF 300

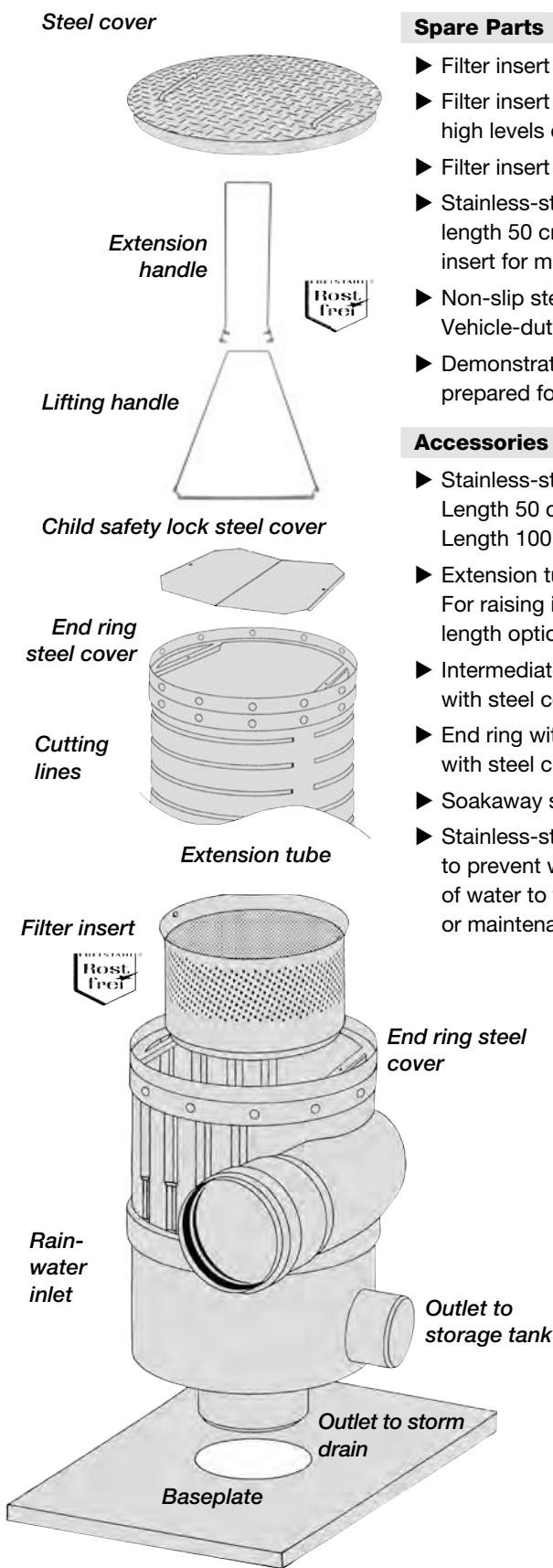
### Item No.

▶ WFF 300, with steel cover, vehicle-duty capacity up to 12 t (acc. to DIN 1072)	WF 30 11
▶ WFF 300, with aluminium cover, pedestrian duty (acc. to DIN 1989)	WF 30 01
▶ WFF 300, with aluminium cover, pedestrian duty (acc. to DIN 1989)	WF 30 12
▶ WFF 300 with plastic cover, pedestrian duty und vehicle duty	WF 30 10

**Note:** When installing the WFF 300, make sure that the rainwater is admitted to the filter through a straight tube section of at least 1.5 metres (4.92 ft.) in length. The tube should be installed along a downward gradient of around 1 cm per metre. To ensure optimum operation of the system, this tube section must not include any elbows or deflections.

Straight tube section.  
 Recommended: 1.5 to 3 m (4.9 to 9.8 ft.)  
 1% downward gradient (1 cm / 100 cm)





**Spare Parts** **Item No.**

- ▶ Filter insert made of stainless steel, mesh size 0.38 mm (0.015 in.) WE 0307
- ▶ Filter insert for WFF 300 coated in titanium nitride for protection against high levels of abrasive stress, height 27.5 cm WE 0406
- ▶ Filter insert for WFF 300, short version, height 20.5 cm WF 0310
- ▶ Stainless-steel lifting handle, length 50 cm (1.6 ft.), to lift out filter insert for maintenance. WA 0305
- ▶ Non-slip steel cover Vehicle-duty capacity up to 60 t (DIN 1072/SLW60) WF 4001
- ▶ Demonstration model prepared for demonstration purposes WS 3001

**Accessories** **Item No.**

- ▶ Stainless-steel extension handle Length 50 cm (1.6 ft.) WA 0307
- ▶ Stainless-steel extension handle Length 100 cm (3.3 ft.) WA 0309
- ▶ Extension tube (PE), black For raising inspection opening to ground level, diameter 70 cm (2.3 ft.), length optional up to max. 140 cm (4.6 ft.), price per 10 cm WV 1030
- ▶ Intermediate ring: Required to connect the extension tube in combination with steel cover RS 1020
- ▶ End ring with certified child safety device. Only required in combination with steel cover RA 1020
- ▶ Soakaway strainer (not illustrated) VS 0310
- ▶ Stainless-steel blind insert to prevent water inflow to the storage tank. Ensures direct throughflow of water to the storm drain or soakaway system, during winter operation or maintenance BE 0306



# VORTEX FINE FILTER WFF 300, REDUCED SIZE

- Filters rainwater from roof areas up to 3000 m<sup>2</sup> in size (in temperate climate zones)
- For rainwater or process water
- Optionally with sealed plastic cover
- Optional vehicle duty up to 60t
- DN 300 pipe connection
- Self-cleaning capability reduces maintenance
- Difference in height (between inlet and horizontally deflected outlet) is 145 mm less than on the standard version

The difference in elevation between the rainwater inlet and outlet is only 800 mm, i.e. 145 mm less than the standard WFF 300 model. The short version of the WFF 300 is available with two different cover designs.



Comparison - short version on left and standard version on right

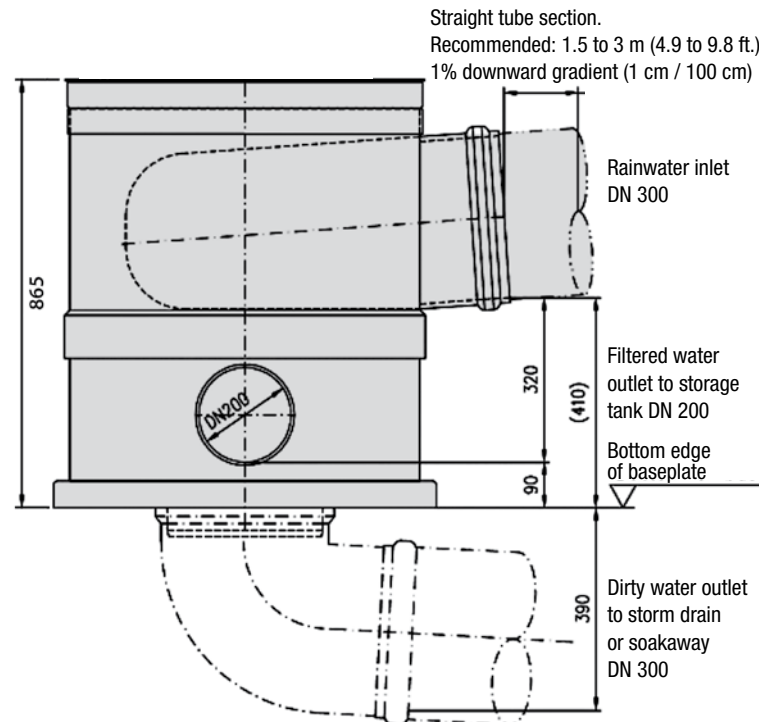
### Vortex fine filter short

### Item No.

▶ WFF 300 short version, with steel cover, vehicle-duty capacity up to 12 t (acc. to DIN 1072)	WF 3021
▶ WFF 300 short with steel cover, vehicle-duty capacity of up to 60 t (acc. to DIN 1072)	WF 3023
▶ WFF 300 short version, with aluminium cover, pedestrian duty (acc. to DIN 1989)	WF 3022
▶ WFF 300 short, with plastic cover, pedestrian duty	WF 3020

For accessories see previous page, WFF 300.

The WFF 300 (short version) in a metro station in Kuala Lumpur



# VORTEX FINE FILTER CLEANING NOZZLE

- For industrial applications
- Designed for continuous duty
- No additional water consumption, filtered water is used in cleaning process

A vortex fine filter equipped with the fully automatic cleaning nozzle is capable of performing extremely challenging tasks in water recycling or separation plants. This nozzle cleans the filter with a fine water spray. The filter surface is kept clean for long periods without any need for maintenance.

The spraying device for the WFF 100 and WFF 150 vortex fine filters is installed in an external shaft extension above the filter. The spraying device for WFF 300 can be installed directly in the filter housing.

The cleaning nozzle operates fully automatically. In terms of cleaning, the filter is virtually maintenance-free. The service life of the filter is extended, while the consumption of fresh and wastewater and the energy usage associated with the process are minimized.



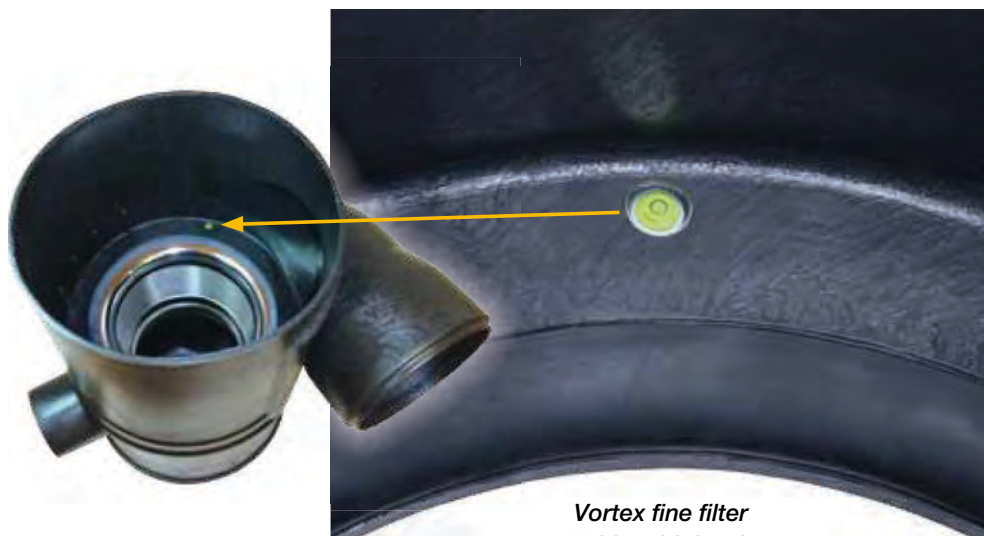
Cleaning nozzle for Vortex Fine Filter WFF 300

Cleaning Nozzle	Item No.
▶ WFF 100 cleaning nozzle, pump w/o timer	SC 1000
▶ WFF 150 cleaning nozzle, pump w/o timer	SC 2000
▶ WFF 300 cleaning nozzle, pump w/o timer	SC 3000

# VORTEX FINE FILTER WITH SPIRIT LEVEL

- Helps to ensure correct installation

**Vortex fine filter with spirit level for quick, correct installation of the WFF 100 and WFF 150 units.** Filters can be installed perfectly upright with the help of the integrated spirit level. It has a diameter of 11 mm and an accuracy of 0.2 degrees



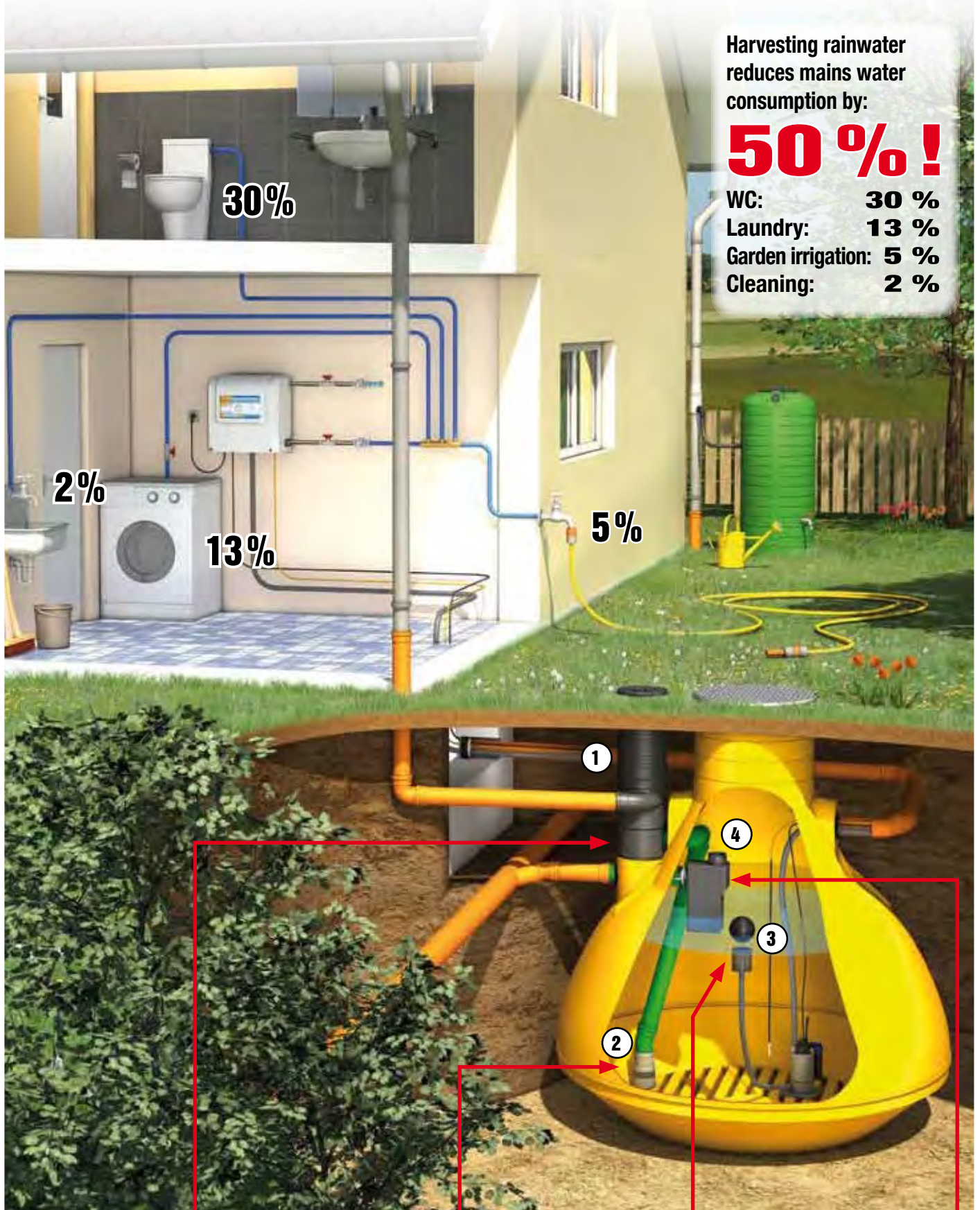
Vortex fine filter with spirit level

WFF 100 or WFF 150 with spirit level On request



# 4-STAGE CLEANSING PRINCIPLE

RAINWATER UNITS



Harvesting rainwater reduces mains water consumption by:

**50 % !**

- WC: **30 %**
- Laundry: **13 %**
- Garden irrigation: **5 %**
- Cleaning: **2 %**

**STAGE 1**  
Filtering with WISY vortex fine filter with separation of dirt particles and oxygen enrichment

**STAGE 2**  
WISY smoothing inlet prevents resuspension of sediment and distributes the fresh, oxygen-rich water in the storage tank

**STAGE 3**  
Water is extracted with the WISY floating suction filter suspended at the optimum height

**STAGE 4**  
Overflow with skim effect, odour seal, vermin guard and backflow prevention with WISY multisphon

	MULTIMAT	SIGMA	OPTIMA	OPTIMAPLUS	MAXIMA
<b>ADVANTAGE</b>	No pump noises	Easy installation	Increased pressure	Strong tank pump	For big buildings
<b>PIPE BETWEEN STORAGE TANK AND RAINWATER UNIT</b>	up to 20 m	up to 15 m	12 up to 20 m	over 20 m	Acc. to requirements
<b>PUMP CONTROLLER ZETA 02</b>	✓	✓	✓	✓	✓
<b>PUMP IN RAINWATER UNIT</b>	–	✓	✓	✓	✓
<b>PUMP IN RAINWATER UNIT</b>	✓	–	✓	✓	✓
<b>INTEGRATED TANK VOLUME</b>	–	9 litres	9 litres	9 litres	100 litres
<b>MAINS WATER TOP-UP INTO</b>	Storage tank	Top-up tank	Top-up tank	Top-up tank	Buffer tank
<b>PRESSURE INDICATOR</b>	✓	✓	✓	✓	✓
<b>LEVEL INDICATOR</b>	Optional external 	Optional internal 	Optional internal 	Optional external 	Optional external 



**All WISY Rainwater units**  
**including efficient**  
**ZETA 02 pump controller**

# MULTIMAT RAINWATER UNIT

- **Extremely compact**
- **No pump noise indoors**
- **High-performance submersible pressure pump for pumping water from the storage tank directly to the appliances**
- **Regulation-compliant mains water top-up of storage tank with type AA open outlet**
- **With ZETA 02 pump controller: Less than 0.2 watts in standby mode**

The Multimaterainwater unit uses a submersible pressure pump to pump rainwater out of the storage tank and feed it under pressure into the rainwater supply circuit. It controls the rainwater system, monitors the fill level of the storage tank and automatically tops up the rainwater storage tank with mains water when required. Supplied ready to connect, complies with DIN EN 1717 and DIN 1989.

*Control unit and mains water top-up indoors*



*Dimensions of the Multimater wall bracket (in mm): W 310 x H 310 x D 150*



*Pressure pump with floating suction filter in the storage tank*

**The Multimaterainwater unit operates with two separate cables between the storage tank and the wall unit. This arrangement makes the system easy to install and ensures lasting operational reliability. Two sockets must be provided by the client.**

### Multimaterainwater unit

### Item No.

- |   |         |
|---|---------|
| ▶ Multimater with submersible pressure pump Multigo 205, max. delivery rate 80 l/min., max. delivery head 48 m    | RW 9008 |
| ▶ Multimater with submersible pressure pump Multigo 407, max. delivery rate 125 l/min., max. delivery head 49.4 m | RW 9012 |

### The scope of supply consists of:

#### Wall unit in the house with:

- Pump controller Zeta 02, cut-in pressure 1.5 bar with pressure gauge and operating state indicator
- Open mains water outlet with solenoid valve, 1/2" for Multimater 205 and 3/4" for Multimater 407, connecting hose made of special-purpose rubber with stainless-steel braiding, ball valve with dirt trap
- Wall bracket made of stainless-steel with fixings
- Labelling set

#### Storage tank equipment with floating fine suction filter:

- Multi-stage submersible pressure pump Multigo with stainless-steel baseplate (22 cm x 22 cm/8 in. x 8 in.), 20 m connecting cable and 3 m lifting strap. With 1" nozzle and backflow prevention valve at discharge end
- Float switch, with switch lever and clamp with 20 m cable
- Adapter plug
- Floating suction filter made of stainless steel, mesh size 0.3 mm (0.01 in.), with 0.75 m (2.5 ft.) highly flexible suction tube

### Recommended accessories

### Item No.

- |  |         |
|--|---------|
| ▶ Hose connection set for Multimater, (for rainwater distribution system) 1x 3/4" pressure hose assembly with elbow and 3/4" ball valve  | RW 7001 |
| ▶ Two surface-mounted water meters 2 x 1" outside thread, for Multimater, two connections for water meters 1" union nut and 3/4" outside thread, 1" union nut and 1/2" inside thread | RW 7010 |
| ▶ Flexible tube DN 50, 25 m roll   | WD 2000 |
| ▶ Adapter flexible tube to tundish   | WD 2021 |
| ▶ Pressure hose 1", up to 12 bar   | DS 2003 |
| ▶ Wall bushing WD 110/2 with six bores:  | WD 2110 |

**See Sigma (next page) for further accessories**

- **Compact and economical**
- **Suction pump in wall unit for pumping water from rainwater storage tank to appliances**
- **Automatic switchover between rainwater and mains water depending on availability (manual switchover possible)**
- **Regulation-compliant mains water top-up with open outlet in the integral top-up tank**
- **With ZETA 02 pump controller: Less than 0.2 watts in standby mode**

## Fully automatic rainwater unit for supplying a single-family home with rainwater.

The unit draws rainwater from a storage tank and feeds it under pressure into the rainwater supply circuit. The unit controls the entire rainwater supply system, checks the fill level of the storage tank and automatically switches over to mains water operation when required. Supplied ready to connect. Complies with DIN 1989 and DIN EN 1717

*Sigma with cover and level indicator*



*Sigma without cover or level indicator*



*Dimensions of the Sigma wall unit (in mm):  
W 500 x H 510 x D 315*

### Sigma rainwater unit

### Item No.

▶ Sigma 3, delivery head max. 34 m, delivery rate max. 66l/min without level indicator	RZ 1003
with level indicator	RZ 1013
▶ Sigma 4, delivery head max. 44 m, delivery rate max. 66l/min. without level indicator	RZ 1004
with level indicator	RZ 1014

### The scope of supply consists of:

- Self-priming Aspri Plus pump and pump controller, available in two different versions (3 or 4 bar), with optional level indicator
- Pressure gauge (pressure indicator)
- DIN-compliant mains water top-up function, integral 9-litre top-up tank
- Cover
- Float switch for controlling top-up with mains water, cable length 15 metres
- Labelling set

### Recommended accessories

### Item No.

▶ SIGMA Cistern Connection Set (1") Consists of floating fine suction filter SAFF with non-return valve, 10 m flexible suction hose, 2 stainless steel hose clamps and 1 hose connector.	SA 1002
▶ Hose Connection Set for OPTIMA / SIGMA / SIGURA 9 consisting of two pressure hose assemblies (3/4" and 1"), each 0.5 m (1.6 ft.) in length, 3/4" ball valve with dirt trap and 1" ball valve.	RW 7800
▶ Two surface-mounted water meters 2 x 1" outside thread, for hose connection set above and two connections for water meters 1" union nut and 3/4" outside thread	RW 7810
▶ Wall bushing WD 100 contains four bores: 1 x 36 mm (1.4 in.) / 2 x 10 mm (0.4 in.) / 1 x 6 mm (0.2 in.)	WD 1100
▶ Hose clamp	SS 0303
▶ Ball valve 1"	ZK 0413

# OPTIMA RAINWATER UNIT

- **Convenient solution for single-family/two-family homes**
- **Pressure stabilized by two pumps: Loading pump in the rainwater storage tank. and pressure pump in the wall unit**
- **Automatic switchover between rainwater and mains water depending on availability**
- **Regulation-compliant mains water top-up with open outlet in the integral top-up tank**
- **With ZETA 02 pump controller: Less than 0.2 watts in standby mode**

The rainwater unit combines all components essential for operation in a single device. Pumps the rainwater out of the storage tank and feeds it under pressure into the rainwater supply circuit. Controls the entire rainwater system, monitors the fill level of the storage tank and automatically tops up with mains water in the wall unit when required.

Supplied ready to connect, complies with DIN EN 1717 and DIN 1989.

*Optima rainwater unit with cover*



*Optima without cover*



*Dimensions of the Optima wall unit (in mm):  
W 500 x H 510 x D 315*

*Loading pump Provedo VX for Optima 4 and 5*



**Optima with loading pump and floating filter SAFF**

**Item No.**

▶ Optima 4, with 4 bar system pressure, max. delivery rate 70 l/min. without level indicator	RW 9924
with level indicator	RW 9914
▶ Optima 5, with 5 bar system pressure, max. delivery rate 70 l/min. without level indicator	RW 9925
with level indicator	RW 9915

**The scope of supply consists of:**

**Wall unit in the house with:**

- non-self-priming, multi-stage centrifugal pump
- Pump controller Zeta 02, cut-in pressure 1.5 bar with pressure gauge
- Level indicator (optional), with 13 m measuring lead
- Automatic mains water top-up by 9 l top-up tank
- Cover, wall-mounting bracket
- Labelling set

**Storage tank equipment with:**

- Provedo VX submersible pressure pump with fixed vertical float switch, 20 m connecting cable, 1" nozzle at discharge end with non-return valve, 3 m lifting strap and hook with screw thread
- Stainless-steel baseplate 22 cm x 22 cm (8 in. x 8 in.) for submersible pressure pump
- Stainless-steel floating fine suction filter, mesh size 0.3 mm (0.01 in.), with 0.75 m (2.46 ft.) flexible suction tube

- For large distances or height differentials from rainwater storage tank to wall unit

- Doubly reliable: Separate pumps for rainwater or mains water operation

- Regulation-compliant mains water top-up with open outlet in integral top-up tank

- With ZETA 02 pump controller: Less than 0.2 watts in standby mode

The rainwater unit combines all components essential for operation in a single device. Pumps the rainwater out of the storage tank over long distances and large height differentials and feeds it under pressure into the rainwater supply circuit.

Controls the entire rainwater system, monitors the fill level of the storage tank and automatically tops up with mains water in the wall unit when required.

Supplied ready to connect, complies with DIN EN 1717 and DIN 1989.

*OptimaPlus*  
with cover



Dimensions of the  
OptimaPlus wall unit (in mm):  
W 500 x H 510 x D 315



Included in the scope of supply:  
Hose nozzle with integrated non-return valve



OptimaPlus	Item No.
------------	----------

- |  |          |
|--|----------|
| ▶ OptimaPlus, max. delivery rate 70l/min., max. delivery head 47 m, max. feed pressure 4.7 bar | RW 98 00 |
|--|----------|

**The scope of supply consists of:**

**Wall unit in the house with:**

- Non-self-priming, multi-stage centrifugal pump, max. feed pressure 4.7 bar
- Pump controller Zeta 02, cut-in pressure 1.5 bar with pressure gauge and operating state indicator
- Automatic mains water top-up
- Operating state indicator for mains
- Cover, wall-mounting bracket
- Labelling set

**Storage tank equipment with:**

- Multigo 205 multi-stage submersible pressure pump, max. feed pressure 4.7 bar with 3.5 m connecting cable (4-core), 1" nozzle with non-return valve at discharge end, 3 m lifting strap
- Stainless-steel baseplate 22 cm x 22 cm (8 in. x 8 in.) for Multigo
- Stainless-steel float switch with switch lever and clamp
- Stainless-steel fine suction filter, mesh size 0.3 mm (0.01 in.) with 0.75 m (2.46 ft.) highly flexible suction tube
- 22 m (72.9 ft.) cable extension (4-core) with connector and coupling IP 68

Accessories for all Optima units	Item No.
----------------------------------	----------

- |   |         |
|---|---------|
| ▶ OPTIMA Cistern Connection Set <ul style="list-style-type: none"> <li>– 3 m flexible pressure hose 1", cistern</li> <li>– PE tube connector, 90°, 32 mm x 1" nozzle, made of brass, cistern</li> <li>– 4 stainless steel hose clamps</li> <li>– PE tube connector, 90°, 32 mm x 1" inside thread, made of brass, utility room</li> <li>– Connecting hose (1") with stainless-steel braiding, 1" nipple, 1" union nut, connection wall unit To be provided on site: PE pipe 32 mm x 1", Cistern - utility room</li> </ul> | OA 1002 |
| ▶ Hose Connection Set for OPTIMA / SIGMA / SIGURA 9 <ul style="list-style-type: none"> <li>– consisting of two pressure hose assemblies (3/4" and 1"), each 0.5 m (1.6 ft.) in length, 3/4" ball valve with dirt trap and 1" ball valve</li> </ul>  | RW 7800 |
| ▶ Wall bushing WD 100 contains four bores: <ul style="list-style-type: none"> <li>1 x 36 mm (1.4 in.) / 2 x 10 mm (0.4 in.) / 1 x 6 mm (0.2 in.)</li> </ul>   | WD 1100 |

# MAXIMA RAINWATER UNIT

- Extremely reliable water supply thanks to 100 litre buffer volume
- System supplied ready to connect, no electrical work required
- Automatic regulation-compliant mains water top-up with type AA open outlet in hybrid tank
- With ZETA 02 pump controller: Less than 0.2 watts in standby mode



Hybrid unit indoors

### Large hybrid unit ensures high supply capacity

Combines all components required to operate the rainwater supply system according to the two-pressure-pump principle.

Rainwater is pumped by the submersible loading pump out of the storage tank to the buffer tank of the indoor hybrid unit. A submersible loading pump inside the buffer tank supplies rainwater to appliances. The buffer tank of the unit is directly topped up with mains water, buffer storage volume 100 l for high consumption peaks. Complies with DIN 1989 and DIN EN 1717

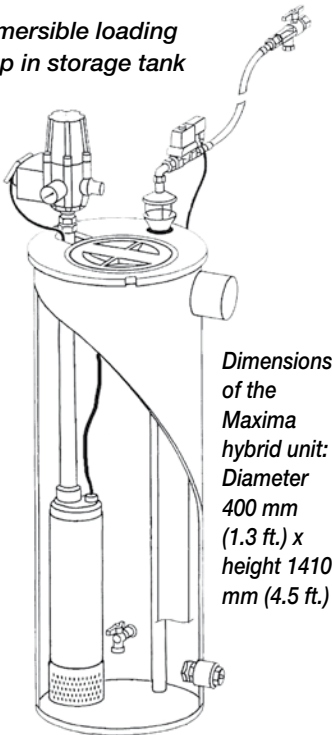


Maxima	No. of consumers (guide value)	Maximum delivery rate	Maximum delivery head
205	2 to 4 households	75 l/min.	48 m (480 kPa)
407	4 to 8 households Commerce + industry	125 l/min.	49 m (480 kPa)



Submersible loading pump in storage tank

Submersible loading pump in storage tank



Dimensions of the Maxima hybrid unit: Diameter 400 mm (1.3 ft.) x height 1410 mm (4.5 ft.)



Non-return valve

### Maxima rainwater unit

- ▶ Maxima 205
- ▶ Maxima 407

### Item No.

- ZE 9901
- ZE 9903

### The scope of supply consists of:

#### Indoor hybrid unit with:

- Capacity 100 l (26.39 gallons) with emergency overflow DN 100 (3.9 in.)
- Multigo 205 or 407 multi-stage submersible loading pump with rubber feet
- Pump controller Zeta 02/V with pressure gauge
- Electronic control unit with sensor rod
- Automatic mains water top-up
- Open mains water outlet (1/2" for Maxima 205, 3/4" for Maxima 407), with solenoid valve, ball valve and dirt trap
- Drain valve 1/2"
- Non-return valve in rainwater inlet

#### Storage tank equipment with:

- Provedo VX submersible loading pump with fixed vertical float switch, 20 m connecting cable, 1 1/4" nozzle at discharge end with non-return valve (ST 1011), 3 m lifting strap and hook with screw thread
- Stainless-steel baseplate 22 cm x 22 cm (8 in. x 8 in.) for submersible loading pump
- Stainless-steel floating fine suction filter, mesh size 0.3 mm (0.01 in.), with 0.75 m (2.5 ft.) flexible suction tube
- Labelling set

### Accessories

- ▶ Hose connection set for Maxima, comprising connection hose 0.50 m (1.6 ft.), 1" union nut, 3/4" brass ball valve with inside thread VS 9953
- ▶ Two surface-mounted water meters 2 x 1" outside thread, for hose connection set above and two connections for water meters 1" union nut and 3/4" outside thread, 1" union nut and 1/2" inside thread RW 7010
- ▶ Non-return valve for the event that the water level in the storage tank can rise above the centre line of the indoor buffer storage tank. The non-return valve closes the inlet to the buffer storage tank. The inlet is opened again only if the storage tank pump is switched on. This system prevents the unintentional inflow of rainwater from the storage tank into the buffer storage tank through the full inlet hose, comprises: Solenoid valve 1 1/4" cable, 1.5 m (4.92 ft.) long and adapter plug SV 1501

● Customized large-scale systems

**For commercial buildings, schools, hotels and industrial premises**

The Delta rainwater unit is the WISY system designed to meet the requirements of large-scale consumers. It is primarily intended for non-domestic use. The system is capable of supplying a large number of appliances when requirements are extremely diverse. Its design is based on the modular principle. In order to select the correct modules, it is necessary to know how much water will be required and at what pressure. In larger buildings, these values are generally calculated by a specialist planner. Once this information is known, a suitable WISY large-scale system can be assembled from the following modules. WISY can assist with selection of components at the customer's request.

1  
2  
3  
4

MODULE 1



**The buffer tank**

WISY's large-scale system has a buffer tank with electronic control system. This basic module is identical in all system configurations.

MODULE 2



**The mains water top-up**

From the four different sizes of top-up, select the one which will be large enough to supply the required volumetric flow of mains top-up water. See page 59.

MODULE 3



**The pump in the buffer tank**

Single pump or dual-pump booster system. This is the core of the system which can be chosen from different types and models that offer varying degrees of operating convenience and different ratings.

MODULE 4



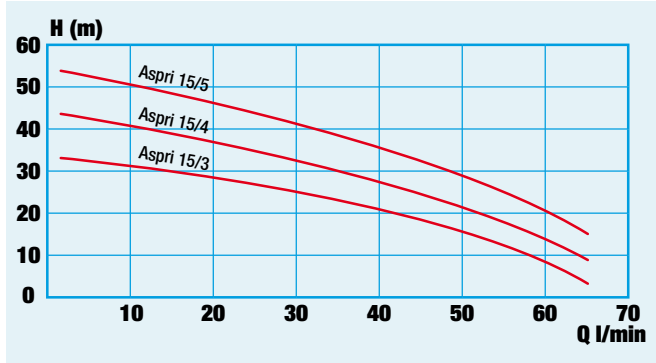
**The submersible loading pump**

This pump is installed in the storage tank and pumps fresh water into the buffer tank. Select a suitable loading pump according to the distance between the storage and buffer tanks and the required water flow rate.

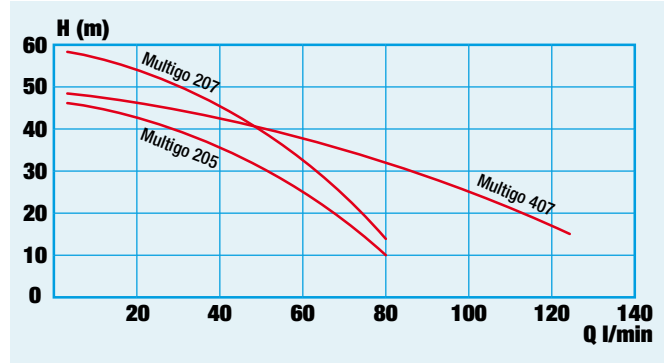


## PUMPS

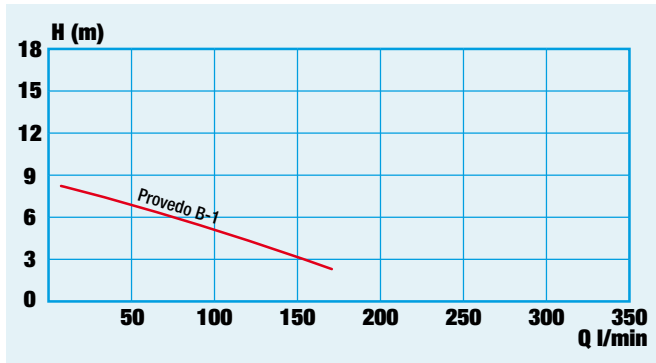
**ASPRI PLUS** Operating characteristic at 2900 rpm



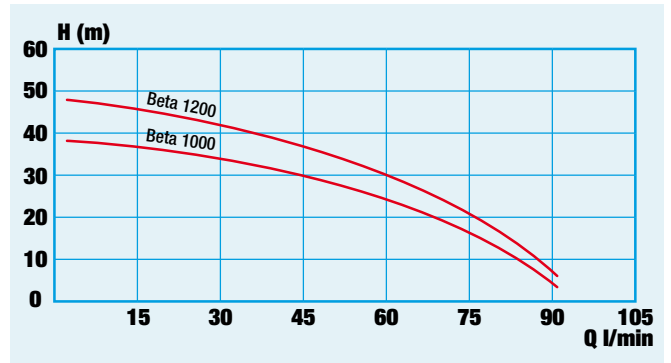
**MULTIGO** Operating characteristic at 2850 rpm



**PROVEDO** Operating characteristic at 2850 rpm

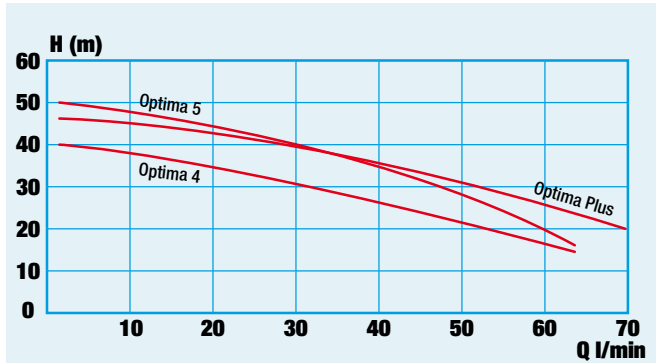


**BETA** Operating characteristic at 2800 rpm

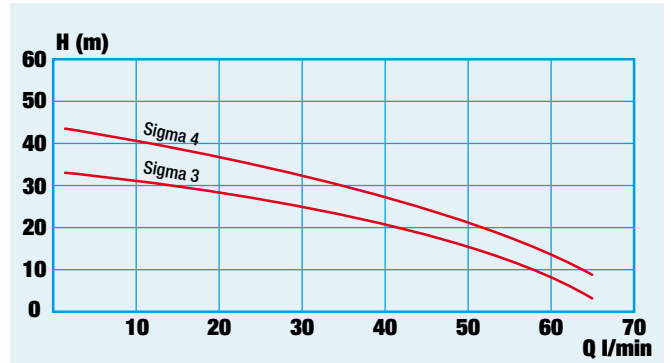


## RAINWATER UNITS

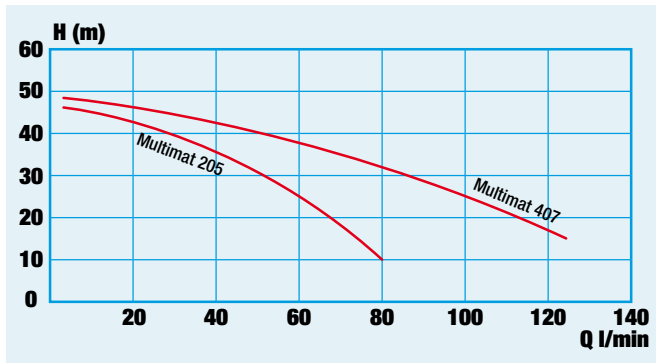
**OPTIMA (PLUS)** Operating characteristic at 2900 rpm



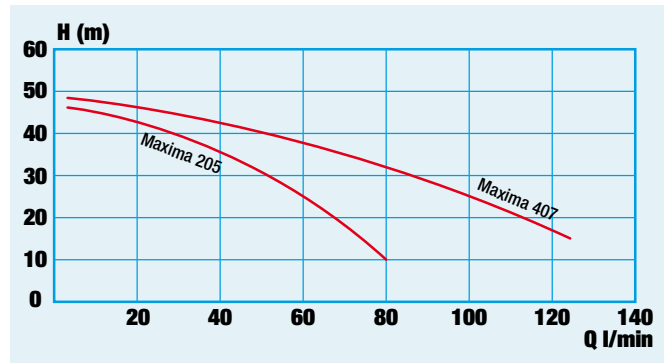
**SIGMA** Operating characteristic at 2900 rpm



**MULTIMAT** Operating characteristic at 2850 rpm



**MAXIMA** Operating characteristic at 2850 rpm



- Pump cuts in and out automatically
- For all standard pumps, easy to retrofit
- Energy savings of up to 128 kWh per year thanks to WISY's unique innovative electronics
- Cost savings of up to 32.00 € per year
- Reduces CO<sub>2</sub> emissions by up to 97%
- Less than 0.2 watts in standby mode
- Dry run protection when water runs low
- Active protection of pump against overfrequent starting or continuous operation

**All WISY rainwater units are equipped with the new ZETA 02 pump controller!**



ZETA 02 with wall-mounting bracket

## New electronic

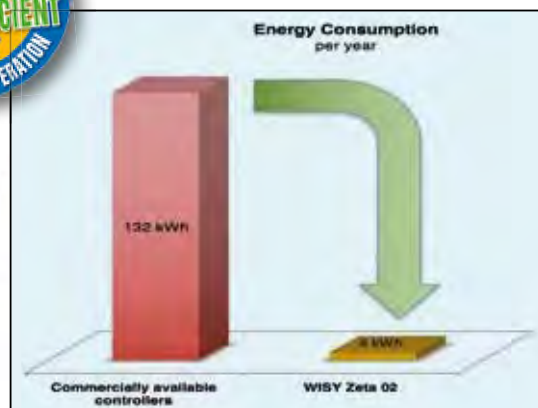
Thanks to its innovative electronic circuitry, the controller consumes only 0.2 watts in standby mode, a significant reduction when compared to other commercially available controllers which draw between 6 and 15 watts from the grid. This saves up to 128 kWh per year and reduces CO<sub>2</sub> emissions by up to 97% or 70 kg per year.

## Programmable functions

1. Adjustable run-on time: unnecessary pump operation can be limited. This helps to reduce power consumption.
2. Overfrequent starting detection: more than 25 pump starts per hour are unusual. Often they are a sign of a continually flushing toilet or a dripping garden watering tap and could harm the pump. Therefore, ZETA 02 pump controller can shut down the pump in this case.
3. Continuous pump operation: A great deal of water can be lost if a pipe ruptures or a garden hose bursts. For this reason, you can program the pump controller to detect continuous pump operation lasting more than ten minutes and to shut down the pump.



Zeta 02 pump controller



### Zeta 02 pump controller

### Item No.

▶ ZETA 02	ZT 0200
▶ ZETA 02/V cut-in pressure adjustable between 1.5 bar and 2.8 bar	ZT 0210
▶ ZETA 02 with wall-mounting bracket	ZT 0206
▶ ZETA 02/V with wall-mounting bracket Adjustable between 1.5 bar and 2.8 bar	ZT 0207
▶ ZETA 02 for Optima	ZT 0213
▶ ZETA 02 for Optima without level indicator	ZT 0214
▶ ZETA 02 for Sigma	ZT 0215
▶ ZETA 02 for Sigma without level indicator	ZT 0216
▶ ZETA 02 for AspriPlus with 1¼" outside thread at inlet end	ZT 0250
▶ ZETA 02/V for AspriPlus with 1¼" outside thread at inlet end, adjustable between 1.5 and 2.8 bar	ZT 0260

### Technical Data

Voltage:	110-240V
Frequency	50/60Hz, single-phase
Consumption in standby mode:	< 0.2 Watt
Cut-in pressure ZETA 02:	1.5 bar
Cut-in pressure ZETA 02/V:	adjustable between 1.5 and 2.8 bar
Maximum pressure:	10 bar
Flow rate:	160 l/min
Connections:	1" outside thread

# SIGURA 9 BREAK TANK

- Regulation-compliant separation of appliances from mains water supply
- Complies with DIN EN 1717 and DIN 1988-100
- Fully automatic, compact unit
- Integral 4-stage centrifugal pump
- Delivery rate of 35 l/min with 30 m delivery head
- Energy-efficient: Less than 0.2 watts in standby mode

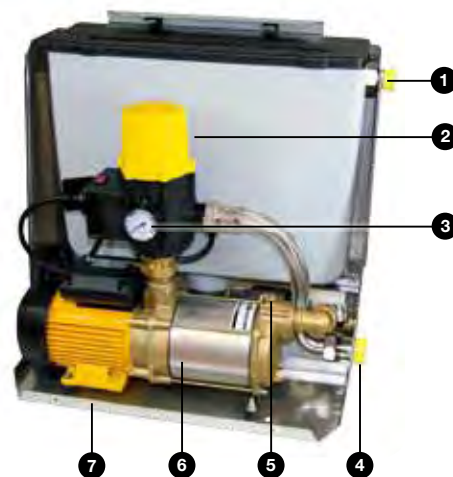
## Applications

The SIGURA 9 break tank separates the process water circuit from the mains water supply. It is designed to protect the public supply of potable water against contamination. The mains water top-up system is implemented as an open outlet in accordance with EN 1717 (formerly DIN 1988/4). The SIGURA 9 break tank is installed in a frost-free utility room, draws mains water out of the mains water circuit and feeds it under pressure into the process water circuit. The break tank maintains a water pressure of up to 4.5 bar in the process water circuit. It is also suitable for boosting the pressure in buildings with up to three storeys. It is also designed for use with irrigation systems, car washes, livestock watering installations and any process in general that may not be directly connected to the mains water supply system.

*SIGURA 9  
with cover*



*SIGURA 9  
without cover*



- 1 Mains water connection
- 2 ZETA 02 pump controller (covered, with display and operator panel)
- 3 Operating pressure indicator (pressure gauge)
- 4 Domestic water supply outlet
- 5 Screw plug for venting/filling
- 6 Non-self-priming centrifugal pump
- 7 Base frame

**Dimensions:**  
**Sigura 9 break tank**  
**W 500 x H 510 x D 315 mm**  
**(19.7 x 20.1 x 12.4 in.)**

### Sigura 9 Break Tank

► Sigura 9 Break Tank

### Item No.

TR 5009

### Included in the scope of supply:

- Open outlet with float valve according to EN 1717
- 9-litre top-up tank
- Prisma non-self-priming multi-stage centrifugal pump
- Zeta 02 pump controller
- Cover with wall-mounting bracket

### Accessories

► Hose Connection Set for OPTIMA / SIGMA / SIGURA 9 consisting of two pressure hose assemblies (3/4" and 1"), each 0.5 m (1.6 ft.) in length, 3/4" ball valve with dirt trap and 1" ball valve

### Item No.

RW 7800

- Domestic water break tank with type AA open outlet for large installations
- Type AA safety device compliant with DIN EN 1717 and DIN 1988-100
- Optionally 80 or 120 l/min
- Energy-efficient: Less than 0.2 watts in standby mode

## Applications



## Applications

The SIGURA 100 and SIGURA 500 break tanks reliably separate domestic water systems from the mains water supply and generate the required operating pressure. The regulation-compliant type AA open outlet separates the mains water supply from the domestic water. The buffer tank has a storage capacity of either 100 or 500 litres, and acts as a buffer to generate the required volumetric flow rate in the domestic water system. The system uses the Zeta 02 pump controller that uses only 0.2 watts in standby mode. The pressure in the domestic water system is generated by the Multigo 205 or 407 submersible pump. The Multigo 205 supplies 80 litres per minute, the Multigo 407 120 litres per minute.



**Sigura 100 and Sigura 500**  
The systems can be customized to meet individual requirements

### Sigura 100 / 500 Break Tank

	Item No.
▶ Break Tank Sigura 100-205	TR 5105
▶ Break Tank Sigura 100-407	TR 5107
▶ Break Tank Sigura 500-205	TR 5505
▶ Break Tank Sigura 500-407	TR 5507

### Technical data

Delivery rate, max	80 or 120 l/min
Delivery head, max.	48 m water column (480 kPa)
Buffer tank volume	100 or 500 litres
Complies with	DIN EN 1717:2011-08 DIN 1988-100:2011-08
Safety device (DIN)	AA
Floor space	
Sigura 100	Diameter 400 mm, height 150 mm
Sigura 500	Diameter 700 mm, height 1840 mm

# ASPRIPLUS SELF-PRIMING PUMP

- **+ PLUS +++**  
Dirt trap, screw connection and rubber feet
- **Preassembled**  
ready for installation
- **Pump technology with 25-year successful track record**
- **Energy-efficient:**  
Less than 0.2 watts in standby mode
- **LESS THAN 0.2 WATTS IN STANDBY MODE – 97% MORE EFFICIENT**

Self-priming, multi-stage centrifugal pump for pumping rainwater out of storage tanks.  
Models: AspriPlus 15/3 (3-stage), AspriPlus 15/4 (4-stage), AspriPlus 15/5 (5-stage).

*AspriPlus with pump controller*

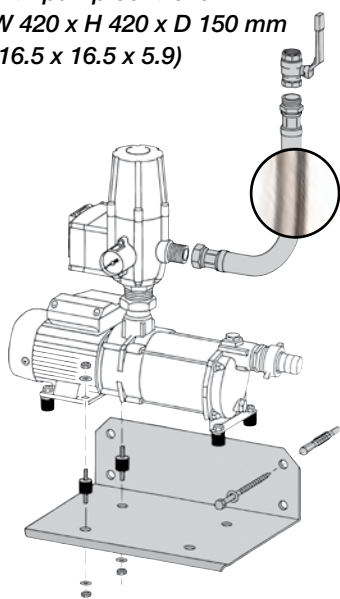


All Aspri Plus pumps have a maximum delivery rate of 66 litres per minute. The maximum delivery head is model-dependent as indicated below:

AspriPlus	Maximum delivery head
15/3	34,0 m (340 kPa)
15/4	45,0 m (450 kPa)
15/5	53,0 m (530 kPa)

AspriPlus Self-priming pump	Item No.
▶ AspriPlus without pump controller	
15/3	SP 1203
15/4	SP 1204
15/5	SP 1205
▶ AspriPlus with pump controller ZETA 02	
15/3	SP 1293
15/4	SP 1294
15/5	SP 1295
▶ AspriPlus with pump controller ZETA 02/V, cut-in pressure adjustable between 1.5 bar and 2.8 bar	
15/4	SP 2294
15/5	SP 2295

**Dimensions:**  
*w/o pump controller*  
 W 420 x H 180 x D 150 mm  
 (16.5 x 7.1 x 5.9)  
*with pump controller*  
 W 420 x H 420 x D 150 mm  
 (16.5 x 16.5 x 5.9)



**The AspriPlus-package includes:**

- Assembled brass nipple, hose connection fitting at suction end, 1" nozzle and integrated stainless steel dirt trap.
- Fitted with rubber feet to suppress vibration and noise
- 1 1/4" screw connection to allow easy attachment and removal of pump controller.
- Pump controller ZETA 02, cut-in pressure 1.5 bar, with pressure gauge and electric socket
- Optionally with or without Zeta 02 pump controller, cut-in pressure 1.5 to 2.8 bar

**Spare Parts**

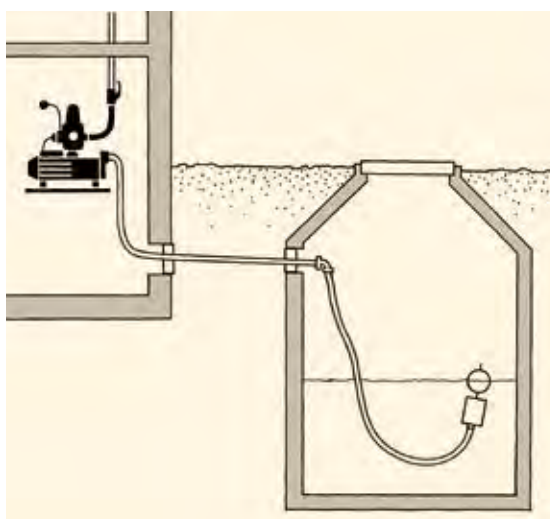
**Item No.**

- ▶ Pump driver for AspriPlus with sealed screw connection  
 ZETA 02 ZT 0250  
 ZETA 02/V cut-in pressure adjustable between 1.5 bar and 2.8 bar ZT 0260

**Accessories**

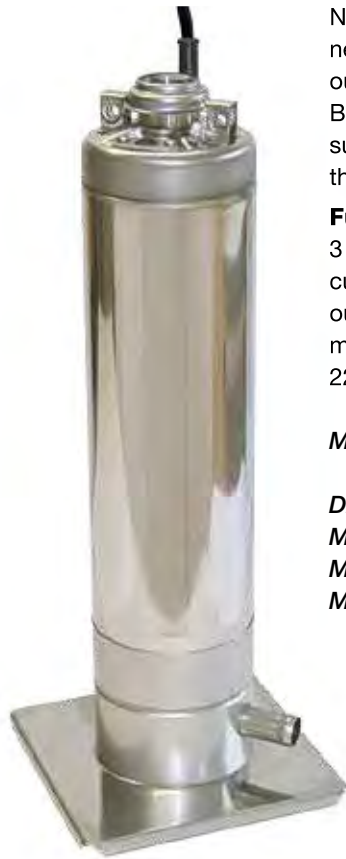
**Item No.**

- ▶ ASPRI PLUS Cistern Connection Set
  - Floating fine suction filter with non-return valve 1"
  - Flexible suction hose, length 10 m
  - 2 stainless-steel hose clamps 1"AA 1002
- ▶ House connection
  - 3/4" connecting hose with ball valve For the connection between pump and distribution pipework. Vibration and noise suppression. Consisting of rubber with stainless-steel braiding, with ready-pressed fittings. 1" union nut, 3/4" brass ball valve with insidethread.VS 9953
- ▶ Stainless-steel wall-mounting bracket with fixings and rubber pads with doubled-ended bolt for attaching AspriPlus pumps. WH 0300



# MULTIGO SUBMERSIBLE PRESSURE PUMP

- **Noiseless indoors!**
- **Made of solid stainless steel**
- **Ideal for indoor use of harvest rainwater**
- **Hose nozzle or inside thread 1" connecting suction filter**



Non-self-priming, multi-stage submersible pressure pump with connections for fixed or floating fine suction filters for pumping rainwater out of storage tanks.

Basic model with directly-integrated hose 1" hose nozzle or with 1 1/4" suction inlet (inside thread) at suction end. Discharge end 1 1/4" inside thread.

**Fully equipped with:**

3 m lifting strap, 20 m connecting cable, pump controller ZETA 02, cut-in pressure 1.5 bar, with pressure gauge and electric socket, 2x1" outside thread, operating state indicator (LEDs). Stainless-steel wall-mounting bracket WH 0305 with fixings and lock nut. Stable baseplate 22 cm x 22 cm (8 in. x 8 in.).

*Multigo with suction-end hose nozzle and baseplate*

*Dimensions for models with suction-end nozzle (in mm):*

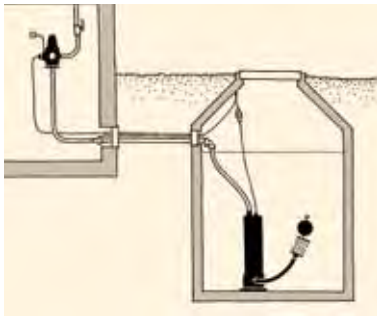
*Multigo 205 Ø 127 x H 496*

*Multigo 407 Ø 127 x H 511*

*Multigo 207 Ø 127 x H 536*

Multigo	Maximum delivery rate	Maximum delivery head
205	80 l/min.	48 m (480 kPa)
407	120 l/min.	49 m (490 kPa)
207	80 l/min.	61 m (610 kPa)

PUMPS



**Multigo complete equipment**

**Art.-Nr.**

With pump controller ZETA 02, wall-mounting bracket, lifting strap, baseplate.

- ▶ Cut-in pressure fix at 1.5 bar, with 1" hose nozzle at suction end  
Multigo 205  
Multigo 207
- ▶ Cut-in pressure fix at 1.5 bar, with 1 1/4" connector (inside thread) at suction end  
Multigo 205  
Multigo 407  
Multigo 207
- ▶ Cut-in pressure adjustable between 1.5 and 2.8 bar, with 1" hose nozzle at suction end  
Multigo 205  
Multigo 207
- ▶ Cut-in pressure adjustable between 1.5 and 2.8 bar, with 1 1/4" connector (inside thread) at suction end  
Multigo 205  
Multigo 407  
Multigo 207



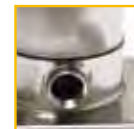
UP 1302  
UP 1305



UP 1102  
UP 1103  
UP 1105



UP 1302 V  
UP 1305 V



UP 1102 V  
UP 1103 V  
UP 1105 V

**No pump noise in the house!**

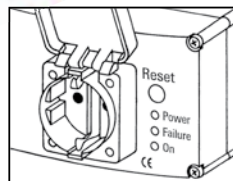
Pump controller



LESS THAN 0.2 WATTS  
**97% MORE EFFICIENT**  
IN STANDBY OPERATION

EDELSTAHL  
**Rostfrei**

Wall-mounting bracket



### Multigo Basic Equipment

### Item No.

With lifting strap, baseplate.

Model with 1" hose nozzle at suction end

▶ Multigo 205

UP 1398

▶ Multigo 207

UP 1395

Model with 1 1/4" connector (inside thread) at suction end

▶ Multigo 205

UP 1198

▶ Multigo 407

UP 1197

▶ Multigo 207

UP 1195

Direct suction model

▶ Multigo 205

UP 1202

▶ Multigo 407

UP 1203

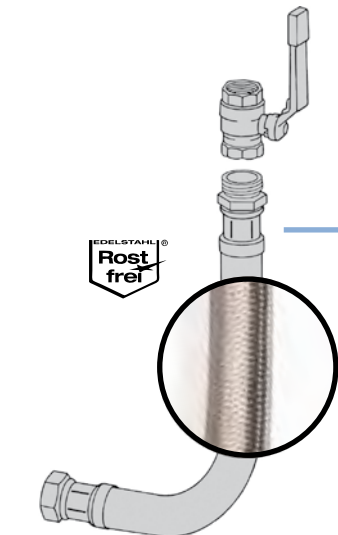
▶ Multigo 207

UP 1205

Multigo with direct suction,  
mounted on support bracket



Support bracket AK 0301



Connecting hose VS 9953

### Accessories

### Item No.

▶ Stainless-steel support bracket for horizontal installation of submersible pumps in storage tanks, e.g. ribbed plastic cisterns.

AK 0301

▶ 3/4" connecting hose with ball valve. For making connection between pump and distribution pipework.

For vibration and noise suppression.

Rubber hose with stainless-steel braiding and ready-pressed fittings, 0.5 m (1.6 ft.), 1" union nut, 3/4" brass ball valve with inside thread.

VS 9953

▶ Hose nozzle with 1" non-return valve made of stainless steel

ST 1010

▶ Stainless-steel hose nozzle 1"

ST 1100

▶ Float switch with cable clamp with 20 m (65.62 ft.) cable as dry run protection

SS 1013

▶ Adapter plug for connection of float switch

SS 0149

▶ Zeta 02 pump controller

ZT 0200

▶ ZETA 02/V pump controller cut-in pressure adjustable between 1.5 and 2.8 bar

ZT 0210

▶ ZETA 02 with wall-mounting bracket

ZT 0206

▶ ZETA 02/V with wall-mounting bracket cut-in pressure adjustable between 1.5 and 2.8 bar

ZT 0207

▶ *It is recommended that the Multigo pump is operated with a hose nozzle with non-return valve at the discharge end (ST 1010).*



# WISY IS SUPPLYING



# WITH RAINWATER!



More than 500,000 rainwater filters from WISY are in use worldwide. They save precious drinking water or provide clean water, where is none at all. Together they are filtering 42 million m<sup>3</sup> of rainwater annually. That's more than all residents of Berlin use in the same time to flush their toilets and equals 1,332 litres per second!

**Comparative figures:**

*WISY rainwater filters worldwide: more than 500,000 pieces*

*Realistic combined capacity for rainwater, taking the connectable roof area for each filter into account: more than 42 million m<sup>3</sup> of rainwater per year*

*Inhabitants of Berlin (2012): 3,36 million*

*Average need of toilet flush water per inhabitant in Germany:*

*34 litres/day or 12.4 m<sup>3</sup>/year*

- **Large delivery volume with small height differential (150 l/min at height of 3 m)**
- **Durable design made of stainless steel**
- **For direct suction or with connection for the suction filter (depends on model)**
- **Baseplate and float switch (depends on model)**

Submersible pump with fixed level switch or float switch. For pumping clean water, e.g. out of rainwater storage tanks. With connections for fixed or floating suction filters.

Models with either 1" nozzle, 1 1/4" inside thread or direct suction.

High suction flow with low head. All parts in contact with water are made of stainless steel. Automatic startup and shutdown by float switch. 20 m (65.6 ft.) connecting cable and large, extremely stable stainless-steel baseplate. Maximum delivery rate 170 l/min, maximum delivery head: 9 m.



*Provedo VX with nozzle and baseplate*



*Provedo B-1 with loose float switch and direct suction*





*Stainless steel switch lever*



## Submersible feed pump

## Item No.

- ▶ Provedo VX  
Special version für Optima rainwater unit. 1" nozzle at suction end, 1" nozzle with integrated non-return valve at discharge end. Ready assembled baseplate 22 cm x 22 cm (8 in. x 8 in.). UP 1322 VX
- ▶ Provedo B-1  
Model with 1" hose nozzle at suction end and assembled baseplate 22 cm x 22 cm (8 in. x 8 in.)  UP 1322
- Provedo B-1  
Model with 1 1/4" connector (inside thread) at suction end and assembled baseplate 22 cm x 22 cm (8 in. x 8 in.)  UP 1122
- ▶ Provedo B-1  
with direct suction and loose float switch UP 1113
- Provedo B-1  
with direct suction, without float switch UP 1111

## Accessories

## Item No.

- Stainless steel switch lever for precise control of the float switch, universal fit. Defines switching points precisely.
- ▶ With clamp 140 – 160 mm (5.5 – 6.3 in.) (Further sizes on demand) SH 0300

# FLOATING SUCTION FILTER SETS WITHOUT NON-RETURN VALVE

## For pressure pumps



**FINE filtering**  
with 0.3 mm  
(0.01 in.) mesh size



**COARSE filtering**  
with 1.2 mm (0.05 in.)  
mesh size

The floating suction filters for submersible pressure pumps are available as a fine filter (SAFF) with mesh size 0.3 mm (0.01 in.) or as a coarse filter (SAGF) with mesh size 1.2 mm (0.05 in.). The fine filters are suitable for water which has not been pre-filtered, e.g. from open waters, storage tanks or fountains. Coarse suction filters are recommended for safe pump operation when pumping prefiltered water, especially rainwater, from storage tanks or other containers. The models for submersible pressure pumps do not have a non-return valve. By contrast, the models for suction pumps are equipped with a non-return valve in order to maintain the suction column in the suction hose.

**To aid selection of the correct filter type:**

**Suction pumps: with non-return valve**

**Pressure pumps: without non-return valve**

**Connection set for submersible pumps consisting of:**

- Floating coarse or fine suction filter 1" without non-return valve
- Float diameter: 15 cm (5.91 in.)
- Highly flexible suction hose, length 1 m (3.28 ft.)

► Available for 1" nozzle or with screw connections for 1 1/4" connector (inside thread)



Connection for nozzle



Connection for thread

1 1/4" version with suction hose with integral metal spiral, for higher-performance pumps.

### Floating suction filter sets without non-return valve

Item No.

#### FINE

- Set for submersible pumps with 1" nozzle, floating coarse or fine suction filter 1", high-flexibility hose 1"
- Set for submersible pumps with 1 1/4" inside thread connector, floating coarse or fine suction filter 1", high-flexibility hose 1", with screw connection
- Set for submersible pumps with 1 1/4" inside thread connector, floating coarse or fine suction filter 1 1/4", suction hose 1 1/4", with screw connection

SS 9935

SS 9931

SS 9932

### Floating suction filter sets without non-return valve

Item No.

#### COARSE

- Set for submersible pumps with 1" nozzle, floating coarse or fine suction filter 1", high-flexibility hose 1"
- Set for submersible pumps with 1 1/4" inside thread connector, floating coarse or fine suction filter 1", high-flexibility hose 1", with screw connection
- Set for submersible pumps with 1 1/4" inside thread connector, floating coarse or fine suction filter 1 1/4", suction hose 1 1/4", with screw connection

SS 9905

SS 9901

SS 9902

**Water extraction from the clearest area of the storage tank!**

## For suction pumps

Filter body with stainless-steel filter mesh, mesh size 0.3 mm (0.01 in.), with non-return valve. Float made of environmentally friendly polyethylene.

### Connection set for suction pumps consisting of

- Floating coarse or fine suction filter 1" with non-return valve
- Float diameter: 15 cm (5.91 in.)
- Highly flexible suction hose attached by stainless steel hose clamps
- 90° PE elbow connector to PE pipe 32 x 3 mm (1")



**FINE filtering**  
with 0.3 mm  
(0.01 in.) mesh size



**COARSE filtering**  
with 1.2 mm (0.05 in.)  
mesh size

### Floating suction filter sets with non-return valve

#### FINE

- Set with floating suction filter and non-return valve
- ▶ With 2 m (6.5 ft.) suction hose
- ▶ With 3 m (9.8 ft.) suction hose



#### Item No.

SZ 9801

SZ 9802

### Floating suction filter sets with non-return valve

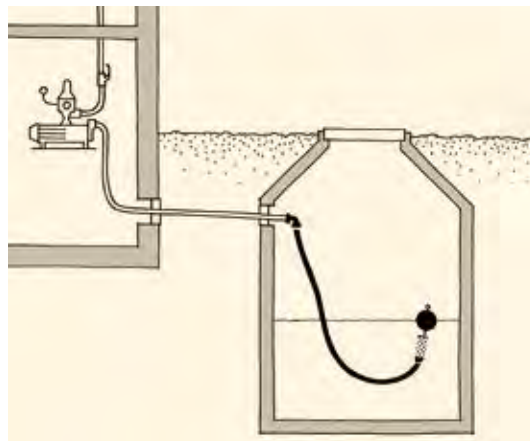
#### COARSE

- Set with floating suction filter and non-return valve
- ▶ With 2 m (6.5 ft.) suction hose
- ▶ With 3 m (9.8 ft.) suction hose

#### Item No.

SZ 9811

SZ 9812



## Note!

Flexible hose can only be used with suction pumps which are controlled by a pump controller with non-return valve! Expansion tanks with pressure switch only are not suitable!

# FLOATING FINE SUCTION FILTER (SAFF)



Fine filter body

SAFF SZ 9924



**FINE filtering**  
with 0.3 mm (0.01 in.) mesh size

For extracting rainwater from rainwater storage tanks and other containers or from ponds and fountains. Float made of environmentally friendly polyethylene. All other parts made of stainless steel. The nozzles at the floating filters are rounded in order to protect the hoses. The hose remains fully functional and durable even when the float frequently changes position in the tank. The nozzles are also equipped with a flared collar to allow secure attachment of the hose. Fine filter mesh size 0,3 mm (0.01 in.).

Connection	Filter surface	Height x dia.	Float
1"	380 cm <sup>2</sup>	120 mm x 120 mm	dia. 15 cm
1¼"	380 cm <sup>2</sup>	120 mm x 120 mm	dia. 15 cm
1½"	800 cm <sup>2</sup>	170 mm x 220 mm	dia. 22 cm
2"	1100 cm <sup>2</sup>	235 mm x 220 mm	dia. 22 cm

## Floating fine suction filter (SAFF)

## Item No.

- ▶ SAFF with float dia. 15 cm (5.91 in.)  
With integrated non-return valve  
With 1" hose nozzle SZ 9924  
With 1¼" hose nozzle SZ 9925
- ▶ SAFF with float dia. 15 cm (5.91 in.)  
Without non-return valve  
With 1" hose nozzle SZ 9935  
With 1¼" hose nozzle SZ 9936  
With 1" outside thread SZ 9926
- ▶ SAFF with float dia. 22 cm (8.66 in.) for large installations  
With 1 1/2" outside thread SZ 9930  
With 2" outside thread SZ 9931

## Accessories and spare parts for large installations

## Item No.

- ▶ Hose nozzle made of stainless steel, with non-return valve  
With 1½" nozzle (for Item No. SZ 9930) RT 0330  
With 2" nozzle (for Item No. SZ 9931) RT 0331
- ▶ Stainless-steel hose clamp  
1½", 45–60 mm clamping range SS 0305  
2", 55–70 mm clamping range SS 0306
- ▶ 2-part brass hose fitting, Nordic, flat-sealing  
1½" nozzle, 1½" union nut ZV 0464  
2" nozzle, 2" union nut ZV 0465



Fine filter body

SAFF SZ 9931

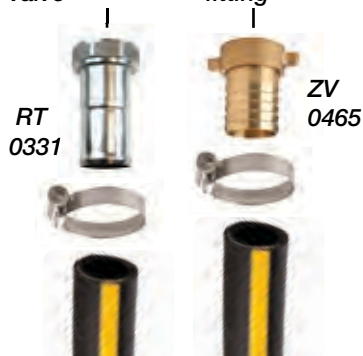


Hose nozzle/  
non-return  
valve

2-part  
brass hose  
fitting

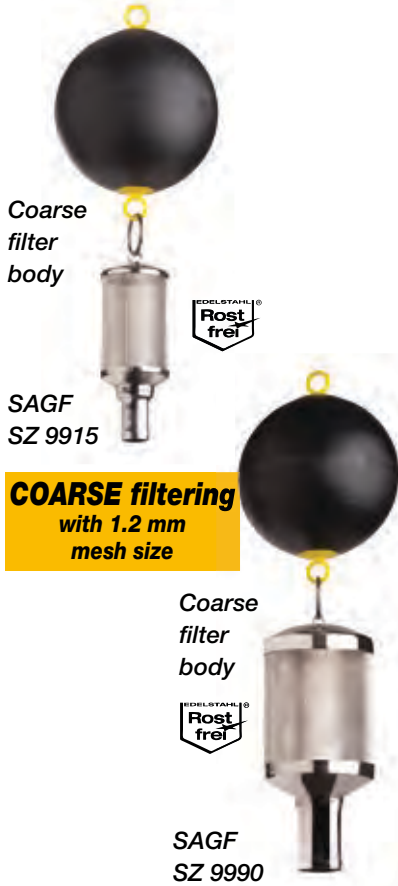
RT 0331

ZV 0465



# FLOATING COARSE SUCTION FILTER (SAGF)

For extracting clean rainwater from storage tanks and other containers. With float made of environmentally friendly polyethylene. All other parts made of stainless steel.  
Filter mesh size 1.2 mm (0.05 in.)



Connection	Filter surface	Height x dia.	Float
1"	165 cm <sup>2</sup>	110 mm x 60 mm	dia. 15 cm
1¼"	165 cm <sup>2</sup>	110 mm x 60 mm	dia. 15 cm
1½"	380 cm <sup>2</sup>	150 mm x 100 mm	dia. 15 cm
2"	380 cm <sup>2</sup>	150 mm x 100 mm	dia. 15 cm

**COARSE filtering**  
with 1.2 mm  
mesh size

## Floating coarse suction filter (SAGF) Item No.

- ▶ SAGF with float dia. 15 cm (5.91 in.) with hose nozzle.
  - With integrated non-return valve
  - With 1" hose nozzle SZ 9915
  - With 1 ¼" hose nozzle SZ 9916
  - With 1 ½" hose nozzle for large installations SZ 9917
  - With 2" hose nozzle for large installations SZ 9918
- ▶ SAGF with float dia. 15 cm (5.91 in.) with hose nozzle.
  - Without non-return valve
  - With 1" hose nozzle SZ 9927
  - With 1 ¼" hose nozzle SZ 9928
  - With 1 ½" hose nozzle for large installations SZ 9990
  - With 2" hose nozzle for large installations SZ 9991

## FIXED-MOUNTED SUCTION FILTERS FOR SUBMERSIBLE PUMPS

### FINE filtering



SF 9921

## FINE suction filter for fixed mounting Item No.

Filter made entirely of stainless steel, with connector 1" outside thread or 1¼" inside thread, filter mesh size 0.3 mm (0.01 in.). With fitting for direct connection to 1¼" pump suction inlet.

- ▶ FAFF fine filter body with 1" outside thread SF 0300
- ▶ FAFF submersible pump connection with 1¼" brass elbow and screw connections SF 9921

### COARSE filtering



SG 0351

SG 0332

ZW 0500

## COARSE suction filter for fixed mounting Item No.

Filter made entirely of stainless steel, with connection with outside thread. Filter mesh size 1.2 mm (0.05 in.)

FAGF submersible pump connection

- ▶ 1" connection outside thread SG 0331
- ▶ 1¼" connection outside thread SG 0332
- ▶ 1½" connection outside thread SG 0333
- ▶ 2" connection outside thread SG 0334
- ▶ 1" connection inside thread SG 0351

## Accessories Item No.

- ▶ 90° elbow with nipple, for connection to SG 03 32, for 1 ¼" pump suction inlet ZW0500

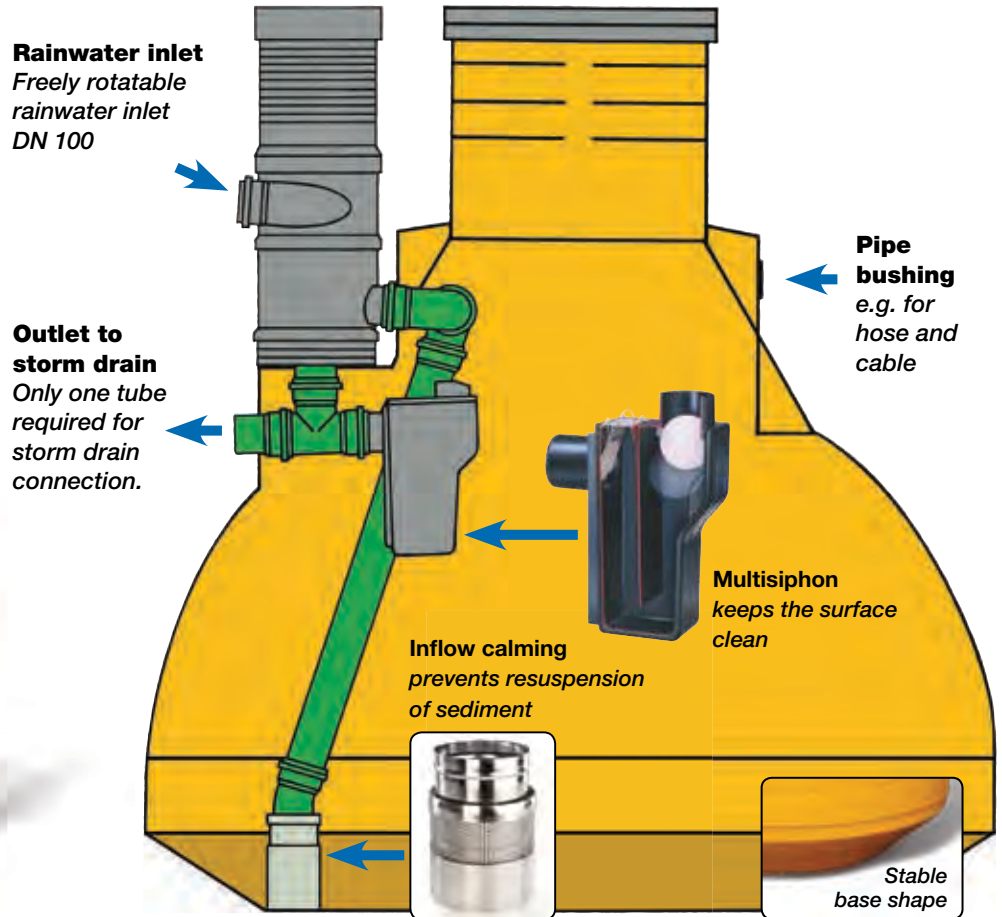
# WISY RAINWATER STORAGE TANK WITH COMPLETE EQUIPMENT

- All components preassembled ready to install
- Leak-tight, seamless one-piece tank
- Easy entry to tank through large, low-maintenance access shaft
- Clean, smooth inside walls prevent buildup of deposits
- Safe: Non-slip cover
- 20-year guarantee on the durability of the tank materials

WISY rainwater storage tanks are compression-resistant vessels made of environmentally friendly polyethylene. They are manufactured seamlessly in one piece. On the durability of the material we provide 20 years of guarantee.

The storage tanks are equipped with a non-slip cover and a compressed water equalizing valve in the base of the tank for additional safety. When the excavated pit is filled up with gravel the storage tanks is fully supported from below.

## 20-year guarantee!



STORAGE TANKS

Equipment WISY rainwater storage tank	Basic equipment	Complete equipment	Storm water retention
Non-slip cover	✓	✓	✓
Water equalizing valve in the base	✓	✓	✓
Vortex Fine Filter (WFF 100 with filter insert of WFF 150)		✓	✓
Multisiphon with drain backflow prevention and vermin guard		✓	✓
Smoothing inlet, stainless steel		✓	✓
Ready to connect, pre-assembled components		✓	✓
Retention volume of 1500, 2000 or 2500 Litres			✓
Throttle with floating coarse suction filter to regulate volumetric flow rates			✓

### Special note!

If the tank is installed below ground, it must be positioned at a sufficient distance from groundwater sources (i.e. perched water table in hillsides).

### WISY makes the adjustment possible!

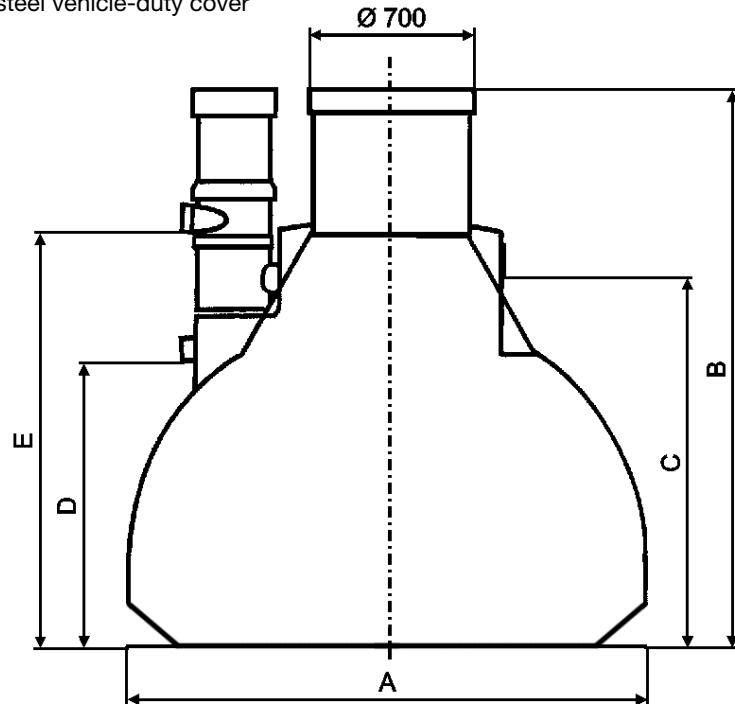
WISY storage tanks have a defined height which can be reduced by shortening the access shaft or increased using an extension tube in order to adapt the storage tank to ground level. The height of the tank can be shortened or extended about 30 cm (11.8 inch.) maximum.

### WISY rainwater storage tank with complete equipment

### Item No.

- ▶ **4.5 m<sup>3</sup> volume**  
with aluminium pedestrian-duty cover  
with steel vehicle-duty cover
- ▶ **5.5 m<sup>3</sup> volume**  
with aluminium pedestrian-duty cover  
with steel vehicle-duty cover

RS 1450  
RS 1460  
  
RS 2450  
RS 2460



Item No.	Volume	Weight (kg)	Diameter A	Tank height B	Service duct connection C	Storm drain connection D	Rainwater inlet E
RS 4550 (complete eq.) RS 4500 (basic eq.)	4.5 m <sup>3</sup>	250 220	Ø 2350	2510	1690	1285	1895
RS 5550 (complete eq.) RS 5500 (basic eq.)	5.5 m <sup>3</sup>	280 250	Ø 2350	2770	1950	1545	2155

All dimensions (in mm) may vary as a result of manufacturing tolerances. The dimensions of the pipes and bushings refer in each case to the bottom of the pipe.





# WISY RAINWATER STORAGE TANK WITH BASIC EQUIPMENT

Basic equipment of the WISY rainwater storage tank includes plastic non-slip cover and three connection bores in the tank wall with tank seals DN 100 and plugs DN 100.



Steel or aluminium cover



Child safety device



Intermediate ring



Extension tube for rainwater storage tank

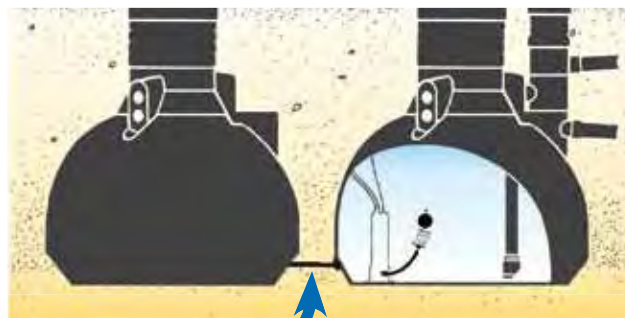
WISY rainwater storage tank with basic equipment	Item No.
▶ 4.5 m <sup>3</sup> (US: 1188 gallons) volume with aluminium pedestrian-duty cover	RS 1100
with steel vehicle-duty cover	RS 1110
▶ 5.5 m <sup>3</sup> (US: 1451 gallons) volume with aluminium pedestrian-duty cover	RS 2100
with steel vehicle-duty cover	RS 2110

Recommended accessories for rainwater storage tank	Item No.
▶ Extension tube for rainwater storage tank (PE), to raise inspection opening to ground level. Yellow. Dia. 70 cm (2.3 ft.), per 10 cm (4 in.)	RV 1010
▶ Extension tube for vortex fine filter (PP), to raise inspection opening to ground level. Dia. 30 cm (11.8 in.), length 50 cm (1.6 ft.)	WV 1010
▶ Intermediate ring for rainwater storage tank. Required to connect the extension tube	RS 1020
▶ End ring with certified child safety device. Required to connect steel or aluminium cover	RA 1020
▶ Steel cover, zinc-plated, non-slip, vehicle duty in accordance with ATV A127	RS 1030
▶ Aluminium cover, pedestrian duty, non-slip in accordance with DIN 1989-3	RS 1031
▶ Soakaway strainer for vortex fine filter	VS 0304
▶ Wall bushing WD 110/2 with six bores: 1 x 50 mm (2 in.) diameter, for mains water feed 1 x 32 mm (1.4 in.) diameter, for pressure or suction line (1" PE tube) 3 x 10 mm (0.4 in.) diameter for electric cable 1 x 6 mm (0.2 in.) diameter for electric cable	WD 2110
▶ Tank connection set for coupling two rainwater storage tanks to create one unit. Consists of: Two brass tank bushings and 2 m (6.5 ft.) flexible tube, DN 40	RS 1040
▶ Blind insert for vortex fine filter	BE 0302

STORAGE TANKS



Wall bushing for house and tank walls



When 2 storage tanks are connected by a flexible hose, make sure that there is some slack in the flexible hose.



Tank connection set

- **Shallow installation depth**
- **Minimal excavation work**
- **Weighs only 70 kg**
- **Can be installed by hand**
- **Easy to combine with the modular soakaway crate**
- **Seamless one-piece unit**

#### Product details

Volume	1500 l
Material	Polypropylene
Scope of application	below ground
Inlet and outlet diameter (mm)	110
Dimensions (mm)	1866 x 1500 x 880
Top hole, diameter (mm)	470
Weight (kg)	70
Maximum load:	pedestrian duty

### WISY flat tank with basic equipment

The WISY flat tank is the perfect product for storing up to 1500 litres of rainwater underground. Thanks to its very light weight and shallow installation depth, the tank is easy for anyone to handle. It can be installed without the need for an excavator or digger.



WISY 1500 Liter flat tank with extension tube



#### WISY flat tank

- ▶ WISY flat tank with basic equipment

**Item No.**

FL 1500

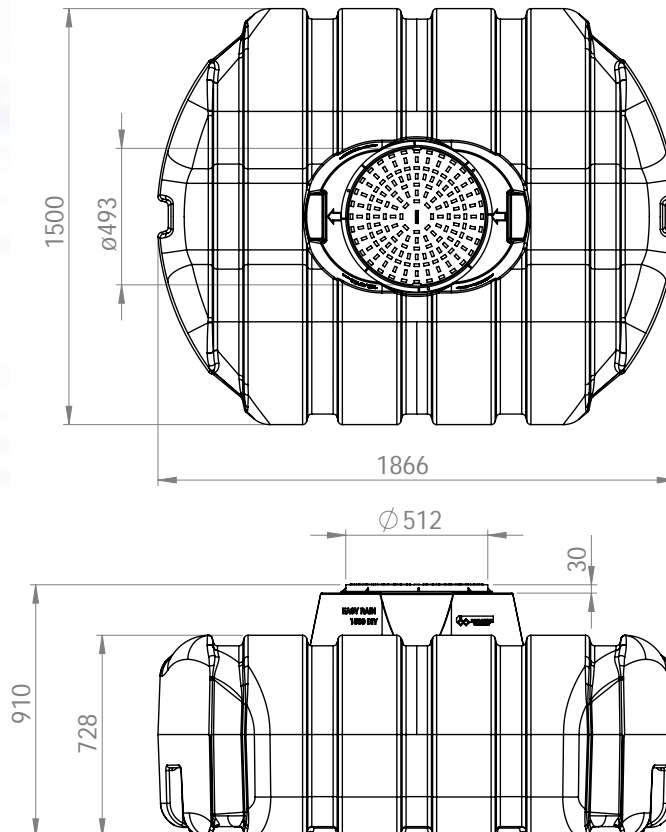
#### Accessories

- ▶ Access shaft extension tube for self cutting 9, 15, 21 or maximum 27 cm in additional height.
- ▶ 600 litre soakaway crate (page 49)

**Item No.**

FD 1010

SE 1000

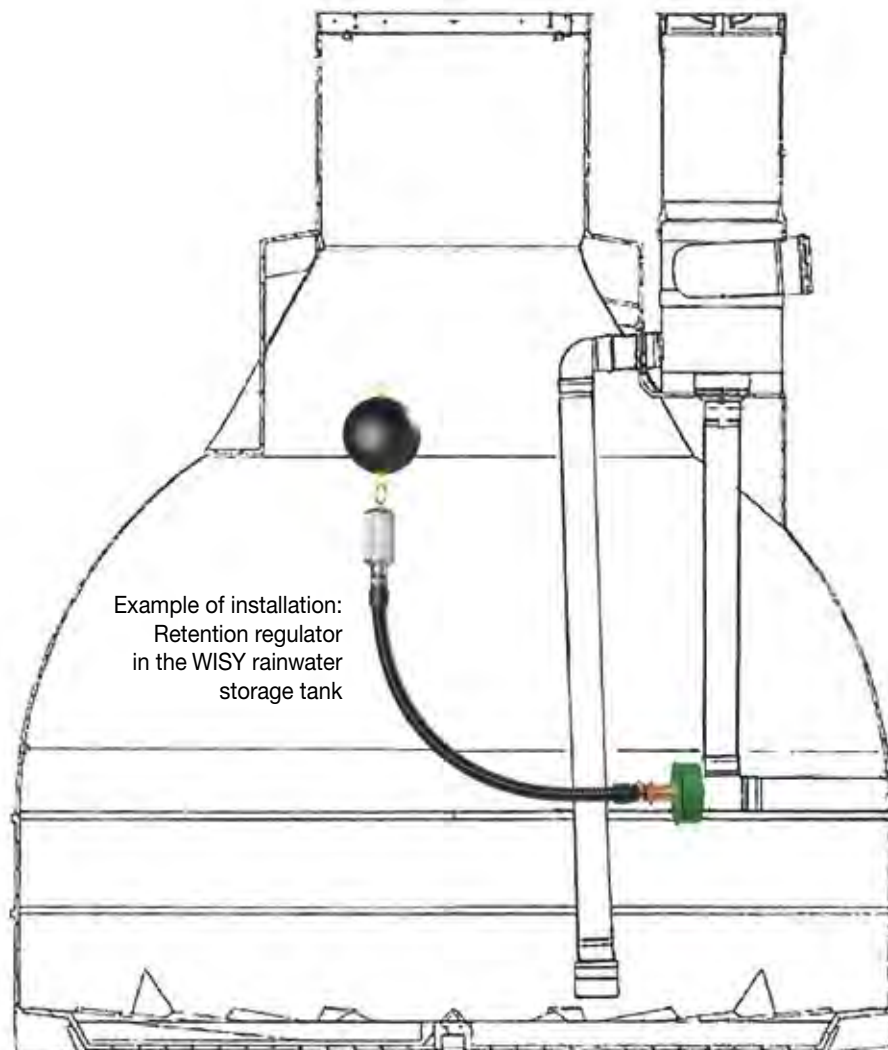


# STORM WATER RETENTION TANK

- All components preassembled ready to install
- Vehicle-duty design
- Dual use as rainwater storage tank and retention tank
- Various retention volumes available
- 20-year guarantee



WISY's storm water retention tank with a total volume of 5.5 m<sup>3</sup> offers an additional retention volume with throttled outlet to the usable volume for rainwater harvesting. The retention volume and outlet must be selected according to urban land use planning guidelines.



## 5.5 m<sup>3</sup> retention tank

Item No.

- |   |            |
|---|------------|
| ▶ 1500 litres retention volume with aluminium pedestrian-duty cover                               | RT 3350.15 |
| with steel vehicle-duty cover   | RT 3360.15 |
| ▶ 2000 litres retention volume with aluminium pedestrian-duty cover with steel vehicle-duty cover | RT 3350.20 |
| with steel vehicle-duty cover   | RT 3360.20 |
| ▶ 2500 litres retention volume with aluminium pedestrian-duty cover with steel vehicle-duty cover | RT 3350.25 |
| with steel vehicle-duty cover   | RT 3360.25 |

## The WISY retention tank made of PE offers:

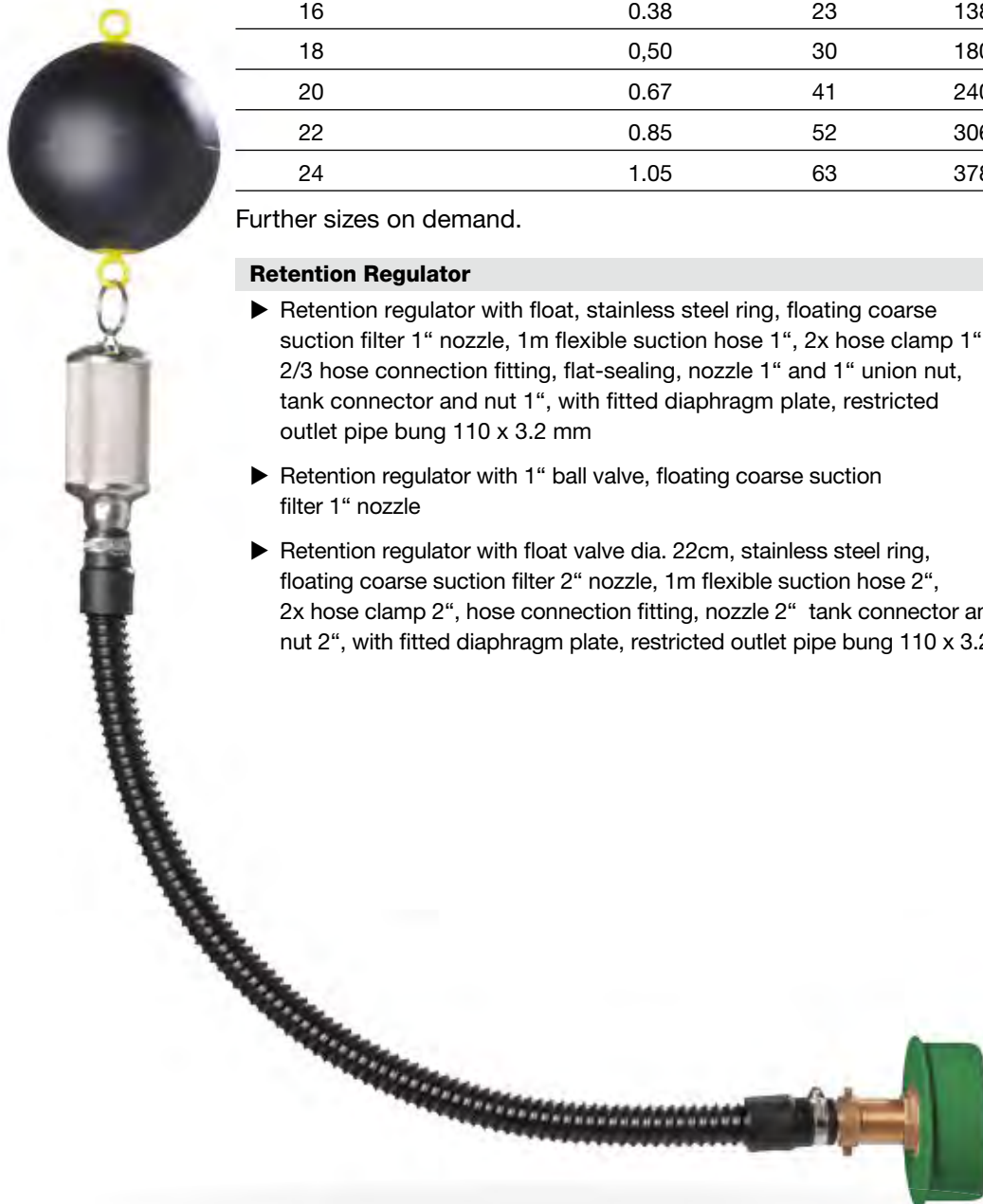
- Total volume of 5.5 m<sup>3</sup>
- Full functionality with vortex fine filter, smooth inlet, Multisiphon overflow
- Retention volumes of 1500, 2000, or 2500 litres are possible
- Floating coarse suction filter (SAGF) with throttle to regulate volumetric flow rates
- Plug-in system, shipped with all parts pre-assembled
- Storage tank access shaft with non-slip plastic cover

- **High degree of functional safety thanks to stainless-steel, floating coarse filter**
- **Made of stainless steel**
- **Flexible special hose with steel spiral**
- **Continuous flow rate**

The retention regulator is designed for installation in rainwater storage tanks in order to control the release of water into the storm drain. The inflow filter is suspended from the float valve. This arrangement ensures that the pipes and tubes connected downstream never become clogged by debris and that water can flow at the selected rate into the storm drain. The flexible connecting hose allows the float valve to move vertically with the water level in the tank. The hose material has been specially selected to ensure that the hose remains completely flexible and does not fracture or crack as it moves up and down in the water. The water is released into the storm drain through a restricted outlet pipe bung DN 100. The retention regulator is available for various outflow rates as listed in the table below:

Ø Flow limiter (mm)	Litres / sec.	Litres / min.	Litres / h	Item No.
3	0.016	0.97	58	RD 2003
5	0.044	2.61	157	RD 2005
6	0.057	3.43	206	RD 2006
8	0.087	5.22	313	RD 2008
10	0.133	8.00	480	RD 2010
12	0.22	13	780	RD 2012
13	0.28	17	1020	RD 2013
16	0.38	23	1380	RD 2016
18	0,50	30	1800	RD 2018
20	0.67	41	2400	RD 2020
22	0.85	52	3060	RD 2022
24	1.05	63	3780	RD 2024

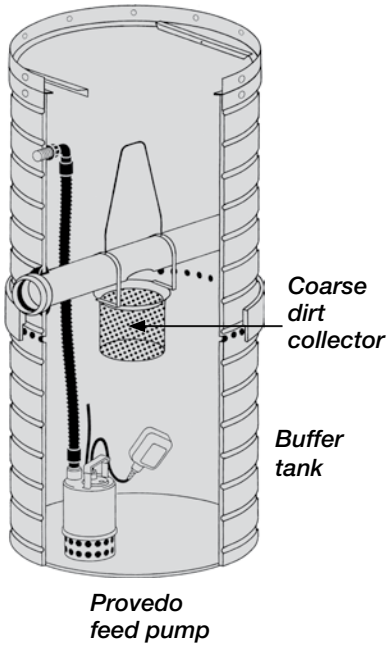
Further sizes on demand.



Retention Regulator	Item No.
▶ Retention regulator with float, stainless steel ring, floating coarse suction filter 1" nozzle, 1m flexible suction hose 1", 2x hose clamp 1", 2/3 hose connection fitting, flat-sealing, nozzle 1" and 1" union nut, tank connector and nut 1", with fitted diaphragm plate, restricted outlet pipe bung 110 x 3.2 mm	see table
▶ Retention regulator with 1" ball valve, floating coarse suction filter 1" nozzle	RD 4020
▶ Retention regulator with float valve dia. 22cm, stainless steel ring, floating coarse suction filter 2" nozzle, 1m flexible suction hose 2", 2x hose clamp 2", hose connection fitting, nozzle 2" tank connector and nut 2", with fitted diaphragm plate, restricted outlet pipe bung 110 x 3.2 mm	RD 2040

# SOAKAWAY SYSTEM

- Soakaway through biologically active soil layer
- Maintains natural soil ecology
- Minimum excavation work
- With coarse dirt collector made of stainless steel



## For biologically active surface infiltration of rainwater

The excess rainwater from storage tank overflow and drainage through the filter flows into the soakaway system. When the maximum level is reached, water is automatically pumped to the surface as a fountain and then allowed to infiltrate back into the ground. The pump switches off when the tank is empty until the maximum level is reached again. Frost proof.

### Soakaway system

Item No.

- ▶ Soakaway system

SI 1000

### Consists of:

- Buffer tank (PE), pedestrian-duty, non-slip manhole cover
- PE inlet tube DN 100.
- Removable coarse dirt collector (made of stainless steel)
- Provedo feed pump with float switch and direct suction for on and off intervals, 1" nozzle at discharge end
- Outlet connection 1" outside thread, for open soakaway at any location
- Tank height 145 cm (4.75 ft.), tank diameter 70 cm (2.3 ft.)

### Spare Parts and Accessories

Item No.

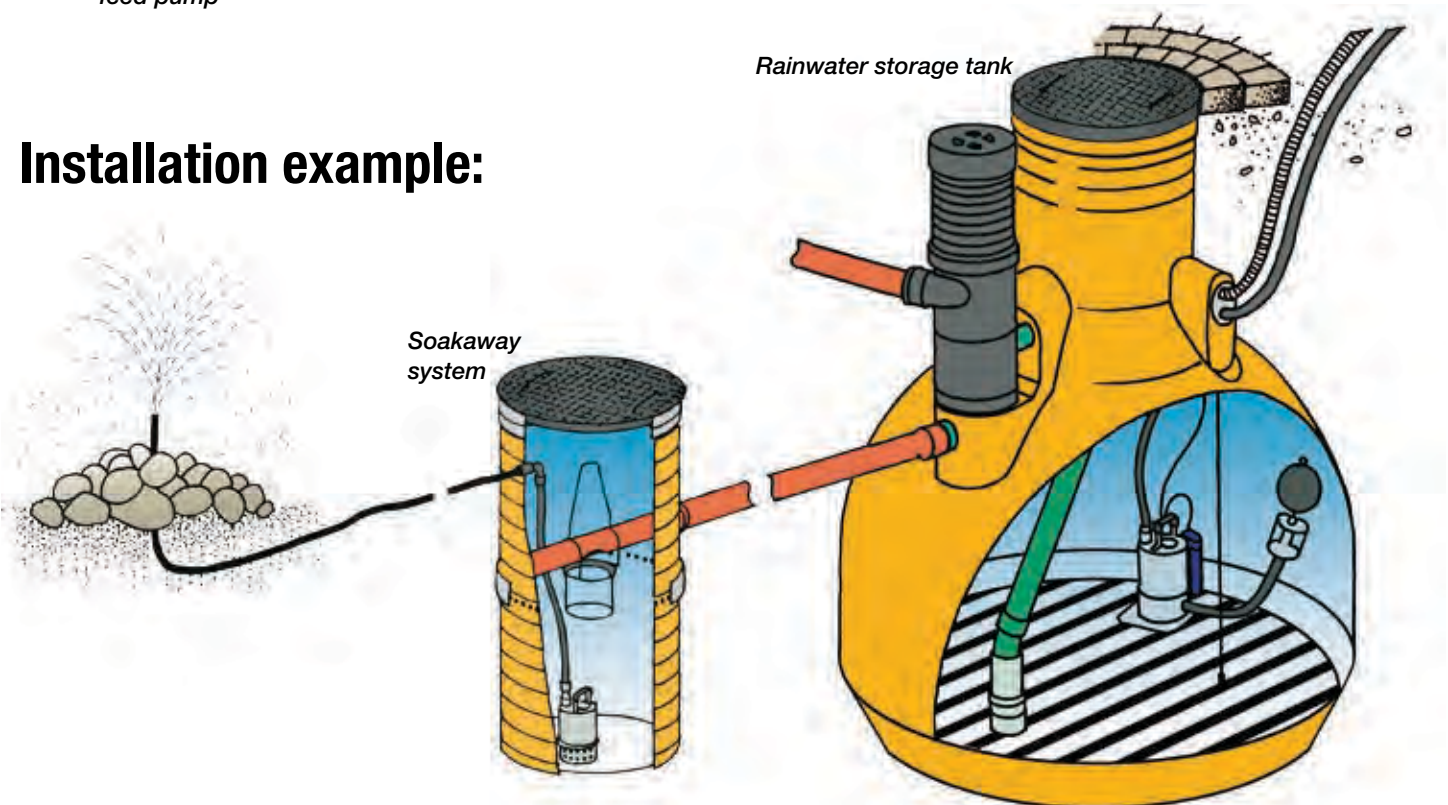
- ▶ Extension tube (PE) to raise inspection opening to ground level. Dia. 70 cm (2.3 ft.), length selectable up to max. 140 cm (4.5 ft.) price per 10 cm (4 in.)
- ▶ Coarse dirt collector with lifting handle
- ▶ Provedo feed pump with float switch

RV 1010

SI 1050

UP 1113

## Installation example:



# MODULAR SOAKAWAY CRATE

- For dispersal of excess rainwater
- For connection to overflow of rainwater storage tank
- Modular crates can be freely combined
- Wrapped in geotextile ready for installation
- Vehicle-duty capacity
- Saves wastewater charges

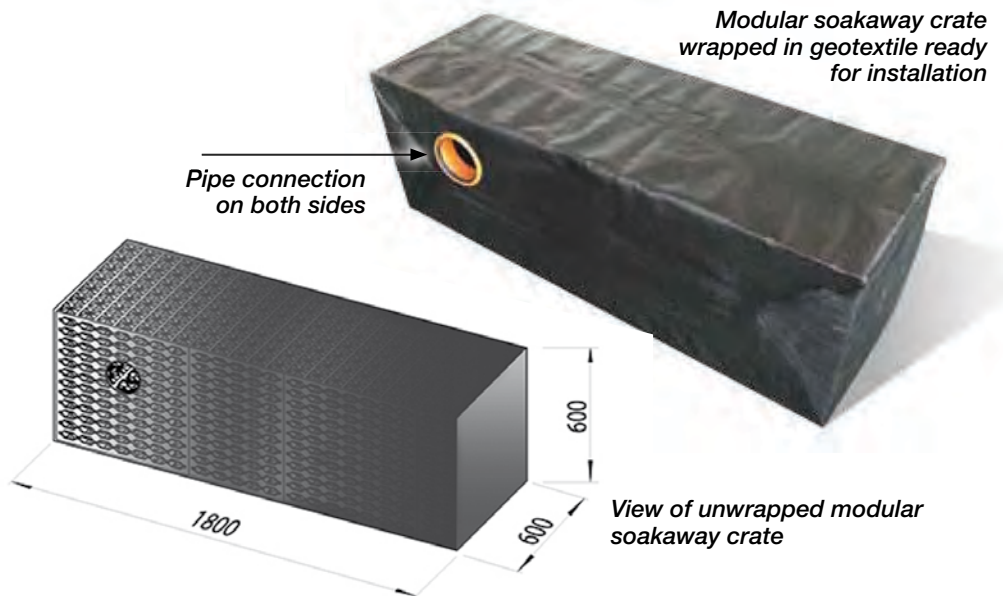
The modular soakaway crates are installed underground to retain and disperse rainwater. They can be joined together to create a system of the required size. A professionally installed system has a load-bearing capacity of up to 600 kN, with each crate offering a storage volume of approximately 600 litres. Prior to installation, the individual crates are wrapped in a high-quality plastic geotextile (type SG29 / 29 Bonar).

It is advisable to prefilter the water through a WISY rainwater filter before it flows into the soakaway. In this case, the soakaway can be installed as a stand-alone system or connected to a rainwater harvesting system.

Various factors need to be taken into account when planning the size of the soakaway system. These include the coefficient of permeability of the ground (see illustration), the size of the roof area connected, the typical volume of rainwater during heavy precipitation in the local area and the groundwater level at the installation site. At your request, we can plan the size of your system in accordance with DWA-A 138 taking all of these factors into account.

## Product details

Material	Polypropylen (PP)
Dimensions (mm)	1800 x 600 x 600
Volume	615 l
Storage capacity	95%
Coefficient of permeability	> 63%
Maximum load (see below)	600 kN
Maximum coverage	240 cm
Connection diameter (mm)	160
<b>Load</b>	<b>Installation depth</b>
Pedestrian duty	15 cm
Passenger car	50 cm



## Modular soakaway crate

► Modular soakaway crate 600 litres

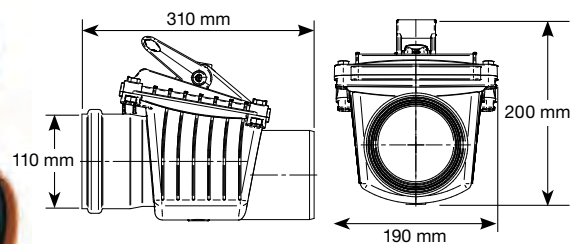
## Item No.

SE 1000

# ANTI-FLOODING FLAP VALVE

- For combination with the LineAr 100 rainwater filter
- Operates fully automatically
- Maintenance-free
- Can be locked manually if necessary
- Pipe connection DN 110

The anti-flooding flap valve prevents dirty water from flowing into the rainwater storage tank in the event of drain or sewer flooding. The valve is installed downstream of the filter in the storm drain outlet of the storage tank. The valve can either be fitted inside or outside the tank. If it is installed outside the tank, a small concrete shaft must be provided to allow access to the locking lever. If water in the storm drain rises against the normal direction of flow, the stainless steel sealing flap suspended inside the anti-flooding valve automatically closes to prevent the storm water from entering the tank. The valve can also be closed permanently by means of a manually-operated lever.



## Anti-Flooding Flap Valve

► Anti-Flooding Flap Valve DN 100

## Item No.

RK 0110

# RAINCOLLECTOR RS

- Clean rainwater for home and garden
- Integrated filter element with 0.28 mm mesh size
- Effective separation of dirt particles
- For installation in vertical downspout/downpipe
- 10-year guarantee
- Easily accessible filter insert
- Guarantees safe drainage in accordance with DIN EN 752 and DIN EN 12056.
- Complies with DIN EN 1989. Low maintenance
- High oxygen enrichment



The RainCollector RS is installed in the vertical rainwater downpipe. It filters the runoff rainwater from the roof before discharging the filtered water to a storage tank. Its filter insert is made of a fine stainless-steel mesh with a mesh size of only 0.28 mm. Leaves, moss and other debris entrained in the rainwater are reliably filtered out and flushed away to the soakaway or drain. The filter element is made entirely of stainless steel. It need only be cleaned 2 to 3 times per year. For round downpipes with 102 or 110 mm outer diameter. 10-year guarantee. Guarantees safe drainage in accordance with DIN.



**For downpipes of up to 110 mm outside diameter**



*Height of the RainCollector RS: 34 cm*

## RainCollector RS

## Item No.

- ▶ For metal downpipes DN 100 (outside diameter 102 mm)

white KF 4510  
grey KF 4511  
brown KF 4512

- ▶ For plastic downpipes DN 100 (outside diameter 110 mm)

white KF 4500  
grey KF 4501  
brown KF 4502

**Accessories, see next page: RainCatcher RC**



### Example application:

The RainCollector RS installed in a rainwater downpipe and connected to a 500 litre Stabilix rainwater barrel by a WISY connecting hose

- Automatic separation of rainwater out of downpipe to rainwater barrel
- For installation in a downpipe
- 10-year guarantee
- Simple device for collecting rainwater
- Minimum maintenance required
- Automatic overflow protection for rainwater barrel

The RainCatcher RC is installed in the vertical rainwater downpipe. It passes runoff rainwater from the roof to the storage tank. Large dirt particles are filtered out of the water and flushed down into the drain or soakaway. Installed at the correct height, the RainCatcher RC automatically flushes excess rainwater into the drain or soakaway. The housing is made of UV-resistant polypropylene (PP). Can be mounted in round downpipes with 102 or 110 mm outer diameter. 10-year guarantee. Guarantees safe drainage in accordance with DIN.



Height of the RainCatcher RC: 18.5 cm



### RainCatcher RC

### Item No.

- ▶ For plastic downpipes DN 100 (outside diameter 110 mm)

white RC 0510  
grey RC 0511  
brown RC 0512

- ▶ For metal downpipes DN 100 (outside diameter 102 mm)

white RC 0520  
grey RC 0521  
brown RC 0522

### Accessories for RainCatcher RC and RainCollector RS

### Item No.

- ▶ Rainwater barrel connecting hose, 1 1/4". Connects RainCatcher or RainCollector to a rainwater barrel, UV-resistant plastic spiral hose, length 42 cm (16.5 in.), with tension ring.

black 15803  
white 15813  
grey 15823  
brown 15833



### Example application:

The RainCatcher RC installed in a rainwater downpipe and connected to the 420 litre Rainwater Pear by a WISY connecting hose





# GARDEN RAINWATER COLLECTOR (GRS)

- For easy retrofitting in rainwater downspouts/downpipes
- Fits in any downpipe diameter
- Available in any required size
- Largely self-cleaning
- Housing bottom half



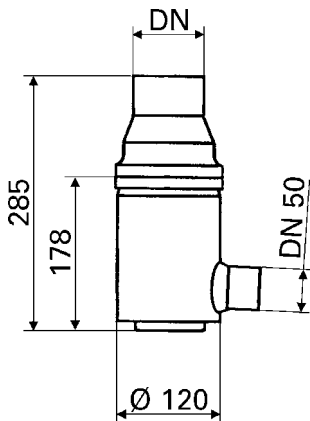
**With automatic overflow protection, frost-proof, made of stainless steel.**

Specially designed for garden rainwater barrels. For installation in rainwater downspouts/downpipes. Made entirely of stainless steel. Outlet to rainwater barrel: DN 50.

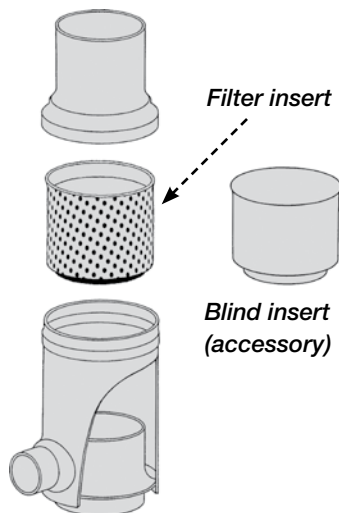
Drainage safety according to DIN EN 12056 / EN 752, complies with DIN 1989.

- ▶ Available with or without filter insert (mesh size 0.44 mm (0.017 in.) Extremely low-maintenance filter insert. Can simply be cleaned in a dishwasher.

Garden rainwater collector (GRS)



Upper housing



Gehäusetopf

## Garden rainwater barrel

## Item No.

### For metal downspouts / downpipes

▶ with filter insert, height 10.5 cm (4 in.)		
GRS 100 VA for nominal size	DN 100 (3.9 in.)	15711
GRS 87 VA for nominal size	DN 87 (3.4 in.)	15712
GRS 80 VA for nominal size	DN 80 (3.1 in.)	15713
GRS 76 VA for nominal size	DN 76 (2.9 in.)	15714
▶ without filter insert		
GRS 100 VA for nominal size	DN 100 (3.9 in.)	15701
GRS 87 VA for nominal size	DN 87 (3.4 in.)	15702
GRS 80 VA for nominal size	DN 80 (3.1 in.)	15703
GRS 76 VA for nominal size	DN 76 (2.9 in.)	15704

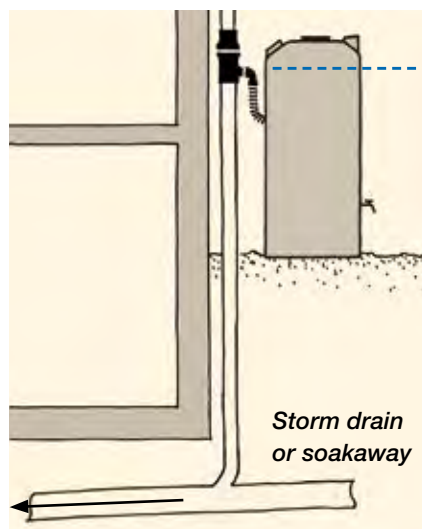
### For plastic downspouts / downpipes

▶ with filter insert, height 10.5 cm (4 in.)		
GRS 110 VA for nominal size DN 100 (3.9 in.), with outside diameter 110 mm (4.3 in.)		15715
GRS 76 VA for nominal size DN 70 (2.8 in.), with outside diameter 75 mm (3 in.)		15714
▶ without filter insert		
GRS 110 VA for nominal size DN 100 (3.9 in.), with outside diameter 110 mm (4.3 in.)		15705
GRS 76 VA for nominal size DN 70 (2.8 in.), with outside diameter 75 mm (3 in.)		15704

## Spare Parts and Accessories

## Item No.

▶ Filter insert of stainless steel, fits all nominal sizes. Filters the rainwater from the roof. Height 10.5 cm (4 in.) Mesh size 0.44 mm (0.017 in.)	15801
▶ Blind insert of stainless steel, fits all nominal sizes. Ensures direct flow of rainwater into storm drain.	15802



**With automatic overflow protection**

# STABILIX RAINWATER BARREL

- 500 litres storage capacity
- Seamless one-piece unit made of environmentally friendly PE
- Enclosed design protects stored water
- 500 litre storage volume



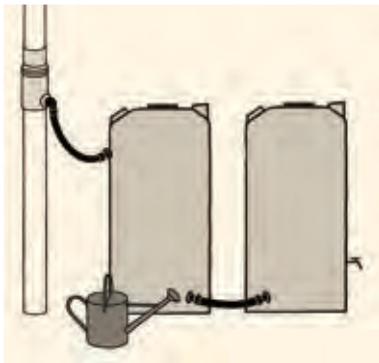
**For collecting rainwater.** Tanks manufactured without seams from environmentally friendly and physiologically harmless polyethylene.

The solid wall thickness guarantees long life and frost resistance.

The storage volume of a Stabilix barrel of 500 l (US: 132 gallons) can be enlarged by connecting an optional number of Stabilix rainwater barrels to form one unit. The opaque colour (dark green) prevents the formation of algae. *The cover closes tightly to prevent flying insects from laying eggs inside the barrel.*

The rainwater barrel has a connection for a watering can tap and a free standing external pump. Thanks to its compact dimensions (dia. 70 cm / 27.6 in.), the Stabilix garden rainwater barrel fits through any standard basement door and can be used in the utility area.

Stabilix rainwater barrel	Item No.
<ul style="list-style-type: none"> <li>● <b>Stabilix rainwater barrel</b> Rainwater collector inlet with seal for inlet connection 1 1/4", with blind plug, suitable for connecting hose 15803, pump connection/drain outlet 3/4" inside thread with 3/4" sealing plug, with prepared tap connection for watering can 3/4" (tap optional), rainwater barrel with screw cover DN 400</li> </ul>	GT 5100



	Item No.
▶ 3/4" drain tap	ZH 0402
▶ Rainwater barrel connecting hose, 1 1/4". Connects the garden rainwater filter/collector with a rainwater barrel. UV-resistant plastic spiral hose, length 42 cm (12.5 in.), with tension ring.	15803
▶ Rainwater barrel link hose, 1 1/4". For connecting two rainwater barrels. UV-resistant plastic spiral hose, length 42 cm (12.5 in.).	15804

	Item No.
▶ Tank connector, 1 1/4", for connecting the hose directly to the barrel. Straight	15805
90° angle	15806
▶ Hose coupling, for connection of two hoses.	15807
▶ Tank connector, 1 1/4", suitable for tank wall thickness of at least 7 mm. For use with straight or angled adapters.	15808
▶ Adapters 1 1/4" for tank connector 15808. Straight	15809
90° angle	15810



GARDEN

# GARDEN RAINWATER SET



**FREEBIE!**  
The yellow WISY watering can, plastic, 10 litres



## Garden rainwater set

**Item No.**

- ▶ Stabilix rainwater barrel
- ▶ Garden rainwater collector (GRS) DN 100 VA
- ▶ Rainwater barrel connecting hose
- ▶ Tap

GT 5300

# THE RAINWATER PEAR

- **NEW! Rainwater barrel or storage box!**
- **420 litre storage capacity**
- **UV resistant**

420 litre storage capacity. Made of high-quality PE material. Lid can be lifted off to fill watering cans. The Rainwater Pear can be connected directly to a downpipe filter. Oval shape makes cleaning easy. Made of UV-stabilized material for UV resistance. Can also be used as a storage container for sports equipment, balls, children's toys, etc., in or around the house.



### Technical data:

- Storage capacity: about 420 litres
- Height: 1120 mm
- Diameter: 950 mm
- Weight: 16 kg

### Accessories available:

Rainwater filter for installation in the downpipe with connection kit, garden pump, overflow elbow, inflow filter.

## The Rainwater Pear

**Item No.**

- ▶ The Rainwater Pear

RB 0420

# BETA SUBMERSIBLE GARDEN PUMP

A submersible pump for pumping clean water for garden and landscaping applications. Non-self-priming, multi-stage submersible pressure pump with integrated control system – a sensor monitors water requirements, controls the pump electronically and provides dry run protection. Models with 1" nozzle or 1 1/4" (inside thread) suction inlet for connecting floating suction filters. With 3 m (9.8 ft.) lifting strap and 15 m (49.2 ft.) connecting cable.

Beta 1200



Beta 1000



with direct suction

- The floating suction filter is ideal for use with the Beta pump



Floating fine suction filter SAFF



Beta	Maximum delivery rate	Maximum delivery head	Connection suction end	Connection discharge end
1000	95 l/min.	36 m (360 kPa)	Direct suction	1" inside thread/ UA*
1000T	95 l/min.	36 m (360 kPa)	1" nozzle	1" inside thread/ UA*
1000X	95 l/min.	36 m (360 kPa)	1 1/4" inside thread	1" inside thread/ UA*
1200	95 l/min.	45 m (480 kPa)	Direct suction	1" inside thread/ UA*
1200T	95 l/min.	45 m (480 kPa)	1" nozzle	1" inside thread/ UA*
1200X	95 l/min.	45 m (480 kPa)	1 1/4" inside thread	1" inside thread/ UA*

\*UA = Universal connection (3/4" nozzle, 3/4" outside thread, 1" nozzle 1" outside thread)

## Beta submersible garden pump

## Item No.

- ▶ Beta 1000 GP 5010
- ▶ Beta 1000T GP 5050
- ▶ Beta 1000X GP 5055
- ▶ Beta 1200 GP 6010
- ▶ Beta 1200T GP 6050
- ▶ Beta 1200X GP 6055

▶ *Accessories: For suction connections and pressure hoses see page 61 For fittings/ spare parts see pages 64-65*



Beta 1000X/1200X  
With 1 1/4" inside thread  
for the connection of a  
floating suction filter.



Beta 1000T/1200T  
With 1" nozzle for the  
connection of a  
floating suction filter.

## Set with floating fine suction filter SAFF

## Item No.

- ▶ Set for submersible pumps with 1" nozzle, SAFF 1", high-flexibility hose 1" SS 9935
- ▶ Set for submersible pumps with 1 1/4" inside thread, SAFF 1", high-flexibility hose 1", with screw connection SS 9931

## Set with floating coarse suction filter SAGF

## Item No.

- ▶ Set for submersible pumps with 1" nozzle, SAGF 1", high-flexibility hose 1" SS 9905
- ▶ Set for submersible pumps with 1 1/4" inside thread, SAGF 1", high-flexibility hose 1", with screw connection SS 9901

## Set for discharge end

## Item No.

- ▶ Set for submersible pumps with 1" nozzle, comprising 2 m pressure hose 1" (DS 2003), hose clamp 1" (SS 0303) PE tube connector, 90° 25 mm x 1" PE tube connector straight, 25 mm x 3/4" inside thread Gardena water connector 3/4" with water stop valve. The PE tube between the storage tank and the water connector must be provided by the customer. BA 1002

# MULTISIPHON

- Exclusively from WISY!
- Odour seal
- Vermin guard
- Backflow prevention device
- Overflow with skim effect
- Gas barrier

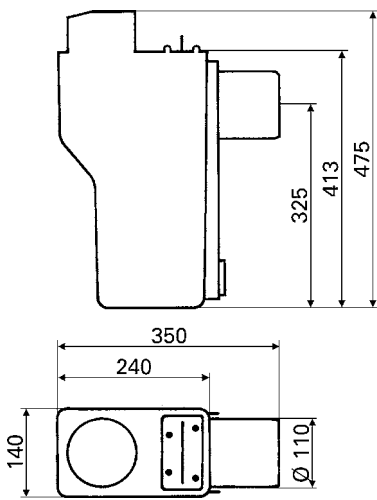
## Multi-functional overflow for rainwater storage tank

Made of impact-resistant ABS plastic. For connection to the tank overflow (DN 100). Surface debris removed by skimming effect. Prevents storm drain odours from reaching the storage tank. Brace pipe prevents tilting or tipping. Large siphon volume 6 l (1.5 gallons).

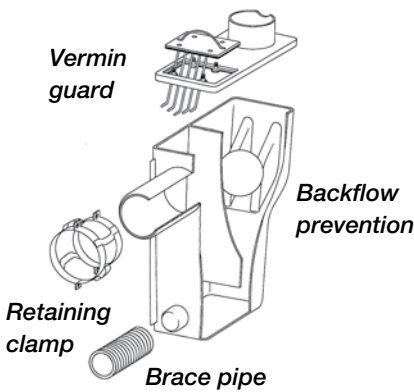
- ▶ Available in different versions:  
With or without drain backflow prevention  
with or without vermin guard

The version with integrated drain backflow prevention is delivered with a retaining clamp for connection to a DN 100 pipe.

The passive vermin guard is made of stainless steel and is easy to remove for maintenance.



Multisiphon and retaining clamp



### Multisiphon

- ▶ Multisiphon with drain backflow prevention  
without vermin guard
- ▶ Multisiphon with drain backflow prevention  
with vermin guard
- ▶ Multisiphon without drain backflow prevention  
without vermin guard
- ▶ Multisiphon without drain backflow prevention  
with vermin guard

### Item No.

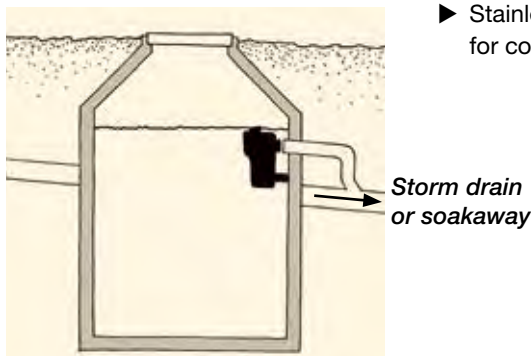
- US 1004
- US 1002
- US 1005
- US 1003

### Accessories

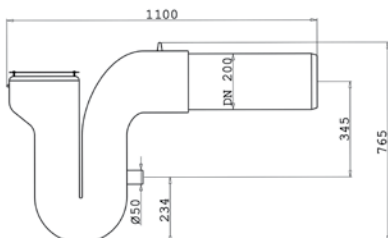
- ▶ Stainless-steel retaining clamp  
for connection to a DN 100 pipe

### Item No.

- US 1010



- Ready to install in rainwater storage tank
- For combination with WFF 300 vortex fine filter
- Odour seal and vermin guard



## Overflow siphon DN 200

Item No.

- ▶ Overflow siphon DN 200 made of stable polyethylene for storage tanks. Suitable for combination with vortex fine filter WFF 300. With odour seal, vermin guard, brace pipe, 2 x 1 m (3.28 ft.). Including stainless-steel chain for the attachment to ceiling or wall.

US 2000



*Telescopic pull-out and smoothing inlet, e.g. suitable for LineAr 100 rainwater filter*



The smoothing inlet made of stainless steel prevents resuspension of sediment and distributes fresh, oxygen-rich rainwater in the storage tank.

## SMOOTHING INLET

*Smoothing inlet DN 200 compatible with vortex fine filter WFF 300*

*Water inflow*



## Smoothing inlet

Item No.

- ▶ Smoothing inlet for DN 100 EB 0300
- ▶ Smoothing inlet for DN 200, inside diameter 204 mm (8.03 in.) EB 0303
- ▶ Smoothing inlet inside diameter 222 mm (8.74 in.) EB 0304
- ▶ Telescopic pull-out and smoothing inlet DN 125 EB 0305

# LEVEL INDICATOR

- No battery or power connection required
- Maintenance-free, sound technology
- Easy to handle
- Complete set of ready-to-use components!
- Operates fully automatically
- Economical mains water top-up



Indicates the fill level of the storage tank in per cent. Pneumatic measuring instrument for remote measurement at distances up to 50 m. Steplessly adjustable for tanks with maximum fill levels from 1 to 2.5 metres. Impact-resistant plastic casing. With 10 m measuring lead and fixings.

Level indicator

### Level indicator

### Item No.

- ▶ Level indicator with manual actuation pump

FA 9910

### Accessories

### Item No.

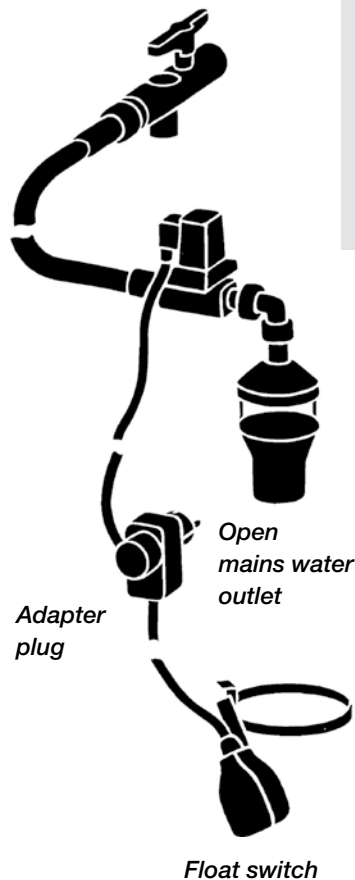
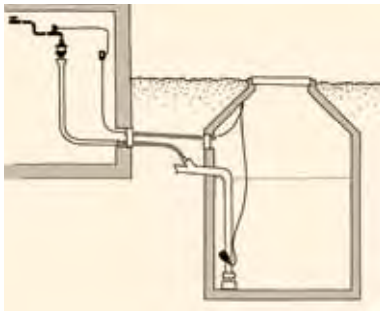
- ▶ Measuring lead extension for longer distances to storage tank, length 10 m

FA 9915

# MAINS WATER TOP-UP SET

- Complete set of ready-to-use components!
- Operates fully automatically
- Economical mains water top-up

For mains water top-up, tops up the rainwater storage tank with mains water as required during prolonged dry spells (daily requirement for single-family home). Complies with EN 1717.



### Top-up set comprising:

- Open mains water outlet 1/2" (Item No. TW 9901)
- Adapter plug (Item No. SS 0149)
- Float switch for top-up, with retaining clamp, 3 m, 10 m or 20 m (9 ft., 32 ft. or 65 ft.) connecting cable (see item numbers SS 1001, SS 1002 or SS 1003)

### Top-up set

### Item No.

- Top-up set
- ▶ with 3 m (9 ft.) connecting cable
  - ▶ with 10 m (32 ft.) connecting cable
  - ▶ with 20 m (65 ft.) connecting cable

TW 8803

TW 8810

TW 8820



Straight design, with  
3/4", 1", 1 1/2", 2" versions



1/2" open mains  
water outlet



Connection	Water top-up rate with 3 bar system pressure	Connecting hose	Tundish
1/2"	2.64 m <sup>3</sup> /h	50 cm	DN 50
3/4"	6.48 m <sup>3</sup> /h	50 cm	DN 50
1"	8.64 m <sup>3</sup> /h	75 cm	DN 70
1 1/2"	20.52 m <sup>3</sup> /h	75 cm	DN 100
2"	34.92 m <sup>3</sup> /h	100 cm	DN 100

### Open mains water outlet

### Item No.

▶ 1/2"	TW 9901
▶ 3/4"	TW 9909
▶ 1"	TW 9903
▶ 1 1/2"	TW 9905
▶ 2"	TW 9907

### Components/spare parts

### Item No.

Stainless-steel tundish with nozzle

▶ 1/2"	TW 9902
▶ 3/4"	TW 9910
▶ 1"	TW 9904
▶ 1 1/2"	TW 9906
▶ 2"	TW 9908



# FLOAT SWITCH

- **Economical mains water top-up**
- **Switching cycle of only 4 cm**
- **Quick and easy to attach to submersible pump**



## Float switch for mains water top-up (yellow)

**Item No.**

Float switch for controlling top-up with mains water. For attachment to the inlet pipe or the submersible pump. The switch lever defines the switching points so precisely that the water level rises by only 4 cm (daily requirement for single-family home). Switch lever and retaining clamp (for pipe diameter of 110 – 130 mm / 4 – 5 in.) made of stainless steel.

Float housing (yellow), butt-spliced, made of polypropylene.

With flexible connecting cable 3 x 1 mm<sup>2</sup>. (*without adapter plug*).

- ▶ with 3 m (9.8 ft.) connecting cable SS 1001
- ▶ with 10 m (32.8 ft.) connecting cable SS 1002
- ▶ with 20 m (65.6 ft.) connecting cable SS 1003

## Components/spare parts

**Item No.**

Float switch (*mains top-up*),  
*without switch lever and clamp*

- ▶ with 3 m (9.8 ft.) connecting cable SS 1021
- ▶ with 10 m (32.8 ft.) connecting cable SS 1022
- ▶ with 20 m (65.6 ft.) connecting cable SS 1023

## Float switch for dry run protection (red)

**Item No.**

Float switch to turn off pump when water level in tank is too low. For attachment to the inlet pipe or the submersible pump. When the water level in the tank reaches the minimum required level again, the pump is released for operation again by the float switch. With switch lever for precise definition of switching points, with 4 cm (1.6 in.) switching cycle.

Switch lever and retaining clamp (for pipe diameter of 110 – 130 mm / 4 – 5 in.) made of stainless steel. Float housing (red), butt-spliced, made of polypropylene.

With flexible connecting cable 3 x 1 mm<sup>2</sup>. (*without adapter plug*).

- ▶ with 3 m (9.8 ft.) connecting cable SS 1011
- ▶ with 10 m (32.8 ft.) connecting cable SS 1012
- ▶ with 20 m (65.6 ft.) connecting cable SS 1013

## Components/spare parts

**Item No.**

Float switch (*dry run protection*),  
*without switch lever and clamp*

- ▶ with 3 m (9.8 ft.) connecting cable SS 1031
- ▶ with 10 m (32.8 ft.) connecting cable SS 1032
- ▶ with 20 m (65.6 ft.) connecting cable SS 1033

## Accessories

**Item No.**

- ▶ Adapter plug for connection of float switch control cable SS 0149



### Quick to install:

Float switches can be safely fitted to the pump housing of the Multigo submersible pressure pump!



# HIGH-FLEXIBILITY SUCTION HOSES



## Suction hose with push-fit connections

High-flexibility suction hose in pre-cut lengths for pumping water. Made of polyurethane (PU) with integral steel spiral. Maximum vacuum -0.8 bar (-11.6 psi). Both ends with push-fit connection to fit 1" hose nozzles (DN 25).

Suction hoses	Item No.
Suction hose in pre-cut lengths	
▶ Length 0.75 m (2.5 ft.)	AS 3001
▶ Length 1.00 m (3.3 ft.)	AS 3002
▶ Length 1.50 m (5 ft.)	AS 3003
▶ Length 2.00 m (6.5 ft.)	AS 3004
▶ Length 2.50 m (8 ft.)	AS 3005
▶ Length 3.00 m (9.8 ft.)	AS 3006

## HOSE COUPLINGS



Hose couplings made of stainless steel.

Hose coupling	Item No.
▶ Double-ended hose coupling, each end 1"	SV 1000



Hose nozzle	Item No.
with non-return valve	
▶ 1" nozzle, direction of flow from thread to nozzle	ST 1010
▶ 1¼" nozzle, direction of flow from thread to nozzle	ST 1011
Without non-return valve	
▶ 1" nozzle	ST 1100

## SUCTION AND PRESSURE HOSES



Suction and pressure hose

Spiral suction and pressure hose with synthetic reinforcing and spring steel spiral. The suction and pressure hose is suitable for pumping water. Material: PVC Compound (synthetic granulate); free of pores and smooth; abrasion-resistant, weatherproof, ozone-resistant, resistant to ageing. Max. temperature resistance from -25°C to +60°C. Max. vacuum -0.8 bar. Burst pressure of 2" hose: 30 bar, burst pressure of 1" hose: 36 bar.

Suction hose	Item No.
▶ 1" max. operating pressure 12 bar. by the meter	AS 2003

Suction and pressure hose	Item No.
● 1¼" max. operating pressure 11 bar by the meter	AS 2004
● 1½" max. operating pressure 10 bar by the meter	AS 2006
● 2" max. operating pressure 10 bar by the meter	AS 2007

Pressure hose made of EPDM. For pumping water.

Flexible, with synthetic textile reinforcing of high tensile strength.

Pressure hose	Item No.
▶ 1" max. operating pressure 15 bar by the meter	DS 2003



1" Pressure hose

# PRESSURE HOSE ASSEMBLIES



Connecting hoses with stainless-steel braiding and pressed fittings. Brass connections. Flat-sealing.

Connecting hoses	Item No.
▶ 1" connecting hose, 1" nipple, 1" union nut Length 0.5 m (1.6 ft.)	VD 9928
Length 0.75 m (2.5 ft.)	VD 9929
Length 1.0 m (3.3 ft.)	VD 9930
Length 1.50 m (5.0 ft.)	VD 9931
Length 2.00 m (6.6 ft.)	VD 9932
▶ ¾" connecting hose, length 0.5 m (1.6 ft.) with 90° elbow, 1" union nut and ¾" nipple	VD 9934
with ¾" union nut and ¾" nipple	VD 9950
with 2 x 1" union nut	VD 9951
with 1" union nut and ¾" nipple	VD 9953
▶ ¾" connecting hose with ¾" ball valve, 1" union nut and ¾" inside thread, length 0.5 m (1.6 ft.)	VS 9953
▶ 1" connecting hose with 2 x 1" union nut, length 0.5 m (1.6 ft.)	VD 9935
▶ ½" connecting hose with ½" union nut and ½" nipple, length 0.5 m (1.6 ft.)	VD 9936

# FLEXIBLE TUBES AND CONNECTING PARTS



WD 2000 / WD 2001

**For fast, easy and inexpensive installation.**  
All parts are connectable.

Flexible tubes	Item No.
Flexible tube (PE) flexible with draw cord. Inside diameter = 40 mm (1.57 in.), outside diameter = 50 mm (1.97 in.)	
▶ 25 m (82 ft.) roll	WD 2000
▶ 50 m (164 ft.) roll	WD 2001



WD 2020

Connecting parts	Item No.
▶ Adapter flexible tube – sewer pipe (PE), to connect the DN 50 flexible tube (for example for mains water top-up) to DN 100 sewer pipe.	WD 2020



WD 2021

▶ Adapter flexible tube – HT (PE) tube, to connect the DN 50 flexible tube to DN 50 HT tube. D =50	WD 2021
---	---------



WD 2010

▶ Flexible tube connector (PE), connects two DN 50 flexible tubes together.	WD 2010
--	---------

## PE connectors

## Item No.

► PE tube connectors, made of brass. To connect PE tube to hose.



PR 1016



PR 1011



PR 1015



PR 1010

PE tube connector, 90°, 32 mm x 1" nozzle

PR 1016

PE tube connector, 90°, 32 mm x 1" inside thread

PR 1011

PE tube connector, straight, 32 mm x 1" nozzle

PR 1015

PE tube connector, straight, 32 mm x 1" inside thread

PR 1010

## WALL AND TUBE BUSHINGS



WD 110



WD 110/2



WD 110  
with 2-piece  
plate



WD 100

Seals ducts at cable and pipe penetration points through tank and building walls. Consists of a 30 mm (1.2 in.) thick rubber disk with two stainless-steel plates and clamp bolts. With integrated electric cable seal. Can be used only for „non-pressurized“ water. The designations WD 100, WD 110 refer in each case to the outside diameter of the wall duct.

► When a standard sewer pipe with DN 100 is used, the wall bushing WD 100 fits exactly into the pipe and the wall bushing WD 110 into the collar.

### Wall bushings

### Item No.

► Wall bushing WD 110 contains two bores:

- 1 x dia. 50 mm (2 in.), for cable conduit, for max. three electric cables
- 1 x dia. 32 mm (1 ¼"), for pressure or suction line (1" PE pipe)

WD 1110

► Wall bushing WD 110/2 contains six bores:

- 1 x 50 mm (2 in.) diameter, for mains water top-up pipe
- 1 x 36 mm (1.4 in.) diameter, for pressure or suction line (1" PE tube)
- 3 x 10 mm (0.4 in.) diameter for electric cable
- 1 x 6 mm (0.2 in.) diameter for electric cable

WD 2110

► Wall bushing WD 110, with 2-piece plate:

for retro-installation with existing pipework. The steel plates consist in each case of two halves, cables and tubes can be inserted through the rubber plate.

- 1 x 50 mm (2 in.) diameter, for mains water top-up pipe
- 1 x 36 mm (1.4 in.) diameter, for pressure or suction line (1" PE tube)
- 3 x 10 mm (0.4 in.) diameter for electric cable
- 1 x 6 mm (0.2 in.) diameter for electric cable

WD 2100

► Wall bushing WD 100 contains four bores:

- 1 x dia. 36 mm, for pressure or suction line (1" PE pipe)
- suitable for Optima and Sigma
- 2 x 10 mm (0.4 in.) diameter for electric cable
- 1 x 6 mm (0.2 in.) diameter for electric cable

WD 1100

## TANK SEAL

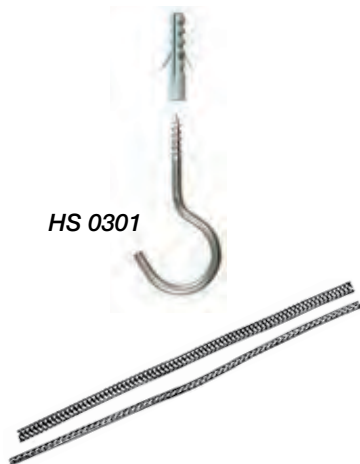


### Tank seal

### Item No.

► for tank wall thickness 5 - 16 mm (0.2 - 0.6 in.)

RS 1050



HS 0301

## Hook with screw thread

Item No.

- ▶ Stainless-steel hook, plastic expansion dowel.  
To fix pump lifting straps in concrete or plastic storage tanks.  
M6 hook

HS 0301

## Carrying and lifting strap

Item No.

- ▶ Polypropylene strap, dia. 5 and 8 mm, for attachment to submersible pumps and floating filters. Rot-proof.  
5 mm (0.2 in.) diameter, *per m*  
8 mm (0.3 in.) diameter, *per m*
- ▶ *Can be cut to required length*

TS 3001

TS 3002

## Spring safety hook

Item No.

- ▶ Stainless-steel spring safety hook,  
6 x 60 mm (0.2 x 2.4 in.)

KB 0300

## Hose connectors

Item No.

- ▶ 2-part brass hose connector, flat sealing  
1" nozzle, 1 1/4" union nut  
1" nozzle, 1" union nut  
1 1/4" nozzle, 1 1/4" union nut  
1 1/2" nozzle, 1 1/2" union nut  
2" nozzle, 2" union nut

ZV 0414

ZV 0462

ZV 0463

ZV 0464

ZV 0465



## Hose nozzles

Item No.

- ▶ 1-part brass hose nozzle, with hexagon flange  
1/2" nozzle, 1/2" outside thread  
3/4" nozzle, 3/4" outside thread  
1" nozzle, 1" outside thread  
1" nozzle, 1 1/4" outside thread  
1 1/4" nozzle, 1 1/4" outside thread  
1 1/2" nozzle, 1 1/2" outside thread  
2" nozzle, 2" outside thread

ZV 0431

ZV 0432

ZV 0433

ZV 0415

ZV 0434

ZV 0435

ZV 0436



## Nipples

Item No.

- ▶ Brass double nipple, 2 x outside threads, with hexagon flange  
1/2"  
3/4"  
1"  
1 1/4"
- ▶ Brass reducing nipple, 2 x outside threads, with hexagon flange  
1/2", 3/4"  
3/4", 1"  
1", 1 1/4"
- ▶ Brass reducing nipple, 1 x inside thread, 1 x outside thread with hexagon flange  
1/2" inside thread, 3/4" outside thread  
3/4" inside thread, 1" outside thread  
1" inside thread, 1 1/4" outside thread

ZN 0410

ZN 0409

ZN 0402

ZN 0401

ZN 0405

ZN 0404

ZN 0403

ZN 0408

ZN 0407

ZN 0406

\*1" (1 inch) = 25.4 mm





### Standpipe connectors

### Item No.

- ▶ 3-part brass connector with outside thread, flat sealing, 1" nozzle, 1" outside thread
- ▶ 3-part brass connector with inside thread, flat sealing, 1" nozzle, 1" inside thread

ZV 0451

ZV 0452

### Hose clamps

### Item No.

- ▶ Stainless-steel hose clamps, clamp width 12 mm (0.5 in.).

*Inch Clamping range*

1/2" 16 – 22 mm (0.6 – 0.9 in.)

SS 0301

3/4" 22 – 30 mm (0.9 – 1.2 in.)

SS 0302

1" 30 – 40 mm (1.2 – 1.6 in.)

SS 0303

1 1/4" 35 – 50 mm (1.4 – 1.9 in.)

SS 0304

1 1/2" 45 – 60 mm (1.8 – 2.4 in.)

SS 0305

2" 55 – 70 mm (2.2 – 2.8 in.)

SS 0306



### Drain tap

### Item No.

- ▶ Brass drain tap with hose nozzle, union nut and removable square spanner.

1/2" tap

ZA 0401

3/4" tap

ZA 0402



### Ball valves/dirt traps

### Item No.

- ▶ Brass full-bore ball valve, 1/4" drain valve and extra 1/4" connection for pressure gauge. Aluminium lever.

3/4" inside thread

ZK 0402

1" inside thread

ZK 0403

- ▶ Brass full-bore ball valve. Aluminium lever.

3/4" inside thread

ZK 0412

1" inside thread

ZK 0413

- ▶ Brass full-bore ball valve with dirt trap, stainless-steel strainer, mesh size 0.65 mm (0.03 in.), aluminium lever.

1/2" inside thread

ZK 0421

3/4" inside thread

ZK 0422

1" inside thread

ZK 0423



### Solenoid valve

### Item No.

- ▶ Brass solenoid valve, forced servo membrane control valve, operates without pressure difference. 230 V, 1.50 m (5 ft.) connecting cable, electric plug.

1/2" inside thread Nominal size 13 mm

MV 0401

3/4" inside thread Nominal size 20 mm

MV 0402

1" inside thread Nominal size 20 mm

MV 0403





### Pressure gauge

### Item No.

- ▶ Pressure gauge, 0 – 10 bar, 63 mm (2.5 in.) diameter, 1/4" brass connection at rear. For connection to ball valves ZK 0402, ZK 0403.

ZZ 9902



### Water meter

### Item No.

- ▶ Surface-mounted water meter, brass housing with 2 x 1" outside threads, counter module with transparent cover, rotatable through 360°, for horizontal or vertical installation. Officially approved and calibrated.

WA 9800

- ▶ Connection for water meter, brass screw connectors, 1" union nut, 3/4" outside thread.  
2 units

WA 9801

- ▶ Connection for water meter, red brass screw connector, 1" union nut, 1/2" inside thread.  
1 unit

WA 9802

## CABLE COUPLING SETS



Cable coupling set IP 68



Cable coupling set (5-pin)

Cable coupling sets for water-pressure-tight connection of flexible electric cables in rainwater storage tanks, e.g. for submersible pump installations.

- ▶ Degree of protection IP 68 for long-term submersed application.

### Cable coupling sets IP 68

### Item No.

- ▶ Cable coupling set with electric plug and coupling, each with sealed cover

KV 3001

- ▶ Cable coupling set (5-pin) with terminal block

KV 3000

- ▶ Cable coupling set (3-pin) with terminal block

KV 4000

### Accessories

### Item No.

- ▶ Flexible cable 3 x 1.5 mm<sup>2</sup>, specially for cable coupling sets, - can be cut to length on request, price per metre

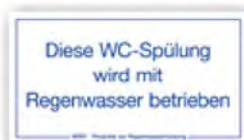
KV 3005

## LABELS

For proper labelling of rainwater pipework and system components (according to DIN 1988). To ensure clear identification and prevent cross connections during expansion, modification or repair work.



Label for utility room



Label for toilet

### Labelling set

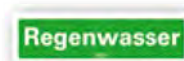
### Item No.

- ▶ Labelling set (in German), contains all the labels required for a household. Consists of:  
1 unit utility room label  
5 units toilet label  
5 units extraction point label  
10 units rainwater label  
10 m (32.8 ft.) underground pipework tape

ZS 5000



Water extraction point label



Rainwater label



Underground pipework tape

# TERMS OF SALES, SUPPLY AND PAYMENT

## 1. General

Our supplies are solely based on the following terms of sales, supply and payment. Additions of a buyer only become effective with our explicit agreement.

## 2. Offer, conclusion of a contract, writing

2.1. All terms of a contract have to be specified finally in writing. Verbal special agreements do not become part of the contract.

2.2. Our offers are always without obligation. After the buyer places the order, the contract will be reached by the supply and/or by our written confirmation of order, if desired by the buyer.

## 3. Prices, terms of delivery

3.1. Supplies for which not expressly fixed prices are agreed upon, are charged in Euros at the list price which is valid on the day of the delivery.

3.2. Our prices and the supplies are ex works Kefenrod plus the value added tax prescribed by law. Packing and transport costs and other additional expenses are charged to the buyer.

## 4. Terms of payment, compensation, retention

4.1. Our invoices have to be paid within 30 days without any discount.

4.2. If the fixed payment periods are exceeded, we are entitled to claim default interest starting from first day of delay at rate of 5% over the respective basic interest rate of the European central bank and expenses without proof. The proof of further damage remains reserved to us.

4.3. Bills of exchange are taken by us only with a special agreement. All expenses and other costs are charged to the buyer. The taking in of bills of exchange and cheques takes place always only in execution.

4.4. If a substantial degradation of the financial circumstances of the buyer happens, we are entitled to refuse further supplies until all of our claims whether due or not, are paid or security for them is given.

4.5. If a substantial degradation of the financial circumstances of the buyer happens, we are entitled to quit all credits of goods and require the immediate payment of all unpaid goods deliveries. The same is valid if the buyer stops his payments, moves for a judicial agreement, files for bankruptcy proceedings, or if he asks for an agreement out of court. The same is valid if the buyer stops his payments, moves for a judicial agreement, files for bankruptcy proceedings, or if he asks for an agreement out of court.

4.6. The buyer can charge or withhold payments only on undisputed or juridical stated demands. In case of the refusal of payments the demand must be based on the same contractual relation.

## 5. Delivery and delivery times

5.1. Periods and dates for delivery are only approximate. We try to deliver as punctually as possible. No claim for damages is entitled to the buyer because of late supply. The execution of delivery presupposes the punctual issue of all necessary permissions and releases as well as the punctual receipt of all documents to be supplied by the buyer. If these conditions are not fulfilled without justifiable reasons, periods and dates extend accordingly.

5.2. The period and/or the date are considered set if the shipment is delivered to the dispatch within the agreed period and/or to the agreed date. If dispatching is delayed for reasons of the buyer's responsibility, the period is considered set if we announced the shipment is ready for delivery to the buyer within the agreed period.

5.3. If the non-compliance of one period or date is due to force majeure or to other unforeseeable obstacles concerning our factory, which are not justifiable from our side or which took place and/or we received knowledge of the situation after the contract conclusion, then the period and/or the date extend appropriately. This is valid also in cases of unforeseeable events, which have an effect on the enterprises of our pre-suppliers and which neither of them nor from us has to be justified.

5.4. If for reasons, which are not due to our responsibility, the delivery does not take place in time or the execution of the delivery is interrupted, disturbed or made more difficult, we can demand replacement of our costs which may result from this.

5.5. Partial deliveries are permissible if they are not expressly contradicted.

## 6. Guarantee

6.1. We guarantee that our deliveries are faultless at the time the transition of the risk in the sense of the legal requirements.

6.2. The rebuke of defect prescribed due to §§ 377 and 378 HGB (duty for investigation and rebuke) is to report in writing immediately, at the latest within 10 days after receipt of the goods at the place of destination.

6.3. In case of a rebuke of defect reported in time or a complaint and an entitled protest the defect products or not as agreed delivered commodities are taken back and replaced by perfect commodities at our expense or, due to our choice, the defects are repaired at our expense.

6.4. In case of absence of an assured characteristic the claim for damages is limited on the commodity value, unless rough fault or intent is given.

6.5. Further claims of guarantee in the sense of the legal requirements are excluded. In the context of the warranty in particular any costs of freight, packing and/or of the installation of the delivered articles are charged to the buyer.

6.6. Goods which are returned for reasons for which WISY bears no responsibility can be accepted after inspection of the returned goods only if the products are unused and are in a visually and technically perfect condition. WISY will always charge 30% of the invoice amount to cover the costs incurred in receiving returned goods.

## 7. Retention of title

We maintain possession of the sold goods (retention commodities) until complete payment is received, including future demands and additional expenses incurred from the current business relation with the buyer.

The buyer is authorized to resell and/or to process the retention commodities following proper business guidelines. For security purposes, the claims against others as a result of reselling are handed over to us by the buyer in total or at the height of the share of our co-ownership. For security purposes - in case of a delay of payment, a termination of payment, a judicial agreement or bankruptcy proceedings - claims against others from the resale at the height of the original invoice amounts are handed over to us, without demand for a special agreement in individual cases.

## 8. Folders, designs, models

8.1. The reproduction of our folders and designs as well as the rebuilding of our models, also partially, is only permitted with our written permission. For designs, models and other documents, excluded folders, we reserve ourselves the property and copyright. The data in the folders, designs and models concerning performances, load capacities, dimensions, weights and similar data are non-committal approximate values. We reserve ourselves modifications in measurement and construction due to further technical development.

8.2. On the date of publication of the valid price list, all previous price lists are fully superseded and made invalid with respect to their pricing, technical descriptions, explanations and quantified data. Only the currently valid price list is legally valid with respect to the price list contents stated above.

## 9. Place of delivery, area of jurisdiction

9.1. The international competence of the German courts is agreed. Place of delivery is Kefenrod, place of jurisdiction is Friedberg. We reserve ourselves however the right to file a suit at the place of the buyer.

9.2. It is valid per the right of the Federal Republic of Germany.

## 10. Final clauses

10.1. In case of legal inefficacy of individual points, the contract remains obligatory in its remaining parts. Any ineffective regulation has to be replaced by new regulations, which join the desired economic success as good as possible.

10.2. All contractual agreements require writing. Confirmed correspondence is sufficient.

10.3. In case of doubt German Original Text shall prevail.

March 1st, 2017

## REFERENCES



### „Kiara Heights“ residential tower, Kuala Lumpur

Rainwater is removed by siphonic drainage from a roof area of 9,500 m<sup>2</sup> in size and conveyed down to the level 4 basement. Here, it is filtered by six WFF 300 vortex fine filters and stored in a 220 m<sup>3</sup> underground tank. It is used to flush toilets and irrigate the gardens.



### Haus der deutschen Wirtschaft („House of German Economy“), Berlin

The initiative shown by the central associations of German economy to invest in rainwater harvesting and rainwater utilisation is exemplary. After being cleansed in two Vortex Fine Filter WFF 300 the collected rainwater gets stored in a 280 m<sup>3</sup> cistern and then used to flush the toilets and to guarantee the supply of water for the fire sprinkler system.





## **WISY AG**

**Filtration | Building Services | Rainwater**

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Germany

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**Made in Germany –  
With WISY you choose quality and  
long lasting utility!**



## **Appendix F**

### **Stormceptor Design Sheet**

Stormceptor®EF Sizing Report

<b>STORMCEPTOR®</b>		<b>ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION</b>		02/16/2023														
Province:	Ontario	Project Name:	16 18 Mill St															
City:	Georgetown	Project Number:	60754															
Nearest Rainfall Station:	TORONTO INTL AP	Designer Name:	Kent Campbell															
Climate Station Id:	6158731	Designer Company:	Forterra Pipe & Products															
Years of Rainfall Data:	20	Designer Email:	kent.campbell@forterrabp.com															
Site Name:	EFO	Designer Phone:	519-622-7574															
Drainage Area (ha):	0.21	EOR Name:	Muhammad is															
% Imperviousness:	100.00	EOR Company:																
Runoff Coefficient 'c': 0.90		EOR Email:																
Particle Size Distribution:	Fine	EOR Phone:																
Target TSS Removal (%):	80.0	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;"><b>Net Annual Sediment (TSS) Load Reduction Sizing Summary</b></th> </tr> <tr> <th style="width: 50%;">Stormceptor Model</th> <th style="width: 50%;">TSS Removal Provided (%)</th> </tr> </thead> <tbody> <tr> <td style="background-color: yellow;">EFO4</td> <td style="background-color: yellow;">93</td> </tr> <tr> <td>EFO6</td> <td>98</td> </tr> <tr> <td>EFO8</td> <td>99</td> </tr> <tr> <td>EFO10</td> <td>100</td> </tr> <tr> <td>EFO12</td> <td>100</td> </tr> </tbody> </table>			<b>Net Annual Sediment (TSS) Load Reduction Sizing Summary</b>		Stormceptor Model	TSS Removal Provided (%)	EFO4	93	EFO6	98	EFO8	99	EFO10	100	EFO12	100
<b>Net Annual Sediment (TSS) Load Reduction Sizing Summary</b>																		
Stormceptor Model	TSS Removal Provided (%)																	
EFO4	93																	
EFO6	98																	
EFO8	99																	
EFO10	100																	
EFO12	100																	
Required Water Quality Runoff Volume Capture (%):	90.00																	
Estimated Water Quality Flow Rate (L/s):	5.88																	
Oil / Fuel Spill Risk Site?	Yes																	
Upstream Flow Control?	No																	
Peak Conveyance (maximum) Flow Rate (L/s):																		
Site Sediment Transport Rate (kg/ha/yr):																		
<p><b>Recommended Stormceptor EFO Model: EFO4</b></p> <p><b>Estimated Net Annual Sediment (TSS) Load Reduction (%): 93</b></p> <p><b>Water Quality Runoff Volume Capture (%): &gt; 90</b></p>																		



## Stormceptor<sup>®</sup> EF Sizing Report

### THIRD-PARTY TESTING AND VERIFICATION

► **Stormceptor<sup>®</sup> EF and Stormceptor<sup>®</sup> EFO** are the latest evolutions in the Stormceptor<sup>®</sup> oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** and performance has been third-party verified in accordance with the **ISO 14034 Environmental Technology Verification (ETV)** protocol.

### PERFORMANCE

► **Stormceptor<sup>®</sup> EF and EFO** remove stormwater pollutants through gravity separation and floatation, and feature a patent-pending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including high-intensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterways.

### PARTICLE SIZE DISTRIBUTION (PSD)

► The **Canadian ETV PSD** shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5

Stormceptor®EF Sizing Report

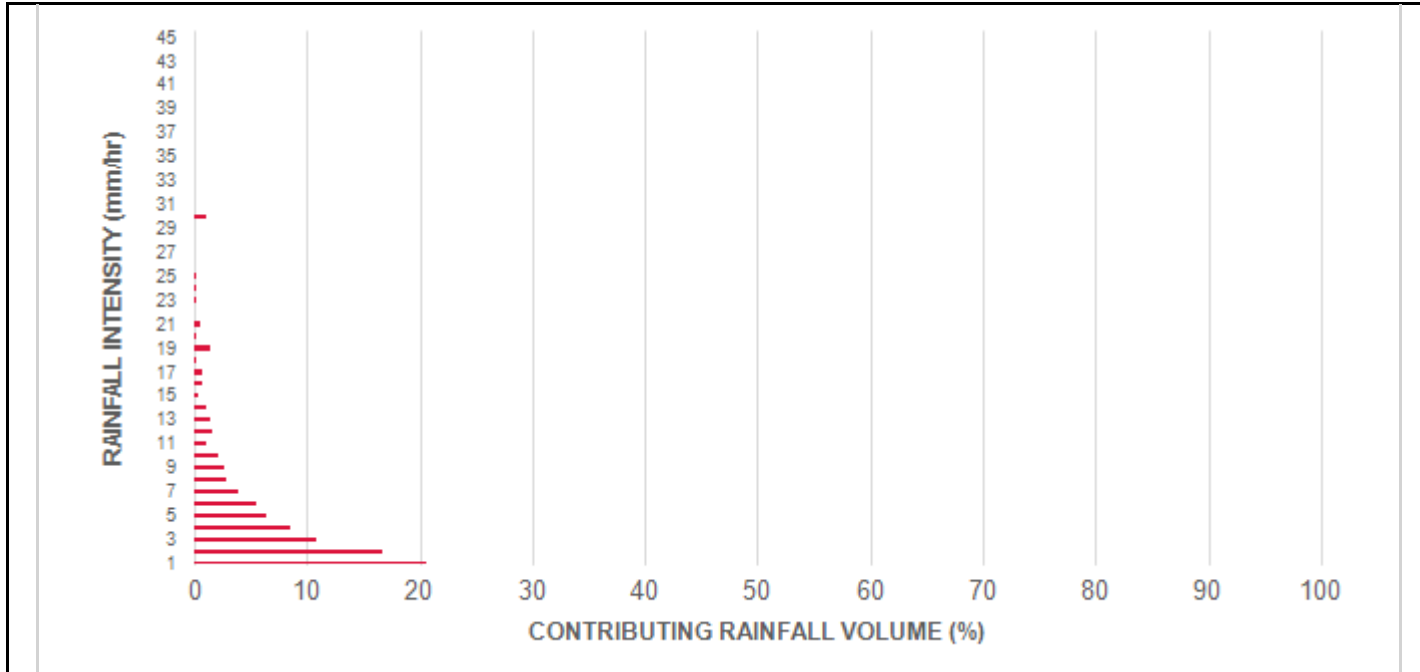
Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m <sup>2</sup> )	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.5	8.5	8.5	0.26	16.0	13.0	100	8.5	8.5
1	20.6	29.1	0.53	32.0	26.0	100	20.6	29.1
2	16.8	45.9	1.05	63.0	53.0	100	16.8	45.9
3	10.8	56.7	1.58	95.0	79.0	100	10.8	56.7
4	8.5	65.2	2.10	126.0	105.0	96	8.1	64.8
5	6.4	71.6	2.63	158.0	131.0	92	5.9	70.7
6	5.5	77.0	3.15	189.0	158.0	89	4.9	75.6
7	3.9	81.0	3.68	221.0	184.0	86	3.4	79.0
8	2.9	83.9	4.20	252.0	210.0	83	2.4	81.4
9	2.7	86.5	4.73	284.0	236.0	82	2.2	83.5
10	2.2	88.7	5.25	315.0	263.0	80	1.7	85.3
11	1.0	89.7	5.78	347.0	289.0	79	0.8	86.1
12	1.7	91.3	6.31	378.0	315.0	78	1.3	87.4
13	1.4	92.8	6.83	410.0	342.0	77	1.1	88.4
14	1.0	93.7	7.36	441.0	368.0	76	0.7	89.2
15	0.3	94.0	7.88	473.0	394.0	74	0.2	89.4
16	0.8	94.8	8.41	504.0	420.0	73	0.6	90.0
17	0.8	95.7	8.93	536.0	447.0	72	0.6	90.6
18	0.2	95.8	9.46	567.0	473.0	71	0.1	90.7
19	1.5	97.3	9.98	599.0	499.0	69	1.0	91.7
20	0.2	97.5	10.51	631.0	525.0	68	0.1	91.9
21	0.6	98.2	11.03	662.0	552.0	67	0.4	92.3
22	0.0	98.2	11.56	694.0	578.0	66	0.0	92.3
23	0.2	98.4	12.08	725.0	604.0	65	0.1	92.4
24	0.2	98.6	12.61	757.0	631.0	64	0.2	92.6
25	0.2	98.9	13.14	788.0	657.0	64	0.2	92.7
30	1.1	100.0	15.76	946.0	788.0	63	0.7	93.5
35	0.0	100.0	18.39	1103.0	919.0	62	0.0	93.5
40	0.0	100.0	21.02	1261.0	1051.0	60	0.0	93.5
45	0.0	100.0	23.64	1419.0	1182.0	57	0.0	93.5
<b>Estimated Net Annual Sediment (TSS) Load Reduction =</b>								<b>93 %</b>

Climate Station ID: 6158731 Years of Rainfall Data: 20

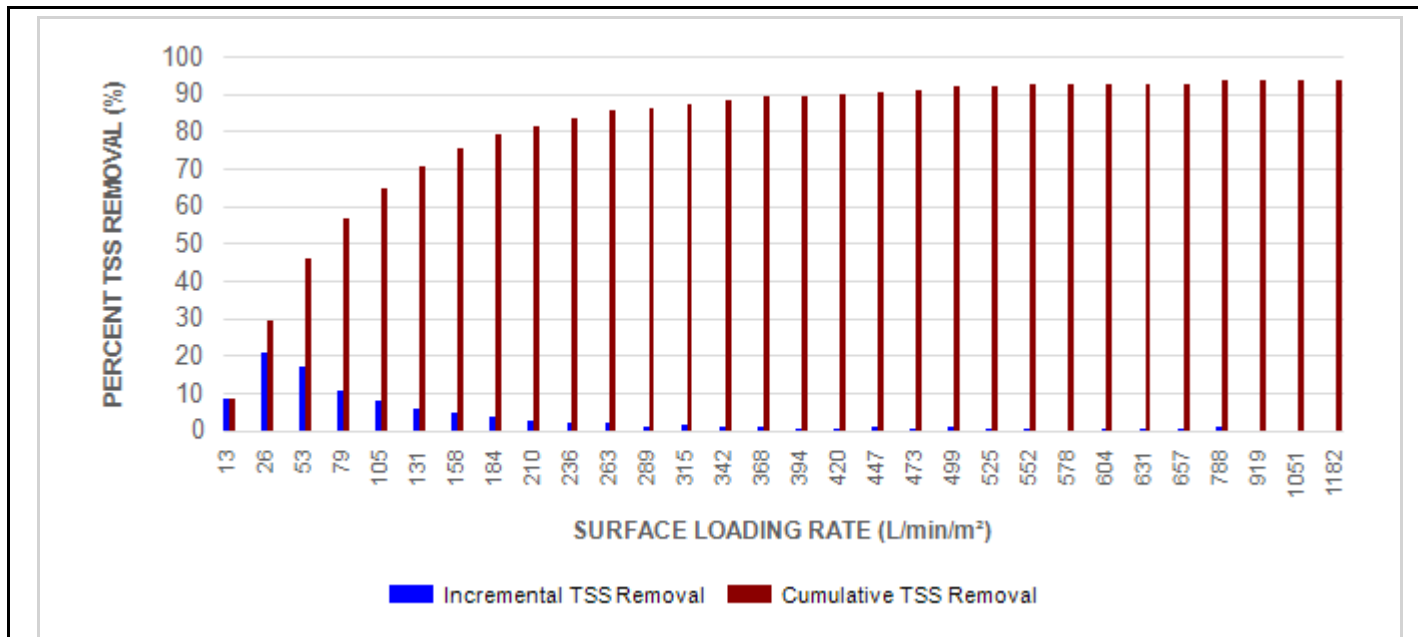


Stormceptor®**EF** Sizing Report

**RAINFALL DATA FROM TORONTO INTL AP RAINFALL STATION**



**INCREMENTAL AND CUMULATIVE TSS REMOVAL FOR THE RECOMMENDED STORMCEPTOR® MODEL**



Stormceptor® EF Sizing Report

Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

**SCOUR PREVENTION AND ONLINE CONFIGURATION**

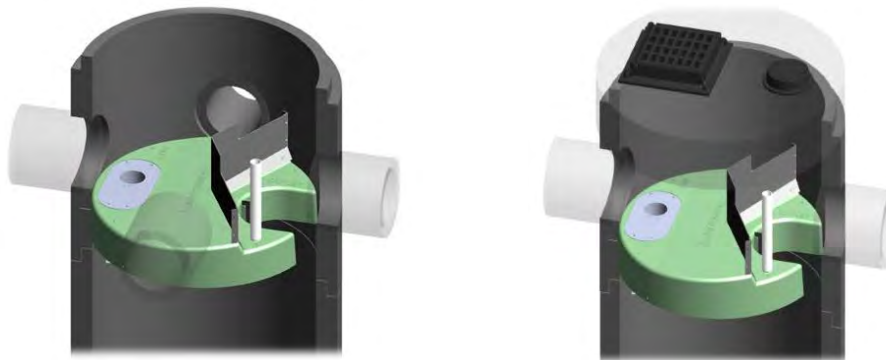
► Stormceptor® EF and EFO feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

**DESIGN FLEXIBILITY**

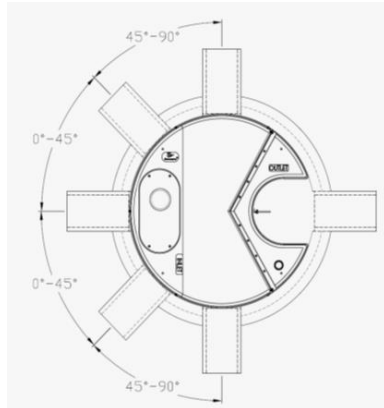
► Stormceptor® EF and EFO offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

**OIL CAPTURE AND RETENTION**

► While Stormceptor® EF will capture and retain oil from dry weather spills and low intensity runoff, Stormceptor® EFO has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid re-entrainment testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.



## Stormceptor® EF Sizing Report



### INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.

0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.

45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

### HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

### Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft³)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

\*Increased sump depth may be added to increase sediment storage capacity

\*\* Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft³)

Feature	Benefit	Feature Appeals To
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

### STANDARD STORMCEPTOR EF/EFO DRAWINGS

For standard details, please visit <http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef>

### STANDARD STORMCEPTOR EF/EFO SPECIFICATION

For specifications, please visit <http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef>



## Stormceptor<sup>®</sup> EF Sizing Report

# STANDARD PERFORMANCE SPECIFICATION FOR “OIL GRIT SEPARATOR” (OGS) STORMWATER QUALITY TREATMENT DEVICE

### PART 1 – GENERAL

#### 1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

#### 1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program’s **Procedure for Laboratory Testing of Oil-Grit Separators**

#### 1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

### PART 2 – PRODUCTS

#### 2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The minimum sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1	4 ft (1219 mm) Diameter OGS Units:	1.19 m <sup>3</sup> sediment / 265 L oil
	6 ft (1829 mm) Diameter OGS Units:	3.48 m <sup>3</sup> sediment / 609 L oil
	8 ft (2438 mm) Diameter OGS Units:	8.78 m <sup>3</sup> sediment / 1,071 L oil
	10 ft (3048 mm) Diameter OGS Units:	17.78 m <sup>3</sup> sediment / 1,673 L oil
	12 ft (3657 mm) Diameter OGS Units:	31.23 m <sup>3</sup> sediment / 2,476 L oil



## Stormceptor® EF Sizing Report

### PART 3 – PERFORMANCE & DESIGN

#### 3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

#### 3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m<sup>2</sup> to 1400 L/min/m<sup>2</sup>, and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m<sup>2</sup> and 1400 L/min/m<sup>2</sup> shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m<sup>2</sup> shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m<sup>2</sup>. No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m<sup>2</sup>.

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m<sup>2</sup> shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m<sup>2</sup>, and shall be calculated using a simple proportioning formula, with 1400 L/min/m<sup>2</sup> in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m<sup>2</sup>.

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

#### 3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in

## Stormceptor<sup>®</sup> EF Sizing Report

accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators**.

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m<sup>2</sup>.

### 3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of completed third-party Light Liquid Re-entrainment Simulation Testing in accordance with the Canadian ETV **Program's Procedure for Laboratory Testing of Oil-Grit Separators**, with results reported within the Canadian ETV or ISO 14034 ETV verification. This re-entrainment testing is conducted with the device pre-loaded with low density polyethylene (LDPE) plastic beads as a surrogate for light liquids such as oil and fuel. Testing is conducted on the same OGS unit tested for sediment removal to assess whether light liquids captured after a spill are effectively retained at high flow rates.

3.4.1 For an OGS device to be an acceptable stormwater treatment device on a site where vehicular traffic occurs and the potential for an oil or fuel spill exists, the OGS device must have reported verified performance results of greater than 99% cumulative retention of LDPE plastic beads for the five specified surface loading rates (ranging 200 L/min/m<sup>2</sup> to 2600 L/min/m<sup>2</sup>) in accordance with the Light Liquid Re-entrainment Simulation Testing within the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators**. However, an OGS device shall not be allowed if the Light Liquid Re-entrainment Simulation Testing was performed with screening components within the OGS device that are effective at retaining the LDPE plastic beads, but would not be expected to retain light liquids such as oil and fuel.